LOWER WILLAMETTE GROUP

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

FINAL

March 28, 2013

Produced for The Lower Willamette Group and
United States Environmental Protection Agency

Produced by Kennedy/Jenks Consultants

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LIST OF ACRONYMS

ACG	analytical concentration goal
ADAF	age-dependent adjustment factor
ALM	Adult Lead Methodology
AOPC	Area of Potential Concern
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
BEHP	bis(2-ethylhexyl)phthalate
BERA	baseline ecological risk assessment
BHHRA	baseline human health risk assessment
Cal EPA	California Environmental Protection Agency
CDC	Centers for Disease Control
CDI	chronic daily intake
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
cm/hr	centimeters per hour
CNS	central nervous system
COI	contaminant[1] of interest
COPC	contaminant[1] of potential concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CRITFC	Columbia River Inter-tribal Fish Commission
CSM	conceptual site model
CT	central tendency
DA_{event}	absorbed dose per event
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DDx	DDD, DDE, and DDT
delta-HCH	delta-hexachlorocyclohexane
DEQ	Oregon Department of Environmental Quality
DL	detection limit
DQO	data quality objective
E	east
EPA	United States Environmental Protection Agency
EPC	exposure point concentration
EPD	effective predictive domain
FS	feasibility study
g/day	grams per day
GI	gastrointestinal
GSI	Groundwater Solutions, Inc.

[1] Prior deliverables and some of the tables and figures attached to this document may use the term "Chemical of Interest" or "Chemical of Potential Concern", which as the same meaning as "Contaminant of Interest" or "Contaminant of Potential Concern", respectively, and refers to "contaminants" as defined in 42 USC 9601(33).

HEAST	Health Effects Assessment Summary Table
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IEUBK	Integrated Exposure Uptake Biokinetic model3
IRAF	Infant Risk Adjustment Factor
IRIS	Integrated Risk Information System
ISA	initial study area
K_p	dermal permeability coefficient
L/day	liters per day
LADI	lifetime average daily intake
LOAEL	lowest observed adverse effects level
LWG	Lower Willamette Group
LWR	Lower Willamette River
µg/dL	microgram per deciliter
µg/kg	microgram per kilogram
µg/L	microgram per liter
MCL	Maximum Contaminant Level
MCPP	2-(4-Chloro-2-methylphenoxy)propanoic acid
mg/kg	milligram per kilogram
ml/day	milliliters per day
ml/hr	milliliters per hour
MRL	method reporting limit
NHANES	National Health and Nutrition Evaluation Survey
NLM	National Library of Medicine
OAR	Oregon Administrative Rules
ODFW	Oregon Department of Fish and Wildlife
ODHS	Oregon Department of Human Services
pg/g	picograms per gram
PAH	polycyclic aromatic hydrocarbon
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
PEF	potency equivalency factor
PPRTV	Provisional Peer Reviewed Toxicity Value
PRG	preliminary remediation goal
RBC	risk-based concentration
RfD	reference dose
RG	remediation goal
RI/FS	remedial investigation/feasibility study
RM	river mile
RME	reasonable maximum exposure
RSL	Regional Screening Level
SCRA	site characterization and risk assessment
SF	slope factor
STSC	Superfund Health Risk Technical Support Center

SVOC	semi-volatile organic compound
TCDD	tetrachlorodibenzo-p-dioxin
TEF	toxic equivalency factor
TEQ	toxic equivalent
TZW	transition zone water
UCL	upper confidence limit
USDA	United States Department of Agriculture
VOC	volatile organic compound
W	west
WHO	World Health Organization
XAD	XAD-2 Infiltrex™ 300 system

GLOSSARY

Term	Definition
bioaccumulation	the accumulation of a substance in an organism
bioconcentration factor	the concentration of a chemical in the tissues of an organism divided by the concentration in water
carcinogenic polycyclic aromatic hydrocarbons	cPAHs represent the cumulative risks from benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
central tendency	a measure of the middle or expected value of a dataset
contaminant of concern	the subset of contaminants[2] of potential concern with exposure concentrations that exceed EPA target risk levels
contaminant of interest	contaminant[2] detected in the Study Area for all exposure media (i.e., surface water, transition zone water, sediment, and tissue)
contaminant of potential concern	the subset of contaminants[2] of interest with maximum detected concentrations that are greater than screening levels
composite sample	an analytical sample created by mixing together two or more individual samples; tissue composite samples are composed of two or more individual organisms, and sediment composite samples are composed of two or more individual sediment grab samples
conceptual site model	a description of the links and relationships between chemical sources, routes of release or transport, exposure pathways, and the human receptors at a site
congener	a specific chemical within a group of structurally related chemicals (e.g., PCB congeners)
human health risk assessment	a process to evaluate the likelihood that adverse effects to human health might occur or are occurring as a result of exposure to one or more contaminants
dose	the quantity of a contaminant taken in or absorbed at any one time, expressed on a body weight-specific basis; units are generally expressed as mg/kg bw/day

[2] Prior deliverables and some of the tables and figures attached to this document may use the terms "chemical of concern", "chemical of interest", or "chemical of potential concern", which has the same meaning as "contaminant of concern", "contaminant of interest", or "contaminant of potential concern", respectively, and refers to "contaminants" as defined in 42 USC 9601(33).

Term	Definition
empirical data	data quantified in a laboratory
exposure assessment	the part of a risk assessment that characterizes the chemical exposure of a receptor
exposure pathway	physical route by which a contaminant moves from a source to a human receptor
exposure point	the location or circumstances in which a human receptor is assumed to contact a contaminant
exposure point concentration	the value that represents the estimated concentration of a contaminant at the exposure point
exposure area	size of the area through which a receptor might come in contact with a contaminant as determined by human uses
hazard quotient	the quotient of the exposure level of a chemical divided by the toxicity value based on noncarcinogenic effects (i.e., reference dose)
predicted data	data not quantified in a laboratory but estimated using a model
reasonable maximum exposure	the maximum exposure reasonably expected to occur in a population
receptor	The exposed individual relative to the exposure pathway considered
risk	the likelihood that a specific human receptor experiences a particular adverse effect from exposure to contaminants from a hazardous waste site; the severity of risk increases if the severity of the adverse effect increases or if the chance of the adverse effect occurring increases. Specifically for carcinogenic effects, risk is estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. Specifically for noncarcinogenic (systemic) effects, risk is not expressed as a probability but rather is evaluated by comparing an exposure level over a period of time to a reference dose derived for a similar exposure period.
risk characterization	a part of the risk assessment process in which exposure and effects data are integrated in order to evaluate the likelihood of associated adverse effects

Term	Definition
slope factor	toxicity value for evaluating the probability of an individual developing cancer from exposure to contaminant levels over a lifetime
Study Area	the portion of the Lower Willamette River that extends from River Mile 1.9 to River Mile 11.8
toxic equivalency factor	numerical values developed by the World Health Organization that quantify the toxicity of dioxin, furan, and dioxin-like PCB congeners relative to 2,3,7,8-tetrachlorodibenzodioxin
transition zone water	Pore water associated with the upper layer of the sediment column; may contain both groundwater and surface water
uncertainty	a component of risk resulting from imperfect knowledge of the degree of hazard or of its spatial and temporal distribution
upper confidence limit on the mean	a high-end statistical measure of central tendency
variability	a component of risk resulting from true heterogeneity in exposure variables or responses, such as dose-response differences within a population or differences in contaminant levels in the environment

EXECUTIVE SUMMARY

This document presents the baseline human health risk assessment (BHHRA) for the Portland Harbor Superfund Site (Site). The BHHRA, which was conducted as part of the Remedial Investigation Report (RI Report) being conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund), presents an analysis of potential for adverse health effects associated with both current or potential future human exposures to hazardous substance releases at Portland Harbor in the absence of any actions to control or mitigate these releases. Portland Harbor generally refers to a heavily industrialized reach of the Lower Willamette River (LWR) between river mile (RM) 0 and RM 11.8, the extent of the navigation channel. The approximate 10-mile portion of Portland Harbor from RM 1.9 to 11.8 is referred to as the Study Area, which is the focus of the BHHRA. The results of the BHHRA are used to assist in determining the need for remedial action, provide a basis for determining concentrations of chemicals that can remain in place and still be protective of public health, and to provide a basis for comparing the effectiveness of various remedial alternatives.

The overall process used for the BHHRA is based on EPA guidance and followed the approach documented in the Programmatic Work Plan and subsequent interim deliverables as well as numerous discussions, directives, and agreements with EPA, Oregon Department of Environmental Quality (DEQ), Oregon Department of Human Services (ODHS), and Native American Tribes.

As noted above, the Superfund program uses risk assessment as a tool to evaluate the likelihood and degree of exposure to hazardous substance released at Portland Harbor, and the adverse health effect associated with those exposures. The Superfund risk assessment process is comprised of the following four basic steps: 1) Data collection and analysis; 2) Exposure assessment; 3) Toxicity assessment, and 4) Risk characterization. Although the Portland Harbor BHHRA contains a separate assessment of uncertainties, this discussion should be considered an integral part of each of the four steps.

ES.1 DATA COLLECTION AND ANALYSIS

The dataset used in the BHHRA consists of surface sediment (defined as 0 to 30.5 centimeters in depth), surface water, groundwater seep water, clam and crayfish tissue, and fish tissue. Although the BHHRA focused on the Study Area, data from outside the Study Area, from downstream to RM 1.0, including Multnomah Channel, and upstream to RM 12.2, were also used to assess risk.

ES.2 EXPOSURE ASSESSMENT

Currently or potentially exposed populations were identified based on consideration of both current and potential future uses of the Study Area, and include populations

who may be exposed to contamination though a variety of activities. The specific populations and exposure pathways evaluated were:

- Dockside workers — direct exposure via incidental ingestion and dermal contact with beach sediments.
- In-water workers — direct exposures to in-water sediment.
- Transients — direct exposure to beach sediment, surface water for bathing and drinking water scenarios, and groundwater seeps.
- Recreational beach users — direct exposure to beach sediment and surface water while for swimming.
- Tribal fishers — direct exposure to beach or in-water sediments, and consumption of migratory and resident fish.
- Recreational and subsistence fishers — direct exposure to beach or in-water sediments, consumption of resident fish, and consumption of shellfish.
- Divers — direct exposure to in-water sediment and surface water.
- Domestic water user — direct exposure to untreated surface water potentially used as a drinking water source in the future.
- Infant consumption of human breast milk — exposure to certain persistent and bioaccumulative contaminants (polychlorinated biphenyls [PCBs], dichlorodiphenyldichloroethane, dichlorodiphenyldichloroethylene, and dichlorodiphenyltrichloroethane [DDx] compounds, dioxins and furans, and polybrominated diphenyl ethers [PBDEs]) via nursing infants of dockside and in-water workers, divers, and recreational, subsistence, and tribal fishers

Exposure to beach sediment was assessed per beach, and exposure to groundwater seeps were assessed per seep. Exposure to in-water sediment, surface water, and fish and shellfish tissue were assessed on both localized and Study Area-wide scales.

As required by EPA policy, the exposure assessment evaluated a reasonable maximum exposure (RME), which is defined as the maximum exposure that is reasonably expected to occur. In addition, estimates of central tendency (CT), which are intended to represent average exposures, were also evaluated. Assumptions about each population were used to select exposure parameters to calculate the pathway-specific chemical intakes. As site-specific values are not available to describe potential exposures for each populations and pathways, default values representative of the larger U.S. population were used. Where default values are not available, best professional judgment was used based on likely activity patterns.

ES.3 TOXICITY ASSESSMENT

The toxicity assessment is an evaluation of both the type of adverse effects resulting from exposure to a chemical, as well as a quantitative estimate of the specific exposure, or dose at which adverse effects might occur. In the Superfund program, two types of health effects are evaluated; the incremental risk of developing cancer, and non-cancer health effects, such as developmental disorders and learning problems, or other health effects specific to certain organs. Cancer and noncancer toxicity values are used to assess the likelihood of a specific adverse health outcome. Cancer risk is expressed as a probability, and the cancer potency is known as the cancer slope factor. The non-cancer health hazard is expressed as the ratio of the estimated chemical intake, or dose, to a reference dose (RfD). The chronic RfD is an exposure representing an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure, including sensitive subgroups, that is likely to be without appreciable health risks over a lifetime.

ES.4 RISK CHARACTERIZATION

Both cancer risks and noncancer hazards were evaluated in the BHHRA. To characterize potential noncancer hazard, the hazard quotient (HQ) was calculated as ratio of the estimated chemical intake, or dose, as described in the exposure assessment, to the chemical-specific RfD. The HQs were then summed to yield cumulative hazard indices (HIs). When the HI is less than 1, the estimated exposure is unlikely to result in adverse health effects. Where the HI is greater than 1, endpoint-specific HIs were calculated. This is done because the additive effects of exposure to more than one chemical are most appropriately considered when they cause similar health effects. Cancer risks are calculated as the product of the estimated dose and the cancer slope factor, resulting in an estimate of the incremental probability that an individual will develop cancer over a lifetime due to exposure to the chemical.

CERCLA actions are generally warranted where the baseline risk assessment indicates that a cumulative site risk to an individual using RME assumptions for either current or future land use is greater than a 1×10^{-4} lifetime excess cancer risk, or the HI is greater than 1.

ES.5 MAJOR FINDINGS

The following presents the major findings of the BHHRA:

- Risks resulting from the consumption of fish or shellfish are generally orders of magnitude higher than risk resulting from direct contact with sediment, surface water, or seeps. Risks and hazards from fish and shellfish consumption exceed the EPA point of departure for cancer risk of 1×10^{-4} and target HI of 1 when evaluated on a harbor-wide basis, and when evaluated on the smaller spatial scale by river mile.

- Consumption of resident fish species consistently results in the greatest risk estimates. Evaluated harbor-wide, the estimated RME cancer risks are 4×10^{-3} and 1×10^{-2} for recreational and subsistence fishers, respectively. Evaluated on a river mile scale, it is only at RM 5, where the estimated RME risk for recreational fishers is 9×10^{-5}, that the risk from consumption of resident fish is less than 1×10^{-4}. River miles associated with the highest estimated risk estimates are RM 4, RM 7, RM 11, and in Swan Island Lagoon. Evaluated harbor-wide and assuming a diet that consisted of migratory fish in addition to resident fish species, the estimated RME cancer risk for tribal consumers is 1×10^{-2} assuming fillet-only consumption, and 2×10^{-2} assuming whole-body consumption.

- Noncancer hazard estimates for consumption of resident fish species are greater than 1 at all river miles. Evaluated harbor wide, the estimated RME HI is 300 and 1,000 for recreational and subsistence fisher, respectively. The highest hazard estimates are at RM 4, RM 7, RM 11, and in Swan Island Lagoon. The highest noncancer hazards are associated with nursing infants of mothers who consume resident fish from Portland Harbor. When fish consumption is evaluated on a harbor-wide basis, the estimated RME HI is 4,000 and 10,000 for infants of recreational and subsistence fishers, respectively. Evaluated on a harbor-wide scale, the estimated RME HI for tribal consumers of migratory and resident fish is 600 assuming fillet-only consumption, and 800 assuming whole-body consumption. The corresponding HI estimates for nursing infants of mothers who consume fish are 8,000 and 9,000 respectively, assuming maternal consumption of fillet or whole-body fish.

- PCBs are the primary contributor to risk from fish consumption harbor wide. When evaluated on a river mile scale, dioxins/furans are a secondary contributor to the overall risk and hazard estimates. PCBs are the primary contributors to the noncancer hazard to nursing infants, primarily because of the bioaccumulative properties of PCBs and the susceptibility of infants to the developmental effects associated with exposure to PCBs.

- The greatest source of uncertainty in the risk and hazard estimates includes the lack of good site-specific information about consumption of resident fish from Portland Harbor. Because tribal fish consumption practices were evaluated assuming a combined diet consisting of both resident and migratory fish, it is not clear to what degree contamination in Portland Harbor contributes to those estimated risks. In addition, it is important to remember that the noncancer hazard estimates presented in the BHHRA are not predictions of specific disease, and the cancer estimates represent upper-bound values, and the EPA is reasonably confident that the actual cancer risks will not exceed the estimated risks presented in the BHHRA.

1.0 INTRODUCTION

This Baseline Human Health Risk Assessment (BHHRA) presents an evaluation of risks to human health at the Portland Harbor Superfund Site (Site) in Portland, Oregon. This BHHRA is intended to provide an analysis of baseline risks and help determine the need for action at the Site, and to provide risk managers with an understanding of the actual and potential risks to human health posed by the site and any uncertainties associated with the assessment.

Portland Harbor encompasses the Lower Willamette River (LWR) in Portland, Oregon, from the confluence with the Columbia to about River Mile (RM) 12. It has been the focus of numerous environmental investigations completed by the LWG and various other governmental and private entities. Major LWG data collection efforts occurred during four sampling rounds in the LWR from RM 0.8 to 12.2 to characterize the physical system of the river and to assess the nature and extent of contamination in sediment, surface water, transition zone water, storm water, and biota.

The LWG has worked with the United States Environmental Protection Agency (EPA) to develop the methods and assumptions used in this BHHRA. Consistent with EPA guidance (1989), this BHHRA incorporates assumptions to provide a health protective assessment of risks associated with contaminants present at the Site. The risk assessment for Portland Harbor is a baseline risk assessment in that it evaluates human health risks and hazards associated with contamination in the absence of remedial actions or institutional controls.

This BHHRA is being conducted as part of the Remedial Investigation Report (RI Report) to evaluate potential adverse health effects caused by hazardous substance releases at the Site, consistent with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The BHHRA will be used to support the development of contaminant thresholds to be used as preliminary remediation goals (PRGs) for sediment. The PRGs will provide preliminary estimates of the long-terms goals to be achieved by any cleanup actions in Portland Harbor. During the feasibility study (FS) process, the PRGs will be refined based on background sediment quality, technical feasibility, and other risk management considerations. EPA will identify the final remediation goals (RGs) for the site in the Record of Decision, following completion of the FS.

1.1 OBJECTIVES

The general objective of a human health risk assessment in the CERCLA process is to provide an analysis of potential baseline risks to human health from site-related contaminants and help determine the need for remedial actions, provide a basis for determining contaminant concentrations that can remain onsite and still be protective

of public health, and provide a basis for comparing the effectiveness of various remedial alternatives. To achieve the overall objectives, the general process of BHHRA is:

- Identify contaminants of potential concern (COPCs)[3]
- Identify potentially exposed populations and pathways of exposure to COPCs
- Characterize potentially exposed populations and estimate the extent of their exposure to COPCs
- Quantitatively characterize the noncarcinogenic and carcinogenic risks to the populations resulting from potential exposure to COPCs and identify contaminants potentially posing unacceptable risks
- Characterize uncertainties associated with this risk assessment
- Identify the contaminants and pathways that contribute the majority of the risk.

1.2 APPROACH

This BHHRA generally follows the approach that was documented in the Programmatic Work Plan (Integral et al. 2004) and subsequent interim deliverables. It also reflects numerous discussions and agreements on appropriate risk assessment techniques for the Site among interested parties, including the EPA, Oregon Department of Environmental Quality (DEQ), Oregon Department of Human Services (ODHS), and Native American Tribes.

Potential exposure pathways, populations, and exposure assumptions were originally identified in the Programmatic Work Plan and in subsequent direction from EPA. Additional assumptions for estimating the extent of exposure were provided in the Exposure Point Concentration Calculation Approach and Summary of Exposure Factors Technical Memorandum (Kennedy/Jenks Consultants 2006) and the Human Health Toxicity Values Interim Deliverable (Kennedy/Jenks Consultants 2004a). Specific documents related to the approach for this BHHRA are presented in Attachment F1. The BHHRA is based on EPA (1989, 1991b, 2001a, 2004, 2005a) and EPA Region 10 (2000a) guidance, and is also consistent with DEQ guidance (DEQ 2000a, 2010).

1.3 SITE BACKGROUND

The LWR extends from the Willamette's convergence with the Columbia River at river mile (RM) 0 upstream to the Willamette Falls at RM 26. Portland Harbor

[3] Prior deliverables and some of the tables and figures attached to this document may use the term "Chemicals of potential concern," which has the same meaning as "Contaminants of potential concern" and refers to "contaminants" as defined in 42 USC 9601(33).

generally refers to a heavily industrialized reach of the LWR between RM 0 and RM 12, the extent of the navigation channel. Additional information on the environmental setting of Portland Harbor, including historical and current land use, regional geology and hydrogeology, surface water hydrology, the in-water physical system, habitat, and human access and use is provided in Section 3 of the RI Report. The approximate 10-mile portion of Portland Harbor from RM 1.9 to 11.8 is referred to as the Study Area (Map 1-1). Because the Site boundaries have not yet been defined[4], this BHHRA focused on the Study Area, while also including data collected within the portion of the LWR that encompasses RMs 0.8 to 12.2.

Portland Harbor and the Willamette River have served as a major industrial water corridor for more than a century. Industrial use of the Study Area and adjacent areas has been extensive. The majority of the Study Area is currently zoned for industrial land use and is designated as an "Industrial Sanctuary" (City of Portland 2006a). Much of the shoreline in the Study Area includes steeply sloped banks covered with riprap or constructed bulkheads, with human-made structures such as piers and wharves over the water in various locations. A comprehensive update of Portland's Willamette Greenway Plan and related land use policies and zoning (The River Plan) is underway, addressing all of the Willamette riverfront in Portland (City of Portland 2006b). The Willamette Greenway Plan addresses the quality of the natural and human environment along the Willamette River and generally includes all land adjacent to the river, public lands near the river, and land necessary for conservation of significant riparian habitat. (The Willamette Greenway Plan, adopted by the City Council November 5, 1987, Ordinance 160237). The Greenway Plan is intended to "protect, conserve, enhance, and maintain the natural, scenic, historical, economic, and recreational qualities of lands along Portland's rivers." (Portland City Code Chapter 33.440). The Plan supports industrial uses within Portland Harbor while at the same time looks to increase public access to the river. As a result, recreational use within the Study Area may increase at certain locations in the future.

There are numerous potential human uses of Portland Harbor. Worker activities occur at the industrial and commercial facilities in the Study Area. However, due to the sparse beach areas and high docks associated with most of the facilities, worker exposure to the in-water portion of the Study Area may be limited in shoreline areas. Commercial diving activities also occur in the LWR. In addition, the LWR provides many natural areas and recreational opportunities, both within the river itself and along the riverbanks. Within the Study Area, Cathedral Park, located adjacent to the St. Johns Bridge, includes a sandy beach area and a public boat ramp and is used for water skiing, occasional swimming, and waterfront recreation. Recreational beach use also may occur within Willamette Cove, Swan Island Lagoon, and on the southern end of Sauvie Island. Swan Island Lagoon includes a public boat ramp. Additional LWR recreational beach areas exist on the northern end of Sauvie Island and in Kelley Point Park, both of which are outside of the Study Area.

[4] The Site boundaries will be defined by EPA in the Record of Decision for the Site.

Fishing is conducted throughout the LWR basin and within the Study Area, both by boaters and from locations along the banks. The LWR also provides a ceremonial and subsistence fishery for Pacific lamprey (particularly at Willamette Falls) and spring Chinook salmon for Native American Tribes. Many areas in the LWR are also important currently for cultural and spiritual uses by local Native Americans.

Transients have been observed along the LWR, including some locations within the Study Area. The observation of tents and makeshift dwellings during RI sampling events confirms that transients were living along some riverbank areas. Transients are expected to continue to utilize this area in the future.

The RI/FS being completed for the Site is designed to be an iterative process that addresses the relationships among the factors that may affect chemical distribution, risk estimates, and remedy selection. Four rounds of field investigations have been completed as part of the RI/FS. A preliminary sampling effort was conducted in 2001 and 2002 prior to the RI/FS work plan. Round 1 was conducted in 2002 and focused primarily on chemical concentrations in fish and shellfish tissue and in beach sediment. Round 2 was conducted in 2004 and 2005 and focused on chemical concentrations in sediment cores, in-water surface sediment, surface water, transition zone water, and additional shellfish tissue and beach sediment. Round 3 was conducted in 2006 and 2007 and focused on chemical concentrations in additional surface water, sediment, and fish and shellfish tissue. These Round 1, Round 2, and Round 3 sampling efforts, while initially focused on RM 3.5 to 9.2, which is the Administrative Order on Consent-defined initial study area (ISA), extended well beyond the ISA to RM 0 downstream and to RM 28.4 upstream.

1.4 ORGANIZATION

In accordance with guidance from EPA (1989), which is consistent with DEQ guidance (2000a, 2010), the BHHRA incorporates the four steps of the baseline risk assessment process: data collection and evaluation, exposure assessment, toxicity assessment, risk characterization, as well as a discussion of overall uncertainties.

This BHHRA is organized as follows:

- Section 2, Data Evaluation – This section evaluates the available data for the Study Area and identifies the COPCs for further evaluation in the BHHRA.
- Section 3, Exposure Assessment – This section presents potentially complete routes of exposure and potentially exposed populations for further evaluation in the BHHRA, which are summarized in the conceptual site model (CSM).
- Section 4, Toxicity Assessment – This section evaluates the potential hazard and toxicity of the COPCs selected for quantitative evaluation in this BHHRA.

- Section 5, Risk Characterization – This section presents the cancer risks and noncancer hazards and identifies the contaminants potentially posing unacceptable risks to human health.
- Section 6, Uncertainty Analysis – This section discusses the uncertainties that are inherent in performing a HHRA, and the uncertainties specific to this BHHRA.
- Section 7, Summary – This section summarizes the findings of this BHHRA and identifies chemicals and pathways that contribute the majority of the risk within the Study Area.
- Section 8, References – This section lists the references used in this BHHRA.

2.0 DATA EVALUATION

This section presents the data that were used in this BHHRA and the results of the selection of COPCs in sediment, water, and tissue. The LWG and non-LWG sampling events included in the site characterization and risk assessment (SCRA) dataset are described in detail in Appendix A of the RI Report. The dataset used in this BHHRA represents a subset of data from the sampling events that comprised the SCRA dataset as of September 2008. Data needs for the BHHRA were identified through the data quality objective (DQO) process described in Section 7 of the Programmatic Work Plan (Integral et al. 2004). Only data that met Category 1/QA2 data quality objectives was used in the BHHRA. A risk evaluation of exposures to polybrominated diphenyl ethers (PBDEs) detected in in-water sediment, fish and shellfish tissue was conducted using a subset of data from the sampling events that comprised the SCRA dataset as of February 2011. The data for the PBDE analysis are discussed in Attachment F3, and the PBDE risk assessment used the general data evaluation methodology discussed in this section.

2.1 AVAILABLE DATA

The BHHRA dataset includes only those matrices relevant for direct human exposure pathways: surface sediment, clam and crayfish tissue, fish tissue, surface water and groundwater seeps. Other matrices included in the SCRA dataset (such as subsurface sediment) were not evaluated in the BHHRA because human exposure was considered unlikely. Data from RM 1.0, including Multnomah Channel, and upstream to RM 12.2, were included in the risk assessment. The BHHRA dataset is summarized by matrix from within and outside of the Study Area, respectively in Tables 2-1 and 2-2. The dataset is described briefly in the following subsections, and described in more detail in Section 2.0 of the RI Report.

2.1.1 Beach Sediment

Areas where potential exposure to beach sediment could occur were based only on current conditions, as identified in the Programmatic Work Plan. Because beaches are relatively dynamic environments, specific beach conditions may change in the future, and the evaluation presented in the BHHRA may no longer be appropriately descriptive of potential risks.

Composite sediment samples were collected during Round 1 from each beach that had been designated as a potential human use area within the Initial Study Area (ISA). Additional human use areas within the Study Area but downstream of the ISA were sampled during Round 2 as part of the sampling of shorebird habitat were also included in the BHHRA dataset. The designated potential human use areas and

associated beach sediment samples are shown in Map 2-1, and Table 2-3 presents a summary of the composite sediment samples included in the BHHRA dataset.

2.1.2 In-Water Sediment

The in-water sediment BHHRA dataset includes samples collected outside of the navigation channel of the river and from less than 30.5 cm in depth. Beach sediment samples are excluded, as well as natural attenuation core samples, radioisotope samples, and samples collected from areas that were subsequently dredged. The in-water sediment dataset is comprised of samples from river mile (RM) 1 to RM 12.2, including Swan Island Lagoon, as well as samples from the mouth of Multnomah Channel. As described in Appendix A of the RI, samples collected from areas that have subsequently been capped or dredged were not included in the BHHRA dataset. Per an agreement with EPA, the screening of contaminants of potential concern (COPCs) used only the subset of data collected from RM 1.9 to RM 11.8 (and including Swan Island Lagoon and the mouth of Multnomah Channel), whereas the exposure assessment and risk characterization used both subsets of data containing samples from RM 1 to RM 12.2. A summary of in-water sediment samples included in the BHHRA dataset is presented in Tables 2-3 and 2-4 from within and outside of the Study Area, respectively.

2.1.3 Surface Water

Surface water samples were collected by the LWG in seven separate events during Rounds 2 and 3 between 2004 and 2007, and are representative of various seasonal water flow conditions. Surface water samples were collected between RM 1.9 and RM 11.8 from 32 single point stations and 5 transect locations (at RM 2.0, Multnomah Channel, RM 3.9, RM 6.3, and RM 11). One additional surface water sample was collected from RM 16, outside the boundaries of the Study Area. Surface water samples were collected using either a peristaltic pump or an XAD-2 Infiltrex™ 300 system (XAD). Single point samples included near-bottom and near-surface samples, as well as vertically integrated water column samples. Transect samples included horizontally integrated near-bottom and near-surface samples, cross-sectional equal discharge increment samples horizontally integrated across the entire width of the river, and vertically integrated samples from the east, west, and middle sections of a transect on the river. Additional information on the surface water sampling methods is available in Section 5.3 of the RI Report. Tables 2-5 and 2-6 present a summary of the surface water samples included in the BHHRA dataset from within and outside of the Study Area, respectively.

2.1.4 Groundwater Seeps

A seep reconnaissance survey was conducted during Round 1 to document readily identifiable groundwater seeps along both sides of the river from RM 2 to 10.5 (GSI

2003). Twelve potential groundwater seeps were observed at or near potential human use beach areas. Of these, only three sites were identified in the survey where it was considered likely for upland contaminants of interest (COIs)[5] to reach groundwater seeps or other surface expressions of groundwater discharging to human use beaches: the City of Portland storm sewer Outfall 22B, Willbridge, and McCormick and Baxter at Willamette Cove. Of these locations, only the Outfall 22B discharge was evaluated in the BHHRA. Groundwater infiltrates into the outfall pipe, which subsequently discharges to a beach that has been identified as a potential transient use area. The groundwater seep at Willbridge is at a beach restricted to industrial use, the seep at Willamette Cove, located downgradient of the McCormick and Baxter Superfund Site, was capped during remedial activities in 2004.

The stormwater pipeline that discharges at Outfall 22B provides a conduit for surface discharge of groundwater containing COIs that infiltrates into the pipe upland of the beach. The sampling events at Outfall 22B are described in Appendix A of the RI Report. Although samples have periodically been collected for analysis of the discharge at Outfall 22B both during and outside of stormwater events, samples taken during stormwater events were not included in the BHHRA dataset because they were not considered representative of typical exposures. Samples collected since 2002 were used in the BHHRA, and Table 2-5 presents a summary of the samples that were included in the BHHRA dataset.

2.1.5 Fish Tissue

The target fish species to be evaluated for human consumption were identified in the Programmatic Work Plan (Integral et al. 2004), and consisted of both resident and non-resident species. Samples of resident fish species were collected by the LWG during Rounds 1 and 3. Samples of non-resident fish species were collected in the summer of 2003 through a cooperative effort of the ODHS, Agency for Toxic Substances and Disease Registry (ATSDR), Oregon Department of Fish and Wildlife (ODFW), the City of Portland and EPA Region 10. Table 2-7 presents a summary of the fish tissue samples included in the BHHRA dataset.

2.1.5.1 Resident Fish Tissue

Resident fish species evaluated in the BHHRA are smallmouth bass (*Micropterus dolomieui*), black crappie (*Pomoxis nigromaculatus)*, common carp (*Cyprinus carpio carpio)*, and brown bullhead (*Ameiurus nebulosus*). The sampling protocol for each species differed based on the reported home ranges of species sampled. The tissue compositing scheme for the Round 1 data collection effort was reviewed and approved by EPA in November and December 2002. The Round 3 data collection, the tissue compositing scheme was approved by EPA in October 2007. Smallmouth bass

[5] Prior deliverables and some of the tables and figures attached to this document may use the term "Chemicals of interest," which has the same meaning as "Contaminants of interest" and refers to "contaminants" as defined in 42 USC 9601(33).

and carp collected during Round 3 were analyzed separately as fillet and the remaining body-without-fillet tissue, and whole body concentrations were calculated using the individual fillet and body-without-fillet results. Thus, for the risk assessment, the Round 3 smallmouth bass samples were reported both as fillet and whole body results.

Smallmouth bass samples were collected in Round 1 from eight locations between RM 2 and 9, and corresponding to their small home range (ODFW 2005), and composited based on each river mile. Three whole body replicate composite samples were collected at three of the eight locations, one whole body composite sample and one fillet composite sample were collected at the 5 remaining sample locations. Round 3 samples were collected from 18 stations between RM 2 and 12, each corresponding to approximately one river mile, either the west or east side of the river, or both. One composite sample was collected from each station, typically consisting of five individual fish.

Black crappie, common carp, and brown bullhead samples were collected during Round 1 and composited from two three-mile long fishing zones, RM 3-6 and RM 6-9. Three common carp and brown bullhead whole body and fillet replicate composite samples were collected from each zone. Two black crappie whole body and fillet replicate composite samples were collected within each zone. All results from within the Study Area were included in the BHHRA dataset.

During Round 3, common carp samples were collected from three fishing zones, each approximately four river miles in length (RM 0-4, RM 4-8, and RM 8-12). Three common carp composite samples were collected from each fishing zone and analyzed separately as fillet tissue and body-without-fillet tissue. All Round 3 results were included in the BHHRA dataset.

Smallmouth bass, black crappie, and common carp fillet samples were analyzed as fillet with skin, except for the analysis of mercury, which was performed using fillet without skin. Brown bullhead fillet samples were analyzed as fillet without skin.

2.1.5.2 Salmon, Lamprey, and Sturgeon

Adult white sturgeon (*Acipenser transmontanus*), adult spring Chinook salmon (*Oncorhynchus tshawytscha*), and adult Pacific lamprey (*Lampetra tridentate*) were collected during ODHS Study. Although these data were not collected as part of the RI, the data met Category 1/QA2 data quality requirement s and were evaluated by the LWG and used in this BHHRA.

Adult Chinook salmon samples were collected at the Clackamas fish hatchery. Each composite sample consisted of three individual fish. Five whole-body (including one split), three fillet with skin, and three fillet without skin composite samples were analyzed. The fillet without skin composite samples were only analyzed for dioxin, furan, and polychlorinated biphenyl (PCB) congeners and mercury.

Adult Pacific lamprey samples were collected at the Willamette Falls. Four whole body composite samples, each consisting of 30 individual fish, were analyzed.

Adult sturgeon samples were collected between RM 3.5 and 9.2. Six fillet samples were analyzed without skin (including one split), each sample consisting of a single fish.

2.1.6 Shellfish Tissue

Crayfish samples were collected from 24 stations during Round 1 based on habitat areas and from 9 stations during Round 3 based on habitat areas and data needs identified by the EPA. Commensurate with their limited home range, crayfish were collected and analyzed as whole body composite samples from each individual station. During Round 1, two replicate composite samples were collected at three of the 24 stations; a single composite sample was collected at the remaining stations. During Round 3, a single composite sample was collected at each station.

Clams (*Corbicula* sp.) were collected from three stations during Round 1, 33 stations during Round 2, and 10 stations during Round 3, sampling locations were based on habitat areas and biomass availability. A single composite sample was collected at each station in Rounds 1 and 2. In Round 3, two composite samples were collected from each of five stations, and a single composite sample was collected from each of the remaining five stations. Round 1 and Round 2 samples were analyzed undepurated. As previously noted, two samples were collected from five of the sampling stations in Round 3, one sample from each station was depurated prior to analysis, the other was analyzed undepurated. At the remaining stations, only undepurated samples were analyzed. Depuration is a common method for cleansing shellfish that is often done prior to their consumption by humans to eliminate the sediment present in the gastrointestinal tract of the shellfish. Although data from laboratory bioaccumulation samples were also available from Round 2, these data were not used because field-collected tissue samples provide for a more direct evaluation of potential human exposure than laboratory bioaccumulation samples. Tables 2-7 and 2-8 present a summary of the shellfish tissue samples included in the BHHRA dataset, from both inside and outside the Study Area, respectively.

2.2 DATA EVALUATION

Prior to using the data in the BHHRA, the data were evaluated for inclusion in the BHHRA consistent with the Guidelines for Data Reporting, Data Averaging, and Treatment of Non-Detected Values for the Round 1 Database (Kennedy/Jenks Consultants et al. 2004), the Exposure Point Concentration Calculation Approach and Summary of Exposure Factors (Kennedy/Jenks Consultants 2006), and Proposed Data Use Rules and Data Integration for Baseline Human Health Risk

Assessment (BHHRA), submitted to EPA in a May 28, 2008 email. Data use rules applied to the combining of surface water data collected by different methods, the handling of non-detects, the summing of chemical groups, and the calculation of exposure point concentrations (EPCs).

2.2.1 Excluded Data

The data used BHHRA meet Category 1/QA2 data quality objectives, as described in Section 2.2 of the RI Report. Data that were not of this quality were removed from the BHHRA dataset. General reductions of the SCRA dataset to create the BHHRA dataset included removal of rejected analytical results ("R" qualified results), and removal of analytical results of samples collected from locations that have been capped, dredged, or remediated. This included all samples flagged as capped, dredged or remediated, including data from task WLCMBI02: the McCormick & Baxter September 2002 Sampling.

2.2.2 Field Replicates

Field replicates within the BHHRA dataset were handled per agreements with EPA. When calculating a mean or an upper confidence limit (UCL), and when reporting data in general, replicates were included in the dataset as discrete samples. Replicates with unique coordinates were included as separate samples when mapping or spatially weighting data. Where replicates have the same coordinates, data associated with the first sample were used and data from the second or third replicates were excluded.

2.2.3 Co-elution of PAHs

Benzo(b+k)fluoranthenes and benzo(k+j)fluoranthenes co-eluted in certain surface water and in-water sediment samples. For the purposes of the BHHRA, benzo(b+k)fluoranthenes results were assumed to be completely benzo(b)fluoranthene, and benzo(k+j)fluoranthenes results were assumed to be completely benzo(k)fluoranthene. Analytical results for these samples were not presented as co-elutions in the BHHRA, but rather, were presented as results for their assumed analyte.

2.2.4 Treatment of PCB Surface Water Data

Polychlorinated biphenyls (PCBs) were analyzed as Aroclors in samples collected using a peristaltic pump, and as congeners in high-volume samples collected using the XAD-2 sampling method. Because detection limits for the peristaltic pump samples were higher than those using high-volume samples, the results for PCBs from the high-volume samples were used. Aroclor concentrations in the high-volume samples were estimated from the PCB congener data by the

analytical laboratory. Therefore, Aroclor data were not used, and only PCB congener data were used to assess PCBs in the BHHRA surface water dataset.

2.2.5 Combining XAD Column and Filtered Surface Water Data

The XAD water quality samples consisted of two components: chemicals retained on the column that are representative of the dissolved concentration, and chemicals retained on the filter that are representative of the concentration of the suspended particulate fraction. In order to create a whole water sample from the XAD results, the analytical results for column and filter fractions for a given chemical were combined to give a total concentration. The following rules were used to calculate a whole water concentration for individual samples:

- If an analyte was detected in both the filter and the column, the detected concentrations were summed.
- If an analyte was detected in either the filter or the column but not in both portions of the sample, only the detected concentration was used.
- If an analyte was not detected in both the filter and the column, the highest detection limit reported for either the filter or the column was used.

Surface water samples collected using the high-volume XAD-2 sampling method are identified with the letters "XAD." The results of the combined XAD-2 column and filter data were renamed "WSXAD-Combo," and are presented as such in the BHHRA.

2.2.6 Combining Horizontal and Vertical Surface Water Data

The surface water data described in Section 2.1.3 were vertically integrated prior to use in the BHHRA. Transect samples are presented as a vertically and horizontally integrated transect. Non-integrated samples were collected from both near-bottom and near-surface (NB/NS) depths within the water column at single-point sampling locations. Vertically-integrated transect samples were collected from the east, west, and middle (E/W/M) sections of the river, horizontally integrated samples were collected from NB or NS water depths. NB/NS and/or E/W/M samples from the same location and date were combined to provide an integrated value for the water column or transect. In these cases, single-point data from NB and NS were vertically combined, vertically-integrated data from E/W/M were horizontally combined; and horizontally-integrated data from NB/NS were vertically combined using the following rules:

- If an analyte was detected in each sample, the detected concentrations were averaged.
- If an analyte was detected in at least one sample, the mean concentration was calculated using one-half the detection limit for non-detect results.

- If all results were non-detect, the mean of the detection limits was calculated and used as the non-detected concentration ("U" qualified).
- In some instances, a field replicate sample was collected from the middle of the river without corresponding replicate samples from the east or west side of the river, indicated by "M2" in the Sample ID. The results from these samples were included in the dataset at their reported concentrations, without combining them with other results.

Sample IDs for the results of the horizontally or vertically combined integrated data were renamed to include "-Int" at the end of the ID name, and are presented as such in the BHHRA.

2.2.7 Combining Fillet and Body-Without-Fillet Tissue Data

Fillet and whole-body data for smallmouth bass and carp were collected using the same fish for the LWG Round 3 sampling event. Fillet and remaining body-without-fillet tissue were composited and analyzed separately. Whole-body concentrations were calculated by weighting the concentration in the fillets and remaining-bodies according to the fractional weight of each tissue relative to the whole fish, and summing the weighted concentrations, as follows. The average fillet weight and remaining-body weight were calculated for each composite sample and added together to obtain the average whole-body weight. The proportion of each was then obtained by dividing the average fillet and remaining-body weights by the average whole-body weight. These values were multiplied by the respective chemical concentration and then added together to obtain the chemical concentration in the whole body, according to the following rules:

- If the analyte was detected in both the fillet tissue and the body without fillet tissue, a weighted average was calculated using the detected values
- If the analyte was not detected in either of the tissue types, a weighted average was calculated using the full detection limits
- If the analyte was detected either the fillet or body-without-fillet sample, one-half the detection limit for the non-detect result was used to calculate the weighted average.

The combined fillet and body without fillet tissue data were considered whole body tissue results for carp and smallmouth bass and were used in the BHHRA as such.

2.2.8 Summation Rules for Analytes Evaluated as Summed Values

Certain contaminants were evaluated as the sum of similar individual congeners, isomers, and closely related degradation products of the parent compound rather than as individual chemicals. The chemicals evaluated as mixtures and for which analytes evaluated as sums in the BHHRA are as follows:

- Total PCBs were calculated as either the sum of nine Aroclor mixtures (1016, 1221,1232, 1242, 1248, 1254, 1260, 1262, 1268) or the sum of individual PCB congeners.
- Total endosulfan was calculated as the sum of α-endosulfan, β-endosulfan, and endosulfan sulfate.
- Total chlordane was calculated as the sum of *cis*- and *trans*-chlordane, oxychlordane, and *cis*- and *trans*-nonachlor.
- Total DDD was calculated as the sum of 2,4'-DDD and 4,4'-DDD.
- Total DDE was calculated as the sum of 2,4'-DDE and 4,4'-DDE
- Total DDT was calculated as the sum of 2,4'-DDT and 4,4'-DDT
- Total dioxin-like PCB congeners were calculated as the sum of PCBs 77, 81, 105, 114, 123, 126, 156, 157, 167, 169, and 189.
- Total PCBs-adjusted were calculated as the sum of total PCB congeners minus dioxin-like PCB congeners.
- Total xylenes were calculated as the sum of *m*-, *o*-, and *p*-xylene.

The individual components of each chemical mixture used in the BHHRA are presented in Table F2-2.

If an individual analyte of a chemical mixture was detected at least once within the Study Area in a given medium, it was considered present in that medium. The presence of an analyte in biota samples was assessed separately for each individual species and tissue. The presence of individual analytes in sediment, and surface water were also assessed separately based on the specific exposure scenario. Individual analytes that were a part of a chemical mixture but were determined not to be present are summarized in Table F2-3 by medium and species. Additionally, a minimum number of individual analytical results in the mixture was required for the summed analytical result to be calculated. For example, if a sample was only analyzed for a limited number of individual PCB congeners, or if a large number of individual congener results for a sample were rejected, a total PCB congener sum may not have been calculated. In addition, chemical mixtures for samples meeting the criterion for the minimum number of individual analytical results required to calculate a sum, but with a limited number of individual analytical results, were qualified with an "A." Mixture sums that did not have a limited number of individual analytical results were qualified with a "T," indicating a calculated total. Table F2-4 shows the minimum number of individual analytical results required to calculate a sum for each mixture, and the maximum number of individual analytical results that would result in an "A" qualifier, indicating a limited number of individual analytical results were available for a sample. Table F2-4 also lists the number of samples for each medium for which a summed total was calculated, and the number of samples for which a summed total was not calculated because of lack of individual analytical

results for the mixture. Sample IDs of samples for which a summed analytical result was not calculated are presented in Table F2-5.

Concentrations of the individual analytes that comprise a mixture were summed for each sample according to the following rules:

- If an analyte was detected in the sample, the detected concentration was used to calculate the sum
- If an analyte was not detected in a sample but was assumed to be present in the sample medium, one-half the detection limit was used to calculate the sum
- If all results were non-detect, the highest detection limit of the analytes assumed to be present in the medium was used as the detection limit for the sample, and the sample was flagged as a non-detect.

2.2.9 Total Dioxin/Furan and PCB TEQs

A toxicity equivalence procedure was used to assess the cumulative toxicity of complex mixtures of PCDD, PCDF, and PCB congeners. The procedure involves assigning individual toxicity equivalency factors (TEFs) to the PCDD, PCDF, and PCB congeners in terms of their relative toxicity to 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (2,3,7,8-TCDD). The reported concentration of each congener in a sample is multiplied by its respective TEF to give the TEF-equivalent concentration. The resulting concentrations are then summed to give a TEQ. The World Health Organization (WHO) TEFs (Van den Berg et al. 2006), shown in Table 4-3, were used to calculate the total dioxin/furan and PCB TEQs. Dioxin/furan and PCB-TEQs were calculated according to the following rules

- Congeners reported as not detected in a given sample but determined to be present in the medium, one-half the detection limit multiplied by the TEF was used in the sum
- If all results in a sample were non-detect, the maximum toxicity-weighted detection limit was used for the TEQ, and the result was flagged as non-detect (U-qualified). The maximum toxicity-weighted detection limit was obtained by multiplying each detection limit by its respective TEF and selecting the maximum value.
- Dioxin/furan TEQs were not calculated for those samples where analytical results for all 12 dioxin/furan congeners were not available.

Values were not presented for total TEQ in the BHHRA. Rather, risks from total TEQ were estimated by summing the risks from the total PCB TEQ and the total dioxin/furan TEQ.

2.3 CHEMICAL SCREENING CRITERIA AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN

Because of the large number of chemicals detected in environmental media, a risk-based screening approach was used to focus the risk assessment on those contaminants most likely to significantly contribute to the overall risk. COPCs were selected for quantitative evaluation in the BHHRA by comparing the SCRA analytical data to risk-based screening values. The specific risk-based concentrations used to select COPCs are described below for the each media.

2.3.1 Sediment

EPA's Regional Screening Levels (RSLs) for soil (EPA 2010a) were used as the screening values for beach and in-water sediments. RSLs are risk-based concentrations in soil, air and water, and have been developed for both residential and industrial exposure scenarios. Using default exposure assumptions, RSLs represent concentrations that equate to a target cancer risk of 1×10^{-6} or a hazard quotient of 1. As described in Region 10 guidance (2007a), RSLs based on a noncancer endpoint were divided by 10 to give a value equivalent to using a hazard quotient of 0.1. This was done to account for the additive nature of noncancer effects. RSLs based on noncancer endpoints were divided by 10 to account for potential cumulative effects from multiple chemicals, and these modified RSLs were used as the screening values. Consistent with the then current EPA Region 10 recommendations (EPA, 2008a), RSLs of 7.7 mg/kg in soil for residential land use and 14 mg/kg for occupational land use were calculated for trichloroethylene (TCE) using a cancer slope factor of 0.089 per mg/kg-day, which represents the geometric mid-point of the slope factor range from EPA 2001. EPA finalized its risk assessment for TCE in 2011 and the revised RSL is 0.9 mg/kg. Because TCE does not contribute substantially to the cumulative risk estimates for the in-water portion of Portland Harbor, the screening process was not re-evaluated. Chemicals for which no RSL was available were screened using RSLs for chemicals with a similar chemical structure.

Because uses of Portland Harbor include both recreational and industrial activities, COPCs were selected using both residential and industrial RSLs, consistent with the EPA comments on the Round 2 Comprehensive Report (EPA 2008b). Residential RSLs were used to select COPCs in beach sediment for those areas where exposures could occur during recreational, transient, or fishing activities in those areas considered reasonably accessible from contiguous upland areas or by boat. In-water sediment data collected within the navigation channel were not used in the COPC screen. In areas where occupational exposures could occur, and for in-water sediment, COPCs were selected using industrial RSLs.

If the maximum detected concentration of a contaminant at a specific use area was greater than its respective screening level, that contaminant was selected as a

COPC. The designated potential uses for beaches in the Study Area are presented in Map 2-1. COPCs for beach sediment and the rationale for selection are presented in Tables 2-9 and 2-10. COPCs for in-water sediment are presented in Table 2-11. Sample locations used to select COPCs for in-water sediment are shown on Map 2-2.

2.3.2 Surface Water

Surface water COPCs were selected for divers and transient/beach user exposures using EPA residential tapwater RSLs (EPA 2010a), COPCs for the potential use of surface water as a drinking water source were selected using the lower of either the tapwater RSLs or MCLs (EPA 2003a). TCE was evaluated using the EPA Region 6 Human Health Medium-Specific Screening Level (EPA 2008c). COPCs for evaluating exposure to divers and for drinking water were selected from the combined surface water data set described in Section 2.2.6. COPCs for transient and beach use scenarios were selected from surface water samples taken from areas where direct contact could occur. A summary of samples used for screening surface water for COPCs is provided in Table 2-12. Sample locations of surface water data evaluated for diver exposures are shown on Map 2-4 and in Table 2-13; sample locations for transient and recreational beach uses are shown on Map 2-3 and Table 2-14; sample locations for the use of surface water as a drinking water source are shown on Map 2-8 and in Table 2-16.

2.3.3 Groundwater Seep

Chemicals concentrations detected in the groundwater seep at Outfall 22B were compared to the residential tapwater RSLs. As with the soil RSLs, the tapwater RSLs based on a noncancer endpoint were divided by 10 to give values equivalent to a HQ of 0.1. The location of Outfall 22B is shown on Map 2-5, and COPCs are presented in Table 2-15.

2.3.4 Fish and Shellfish Tissue

No appropriate risk-based screening values for fish tissue were available. Although EPA Region 3 has published fish tissue screening levels, the consumption rate of 54 g/day used to derive those values is not considered representative of the range of consumption rates relevant to Portland Harbor. Accordingly, all chemicals detected in fish and shellfish tissue in the BHHRA dataset were considered to be COPCs and evaluated further in the BHHRA. The general locations of fish in a particular composite of smallmouth bass and common carp are shown on Map 2-6. Brown bullhead and black crappie were composited over RM 3-6 and RM 6-9. Shellfish were composited over areas representing their assumed home range, and sample locations on Map 2-7 represent the general spatial distribution of composited samples.

3.0 EXPOSURE ASSESSMENT

Exposure assessment is the determination of the magnitude, frequency, duration, and route of exposure (EPA, 1989). Populations that currently, or may in the future, come into contact with site contaminants are identified along with potential routes of exposure that define the mechanism by which the exposure may occur. Magnitude is determined by estimating the amount, or concentration, of the chemical at the point of contact over an exposure duration, as well as the actual intake, or dose, of the chemical.

According to EPA (1989), an exposure assessment includes three primary tasks:

- Characterization of the exposure setting. This step includes identifying the characteristics of populations that can influence their potential for exposure, including their location and activity patterns, current and future land use considerations, and the possible presence of any sensitive subpopulations.
- Identification of exposure pathways. Exposure pathways are identified for each population by which they may be exposed to chemicals originating from the site.
- Quantification of exposure. The magnitude, frequency, and duration of exposure for each pathway is determined. This step consists of the estimating of exposure point concentrations and calculation of chemical intakes.

3.1 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) describes potential contaminant sources, transport mechanisms, potentially exposed populations, exposures pathways and routes of exposure. As discussed in Sections 4, 5, and 6 of the RI Report, contaminated media within the Study Area are sediment, water, and biota. Current and historical industrial activities and processes within the Study Area have led to chemical releases from either point or nonpoint sources, including discharges to the river from direct releases or via outfalls and groundwater within the Study Area. In addition, releases that occur upstream of the Study Area and atmospheric deposition from global, regional, and local emissions may also represent potential contaminant sources to the Study Area. Chemicals in sediment and water may be accumulated by organisms living in the water column or by benthic organisms in sediments. Fish and shellfish within the Study Area feeding on these organisms can accumulate chemicals in their tissues through dietary and direct exposure to sediment and water. Additional information on potential contaminant sources is provided in Section 4 of the RI Report, and a more detailed CSM is presented in Section 10. A graphical representation of the exposure CSM is presented on Figure 3-1.

3.2 IDENTIFICATION OF POTENTIALLY EXPOSED HUMAN POPULATIONS

Potentially exposed populations were identified based on consideration of current and potential future uses of the Study Area. An analysis of potential exposure pathways for the Study Area was detailed in the Portland Harbor RI/FS Programmatic Work Plan (Integral 2004), including those directed by EPA. Consumption of shellfish by subsistence fishers, in-water exposures by recreational and commercial divers, and potential future domestic water use were subsequently evaluated after direction by EPA (see Attachment F1). The exposure scenarios identified below represent those populations that are anticipated to have the greatest potential for exposure to contaminants within the Study Area for both current and potential future conditions. For this reason, this risk assessment is likely to be protective of other potentially exposed populations that are not evaluated quantitatively in this BHHRA. The receptors evaluated for current and future uses of the Study Area are:

- Dockside workers
- In-water workers
- Transients
- Divers
- Recreational beach users
- Recreational/Subsistence fishers
- Tribal fishers
- Potential future domestic water users

The above populations were identified based on human activities known to occur within the Study Area, with the exception of the use of surface water as a domestic water source. However, public and private use of surface water is a beneficial use of the LWR, and as described in Section 1, this baseline risk assessment evaluates exposures assuming no institutional controls, such as obtaining a permit for use of surface water. Each of these receptors is described in greater detail in the following sections.

3.2.1 Dockside Workers

Portland Harbor supports a large number of water-dependent commercial uses, and many of the facilities adjacent to the LWR rely on ship and barge traffic. Dockside workers were evaluated to be representative of industrial and commercial workers at many of the facilities adjacent to the river. Specific activities are assumed to occur only within natural river beach areas, and include unloading ships or barges, or conducting occasional maintenance activities at specific locations near or at the water's edge. Exposures for dockside workers are evaluated as occurring only within defined areas considered to be industrial sites, rather than on a Study Area or harbor-wide basis. The specific areas evaluated are shown on Map 2-1.

3.2.2 In-Water Workers

In-water workers were evaluated as representative of individuals who conduct activities that typically occur in or over-water, rather than on shore as assumed for dockside workers. Specific activities may include the repair of in-water structures such as docks or pilings, maintenance dredging of private slips or berths, or maintenance and cleaning of equipment. While such activities would not necessarily be restricted to a given area, exposure would most likely be localized to specific facilities, and between the shore and the navigation channel.

3.2.3 Divers

Several different groups of people dive in the Portland Harbor area, including the public for recreation (which may include gathering of biota for consumption), the sheriff's office for investigations and emergency activities, and commercial divers for a variety of purposes including marine construction, underwater inspections, routine operation and maintenance, and activities related to environmental work. The majority of divers are expected to be commercial divers who typically use either wet or dry suits, wet or dry gloves, and a full face mask or a regulator held in the mouth with the diver's teeth. Although dry suits provide greater protection, wetsuits are occasionally used because of the higher cost of dry suits and higher water temperature (Sheldrake et. al, 2009). The Willamette River is 303d listed as a temperature impacted area, with the Lower Willamette reaching average temperatures of over 70 degrees F in the summer months. Based on communications with commercial diving companies in the Portland area (Hutton 2008, Johns 2008, and Burch 2008), the standard of practice for commercial divers is the use of dry suits and helmets when diving in the LWR. However, the use of wet suits by commercial divers may still occur (EPA 2008d). Accordingly, two different diver exposure scenarios are included in this BHHRA, and are differentiated by considering the use of either a wet suit or dry suit. Each scenario assumes that divers are exposed to sediment and surface water through inadvertent ingestion and dermal contact throughout the Study Area.

3.2.4 Transients

Transient encampments are known to exist within the Study Area along the Lower Willamette River. While tents and makeshift dwellings are typically observed above actual beach areas, transients are likely to have direct contact with beach sediment and surface water (including groundwater seeps) during swimming, bathing or other activities, such as washing of clothing or equipment, and may also use surface water as a drinking water source. Although individuals are anticipated to move within or outside the Study Area, some individuals may spend a majority of their time at relatively few areas. Thus, exposure was evaluated as occurring at individual beaches rather than averaged over a larger area. Specific locations where exposure by transients was evaluated in the risk assessment are shown on Map 2-1.

3.2.5 Recreational Beach Users

Adults and children participate in recreational activities at beaches within the Study Area, and the LWR is also used for boating, water skiing, swimming, and other activities. The areas currently used for recreational activities as well as other areas in the Study Area where sporadic beach use may occur were identified as recreational use areas. While certain individuals may frequent a specific area almost exclusively, others users may regularly use various areas throughout the Study Area. Recreational activities are likely to result in exposure to beach sediment and surface water.

3.2.6 Recreational and Subsistence Fishers

A year-round recreational fishery exists within the Study Area. Current information indicates that spring Chinook salmon, steelhead, Coho salmon, shad, crappie, bass, and white sturgeon are the fish species preferred by local recreational fishers (DEQ 2000b, Hartman 2002, and Steele 2002). In addition to recreational fishing, an investigation by the Oregonian newspaper and limited surveys conducted on other portions of the Willamette River indicate that immigrants from Eastern Europe and Asia, African-Americans, and Hispanics are most likely to use fish from the lower Willamette either as a supplemental or primary dietary source (ATSDR 2002). These surveys also indicate that the most commonly consumed species are carp, bullhead catfish, and smallmouth bass, although other species may also be consumed. In conversations that were conducted as part of a project by the Linnton Community Center (Wagner 2004) about consumption of fish or shellfish from the Willamette River, transients reported consuming a large variety of fish, and several said they ate whatever they could catch themselves or obtain from other fishers.

Direct exposures to beach sediments by individuals engaged in recreational or subsistence fishing was evaluated at specific areas designated as transient and recreational use areas, exposures to in-water sediments were evaluated per half mile along each side of the river as well as on a Study Area-wide basis. Fish consumption was evaluated assuming a multi-species diet comprised of equal proportions of the four resident fish species (smallmouth bass, black crappie, brown bullhead, and common carp) for which tissue data are available and generally assuming consumption of fillets with skin. Because only smallmouth bass data are available on a river-mile basis, those data are used as representative of tissue concentrations in the other fish species when evaluating risk associated with fish consumption on a per river mile basis.

3.2.7 Tribal Fishers

The LWR provides a ceremonial and subsistence fishery for Native American tribes. Four Native American tribes (Yakama, Umatilla, Nez Perce, and Warm Springs) participated in a fish consumption survey that was conducted on the reservations of the participating tribes and completed in 1994 [Columbia River Inter-tribal Fish Commission (CRITFC) 1994]. The results of the survey show that tribal members surveyed generally consume more fish than the general public. Certain species,

especially salmon and Pacific lamprey, are an important food source as well as an integral part of the tribes' cultural, economic, and spiritual heritage.

3.2.8 Potential Future Domestic Water User

According to the City of Portland, the primary domestic water source for the city is the Bull Run watershed, which is supplemented by a groundwater supply from the Columbia South Shore Well Field (City of Portland 2008). In addition, the Willamette River was determined not to be a viable water source for future water demands through 2030 (City of Portland 2008). Although there are currently no known uses of the Lower Willamette River as a source of drinking water, public and private use of the Willamette River as a domestic water source is a designated beneficial use by the State of Oregon. Hence, use of surface water as a source of household water was assessed as a potentially complete pathway. Additionally, although domestic water supply is a designated beneficial use of the Willamette River, OAR 340-041-0340 Table 340A defines the beneficial use only with adequate pretreatment and natural quality that meets drinking water standards. Exposure to surface water could occur via ingestion and dermal contact, as well as volatilization of chemicals to indoor air through household use.

3.3 IDENTIFICATION OF EXPOSURE PATHWAYS

Exposure pathways are defined as the physical ways in which chemicals may enter the human body. A complete exposure pathway consists of the following four elements:

- A source of chemical release
- A release or transport mechanism (or media in cases involving media transfer)
- An exposure point (a point of potential human contact with the contaminated exposure medium)
- An exposure route (e.g., ingestion, dermal contact) at the exposure point.

If any of the above elements is missing, the pathway is considered incomplete and exposure does not occur. The potential exposure pathways to human populations at the Study Area include:

- Incidental ingestion of and dermal contact with beach sediment
- Incidental ingestion and dermal contact with in-water sediment
- Incidental ingestion and dermal contact with surface water
- Incidental ingestion and dermal contact with surface water from seeps
- Consumption of fish and shellfish

- Infant consumption of human milk.

A more detailed discussion of potential exposures in the Study Area under current and future conditions and the rationale for including or eliminating pathways from quantitative evaluation are presented in the following sections. The identified receptors, exposure routes, and exposure pathways, and the rationale for selection are also summarized in Table 3-1.

Exposure pathways are designated in one of the following four ways:

Potentially Complete: There is a source or release from a source, an exposure point where contact can occur, and an exposure route by which contact can occur. Pathways considered potentially complete are quantitatively evaluated in this BHHRA.

Potentially Complete but Insignificant: There is a source or release from a source, an exposure point where contact can occur, and an exposure route by which contact can occur. However, exposure via the pathway is likely to be negligible relative to the overall risk. Pathways considered potentially complete but insignificant were not evaluated further in this BHHRA.

Incomplete: There is no source or release from a source, no exposure point where contact can occur, or no exposure route by which contact can occur for the given receptor. Pathways considered potentially incomplete were not evaluated further in this BHHRA.

Potentially complete pathway, but evaluated for a different receptor: These pathways may be complete for some individuals, but are not evaluated for the identified receptor because the pathways are not considered typical for that receptor. These pathways are evaluated for different receptors where the pathways are considered potentially complete and significant. Overlapping exposures that may occur for the different receptors are discussed further in Section 3.3.8.

The following sections provide a more detailed discussion of the exposure pathways that are quantitatively evaluated in this BHHRA.

3.3.1 Direct Exposure to Beach Sediment

Based on current and future uses within the Study Area, incidental ingestion and dermal contact with beach sediment could occur within natural river beach areas identified as human use areas in the Programmatic Work Plan. These areas were further classified with respect to the type of exposures that could occur, including recreational, fishing, transient, or dockside worker use areas. Human use areas in the Study Area and their associated classifications are shown in Map 2-1. Direct exposure to beach sediments is considered to be a potentially complete pathway for dockside workers, transients, recreational beach users, and fishers.

3.3.2 Direct Exposure to In-Water Sediment

Direct contact with in-water sediment could occur during activities conducted from a boat or other vessel that result in bringing sediment to the surface, during diving, or when fishing as a result of handling anchors, hooks, or crayfish pots. Hence, direct exposure to in-water sediment is considered to be a potentially complete pathway for in-water workers, divers, and fishers. Although recreational beach users may contact in-water sediment while swimming, such exposures are not expected to be significant and were not quantitatively evaluated in the risk assessment. Exposure to in-water sediment was evaluated throughout the Study Area by half-mile river segments for each side of the river rather than at specific areas as was done with exposure to beach sediments.

3.3.3 Direct Exposure to Surface Water

Direct exposure to contaminants in surface water could occur during recreation or occupational activities that occur near or in the water, or from potential future use of the LWR as a domestic water source. Transients may also use surface water as a source of drinking water or for bathing. Accordingly, direct exposure via ingestion and dermal contact with surface water is considered to be a potentially complete pathway for transients, recreational beach users, divers, and potential future domestic water users.

Exposure to contaminants in surface water via dermal absorption and ingestion were considered potentially complete but insignificant pathways for dockside workers, in-water workers, tribal fishers, and fishers. It is unlikely that dockside and in-water workers would have direct contact with surface water on a regular basis, and the potential for significant exposure is considered low while fishing. Additionally, although contaminants may volatilize from water, it is unlikely to result in a significant exposure considering the amount of mixing with ambient air and the relatively low concentrations of VOCs in water. Hence, inhalation of volatiles to ambient air was considered a potentially complete but insignificant exposure pathway for all receptors.

3.3.4 Direct Exposure to Groundwater from Seeps

Direct contact with groundwater is assumed to occur only at seeps where groundwater comes to the surface on a beach above the water line. Direct exposure to groundwater via seeps is considered a potentially complete exposure pathway for transients and recreational beach users. As described in Section 2.1.4, a seep reconnaissance survey identified only Outfall 22B, which is located at approximately RM 7W in an area designated as a potentially used by transients. Therefore, exposure to surface water from the groundwater seep at Outfall 22B was evaluated only for transients.

3.3.5 Consumption of Fish

Many of the contaminants found in Portland Harbor are persistent in the environment and accumulate in the food-chain. Local populations who consume fish caught in Portland Harbor may be exposed to COPCs that bioaccumulate in fish. While the populations evaluated in this BHHRA are described as "fishers," the fish consumption evaluation in this BHHRA includes people who consume fish caught within the Study Area, not just those who catch the fish. Consumption of locally-caught fish is evaluated as a potentially complete exposure pathway for dockside workers, in-water workers, recreational beach users, and divers. Consumption of fish by these populations is evaluated under the recreational and subsistence fisher receptor. By definition, ongoing long-term fish consumption by transients would not be expected to occur, and the evaluation of fish consumption for other receptors is considered to be protective of consumption of fish by transients.

3.3.6 Consumption of Shellfish

Certain contaminants can bioaccumulate in shellfish, and populations may be exposed to COPCs through consumption of shellfish that are collected within the Study Area. The actual extent shellfish harvesting and consumption is presently occurring is not known. The Linnton Community Center project (Wagner 2004) reported that some transients reported eating clams and crayfish, although many of the individuals indicated that they were in the area temporarily, move from location to location frequently, or have variable diets based on what is easily available. While the degree to which consumption of clams currently occurs in Portland Harbor is unknown, the Linnton Community Center project suggests that it does not occur on an ongoing basis within the Study Area. However, the predominant species found in the LWR during sampling events were Asian clams (*Corbicula*), which are an invasive, non-native species. Oregon law (OAR 635–056–0050) prohibits the possession, transportation, and sale of non-native wildlife, and the actual extent to which freshwater clams or other shellfish are currently harvested from Portland Harbor and consumed is not known. The Superfund Health Investigation and Education (SHINE) program in the Oregon Department of Human Services (DHS) stated that is unknown whether or not crayfish are harvested commercially within Portland Harbor (ATSDR 2006). ODFW has records for crayfish collection in the Columbia and Willamette Rivers, but these records do not indicate whether the collection actually occurs within the Study Area. Based on ODFW's data for 2005 to 2007, no commercial crayfish landings were reported for the Willamette River in Multnomah County. DHS had previously received information from ODFW indicating that an average of 4,300 pounds of crayfish were harvested commercially from the portion of the Willamette River within Multnomah County each of the five years from 1997-2001. In addition, DHS occasionally receives calls from citizens who are interested in harvesting crayfish from local waters and are interested in fish advisory information. According to a member of the Oregon Bass and Panfish club, traps are placed in the Portland Harbor Superfund Site boundaries and crayfish collected for bait and possibly for consumption (ATSDR 2006). Although consumption of shellfish was considered a

potentially complete pathway for dockside workers, in-water workers, recreational beach users, divers, and recreational fishers, it was quantitatively evaluated only for subsistence fishers, as they were considered the most likely population to regularly harvest and consume shellfish.

3.3.7 Infant Consumption of Human Milk

Lipid-soluble chemicals can accumulate in body fat, including lipids found in breast-milk. As a result, breast-feeding represents a potentially complete exposure pathway for nursing infants. Accordingly, infant exposures to PCBs, dioxins/furans, DDx, and PBDEs were evaluated as a potentially complete exposure pathway wherever maternal exposure to those compounds was evaluated.

3.3.8 Potentially Overlapping Exposure Scenarios

An estimate of reasonable maximum exposure should not only address exposure for individual pathways, but also exposures that may occur across multiple exposure routes. Examples of overlapping scenarios include in-water workers who fish recreationally, and may also be recreational beach users. Potentially overlapping scenarios are indicated on Figure 3-1, and risks from potentially overlapping scenarios are discussed in Section 5.

3.4 CALCULATION OF EXPOSURE POINT CONCENTRATIONS

The exposure point concentration (EPC) is defined as the average concentration contacted at the exposure point(s) over the duration of the exposure period (EPA, 1992a). EPA recommends using the average concentration to represent "a reasonable estimate of the concentration likely to be contacted over time" (EPA 1989). Use of the average concentration also coincides with EPA toxicity criteria, which are based on lifetime average exposures. Because of the uncertainty associated with estimating the true average concentration at a site, EPA guidance (EPA 1989, 1992) notes that the 95 percent upper confidence limit (UCL) of the arithmetic mean should be used for this variable. The UCL is defined as a value that, when calculated repeatedly for randomly drawn subsets of data, equals or exceeds the true population mean 95 percent of the time. Use of the UCL can also help account for uncertainties that can result from limited sampling data, and more accurately accounts for the uneven spatial distribution of contaminant concentrations. The process to calculate EPCs for tissue and beach sediment was previously described in the Programmatic Work Plan, and Round 1 tissue EPCs were previously presented in *Round 1 Tissue Exposure Point Concentrations* (Kennedy/Jenks Consultants 2004b) and *Salmon, Lamprey, and Sturgeon Tissue Exposure Point Concentrations for Oregon Department of Human Services* (Kennedy/Jenks Consultants 2004c), both of which were approved by EPA. The process for deriving EPCs for in-water sediment, surface water, and groundwater seeps was previously described in *Exposure Point Concentration Calculation Approach and Summary of Exposure Factors* (Kennedy/Jenks Consultants 2006), as approved by EPA.

EPCs for RME evaluations represent either the 95 percent UCL, or the maximum detected value when either there was insufficient data to calculate a UCL or the calculated UCL was greater than the maximum reported value. Although inconsistent with EPA guidance (EPA 1992), EPCs for sediment and surface water CT evaluations were calculated as the simple arithmetic mean because such an evaluation is consistent with OAR 340-122-0084(1)(g) and the primary purpose of the CT evaluations is that they provide bounding information to evaluate uncertainties in the RME evaluation in this risk assessment. EPCs for fish/shellfish consumption scenarios are the lesser of the 95 percent UCL or the maximum detected concentration, central tendency evaluations were achieved by using mean or median consumption rates. For analytes with less than 5 detected concentrations, the maximum detected concentration for that exposure area was used as the EPC for the RME evaluation. The uncertainties associated with estimating EPCs from small datasets and with using the maximum detected concentration as the EPC are discussed in Section 6. The 95 percent UCLs were calculated for each dataset following EPA guidance (EPA 2002a and EPA 2007b). ProUCL version 4.00.02 (EPA 2007b) was used to test datasets for normal, lognormal, or gamma distributions and to calculate the 95 percent UCLs. If the data did not exhibit a discernible distribution, a non-parametric approach was used to generate a UCL. The 95 percent UCLs were calculated using the method recommended by ProUCL guidance (EPA 2007b).

Prior to calculating EPCs, the data were evaluated to address reporting of multiple results for the same analyte in the same sample and to reduce laboratory duplicates and field splits of samples to derive a single value for use. Data reductions performed within the SCRA database followed the rules described in *Guidelines for Data Reporting, Data Averaging, and Treatment of Non-Detected Values for the Round 1 Database Technical Memorandum* (Kennedy/Jenks Consultants et al. 2004). Sample results are reported as not detected when the concentration of the analyte in the sample is less than the detection limit. The actual concentration may be zero, or some value between zero and the detection limit. The following rules were applied to the dataset for tissue, sediment, surface water, and groundwater seep samples:

1. A chemical was assumed to not be present if was not detected in any sample for a given medium within the Study Area, an EPC was not calculated for that chemical in that medium

2. A chemical was presumed to be present if it was detected at least once within the Study Area in samples for a given medium. When calculating the 95 percent UCL, non-detects were used in the calculation as recommended by the ProUCL software. ProUCL software output for the 95 percent UCLs calculated in this BHHRA are provided in Attachment F4. When calculating the simple mean, non-detected values were replaced with one half their detection limit in the calculations.

3. Non-detects for which the detection limit was greater than the maximum detected concentration in an exposure area were removed from the dataset prior to calculating EPCs.

Certain toxicity values are based on exposure to chemical mixtures rather than to individual chemicals, as identified in *Human Health Toxicity Values Interim Deliverable* (Kennedy/Jenks Consultants 2004a). Concentrations of the individual isomers or congeners that comprise the mixtures were summed as described in Section 2.2.8 to calculate the EPCs for the mixtures, and the risks from these chemicals were evaluated on the basis of the combined mixture rather than for individual chemicals.

3.4.1 Beach Sediment

EPCs for beach sediment were calculated using data collected during Rounds 1 and 2 from locations designated as human use areas. One composite sample was collected from each beach area, and the results from each composite sample were used as the EPC for the RME and CT evaluations. When evaluating exposure for dockside workers at industrial sites, the same EPC was used to represent adjacent sites in instances where the beach area extended across individual site boundaries. Otherwise, each designated beach area was evaluated as a single exposure area for transients, recreational beach users, and recreational, subsistence and tribal fishers. Beach sediment exposure areas are presented on Map 2-1, EPCs for dockside workers are presented in Table 3-2, EPCs for transient, recreational, and fishing uses are presented in Table 3-3.

3.4.2 In-Water Sediment

Direct contact with in-water sediment is most likely to occur in the near-shore areas outside of the navigation channel. Thus, only surface sediment data collected less than 30.5 cm in depth and outside of the navigation channel were used to exposure to in-water sediments. In–water sediment EPCs are calculated in one-half mile segments along both sides of the river from RM 1.0 to RM 12.2, and for samples within Multnomah Channel. Study Area-wide EPCs were calculated using the sediment data collected between RM 1.9 and 11.8. In-water sediment EPCs for exposures by in-water workers, divers, and recreational/subsistence/tribal fishers are presented in Table 3-4.

3.4.3 Surface Water

Exposure concentrations in surface water were calculated using data collected within the Study Area, as well as the transect data collected from the mouth of Multnomah Channel. Both integrated and non-integrated water column samples were included in the data set, the specific samples used were dependent upon the anticipated exposures

by the different receptors. A summary of the surface water samples used in calculating EPCs is presented in Table 3-5.

Surface water exposures by transients may occur throughout the year, EPCs were calculated using data from all seven seasonal sampling events. The data from each of the five transect locations were combined as described in Section 2.2.6. and EPCs were calculated for those five locations, at Willamette Cove using the discrete surface water samples, and on a Study Area-wide basis using the combined transect data from within the Study Area, excluding the transect location W027, which was collected at the mouth of Multnomah Channel. Surface water EPCs for exposures by transients are presented in Table 3-6.

Exposure to surface water by recreational beach users was assumed to occur primarily during summer months. Therefore, only data from the low-water sampling event conducted in July 2005 were used for calculating the surface water EPCs. These data were collected from recreational beaches in July 2005 included three transect locations and three single-point locations (Cathedral Park, Willamette Cove, and Swan Island Lagoon). Surface water EPCs for exposures by recreational beach users are presented in Table 3-7.

Exposures to surface water by divers were assumed to occur throughout the Study Area and were not considered seasonally dependent. EPCs were calculated in one-half mile intervals along each side of the river, and at each transect location. EPCs in surface water for exposures by divers are presented in Table 3-8.

Use of surface water as a domestic water source was assumed to have the potential to occur at any location through the Study Area on a year-round basis. Accordingly, data from all seven seasonal sampling events were used. EPCs were calculated for all individual transect stations and for single point stations with vertically integrated data. In addition, data from locations where co-located near-bottom and near-surface samples were collected were averaged and used in the domestic water dataset. Study Area-wide EPCs included all vertically integrated samples. EPCs for the use of surface water as a domestic water source are presented in Table 3-9.

3.4.4 Groundwater Seeps

As discussed Section 2.1.4, Outfall 22B, which is located on the west side of the river at RM 7, was the only seep identified where direct contact could occur within the Study Area. Data from two sampling events between 2002 and 2007 at times that did not involve stormwater influence were used to calculate the EPC, and the results are presented in Table 3-10.

3.4.5 Fish and Shellfish Tissue

EPCs for fish and shellfish tissue were calculated using data collected in the Round 1, Round 2, and Round 3 investigations, and the ODHS study. Study Area-

wide EPCs were calculated for recreational and subsistence fishers assuming a multi-species diet comprised of equal proportions of the four resident fish species for which data were collected. This was done by first calculating a harbor-wide concentration for each species, and then assigning a weighted fraction to each concentration corresponding to the portion of the total diet represented by each species to obtain a species-weighted EPC as follows:

$$Conc_{weighted} = \sum \left(C_{fish\,i} \times DF_{fish\,i} \right)$$

where:

$Conc_{weighted}$ = weighted chemical concentration fish tissue (mg/kg-wet weight)
C_{fish} = chemical concentration in fish tissue (mg/kg-wet weight)
DF_{fish} = fraction of total fish consumption represented by each species

Because PBDE data in fish tissue was limited to carp and smallmouth bass collected during Round 3 sampling, it was not possible to calculate a true weighted EPC. Therefore, the concentrations detected in smallmouth bass samples were used as representative of PBDE concentrations in other resident fish species. The EPCs for PBDEs are presented in Attachment F3.

EPCs were also calculated on a river-mile basis using fillet data from smallmouth bass as representative of chemical concentrations in all resident fish that might be collected from the same area. This was done because smallmouth bass are the only fish species for which data were collected and evaluated on a river mile scale. However, because fillet-only data were not collected in Swan Island Lagoon, EPCs in fillet tissue were estimated by calculating the COPC-specific ratios of the mean fillet-to-whole body concentration and applying that ratio to the measured whole body concentrations in Swan Island Lagoon.

Because of the manner in which data were collected and analyzed for other resident fish species, it is not possible to reliably make direct comparisons of chemical concentrations in fillet of smallmouth bass to other resident fish species on these smaller spatial scales. Averaged over a harbor-wide scale, the highest concentrations of persistent chlorinated organic compounds (such as PCBs and dioxins/furans) were detected in common carp, with increasingly lower concentrations detected in brown bullhead, smallmouth bass, and black crappie. PCB concentrations detected in common carp were as much as an order of magnitude greater than detected in smallmouth bass.

Crayfish and clams were collected and composited at each sampling location. EPCs for crayfish were calculated for each individual location as well as for the entire Study Area. EPCs for clams were calculated for both depurated and undepurated samples per river mile on each side of the river, as well as for the entire Study Area. EPCs were also calculated for crayfish and clams collected

between RM 1.0 and 1.9 and between RM 11.8 and 12.2, per an agreement with EPA.

EPCs for fish tissue are presented in Tables 3-11 through 3-15. The weighted Study Area-wide EPCs for a multi-species diet are presented in Table 3-16. EPCs for shellfish tissue are presented in Tables 3-17 through 3-20.

3.5 ESTIMATION OF CHEMICAL INTAKES

The amount of each chemical incorporated into the body is defined as the dose and is expressed in units of milligrams per kilogram per day (mg/kg-day). The dose is calculated differently when evaluating carcinogenic effects than when evaluating noncarcinogenic effects. Each is described below:

Non-cancer effects: The dose is averaged over the estimated exposure period and is expressed as a chronic daily intake (CDI). Thus, the CDI is used to represent the potential for adverse health effects over the period of exposure.

Carcinogenic effects: The dose is based on the estimated exposure duration, extrapolated over an estimated 70-year lifetime, representing the lifetime average daily intake (LADI). This is consistent with the cancer slope factors, which are based on lifetime exposures, and on the assumptions that the risk of carcinogenic effects is cumulative and continues even after exposure has ceased.

For non-occupational scenarios where exposures to children are considered likely, both adult and child receptors were evaluated. Children often exhibit behavior such as outdoor play activities and greater hand-to-mouth contact that can result in greater exposure than for a typical adult. In addition, children also have a lower overall body weight relative to the predicted intake. Because cancer risks are averaged over a lifetime, they are directly proportional to the exposure duration as well as the dose and the potency of the chemical. Accordingly, cancer risks were also assessed for a combined exposure from childhood through adult years, to account for the increased relative exposure and susceptibility associated with childhood exposures.

Superfund exposure assessments should be conducted such that the intake variables for an exposure pathway should result in an estimate of the reasonable maximum exposure (RME) expected to occur under both current and future land use conditions (EPA, 1989). The RME is defined as the highest exposure that is reasonably expected to occur at a site. The intent is to estimate an exposure that is substantially greater than the average, yet is still within the range of possible exposures. In general, this is accomplished by using a combination of 90^{th} or 95^{th} percentile values for contact rate, exposure frequency and duration, and 50^{th} percentile values for other variables. This BHHRA also evaluated central tendency (CT) exposures, which is intended to represent an average exposure by the affected population. Rationale and/or references for each of the RME and CT values for exposure pathways that were quantitatively

assessed for each exposure scenario for different populations are presented in exposure factor Tables 3-21 through 3-28 and discussed in the following sections.

3.5.1 Incidental Ingestion of Sediment

The following equation was used to calculate the intake (expressed as milligrams per kilogram per day [mg/kg-day]) associated with the incidental ingestion of contaminants in soil or sediment:

$$CDI / LADI = \frac{C_s \times IRS \times 10^{-6}\, kg/mg \times EF \times ED}{BW \times AT}$$

Age-weighted exposures for the combined child and adult receptors were calculated consistent with the following equations:

$$CDI / LADI = \frac{C_s \times IFS_{adj} \times EF \times 10^{-6}\, kg/mg}{AT}$$

where:

$$IFS_{adj} = \frac{ED_c \times IRS_c}{BW_c} + \frac{ED_a \times IRS_a}{BW_a}$$

where:

C_s = chemical concentration in soil or sediment (mg/kg)
IFS_{adj} = age-adjusted soil/sediment ingestion factor [(mg-year)/(kg-day)]
IRS_a = adult soil/sediment ingestion rate (mg/day)
IRS_c = child soil/sediment ingestion rate (mg/day)
EF = exposure frequency (days/year)
ED_a = adult exposure duration (years)
ED_c = child exposure duration (years)
BW_a = adult body weight (kg)
BW_c = child body weight (kg)
AT = averaging time (days)

The exposure assumptions for estimating chemical intake from the ingestion of chemicals in sediment are provided in Tables 3-21 and 3-22.

3.5.2 Dermal Contact with Sediment

The following equation was used to calculate exposure resulting from dermal contact with contaminants in soil or sediment:

$$CDI / LADI = \frac{C_S \times ABS \times SA \times AF \times EF \times ED \times 10^{-6}\, kg/mg}{BW \times AT}$$

Combined child and adult age-weighted exposures resulting from dermal contact with contaminants in sediment for the recreational beach user exposure scenarios were calculated consistent with the following equations:

$$CDI / LADI = \frac{C_S \times SFS_{adj} \times ABS \times EF \times 10^{-6}\, kg/mg}{AT}$$

where:

$$SFS_{adj} = \frac{ED_c \times AF_c \times SA_c}{BW_c} + \frac{ED_a \times AF_a \times SA_a}{BW_a}$$

where:

C_s = chemical concentration in soil or sediment (mg/kg)
SFS_{adj} = age-adjusted dermal contact factor [(mg-year)/(kg-day)]
ABS = absorption efficiency
SA_a = adult exposed skin surface area (square centimeters [cm^2])
SA_c = child exposed skin surface area (cm^2)
AF_a = adult soil-to-skin adherence factor (mg/cm^2)
AF_c = child soil-to-skin adherence factor (mg/cm^2)
EF = exposure frequency (days/year)
ED_a = adult exposure duration (years)
ED_c = child exposure duration (years)
BW_a = adult body weight (kg)
BW_c = child body weight (kg)
AT = averaging time (days)

The exposure assumptions for estimating exposure from dermal contact with soil or sediment are provided in Tables 3-21 and 3-22.

Dermal absorption of chemicals from soil or sediment adhered to the skin is dependent on a variety of factors, including the condition of the skin, the nature of adhered soil/sediment, and the chemical concentration. Dermal absorption factors, representing the fraction of a chemical absorbed from soil or sediment adhered to the skin, are presented in Table 3-26. Only those compounds or classes of compounds for which dermal absorption factors are presented were evaluated quantitatively via dermal contact, although assuming less than complete absorption may not fully describe risks associated with dermally active compound such as carcinogenic PAHs. The uncertainties associated with the exposure and risk estimates via dermal exposures with soil and sediments are presented in Section 6.

3.5.3 Ingestion of Surface Water

Exposure resulting from ingestion of surface water was evaluated using the following equation:

$$CDI / LADI = \frac{C_w \times IR_w \times EF \times ED}{BW \times AT}$$

Combined child and adult age-weighted exposures due to ingestion of surface water were calculated consistent with the following equations:

$$CDI / LADI = \frac{C_w \times IFW_{adj} \times EF}{AT}$$

where:

$$IFW_{adj} = \frac{ED_c \times IRW_c}{BW_c} + \frac{ED_a \times IRW_a}{BW_a}$$

where:

C_W = chemical concentration in water (mg/L)
IFW_{adj} = age-adjusted water ingestion factor [(L-year)/(kg-day)]
IRW_a = adult groundwater ingestion rate (L/day)
IRW_c = child groundwater ingestion rate (L/day)
EF = exposure frequency (days/year)
ED_a = adult exposure duration (years)
ED_c = child exposure duration (years)
BW_a = adult body weight (kg)
BW_c = child body weight (kg)
AT = averaging time (days)

The exposure assumptions for estimating chemical intake from the ingestion of groundwater or surface water are provided in Tables 3-23 and 3-25.

3.5.4 Dermal Contact with Surface Water

Dermal absorption of contaminants due to direct contact with surface water was evaluated using the following equation:

$$CDI / LADI = \frac{DA_{event} \times EV \times EF \times ED \times SA}{AT \times BW}$$

The combined child and adult age-weight absorption of contaminants due to direct contact with surface water was evaluated using the following equation:

$$CDI / LADI = \frac{DA_{event} \times EF \times DFW_{adj}}{AT}$$

The dermally-absorbed dose (DA_{event}) is calculated for organic analytes as a function of the length of exposure and the permeability of the skin to the chemical being absorbed. The rate a chemical enters the skin surface can be greater than the rate by which the chemical is leaving the skin and entering the bloodstream. If exposure is long enough, the chemical enters the skin at the same rate that it exits; this is a condition known as steady-state, designated as *t**. When the exposure duration is less the *t**, the DA_{event} is calculated as:

$$DA_{event} = 2 \times FA \times K_p \times C_w \times CF \times \sqrt{\frac{6 \times \tau \times ET_{adj}}{\pi}}$$

When the exposure duration is greater than *t**, DA_{event} is calculated as:

$$DA_{event} = K_p \times C_{water} \times CF \times \left[\left(\frac{ET_{adj}}{1+B} \right) + 2\tau \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

The age-adjusted exposure time is calculated as:

$$ET_{adj} = \frac{(ET_c \times ED_c) + [ET_a \times (ED_a - ED_c)]}{ED_r}$$

and the age-adjusted dermal contact factor for water, DFW_{adj} is calculated using the following equation:

$$DFW_{adj} = \frac{EV_c \times ED_c \times SA_c}{BW_c} + \frac{EV_a \times ED_a \times SA_a}{BW_a}$$

Where:

C_w = chemical concentration in water (mg/L)
DA_{event} = dermally absorbed dose (mg/cm^2-event)
DFW_{adj} = age-adjusted dermal contact factor (cm^2-event-day/kg)
K_p = dermal permeability coefficient (cm/hour)
τ = lag time (hours)
EV = events per day
EF = exposure frequency (days/year)
ET = exposure time (hours)
FA = fraction of chemical absorbed
CF = conversion factor (10^{-3} L/cm^3)
ED_a = adult exposure duration (years)
ED_c = child exposure duration (years)
SA_a = adult exposed skin surface area (cm^2)

SA_c = child exposed skin surface area (cm^2)
BW_a = adult body weight (kg)
BW_c = child body weight (kg)
AT = averaging time (days)

Chemical-specific factors are presented in Tables 3-27 and 3-28. These values were obtained from Appendix B of EPA's Supplemental Guidance for Dermal Risk Assessment (2004). The uncertainties associated with calculating DA_{event} for chemicals with factors outside of the Effective Prediction Domain are discussed in Section 6.

3.5.5 Consumption of Fish/Shellfish

The following equation was used to estimate exposure associated with the consumption of fish and shellfish:

$$CDI / LADI = \frac{C_t \times IR \times 10^{-3} kg / g \times EF \times ED}{BW \times AT}$$

Combined child and adult exposure was evaluated consistent with the following equation:

$$CDI / LADI = \frac{C_t \times IR_{t-adj} \times 10^{-3} kg / g \times EF}{AT}$$

where:

$$IR_{t-adj} = \frac{ED_c \times IR_c}{BW_c} + \frac{ED_a \times IR_a}{BW_a}$$

where:

C_t = Contaminant concentration in fish tissue (mg/kg, wet-weight basis)
IR_c = Fish consumption rate - child (g/day, wet-weight basis)
IR_a = Fish consumption rate - adult (g/day, wet-weight basis)
EF = Exposure frequency (days/year)
ED_c = Exposure duration – child (years)
ED_a = Exposure duration – adult (years)
BW_c = Body weight – child (kg)
BW_a = Body weight – adult (kg)
AT = Averaging time (days)

The exposure assumptions used to estimate exposure from fish and shellfish consumption are presented in Table 3-24.

3.5.6 Calculation of Intake due to Infant Consumption of Human Milk

Exposure to breastfeeding infants due to consumption of human milk was evaluated using a methodology developed by ODEQ, OHA, and EPA Region 10, adapted from EPA's Methodology for Assessing Health Risks Associated with Multiple Pathways of Exposure to Combustor Emissions (EPA 1998a) and the Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (EPA 2005a), and is described in detail in Appendix D of the DEQ Human Health Risk Assessment Guidance (DEQ 2010). The evaluation for this pathway focuses on PCBs, dioxins/furans, DDx, and PBDEs because of the propensity of these chemicals to bioaccumulate. Because the concentration of lipophilic chemicals in human milk is most directly correlated with the steady-state body burden, which itself is directly related to the long-term intake of the chemical, the daily maternal absorbed intake is calculated from the average daily dose to the mother (as calculated in the preceding sections) using the following equation:

$$DAI_{maternal} = ADD_{maternal} \times AE$$

where:

$DAI_{maternal}$ = daily absorbed intake of the mother (mg/kg-day)
$ADD_{maternal}$ = age-adjusted soil/sediment ingestion factor (mg/kg-day)
AE = absorption efficiency of the chemical

The steady-state chemical concentration in milk fat is then calculated as:

$$C_{milkfat} = \frac{DAI_{maternal} \times h \times f_f}{ln(2) \times f_{fm}}$$

where:

$C_{milkfat}$ = chemical concentration in milk fat (mg/kg-lipid)
$DAI_{maternal}$ = daily absorbed intake of the mother (mg/kg-day)
h = half-life of chemical (days)
f_f = fraction of absorbed chemical stored in fat
f_{fm} = fraction of mother's weight that is fat

Intake for infants via breastfeeding is then calculated as:

$$Intake = \frac{C_{milkfat} \times f_{mbm} \times CR_{milk} \times ED_{inf}}{BW_{inf} \times AT}$$

where:

f_{mbm} = fraction of fat in breast milk
CR_{milk} = consumption rate of breast milk (kg/day)
ED_{inf} = exposure duration of breastfeeding infant (days)
BW_{inf} = average infant body weight (kg)
AT = averaging time (days)

Additional information regarding the evaluation of persistent, bioaccumulative COPCs is presented in Section 5.1.3.

3.5.7 Calculation of Intake for Mutagenic COPCs

Early-in-life susceptibility to carcinogens has long been recognized by the scientific community as a public health concern. In its revised Cancer Assessment Guidelines, EPA concluded that existing risk assessment approaches did not adequately address the possibility that exposures to a chemical in early life may can result in higher lifetime cancer risks than a comparable duration adult exposure (EPA 2005b). In order to address this increased risk, the agency recommends use of a potency adjustment to account for early-in-life exposures. When no chemical-specific data are available to assess directly cancer susceptibility from early-life exposure, the following default Age Dependent Adjustment Factors (ADAFs) are recommended to be used when evaluating a carcinogen known to cause cancer through a mutagenic mode of action:

- 10-fold adjustment for exposures during the first 2 years of life;
- 3-fold adjustment for exposures from ages 2 to <16 years of age; and
- No adjustment for exposures after turning 16 years of age.

Of the COPCs evaluated in this HHRA, EPA considers that there is sufficient weight-of-evidence to conclude the carcinogenic PAHs cause cancer through a mutagenic mode of action.

The equations used to calculate intake for mutagenic COPCs are presented in the following sections. The exposure parameters are presented in Tables 3-21 to 3-25.

3.5.7.1 Incidental Ingestion of Sediment

The following equation was used to calculate the intake in mg/kg-day for mutagenic COPCs associated with incidental ingestion of soil or sediment:

$$CDI/LADI = \frac{C_s \times \left(\frac{(ED_{0\text{-}2} \times IRS_c) \times 10}{BW_c} + \frac{(ED_{2\text{-}6} \times IRS_c) \times 3}{BW_c} + \frac{(ED_{6\text{-}16} \times IRS_a) \times 3}{BW_a} + \frac{(ED_{16\text{-}30} \times IRS_a) \times 1}{BW_a} \right) \times EF}{AT}$$

where:

C_s = chemical concentration in soil or sediment (mg/kg)
IRS_a = adult soil/sediment ingestion rate (mg/day)
IRS_c = child soil/sediment ingestion rate (mg/day)
EF = exposure frequency (days/year)
$ED_{0\text{-}2}$ = exposure duration ages 0-2 (years)
$ED_{2\text{-}6}$ = exposure duration ages 2-6 (years)
$ED_{6\text{-}16}$ = exposure duration ages 6-16 (years)
$ED_{16\text{-}30}$ = exposure duration ages 16-30 (years)
BW_a = adult body weight (kg)
BW_c = child body weight (kg)
AT = averaging time (days)

3.5.7.2 Dermal Contact with Sediment

The following equation was used to calculate the intake from dermal contact with contaminants in soil or sediment:

$$CDI/LADI = \frac{C_S \times \left(\frac{ED_{0\text{-}2} \times AF_c \times SA_c \times 10}{BW_c} + \frac{ED_{2\text{-}6} \times AF_c \times SA_c \times 3}{BW_c} + \frac{ED_{6\text{-}16} \times AF_a \times SA_a \times 3}{BW_a} + \frac{(ED_{16\text{-}30} \times AF_a \times SA_a \times 1}{BW_a} \right) \times ABS \times EF \times 10^{-6} kg/mg}{AT}$$

where:

C_s = chemical concentration in soil or sediment (mg/kg)
ABS = absorption efficiency
SA_a = adult exposed skin surface area (square centimeters [cm^2])
SA_c = child exposed skin surface area (cm^2)
AF_a = adult soil-to-skin adherence factor (mg/cm^2)
AF_c = child soil-to-skin adherence factor (mg/cm^2)
EF= = exposure frequency (days/year)
$ED_{0\text{-}2}$ = exposure duration ages 0-2 (years)
$ED_{2\text{-}6}$ = exposure duration ages 2-6 (years)
$ED_{6\text{-}16}$ = exposure duration ages 6-16 (years)
$ED_{16\text{-}30}$ = exposure duration ages 16-30 (years)
BW_a = adult body weight (kg)
BW_c = child body weight (kg)
AT = averaging time (days)

3.5.7.3 Ingestion of Surface Water

The following equation was used to calculate intake of chemicals associated with ingestion of surface water:

$$CDI / LADI = \frac{C_w \times \left(\begin{array}{l} \frac{(ED_{0\text{-}2} \times IRW_c) \times 10}{BW_c} + \frac{(ED_{2\text{-}6} \times IRW_c) \times 3}{BW_c} + \\ \frac{(ED_{6\text{-}16} \times IRW_a) \times 3}{BW_a} + \frac{(ED_{16\text{-}30} \times IRW_a) \times 1}{BW_a} \end{array} \right) \times EF}{AT}$$

where:

C_w = chemical concentration in water (mg/L)
IFW_{adj} = age-adjusted water ingestion factor [(L-year)/(kg-day)]
IRW_a = adult groundwater ingestion rate (L/day)
IRW_c = child groundwater ingestion rate (L/day)
EF = exposure frequency (days/year)
$ED_{0\text{-}2}$ = exposure duration ages 0-2 (years)
$ED_{2\text{-}6}$ = exposure duration ages 2-6 (years)
$ED_{6\text{-}16}$ = exposure duration ages 6-16 (years)
$ED_{16\text{-}30}$ = exposure duration ages 16-30 (years)
BW_a = adult body weight (kg)
BW_c = child body weight (kg)
AT = averaging time (days)

The exposure parameters are presented in Tables 3-21 to 3-25.

3.5.8 Population-Specific Exposure Assumptions

Assumptions about each receptor population evaluated in this BHHRA were used to select exposure parameters used to calculate the pathway-specific chemical intakes. Site-specific values are not available for all populations and pathways. Therefore, default values representative of the general U.S. population (EPA 1991b) or values representing best professional judgment based on known human uses of the Study Area were used. The majority of the exposure parameters used in this BHHRA were previously described in the *Exposure Point Concentration Calculation Approach and Summary of Exposure Factors* (Kennedy/Jenks Consultants 2006), which was approved by EPA. Exposure parameters for divers were provided by EPA in its comments on the Round 2 Report. The exposure parameters are discussed below and presented in Tables 3-21 to 3-25. These values represent potential exposures for application at appropriate areas and/or areas agreed upon with EPA and its partners within the Study Area.

3.5.8.1 Dockside Workers

Exposure frequency for dockside workers was assumed to be 50 days/year for the RME evaluation, and 44 days/year the CT evaluation. The RME value assumes a dockside worker is exposed to beach sediment one day per week for 50 weeks per year (50 weeks/year is based on the average number of days worked by an outdoor

worker as being 225 days/year, according to the U.S. Census Bureau's *1990 Earnings by Occupation and Education Survey*, and assuming a 5-day work week). An exposure duration of 25 years was used, representing an EPA default value for the RME estimate of job tenure. This value is consistent with data from the U.S. Bureau of Labor Statistics showing that the 95th percentile job tenure for men in the manufacturing sector is 25 years. The CT estimate assumed duration of 9 years, representing approximately the 50th percentile of residence time estimates from the U.S. Census Bureau data (EPA, 1997).

A sediment ingestion rate of 200 mg/day was used for the RME evaluation, based on EPA Region 10 supplemental guidance on soil ingestion rates (EPA, 2000a), and is representative of approximately the midpoint between the recommended values of 100 mg/day for outdoor workers and 330 mg/day for construction workers. An ingestion rate of 50 mg/day was used to estimate CT exposure.

Dermal exposure was assessed assuming that the face, forearms and hands are exposed, representing an exposed skin surface area of 3,300 cm^2, which is representative of the median value (50th percentile) for adults. A body weight of 70 kg, representing the 50th percentile of mean body weights of men and women combined (EPA, 1997a) was used for all adult receptors. RME and CT exposure values for dockside workers are presented in Table 3-21.

3.5.8.2 In-Water Workers

According to the Army Corps of Engineers (Siipola 2004), the Port of Portland conducts the most frequent dredging within the Study Area, thus the exposure factors for workers at Terminal 4 are considered protective of in-water workers for potential in-water sediment exposures throughout the Study Area. Exposure factors for in-water workers were developed based on in-depth interviews with several workers at Terminal 4 who either conduct or oversee activities that could result in contact with in-water sediment. For the RME evaluation, in-water sediment exposures were assumed to occur for 10 of 25 years of employment at a given facility, with an exposure frequency of 10 days of sediment contact per year. For the CT evaluation, contact with in-water sediment is assumed for 4 of 9 years employment at a given facility, with an exposure frequency of 10 days of sediment contact per year. Intake rates for in-water sediment are the same as those used for the dockside worker, which are the default ingestion rate of soil for an industrial worker. RME and CT exposure values for the in-water worker are presented in Table 3-22.

3.5.8.3 Divers

Two different scenarios were evaluated, based on whether the divers wear wet or dry suits. Divers wearing wet suits are assumed to be working as commercial divers without a full face mask, and wearing either wet gloves or no gloves. An exposure frequency of 5 days/year for the RME evaluation and 2 days/year for the CT evaluation are based on best professional judgment and discussions between EPA,

LWG, and commercial divers, as well as the experience of EPA divers who work at the Portland Harbor Superfund site. Exposure durations of 25 years and 9 years were used for the RME and CT estimates, respectively, based on the labor statistics for job tenure described in Section 3.5.9.1.

Sediment ingestion rates were assumed to be 50 percent of the ingestion rate for dockside workers, corresponding to values of 50 mg/day and 25 mg/day, respectively for the RME and CT evaluations. Dermal exposure to sediment for divers wearing a wet suit was evaluated assuming the entire skin surface area was exposed. A value of 18,150 cm^2, representing the median skin surface area for men and women was used for both the RME and CT evaluations. Divers wearing a dry suit (with a neck dam) would likely have only their head, neck, and hands exposure, and a RME value of 2,510 cm^2 was used. Sediment dermal adherence factors for of 0.3 mg/cm^2-event and 0.07 mg/cm^2 event was used for the was used for the RME estimate and CT estimate, respectively. A CT evaluation was not done for divers wearing dry suits.

Incidental ingestion of surface water for both diver scenarios was assumed to be 50 mL/hour for both the RME and CT evaluations (EPA 1989). More recent data regarding estimates of the amount of water ingested by commercial divers indicates that on average, occupational divers ingested 6 mL/dive in freshwater and 10 mL/dive in marine water, with the maximum estimated ingestion ranging between 25 and 100/mL/dive (EPA 2011). Exposure via ingestion and dermal contact was assumed to occur for 4 hours/event for the RME estimate and 2 hours/event for the CT estimate.

Tables 3-22 and 3-23 summarize exposure assumptions for the wet suit and dry suit divers for in-water sediment and surface water, respectively.

3.5.8.4 Transients

Little information is available regarding how long individuals may remain at specific locations or within the Study Area itself. Based on professional judgment, an exposure duration of 2 years was assumed for the RME and 1 year for CT evaluations, exposure frequency was assumed to be daily (365 days/year). Incidental ingestion of sediment was evaluated at the same rates used for the dockside workers (200 mg/day). Dermal exposure was assessed assuming that the face, forearms and hands, and lower legs are exposed, representing an exposed skin surface area of 5,700 cm^2, which represents the median value for adults. A soil adherence factor of 0.3 mg/cm^2 was used based on the expectation that beach sediment would have a greater moisture content than dry soil. An ingestion rate of 2 L/day was used for consumption of surface water, which represents the default value for domestic water use. Tables 3-21 and 3-23 summarize RME and CT exposure values for the transient scenario for beach sediment and surface water, and the reference and rationale for each value.

3.5.8.5 Recreational Beach User

In the absence of specific information regarding the frequency of recreational activities in Portland Harbor, potential exposures are based on best professional judgment, assuming that beach use is most frequent in the summer, with less frequent use in the spring/fall, and only intermittent use in the winter. An exposure frequency of 94 days/year (5 days/week during summer, 1 day/week during spring/fall, and 1 day/month during winter) was used for the RME estimate and 38 days/year (2 days/week during summer, 2 days/month during spring/fall) was used for the CT estimate. Exposure duration for recreational activities is based on the assumption that individuals are largely permanent residents of the Portland area. Accordingly, an exposure duration of 30 years, which represents approximately the 95th percentile of the length of continuous residence in a single location in the U.S. population (EPA 1997) was used for the RME estimate. More recent studies described in the 2011 edition of EPA's Exposure Factors Handbook show the 95th percentile value is closer to 33 years, data from the U.S. Census Bureau indicate that 32 years represents the best estimate of residence time at the 90th percentile. However, the value of 30 years is consistent with other Superfund risk assessments nationwide, and represents a reasonably conservative estimate of total residence time in the area. An exposure duration of 9 years was used for the CT estimate.

Sediment ingestion rates of 100 mg/day for adults and 200 mg/day for children were used, approximating the 95th percentile soil ingestion rates. CT estimates assumed sediment ingestion rates of 100 mg/day for children and 50 mg/day for adults. Dermal exposures were evaluated assuming that the face, forearms and hands, and lower legs are exposed. Median values of 5,700 cm^2 and 2,800 cm^2 were used for adults and children, respectively. A soil-skin adherence of 3.3 mg/cm^2-day was used for children to account for the greater moisture content of beach sediment.

Water temperatures in the Lower Willamette River would typically limit swimming to the summer months, thus the RME estimates for swimming were assumed to occur at a rate of 26 days per year for adults and 65 days per year for children. As discussed in Section 3.5.10.3, incidental ingestion of river water was assumed to occur at a rate of 50 mL/hour while swimming. Based on current recommendations, 50 mL/hr represents mean value, assuming 21mL/hr for adults and 49 mL/hr for children, upper-percentile recommended values are 71 mL/hr for adults and 121 mL/hr for children (EPA 2011). Tables 3-21 and 3-23 summarize RME and CT exposure values for beach sediment and surface water, respectively, for adult and child recreational beach users.

3.5.8.6 Recreational and Subsistence Fishers

Because there is limited information regarding the frequency of fishing activities within the Study Area, a range of possible exposures was evaluated for people who engage in recreational or subsistence fishing activities by considering both a high- and a low-frequency rate of fishing. RME estimates for high-frequency fishers assumed a fishing frequency of 156 days/year, approximating a rate of 3 days/week.

Low-frequency fishers were assumed to fish 104 days/year, approximating a rate of 2 days/week. CT estimates assumed a frequency of 52 days/year and 26 days/year for high- and low-frequency fishers, respectively, and are representative of assumed fishing frequencies of 1 day/week and 2 days/month. People engaged in recreational or subsistence fishing were also assumed to be residents of the greater Portland area, therefore exposure durations of 30 years and 9 years, were used for the RME and CT evaluations, respectively, based on the population statistics for residency discussed in Section 3.5.8.5.

Incidental ingestion of beach sediment was evaluated assuming 100 mg/day for the RME estimate and 50 mg/day for the CT estimate, representative of soil ingestion rates in a typical residential setting. Rates of 50 mg/day for the RME estimate and 25 mg/day for the CT estimate were used for incidental ingestion of in-water sediment, representing 50 percent of the rates used for beach sediment. An exposed surface area of 5,700 cm^2, representing the face, hands, forearms and lower legs was used to assess dermal exposure to beach sediments, exposures to in-water sediment was assumed to be limited to the hands and forearms, corresponding to a surface area of 1,980 cm^2. Sediment adherence to skin was evaluated using a weighted adherence factor based on exposure to the hands, forearms, and lower legs (EPA 2004). A factor of 25 percent was used to account for the time spent fishing in a single area within the Study Area. Exposure assumptions for beach and in-water sediment contact for recreational/subsistence fishers are presented in Tables 3-21 and 3-22

Information currently available indicates that spring Chinook salmon, steelhead, Coho salmon, shad, crappie, bass, and white sturgeon are the fish species preferred by local recreational fishers (DEQ 2000b, Hartman 2002, and Steele 2002). In addition to recreational fishing, an investigation by the Oregonian newspaper and limited surveys conducted on other portions of the Willamette River indicate that immigrants from Eastern Europe and Asia, African-Americans, and Hispanics are most likely to be catching and eating fish from the lower Willamette either as a supplemental or primary dietary source (ATSDR 2002). These surveys also indicate that the most commonly consumed species are carp, bullhead, catfish, and smallmouth bass, although other species may also be consumed. In conversations that were conducted as part of a project by the Linnton Community Center (Wagner 2004) about consumption of fish or shellfish from the Willamette River, transients reported consuming a large variety of fish, and several said they ate whatever they could catch themselves or obtain from other fishers.

No studies were located that document specific consumption rates of recreational or subsistence anglers in Portland Harbor prior to its listing as a Superfund site, and surveys conducted subsequent to the listing would not be representative of historical, baseline consumption patterns due to subsequent fish advisories and efforts to limit consumption of fish caught from the harbor. Therefore, fish consumption rates from published studies were used to describe the range of reasonably expected exposures relevant to the different populations known to occur in the Portland Harbor area.

Three different rates were evaluated: 17.5 grams per day (approximately 2 eight ounce meals per month), 49 g/ day (approximately 6 ½ eight ounce meals per month), and 142 g/day per day (19 eight ounce meals per month). The term "recreational fishers" is intended to encompass a range of the population while focusing on those who may fish on a more-or-less regular basis, and "subsistence fishers" to represent populations with high fish consumption rates, recognizing that fish are not an exclusive source of protein in their diet. Accordingly, 17.5 g/day is considered representative of a CT value for recreational fishers, and 49 g/day was selected as the RME value representing the higher-end consumption practices of recreational fishers. The consumption rate of 142 g/day represents a RME value for high levels of fish consuming, or subsistence, fishers. No CT value was selected because the evaluations based on 17.5 g/day and 49 g/day inform the risks associated with consumption rates less than 142 g/day. Consumption rates for children aged 6 years and younger were calculated by assuming that their rate of fish consumption is approximately 42 percent of an adult, based on the ratio of child-to-adult consumption rates presented in the CRITFC Fish Consumption Survey (CRITFC 1994). The corresponding rates that were used for children are 7 g/day, 20 g/day, and 60 g/day.

The rates of 17.5 g/day and 142 g/day represent the 90^{th} and 99^{th} percentiles, respectively, of per capita consumption of uncooked freshwater/estuarine finfish and shellfish by individuals (consumers and non-consumers) 18 or older, as reported in the Continuing Survey of Food Intakes by Individuals (CSFII) and described in EPA's Estimated Per Capita Fish Consumption in the United States (EPA 2002b). While the values are presented in terms of "uncooked weight," it should not be construed to imply that the fish are consumed raw, as the consumption rates represent adjusted values to account for the amount of uncooked fish needed to prepare specific meals. No adjustments were made to contaminant concentrations in raw fish tissue because of the uncertainties associated with accounting for specific preparation and cooking practices.

The CSFII surveys recorded food consumption for two non-consecutive days. "Consumers only" were defined as individuals who ate fish at least once during the 2-day reporting period, individuals who reported not consuming any fish during the reporting period were designated as "non-consumers." For comparison, the 90^{th} and 99^{th} percentile consumption rates for consumers-only are 200 g/day and 506 g/day, respectively (EPA 2002b). Because of the short time period over which the survey is conducted, the results characterize the empirical distribution of average daily per capita consumption rather than describe true long-term average daily intakes. Although 17.5 g/day represents a 90^{th} percentile value, it is considered an average consumption rate for sport fishers (EPA 2000d). Similarly, 142 g/day is considered to be representative of average consumption estimates for subsistence fishers when compared to upper percentile values for consumers only. However, the use of values representative of both non-consumers and consumers is appropriate as it accounts for the fact that some portion of the total diet of fish consumed may come from sources other than Portland Harbor. The consumption rate of 49 g/day is from a creel study

conducted in the Columbia Slough (Adolfson 1996), and represents the 95 percent upper confidence limit on the mean, where 50 percent of the mass of the total fish is consumed (Adolfson 1996). Use of this rate accounts for the likelihood that at least some individuals may consume more than just fillets, and that the consumption rates from the Columbia Slough survey are presented as mean values rather than upper percentiles.

The Columbia Slough survey is subject to several deficiencies that limit its usefulness in describing fish consumption patterns in Portland Harbor. Factors that may lead to a positive bias (over predicting consumption) include that the survey was conducted only over one month during the summer (fishing may be less frequent in colder winter months), and that creel surveys tend to encounter anglers who fish more frequently and/or have greater success. Additionally, the consumption rates are reported as the 95 percent UCL on the mean rather than an upper bound percentile as recommended to describe intake in a RME assessment. Factors that may lead to a negative bias include current fish consumption advisories for Columbia Slough, and that individuals who fish more frequently (and/or consume more fish that recommended in the current advisory) may have been reluctant to participate. Other factors that may affect the overall accuracy include the fact that the interviewers often had to estimate the size of fish caught, actual preparation of the fish for consumption may have been someone other than the person interviewed, thus estimates of how much of the fish is actually consumed was not accurate, and not all known fishing locations were surveyed. However, the results of the study do provide some insight into local, non-tribal fishing and consumption patterns.

Consumption of shellfish was evaluated considering only consumption by adults, and assuming that consumption of shellfish is primarily a component of a subsistence diet. Site-specific information regarding consumption of shellfish is not available, thus a range of consumption rates were evaluated. Consumption rates of 3.3 g/day and 18 g/day were selected as representative of CT and RME estimates. These values represent the mean and 95th percentile consumption rates of shellfish from freshwater and estuarine systems for individuals of age 18 and older in the United States (EPA 2002b). Exposure assumptions for recreational/subsistence fish consumption are presented in Table 3-24, and the uncertainties associated with these consumption rates are discussed in Section 6.

3.5.8.7 Tribal Fishers

Specific information regarding population mobility on Native American populations is less readily available than for the general U.S. population. The evaluation of exposures to Native Americans was based on the premise that they spend their entire lives in the area (EPA 2005c), and a typical lifetime was evaluated as 70 years. Fishing frequency was assumed to be 260 days/yr (5 days/week) for the RME estimate and 104 days/year (2 days/week) for the CT estimate.

Incidental ingestion of beach sediment was evaluated assuming 100 mg/day for the RME estimate and 50 mg/day for the CT estimate. Rates of 50 mg/day for the RME estimate and 25 mg/day for the CT estimate were used for incidental ingestion of in-water sediment, representing 50 percent of the rates used for incidental soil ingestion in a typical residential setting. An exposed surface area of 5,700 cm^2, representing the face, hands, forearms and lower legs was used to assess dermal exposure to beach sediments, exposures to in-water sediment was assumed to be limited to the hands and forearms, corresponding to a surface area of 1,980 cm^2. Sediment adherence to skin was evaluated using a weighted adherence factor based on exposure to the hands, forearms, and lower legs (EPA 2004). A factor of 25 percent was used to account for the time spent fishing in a single area within the Study Area. Exposure assumptions for beach and in-water sediment contact for tribal fishers are presented in Tables 3-21 and 3-22.

Fish consumption by tribal members was evaluated assuming a multi-species diet that includes both resident and anadromous fish (salmon, lamprey, and sturgeon). An overall rate of 175 g/day (approximately 23 eight oz meals per month), representing the 95th percentile of consumption rates for consumers and non-consumers in the CRITFC Survey was used for adult tribal fish consumers. A consumption rate of 73 g/day, representing the 95th percentile of consumption for children from the CRITFC Survey was used for child tribal fish consumers. The CRITFC survey reported that none of the respondents fished the Willamette River for resident fish, and approximately 4 percent fished for anadromous fish. Overall fish consumption information from the CRITFC survey was used to determine the consumption rate for each fish species, as shown in the following table:

Species	Grams per day[(a)]	Percent of diet
Salmon	67	38.4
Lamprey	12.3	7.0
Sturgeon	8.6	4.9
Smelt	12.5	7.2
Whitefish	23.2	13.3
Trout	25.1	14.3
Walleye	9.9	5.7
Northern Pikeminnow	3.7	2.1
Sucker	7.3	4.2
Shad	5.2	3.0
Total Consumption Rate	175	100

(a) Rates are based on the weighted mean data in Table 18 of CRITFC 1994.

As shown, consumption rates of anadromous species account for approximately 50 percent of total intake. Consumption of salmon, lamprey and sturgeon were evaluated at rates of 67 g/day, 12.3 g/day, and 8.6 g/day, respectively. The remaining portion of the diet was evaluated assuming equal portions of the four resident fish (smallmouth bass, brown bullhead, common carp, and black crappie) for which tissue data were

available. Consumption rates for children were calculated using the same dietary percentages as the adult tribal fish consumers and a total intake of 73 g/day. Exposure assumptions for tribal fish consumption are presented in Table 3-24. Adult salmon, adult lamprey, and sturgeon have life histories such that significant contaminant loading can occur outside of the Study Area, making it problematic to associate tissue concentrations with site contamination. However, including consumption of anadromous fish in conjunction with resident fish provides useful information regarding risks to tribal members who may fish the Lower Willamette River.

3.5.8.8 Domestic/Household Water User

Use of surface water as a household water source was evaluated assuming exposure occurs in a residential setting. Exposure frequency is assumed as 350 days per year (7 days/week for 50 weeks) for both the RME and CT evaluations. As discussed in Section 3.5.9.5, overall exposure duration for residential exposure was assessed as 30 years for the RME estimate and 9 years for the CT estimate. Water ingestion by adults was evaluated at a rate of 2 L/day for the RME estimate, representing the average of the 90th percentiles of two national studies (EPA 1997a). A value of 1.4 L/day was used for the CT estimate, representing the population-weighted means of the same studies. These values are representative of water consumed directly from the tap or used in the preparation of food and beverages for adults. Ingestion rates representing 50th percentile values of 1.4 L/day for RME and 0.9 L/day for CT were used for children aged 6 years and younger.

Dermal exposures during showering or bathing were evaluated assuming a rate of one event per day, with an event duration of 35 minutes (0.58 hr) for the RME and 15 minutes (0.15 hr) for the CT, representing the 95th and 50th percentile values from EPA 1997a. A total skin surface area of 18,000 cm^2, representing estimates of the 50th percentile of mean surface area for adult men and women (EPA 1997a), was used for both the RME and CT estimates. A corresponding mean surface area of 6,600 cm^2 was used for children aged 6 years and younger.

Table 3-25 summarizes the exposure assumptions used to evaluate domestic use of surface water.

3.5.9 Chemical-Specific Exposure Factors and Assumptions

In calculating chemical intakes, certain assumptions were made that were specific to a given chemical or class of chemicals. These chemical-specific assumptions had an effect on both EPCs and intake calculations, and are described below.

3.5.9.1 Arsenic

Although arsenic was analyzed as total arsenic, the toxicity values represent inorganic arsenic. In previous fish tissue studies in the lower Columbia and Willamette Rivers, the percent of inorganic arsenic relative to total arsenic ranged from 0.1 percent to

26.6 percent with an average of 5.3 percent inorganic arsenic in resident fish samples from the Willamette River (Tetra Tech 1995, EVS 2000). Shellfish may have a higher percentage of inorganic arsenic, as measured in studies on the Lower Duwamish River. The Columbia River Basin Fish Contaminant Survey (EPA 2002c) concluded that a "value of 10 percent is expected to result in a health protective estimate of the potential health effects from arsenic in fish." Therefore, 10 percent of total arsenic in tissue was assumed to be inorganic arsenic when calculating the EPCs in fish and shellfish tissue. Uncertainties associated with the assumption that 10 percent of the total arsenic is in the inorganic form in fish and shellfish are discussed further in Section 6.

3.5.9.2 PCBs

PCBs were analyzed as Aroclors and congeners in tissue. Where PCBs were analyzed as Aroclors, the summed concentration of individual Aroclors was used in calculating the EPCs. Where PCBs were analyzed as congeners, EPCs were calculated for an adjusted total PCB value. The adjusted total PCB value was calculated by subtracting the concentration of the coplanar PCB congeners from the total PCB concentration. This was done because the coplanar PCB congeners were evaluated separately (as TCDD toxic equivalents [TEQs]) for cancer risks. Further explanation of how PCB congeners were summed is provided in as described in Section 2.2.8.

3.5.9.3 Oral Bioavailability Factors for Sediment

Consistent with EPA guidance (1989), the chemical intake equations calculate the amount of chemical at the human exchange boundaries, not the amount of chemical available for absorption. Therefore, the estimated intakes calculated in this BHHRA are not the same as the absorbed dose of a chemical. However, the toxicity of an ingested chemical depends on the degree to which the chemical is absorbed from the gastrointestinal tract into the body. Per EPA guidance (1989, 2007c), if the exposure medium in the risk assessment differs from the exposure medium assumed by the toxicity value an adjustment for bioavailability may be appropriate. For purposes of this BHHRA, oral bioavailability factors were not used to adjust the estimated exposures from COPCs in sediment. The uncertainties associated with not considering bioavailability in this BHHRA are discussed in Section 6.

4.0 TOXICITY ASSESSMENT

The toxicity assessment is composed of two steps: (1) hazard identification and (2) dose-response assessment. Hazard identification is the process of determining whether exposure to a chemical may result in a deleterious health effect in humans. It consists of characterizing the nature of the effect and the strength of the evidence that the chemical will cause the observed effect. Dose-response assessment characterizes the relationship between the dose and the incidence and/or severity of the adverse health effect in the exposed population. For risk assessment purposes, chemicals are generally separated into categories based on their toxicological endpoints. The primary basis of this categorization is whether a chemical exhibits potentially carcinogenic or noncarcinogenic health effects. Because chemicals that are suspected carcinogens may also give rise to noncarcinogenic effects, they must be evaluated separately for both effects.

4.1 TOXICITY VALUES FOR EVALUATING CARCINOGENIC EFFECTS

Cancer slope factors are used to estimate the risk of cancer associated with exposure to a chemical known or suspected to be carcinogenic. The slope factor is derived from either human epidemiological or animal studies, and represents an upper bound, generally approximating a 95 percent confidence limit, on the increased cancer risk from a lifetime exposure by ingestion. Slope factors are generally expressed in units of proportion (of a population) affected per mg of substance/kg body weight-day ($[(mg/kg\text{-}day)^{-1}]$).

In addition to the numerical estimates of carcinogenic potential, a cancer weight-of-evidence (WOE) descriptor is used to describe a substance's potential to cause cancer in humans and the conditions under which the carcinogenic effects may be expressed. This judgment is independent of consideration of the agent's carcinogenic potency. Under EPA's 1986 guidelines for carcinogen risk assessment, the WOE was described by categories "A through E"—Group A for known human carcinogens through Group E for agents with evidence of noncarcinogenicity. Under EPA's 2005 guidelines for carcinogen risk assessment, a narrative approach rather than the alphanumeric categories is used to characterize carcinogenicity. Five standard weight-of-evidence descriptors are used: *Carcinogenic to Humans, Likely to Be Carcinogenic to Humans, Suggestive Evidence of Carcinogenic Potential, Inadequate Information to Assess Carcinogenic Potential, and Not Likely to Be Carcinogenic to Humans).* Slope factors for assessing dermal exposure were derived as described in Section 4.7, and oral and dermal slope factors are presented in Table 4-1.

4.2 TOXICITY VALUES FOR EVALUATING NONCARCINOGENIC EFFECTS

The reference dose (RfD) provides quantitative information for use in risk assessments for health effects known or assumed to be produced through a nonlinear

(possibly threshold) mode of action. The RfD, expressed in units of mg of substance/kg body weight-day (mg/kg-day) is defined as an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. The use of RfDs is based on the concept that there is range of exposures that exist up to a finite value, or threshold, that can be tolerated without producing a toxic effect. Reference doses are presented in Table 4-2.

4.3 SOURCES OF TOXICITY VALUES

The following hierarchy of sources of toxicity values is currently recommended for use at Superfund sites (EPA 2003b):

- Tier 1 – EPA's Integrated Risk Information System (IRIS) database (EPA 2010b) is the preferred source of information because it normally represents the official EPA scientific position regarding the toxicity of the chemicals based on the data available at the time of the review. IRIS contains RfDs and cancer slope factor (SFs) that have gone through a peer review and EPA consensus review.
- Tier 2 - EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) are toxicity values derived for use in the Superfund Program when such values are not available in IRIS. PPRTVs are derived after a review of the relevant scientific literature using the methods, sources of data and guidance for value derivation used by the EPA IRIS Program. The PPRTV database includes RfDs and SFs that have undergone internal and external peer review. The Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Technical Support Center (STSC) develops PPRTVs on a chemical-specific basis when requested by EPA's Superfund program.
- Tier 3 - Tier 3 includes additional EPA and non-EPA sources of toxicity information. Priority is given to those sources of information that are the most current, the basis for which is transparent and publicly available, and which have been peer reviewed. Tier 3 sources may include, but need not be limited to, the following sources:
  - The California Environmental Protection Agency (Cal EPA) Toxicity Criteria Database (Cal EPA 2008) includes toxicity values that have been peer reviewed.
  - The ATSDR Minimal Risk Levels are similar to RfDs and are peer reviewed.
  - Health Effects Assessment Summary Table (HEAST) toxicity values are currently under review by the STSC to derive PPRTVs. The toxicity values remaining in HEAST are considered Tier 3 values.

Trichloroethene cancer potency was evaluated using the geometric mid-point of the slope factor range from EPA 2001b as recommended by EPA Region 10 (EPA 2007b). Recommendations were not provided for evaluating oral exposures for noncancer endpoints for trichloroethene.

4.4 CHEMICALS WITH SURROGATE TOXICITY VALUES

If a toxicity value was not available from the above hierarchy for a specific chemical, a structurally similar chemical was identified as a surrogate. The reference dose or slope factor for the surrogate chemical was selected as the toxicity value and the surrogate chemical was indicated in Tables 4-1 and 4-2. The following chemicals were evaluated using surrogate toxicity criteria:

- Butyltin. The toxicity of organotin compounds is somewhat determined by the nature and number of groups bound to tin. In general, toxicity decreases as the number of linear carbons increases and as the number of substitutions decrease. As a health protective approach, RfD for dibutyltin compounds was selected as a surrogate for butyltin.

- Acenaphthylene is classified as category D (not classifiable as to human carcinogenicity). The RfD for acenaphthene, which is the most structurally similar PAH, was selected as a surrogate for acenaphthylene.

- Benzo(e)pyrene. As a health protective approach, the RfD for pyrene was used as a surrogate for benzo(e)pyrene.

- Benzo(g,h,i)perylene is classified as category D (not classifiable as to human carcinogenicity). As with benzo(e)pyrene, the RfD for pyrene was used as a surrogate for benzo(g,h,i)perylene.

- Dibenzothiophene. Fluorene the most structurally similar PAH with available toxicity values. Hence, the RfD for fluorene was used as a surrogate for dibenzothiophene.

- Dibenzofuran. The RfD for flourene, which represents the most structurally similar compound for which an RfD was available was selected as a surrogate for dibenzofuran.

- Di-n-octyl phthalate. The RfD for dibutyl phthalate was selected as a surrogate for di-n-octyl phthalate.

- Perylene. The RfD for pyrene was selected as a surrogate for perylene.

- Phenanthrene. The RfD for pyrene was selected as a surrogate for phenanthrene.

- Retene. The RfD for pyrene was selected as a surrogate for retene.

- Endrin aldehyde. Endrin aldehyde can occur as an impurity of endrin or as a degradation product (ATSDR 1996). The RfD for endrin was used as a surrogate for endrin aldehyde.

- Endrin ketone. Endrin ketone can occur as an impurity of endrin or as a degradation product (ATSDR 1996). The RfD for endrin was used as a surrogate for endrin ketone.

- 4-Nitrophenol. The RfD for 4-methylphenol was used as a surrogate for 4-nitrophenol.

4.5 CHEMICALS WITHOUT TOXICITY VALUES

No SF and RfD or other suitable surrogate values were obtained for titanium and delta-hexachlorocyclohexane (delta-HCH). Titanium is a naturally occurring element and has been characterized as having extremely low toxicity (Friberg et al. 1986). An STSC review concluded that the other hexachlorocyclohexane isomers could not be used as surrogates for delta-HCH due to differences in toxicity (EPA 2002d). Accordingly, the potential risks from titanium and delta-HCH are discussed qualitatively in the uncertainty assessment in Section 6.

SFs and RfDs were not identified for lead because lead was evaluated through comparison with benchmark concentrations that are based on blood lead levels. Benchmark concentrations for child exposure scenarios were predicted by the Integrated Exposure Uptake Biokinetic (IEUBK) model. Benchmark concentrations for adult exposure scenarios were predicted by the Adult Lead Methodology (ALM). Uncertainties associated with using these benchmark concentrations are discussed in Section 6.4.4.

4.6 TOXICITY VALUES FOR CHEMICAL CLASSES

Certain toxicity values are based on exposure to more than one isomer and not to individual chemicals. As a result, the risks were evaluated for the combined exposure rather than on an individual chemical basis. COPCs that were evaluated for toxicity as classes are indicated in Tables 4-1 and 4-2, and are discussed below.

- Chlordane: The chlordane toxicity values were derived for technical chlordane, which is composed of a mixture of chlordane isomers. The chlordane isomers analyzed in Round 1, Round 2, and Round 3 samples were alpha-chlordane, *trans*-chlordane, *cis*-nonachlor, *trans*-nonachlor, and oxychlordane. These isomers were summed in a total chlordane concentration. The SF and RfD for technical chlordane were used to evaluate total chlordane.

- DDD, DDE, and DDT: Technical DDT includes 2,4'-DDT and 4,4'-DDT, as well as 2,4'-DDE, 4,4'-DDE, 2,4'-DDD, and 4,4'-DDD. Although individual slope factors are available for DDD, DDE, and DDT based on studies conducted using the 4,4' isomers, the potency of the 2,4' isomers was assumed to be equal to that of the 4,4' isomers, and cancer risks assessed as the sum of the 2,4' and 4,4' isomers. Additionally, the RfD for DDT was used as a surrogate to evaluate the noncancer effects of DDD and DDE.

- Endosulfan: The RfD for endosulfan was derived from studies using technical endosulfan, which includes alpha-endosulfan, beta-endosulfan, and endosulfan sulfate. The individual endosulfan results were summed to give a total endosulfan concentration, and the RfD for technical endosulfan was used to evaluate total endosulfan.

- PCBs: The cancer slope factor for PCBs is based on administered doses of Aroclors (Aroclor 1016, 1242, 1254, or 1260), and was used to assess the cancer risks for total PCBs measured either as congeners or Aroclors. As discussed in Section 2.2.8, total PCB concentrations were calculated as either the sum of Aroclors or individual congeners. Where PCBs were reported as individual congeners, an adjusted PCB concentration was calculated by subtracting the sum of total dioxin-like PCB congener concentrations from the sum of all congeners. Dioxin-like PCB congeners were evaluated separately using the slope factor for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) as described below. This approach may double-count a portion of the toxicity of the dioxin-like PCBs, as discussed in Section 6.3.6. The RfD for Aroclor 1254 was used to evaluate the noncancer endpoint for total PCBs, measured either as total unadjusted congeners or as Aroclors.

- Dioxins and furans: Toxic Equivalency Factors (TEFs) from the World Health Organization (WHO) (Van den Berg 2006) were used to evaluate carcinogenic effects of dioxin and furan congeners and for dioxin-like PCB congeners (see Table 4-3). Concentrations of individual congeners are multiplied by their respective TEF to provide a 2,3,7,8-TCDD-equivalant concentration (TEQ), the resulting TEQs are then summed into a total 2,3,7,8-TCDD TEQ. Cancer risk were assessed using the slope factor for 2,3,7,8-TCDD was used to evaluate the cancer endpoint of the TEQ for dioxin and furan congeners, as well as for dioxin-like PCB congeners. The ATSDR MRL for 2,3,7,8-TCDD was used in conjunction with the TEQ approach for dioxin and furan congeners, and for dioxin-like PCB congeners.

- Carcinogenic PAHs: Individual carcinogenic PAHs were evaluated for toxicity based on their potency equivalency factor (PEF), which estimates cancer potency relative to benzo(a)pyrene (EPA 1993). The toxicity values for individual PAHs shown in Table 4-1 incorporate their respective PEFs. Risk

from both individual and total carcinogenic PAHs was assessed in this BHHRA.

4.7 DERMAL ASSESSMENT

Toxicity is a function of contaminant concentration at critical sites-of-action. However, most oral reference doses and slope factors are expressed as an administered dose, whereas exposure estimates for dermal exposures are based on the absorbed dose. Anatomical differences between the gastrointestinal tract and the skin can affect rate as well as the extent of absorption. Thus, the route of exposure may significantly affect the critical dose at the site-of-action. A further complication is that an orally administered dose experiences "hepatic first-pass" metabolism, which may significantly alter the toxicity of the administered chemical. Additionally, some chemicals can cause cancer or other effects through direct action at the point of application. For such locally active compounds, it may be inappropriate to evaluate risks based on oral response data.

As recommended by EPA guidance (EPA 2004), an adjustment to the oral toxicity factor to account for the estimated absorbed dose was applied when the toxicity value derived from the critical study was based on an oral dose and GI absorption of the chemical is less than 50 percent from a medium similar to the one used in the critical study.

Dermal RfDs for assessing dermal exposure were calculated using the following equation:

$$RfD_{dermal} = RfD_o \times ABS_{GI}$$

RfD_{dermal} = dermal reference dose (mg/kg-day)
RfD_o = oral reference dose (mg/kg-day)
ABS_{GI} = fraction of contaminant absorbed in gastrointestinal tract

Cancer slope factors for assessing dermal exposure were calculated as follows:

$$SF_{dermal} = \frac{SF_o}{ABS_{GI}}$$

SF_{dermal} = dermal cancer slope factor $(mg/kg\text{-}day)^{-1}$
SF_o = oral cancer slope factor $(mg/kg\text{-}day)^{-1}$
ABS_{GI} = fraction of contaminant absorbed in gastrointestinal tract

5.0 RISK CHARACTERIZATION

Risk characterization integrates the information from the exposure assessment and toxicity assessment, using a combination of qualitative and quantitative information to provide numerical estimates of potential adverse health effects. Risk characterization is performed separately for carcinogenic and noncarcinogenic effects. Carcinogenic risk is expressed as the probability that an individual will develop cancer over a lifetime as a result of exposure to a potential carcinogen. Noncarcinogenic hazards are evaluated by comparing an estimated exposure level or dose with a reference dose that is without appreciable risk of adverse health effects.

5.1 RISK CHARACTERIZATION METHODOLOGY

This section describes how noncancer hazards and cancer risks were estimated in this BHHRA.

5.1.1 Noncancer Hazard Estimates

The potential for adverse noncancer health effects is generally addressed by comparing the CDI to the corresponding RfD to yield a hazard quotient (HQ; EPA 1989):

$$HQ = \frac{CDI}{RfD}$$

The calculation of a HQ assumes that exposures less than the RfD are unlikely to result in adverse health effects, even for sensitive populations. By definition, when the HQ is less than 1, the estimated exposure is less than the RfD and adverse health effects are unlikely. Unlike cancer risks, the HQ does not represent a statistical probability, and the likelihood of adverse effects does not increase in a linear fashion relative to a HQ of 1. Rather, exposures greater than the RfD may result in adverse health effects, but all RfDs do not have equal precision and are not based on the same severity of effects. HQs for individual chemicals were summed to yield a cumulative hazard index (HI). Although a HI provides an overall indication of the potential for noncancer hazards, dose additivity is most appropriately applied to chemicals that induce the same effect via the same mechanism of action. When the HI is greater than 1 due the sum of several HQs of similar value, it is appropriate to segregate the chemical-specific HQs by effect and mechanism of action. In this BHHRA, when the calculated HI was greater than 1, HQs based on the same target organ system were calculated. The target organs or systems on which the RfDs are based are presented in Table 5-1.

5.1.2 Cancer Risk Estimates

The cancer slope factor converts the estimated daily intakes averaged over a lifetime directly to an incremental cancer risk. Cancer risks are calculated by multiplying the estimated LADI of a carcinogen by the SF (EPA 1989):

$$Risk = LADI \times SF$$

The dose-response relationship is generally assumed to be linear through the low-dose portion of the dose-response curve. That is, the risk of developing cancer is assumed to be directly associated with the amount of exposure. However, this linear relationship is valid only when the estimated risk is less than 0.01 (1×10^{-2}). Where contaminant concentrations result in an estimated risk greater than 1×10^{-2}, the following equation should be used (EPA, 1989):

$$Risk = 1\text{-}e^{-LADI \times SF}$$

Because the slope factor typically represents an upper confidence limit, carcinogenic risk estimates generally represent an upper-bound estimate, and EPA is confident that the true risk will not be greater than risk estimates obtained using this model, and they may be less than that predicted. Cancer risk estimates for individual chemicals and different exposure pathways were summed where exposure was assumed to be concurrent to obtain the cumulative excess lifetime cancer risk for each receptor and/or exposure scenario.

5.1.3 Infant Consumption of Human Milk

As discussed in Section 3.3.7, infant exposure to persistent, lipophilic contaminants via breastfeeding was quantitatively evaluated in the BHHRA. Using the methodology presented in Section 3.5.5, DEQ determined that the magnitude of the difference in the hazard estimates between the infant and the mother remain constant regardless of the maternal exposure pathway or dose, and can be expressed as infant risk adjustment factors (IRAFs, DEQ 2010):

$$HQ_{infant} = HQ_{mother} \times IRAF_{nc}$$

where:

HQ_{infant} = hazard quotient for breast-fed infant
HI_{mother} = hazard quotient for the mother
$IRAF_{nc}$ = infant risk adjustment factor for noncancer effects

The chemical-specific IRAFs are presented in the following table:

Chemical	$IRAF_{nc}$	Half Life (days)
PCBs	25	2550
Dioxins/Furans	2	2550
DDx	2	120
PBDEs	38	2550

5.1.4 Risk Characterization for Lead

Health effects associated with exposure to inorganic lead and compounds are well documented and include neurotoxicity, developmental delays, hypertension, impaired hearing acuity, impaired hemoglobin synthesis, and male reproductive impairment. Importantly, many of lead's health effects may occur without other overt signs of toxicity. Lead has particularly significant effects in children, and it appears that some of these effects, particularly changes in the levels of certain blood enzymes and in aspects of children's neurobehavioral development, may occur at blood lead levels so low as to be essentially without a threshold. Because of the difficulty in accounting for pre-existing body burdens of lead and the apparent lack of threshold, EPA determined that it was inappropriate to develop a RfD. The Centers for Disease Control (CDC) has identified a blood lead concentration of 10 micrograms per deciliter (μg/dL) as the level of concern above which significant health effects may occur (CDC 1991), and the concentration of lead in the blood is used as an index of the total dose of lead regardless of the route of exposure (EPA 1994). An acceptable risk is generally defined as a less than 5 percent probability of exceeding a blood lead concentration of 10 μg/dL (EPA 1998).

Using the ALM (EPA 2003c), acceptable lead concentrations in fish tissue that are unlikely to result in fetal blood lead concentrations greater than 10 μg/dL were calculated using the following equation:

$$PbF = \frac{\left(\left[PbB_f / R \times GSD^{1.645}\right] - PbB_o\right) \times AT}{BKSF \times \left(IR_F \times AF_F \times EF_F\right)}$$

Where:

PbB_a	=	Central tendency of adult blood lead level
PbB_o	=	Adult baseline blood lead level
PbB_f	=	Fetal blood lead level
R	=	Fetal/maternal blood lead ratio
GSD	=	Geometric standard deviation PbB
BKSF	=	Biokinetic slope factor
PbF	=	Lead fish tissue concentration
IR_F	=	Consumption rate of fish
AF_F	=	Gastrointestinal absorption of lead from fish
EF_F	=	Exposure frequency for fish consumption
AT	=	Averaging time

The values used in this analysis are presented in Attachment F5. Because the lead models calculate a central tendency or geometric mean blood lead concentration,

median values are typically used as inputs. The mean estimate of national per capita fish consumption of 7.5 g/day (EPA 2000b) was used as the consumption rate for recreational fishers, the median consumption rate of 39.2 g/day from the CRITFC study was used for tribal fishers. Using the equation presented above, the target lead concentrations in fish are 5.2 mg/kg for recreational fishers and 1 mg/kg for tribal fishers.

EPA's Integrated Exposure Uptake Biokinetic (IEUBK) model was used to calculate tissue lead concentrations unlikely to result in blood lead concentrations greater than 10 μg/dL in children. Because site-specific values for concentration of lead in soil, house dust, air and drinking water were not readily available, default values were used for those inputs. The ratio of child-to-adult consumption of 0.42 was applied to the median adult consumption rate of 7.5 g/day to obtain a childhood rate of 3.2 g/day for children of recreational fishers. The corresponding lead concentration in fish is 2.6 mg/kg. Assuming a consumption rate of 16.2 g/day for tribal children, representing the 65^{th} percentile consumption rate from the CRITFC survey, the calculated lead concentration in fish is 0.5 mg/kg. Uncertainties associated with the evaluation of lead are discussed further in Section 6.

5.1.5 Cumulative Risk Estimates for Contaminants Analyzed by More Than One Method

In some instances specific contaminants were analyzed by more than one method, and thus more than one EPC calculated for that contaminant. Cumulative risks are presented using the EPC from only one method to avoid double-counting the risks from a given contaminant. When assessing risks associated with sediment exposures, Aroclor data were used because the data set was larger than for congeners. However, because the congener analysis provided lower detection limits, it was preferentially used when available for assessing risks associated with consumption of fish and shellfish. Where metals were analyzed as both total and dissolved fractions in surface water and groundwater seep samples, the EPCs based on total metals were used in the cumulative risk estimates because unfiltered data is generally more representative of typical human exposure.

5.2 RISK CHARACTERIZATION RESULTS

This section presents a summary of the risk characterization results the scenarios described in Section 3. EPA policy (EPA 1991a) states that CERCLA actions are generally warranted when where the baseline risk assessment indicates that a cumulative site risk to an individual using RME assumptions for either current or future land use is greater than the 1×10^{-4} lifetime excess cancer risk end of the cancer risk range of 1×10^{-4} to 1×10^{-6}, or the HI is greater than 1. Accordingly, risk and hazard estimates are generally presented in terms of whether they are greater than the upper end of the cancer risk range of 1×10^{-4} or the HI is greater than 1. Uncertainties associated with the assumptions in each exposure scenario are discussed

in detail in Section 6. Risks from exposures to PBDEs in in-water sediment and tissue were assessed separately, and are presented in Attachment F3.

A summary of risks by exposure medium are presented in Tables 5-18, 5-43, 5-57, 5-60, 5-65, 5-77, and 5-86.

5.2.1 Dockside Workers

Risks to dockside workers were estimated separately for each of the eight beaches designated as a potential dockside worker use areas, shown in Map 2-1.

The estimated CT and RME cancer risks are less than 1×10^{-4} at all beach areas, and the HI is less than 1 for adults and infants. These results are presented in Tables 5-2, 5-3, 5-16, and 5-17.

5.2.2 In-Water Workers

As discussed in Section 3.2.1.2, in-water workers are described as typically working around in-water structures such as docks, and primarily exposed to in-water sediments. In-water sediment exposure by in-water workers was evaluated in half-mile increments along each side of the river. The estimated CT and RME cancer risks are less than 1×10^{-4} at all RM segments, and the RME HIs for adults are less than 1 at any location. The HI for infants at RM 7W is 2 due to dioxins and furans. These results are presented in Tables 5-19, 5-20, 5-32 and 5-33.

5.2.3 Transients

Risks to transients were estimated separately for each beach designated as a potential transient use area, as well as the use of surface water as a source of drinking water and for bathing. Beaches where sediment exposure was evaluated are shown on Map 2-1. Year-round exposure to surface water for four individual transect stations, Willamette Cove, Multnomah Channel, and for the four transects grouped together to represent Study Area-wide exposure are shown on Map 2-3. The CT and RME risk estimates for beach sediment are less than 1×10^{-4} for all locations, and the HI is less than 1. The results of the RME and CT evaluations for exposure to beach sediments are presented in Tables 5-4 and 5-5, respectively.

Estimated CT and RME cancer risks associated with surface water exposures are less than 1×10^{-4} at all individual and transect locations, and the HI is less than 1. The results of the RME and CT evaluations are presented in Tables 5-44 and 5-45, respectively.

As noted in Section 3.3.4, exposure to surface water by transients was also evaluated at the groundwater seep at Outfall 22B. All risk and hazard estimates are less than 1×10^{-4} and 1, respectively, and the results are presented in Tables 5-58 and 5-59.

5.2.4 Divers

Commercial divers were evaluated for exposure to surface water and in-water sediment, and assuming the diver was wearing either a wet or a dry suit. As described in Section 3.4.2, in-water sediment exposure by divers is evaluated in half-mile exposure areas for each side of the river, and on a Study Area-wide basis. Risks associated with exposure to surface water were evaluated for four individual transect stations, and at single-point sampling stations grouped together in one-half mile increments per side of river.

5.2.4.1 Diver in Wet Suit

The estimated CT and RME cancer risk associated with exposure to in-water sediments is less than 1×10^{-4} at all half-mile river segments and for Study Area-wide exposure, and the HI is also less than 1 for adults. The HI for infants is 2 at RM 8.5W for the RME evaluation due to PCBs. The RME and CT estimates for adults are presented in Tables 5-29 and 5-30, respectively. RME and CT risk and hazard estimates for infant exposures are presented in Tables 5-40 and 5-41, respectively.

The estimated CT and RME cancer risk associated with exposure to surface water is less than 1×10^{-4} for all half-mile river segments, and the HI is less than 1. These results are presented in Tables 5-50 and 5-51, respectively, for the RME and CT evaluations. Indirect exposure to contaminants in surface water by infants via breastfeeding was not evaluated.

5.2.4.2 Diver in Dry Suit

The estimated RME cancer risk associated with exposure to in-water sediments is less than 1×10^{-4} at all half-mile river segments and for Study Area-wide exposure, and the HI is also less than 1 for adults and indirect exposures to infants via breastfeeding. The results of the adult RME risk and hazard estimates are presented in Table 5-31, a CT evaluation was not done for a commercial diver in a dry suit. Noncancer hazard for infants is presented in Table 5-42.

The estimated RME cancer risk associated with exposure to surface water is less than 1×10^{-4} for all half-mile river segments, and the HI is less than 1. These results are presented in Tables 5-52. Indirect exposure to contaminants in surface water by infants via breastfeeding was not evaluated.

5.2.5 Recreational Beach Users

Risks associated with exposure to beach sediment were evaluated separately for each beach designated as a potential recreational use area, shown on Map 2-1. Exposure to surface water was evaluated using data collected from three transect locations and three single-point locations (Cathedral Park, Willamette Cove, and Swan Island Lagoon) shown on Map 2-3.

The estimated CT and RME cancer risks associated with exposure to beach sediments are less than 1×10^{-4} at all recreational beach areas, and the HI is also less than 1. These results are presented in Tables 5-6 through 5-9. Indirect exposure to contaminants in beach sediment to infants via breastfeeding was not evaluated.

The estimated CT and RME cancer risks associated with exposure to surface water are less than 1×10^{-4} at all recreational beach areas, and the HI is also less than 1. These results are presented in Tables 5-46 through 5-49. Indirect exposure to contaminants in surface water to infants via breastfeeding was not evaluated.

5.2.6 Recreational/Subsistence Fishers

Recreational and subsistence fishers were evaluated assuming direct exposure to contaminants in sediment and via consumption of fish and shellfish. As discussed in Section 3.2.1.6, exposures associated with beach sediment were assessed at individual beaches designated as potential transient or recreational use areas, in-water sediment exposures were evaluated on a one-half river mile basis per side of the river and as an averaged, Study Area-wide evaluation. Sediment exposures were further assessed as CT and RME evaluations and assuming either a low- or a high-frequency rate of fishing.

5.2.6.1 Sediment - Direct Contact

The estimated CT and RME cancer risks associated with low-frequency fishing exposures to either beach or in-water sediments are less than 1×10^{-4} at all areas evaluated. Noncancer hazards associated with adult exposures to beach or in-water sediment are less than 1 at all locations evaluated, the RME noncancer hazard associated with indirect exposures to infants via breastfeeding is greater than 1 at two locations for in-water sediment: RM 7W (2) due to dioxin/furans and RM 8.5W (2) primarily due to PCBs, with a HQ of 1. These results are presented in Tables 5-14 and 5-15 for beach sediment exposures, and Tables 5-27, 5-28, 5-38, and 5-39 for in-water sediment exposures. Indirect exposure to contaminants in beach sediment to infants via breastfeeding was not evaluated.

The estimated CT and RME cancer risks associated with high-frequency fishing exposures to either beach or in-water sediments are less than 1×10^{-4} at all areas evaluated. For beach sediment, noncancer hazards associated with adult exposure are less than 1 at all locations evaluated. RME noncancer hazards associated with adult exposures to in-water sediment are greater than 1 at RM 7W (2) primarily due to dioxin/furans, with a HQ of 1. The RME noncancer hazard associated with indirect exposures to infants via breastfeeding is also greater than 1 at RM 7W (3) due to dioxin/furans and RM 8.5W (2) due to PCBs. These results are presented in Tables 5-12 and 5-13 for beach sediment exposures, and Tables 5-24, 5-25, 5-26, 5-36, and 5-37 for in-water sediment exposures. Indirect exposure to contaminants in beach sediment to infants via breastfeeding was not evaluated.

5.2.6.2 Consumption Resident Fish

Consumption of resident fish species was evaluated on both a per river mile basis to account for localized fishing practices and heterogeneous contaminant distribution in sediments, as well as averaging consumption over the entire Study Area. Consumption of resident fish species on a river mile basis was evaluated only for recreational fishers, whereas consumption averaged over the entire Study Area was evaluated for both recreational and subsistence fishers. With the exception of RM 5, RME risk estimates for fillet-only consumption on a river mile basis are all greater than 1×10^{-4}, the estimated risk at RM 5 is 9×10^{-5}. CT estimates are greater than 1×10^{-4} at RM 7, Swan Island Lagoon, and RM 11. River miles with the highest estimated RME risks are: RM 2 (2×10^{-4}), RM 4 (3×10^{-4}), RM 7 (6×10^{-4}), Swan Island Lagoon (6×10^{-4}), RM 9 (2×10^{-4}), and RM 11 (1×10^{-3}). RME risk estimates for dioxins/furans are greater than 1×10^{-4} at RM 7. RME risk estimates for PCBs are greater than 1×10^{-4} at RM 2, RM 4, RM 7 and Swan Island Lagoon and are 1×10^{-3} at RM 11. These results are presented in Tables 5-73. Study Area-wide RME risks for recreational and subsistence fishers are 4×10^{-3} and 1×10^{-2}, respectively; the Study Area-wide CT estimate for recreational fishers is 1×10^{-3}. These results are presented in Tables 5-74.

RME and CT hazard estimates for fillet-only consumption are greater than 1 at all river miles. Values for river miles with the highest estimated RME hazard are as follows: RM 4 (20), RM 7 (20), Swan Island Lagoon (50), and RM 11 (100). Study Area-wide RME hazards for recreational and subsistence fishers are 300 and 1000, respectively, the CT estimate for recreational fishers is 100. PCBs and dioxin/furans result in the highest hazard estimates at RM 7, PCBs result in the highest hazard estimates at RM 11. These results are presented in Tables 5-66 through 5-72.

RME and CT noncancer hazard associated with indirect exposure to infants via breastfeeding was also assessed. When evaluated on a river mile scale, the RME hazard estimates associated with fillet-only consumption range from 30 to 1,000. CT estimates range from 10 to 500 when assessed on a river mile scale. Study Area-wide, the hazard estimates for recreational fishers are 2,000 and 4,000 for the CT and RME estimates, respectively, the RME estimate for subsistence fishers is 10,000. River miles with the greatest RME hazard estimates are: RM 2 (200), RM 4 (200), RM 7 (200), Swan Island Lagoon (600), and RM 11 (1,000). The majority of the hazard estimates is attributable to PCBs. These results are presented in Tables 5-75 and 5-76.

As detailed in Section 3.4.5, EPCs on a river mile scale use data from smallmouth bass only to represent contaminant concentrations in all resident fish species, while consumption was assumed to consist primarily of just the fillet, rather than other parts of the fish. However, an evaluation of the data collected from Portland Harbor indicates that PCB concentrations in whole body smallmouth bass are typically an order of magnitude greater than those measured in just the fillet. By contrast, in common carp and brown bullhead, the observed ratio of whole body-to-fillet PCB concentrations is less than noted in smallmouth bass, meaning that given the same

overall PCB concentration in whole body fish, the PCB concentration in smallmouth bass fillet tissue will be less than for carp and bullhead.

Differences among these species is reflected in the EPCs; specifically the use of fillet smallmouth bass data on a river mile scale resulted in a greater relative reduction of PCB concentration than would be seen if fillet data from common carp and brown bullhead were included. As such, a diet that consists of some portion of carp and bullhead could result in relatively greater intake of PCBs, and the associated risk and hazard would be correspondingly greater as well. In addition, as discussed in Section 3.5.10.6, the Columbia Slough survey results indicate that at least some of the fishers in the Portland Harbor area consume more than just the fillet. Consumption of other portions of the fish in addition to the fillet can result in greater relative exposure to PCBs and other persistent bioaccumulative chemicals and thus, greater relative risks.

Using smallmouth bass data as an example, the increased risk associated with consumption of the entire fish could be as much as an order of magnitude greater than associated with consumption of fillet only. However, since the relative increased exposure is directly related to the type of fish consumed, as well as any portions of the fish consumed in addition to just the fillet, it is not possible to assess the increased risks associated with consumption of more than just fillet with any degree of accuracy.

5.2.6.3 Consumption of Clams

The estimated RME cancer risks associated consumption of undepurated clams by subsistence fishers are greater than 1×10^{-4} at 10 of the 22 river mile sections evaluated. Values for river miles with the highest estimated risks are as follows: RM 5W (6×10^{-4}), RM 6E (7×10^{-4}), and RM 6W (7×10^{-4}). Other areas where the estimated risk is equal to or greater than 1×10^{-4} are RM 2E, RM 3E, RM 4E, RM 4W, RM 7W, RM 8W, Swan Island Lagoon, RM 9W, and RM 11E. The estimated risk Study Area-wide is 4×10^{-4}. Carcinogenic PAHs and PCBs pose the highest risks on a Study Area-wide basis. Risk estimates for cPAHs are greater than 1×10^{-4} at RM 5W and RM 6W. At RM 7W, dioxins/furans result in the highest risk estimates. PCBs result in the highest risk estimates in Swan Island Lagoon and at RM 11. No estimated CT cancer risks associated with consumption of undepurated clams are greater than 1×10^{-4}. Risks were also evaluated based on consumption of depurated clams at RM 1E, RM 2W, RM 10W, RM 11E, and RM 12E. None of the estimated CT or RME cancer risks are greater than 1×10^{-4}. These results are presented in Table 5-78.

The estimated RME noncancer hazards associated consumption of undepurated clams by subsistence fishers are greater than 1 at 20 of the 22 river mile sections evaluated. Values for river miles with the highest noncancer hazard are as follows: RM 3E (8), RM 6E (40), RM 9W (8), and RM 11E (10). The estimated noncancer hazard Study Area-wide is 9. PCBs result in the highest hazard estimates at RM 2E, RM 3E, RM 6E, RM 8W, Swan Island Lagoon, RM 9W, and RM 11E. The estimated CT

hazards associated with consumption of undepurated clams is greater than 1 at RM 6E, where the HI is 7, and at RM 11E, where the HI is 2; PCBs result in the highest hazard estimate at both river miles. The estimated RME hazard associated with consumption of depurated clams is 2 at four of the five river miles and is 7 at RM 11E. PCBs result in the highest estimated hazard. These results are presented in Tables 5-78 through 5-80.

RME noncancer hazard associated with indirect exposure to infants via breastfeeding was also assessed, and the estimated hazard is greater than 1 at each river mile evaluated. Values for river miles with the highest estimated hazard due to parental consumption of clams are as follows (for infant children of subsistence fishers): RM 2E (100), RM 3E (200), RM 6E (800), RM 8W (100), Swan Island Lagoon (100), RM 9W (100), and RM 11E (300). These results are presented in Table 5-84.

5.2.6.4 Consumption of Crayfish

The estimated RME cancer risks associated consumption of crayfish by subsistence fishers are greater than 1×10^{-4} at two of the 32 individual stations evaluated: 07R006 (3×10^{-4}) located at RM 7W, and CR11E (3×10^{-4}) located at RM 11E. When evaluated Study Area-wide, the estimated risk is 3×10^{-4}. Risk estimates for dioxins/furans are greater than 1×10^{-4} at 07R006 and risk estimates for PCBs are greater than 1×10^{-4} at CR11E. No estimated CT cancer risks associated with consumption of crayfish are greater than 1×10^{-4}. These results are presented in Table 5-81.

The estimated RME noncancer hazards associated consumption of crayfish by subsistence fishers are greater than 1 at seven of the 32 individual stations. Stations with the highest estimated hazard are 03R005 (4) located at the end of the International Slip, 07R006 (6), and CR11E (10). The estimated noncancer hazard Study Area-wide is 10. PCBs result in the highest noncancer hazard at 03R005 and CR11E, dioxins/furans result in the highest noncancer hazard at 07R006. These results are presented in Tables 5-81 through 5-83.

RME noncancer hazard associated with indirect exposure to infants via breastfeeding is greater than 1 at 23 of the 32 stations evaluated. Values at locations with the highest estimated hazard due to parental consumption of clams are as follows (for infant children of subsistence fishers): 03R003 (20) at RM 3E, 03R005 (60) at RM 3E, 07R006 (20) at RM 7W, 08R001 (20) at RM 8W, 09R001 (20) in Swan Island Lagoon, 09R002 (30) at RM 9W, and CR11E (400) at RM 11E. The hazard is 200 when evaluated Study Area-wide. These results are presented in Table 5-85.

5.2.7 Tribal Fishers

Tribal fishers were evaluated assuming direct exposure to contaminants in sediment and via consumption of fish. Exposures associated with beach sediment were assessed at individual beaches, in-water sediment exposures were evaluated on a one-half river

mile basis per side of the river and as an averaged, Study Area-wide evaluation. Fish consumption was evaluated assuming a multi-species diet consisting of anadromous and resident fish species, and fishing was evaluated on a Study Area-wide basis.

5.2.7.1 Sediment – Direct Contact

The estimated CT and RME cancer risks associated with direct contact to beach sediment is less than 1×10^{-4} at all beaches evaluated. The estimated RME cancer risk associated with exposure to in-water sediment is greater than 1×10^{-4} at two locations: RM 6W (2×10^{-4}) and RM 7W (3×10^{-4}). Risk estimates for cPAHs are greater than 1×10^{-4} at RM 6W, risk estimates for dioxins/furans are greater than 1×10^{-4} at RM 7W. These results are presented in Tables 5-10, 5-11, 5-21, and 5-22.

With the exception of in-water sediment exposure at RM 7W, the estimated non-cancer hazard is less than one at all beach and in-water locations evaluated. The estimated RME hazard is 3 at RM 7W, primarily due to dioxins/furans, with a HQ of 2. These results are presented in Tables 5-10, 5-11, and 5-21 through 5-23.

Noncancer CT and RME hazard estimates associated with indirect exposure to infants via breastfeeding was evaluated assuming maternal exposure to in-water sediment. The estimated RME hazard is greater than 1 at 3 locations, RM 7W (5), RM 8.5 (4), and RM 11E (2). These results are presented in Tables 5-34 and 5-35.

5.2.7.2 Fish Consumption

The estimated RME cancer risks for the combined child and adult exposure is 2×10^{-2} assuming whole body consumption, and 1×10^{-2} assuming consumption of fillets only. Risk estimates for PCBs, dioxins/furans, and arsenic are greater than 1×10^{-4}. These results are presented in Table 5-63.

The RME noncancer hazard associated with childhood consumption of whole body fish is 800, and is 600 assuming consumption of fillets only. PCBs, and to a lesser extent dioxins/furans, result in the highest noncancer hazard estimates. These results are presented in Tables 5-61 and 5-62.

The RME noncancer hazard associated with indirect exposure of tribal infants via breastfeeding assuming maternal consumption of whole body fish is 9,000, and is 8,000 assuming maternal fillet-only consumption. PCBs result in the highest hazard estimates. These results are presented Table 5-64.

5.2.8 Domestic Water Use

Use of surface water as a source of household water for drinking and other domestic uses was evaluated using data from five transect and 15 single point sampling locations, as well as averaged over a Study Area-wide basis. The estimated cancer risk for combined child and adult exposures is greater than 1×10^{-4} at W031 (9×10^{-4}), located at RM 6W. PAHs are the primary contributor to the estimated

cancer risk. However, dermal exposure is the primary pathway contributing to the risk estimate, and as described in EPA 2004, the physical-chemical properties of several PAHs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene), place them outside of the Effective Prediction Domain used to estimate the absorbed dermal dose from water. Although PAHs are direct-acting carcinogens, the risk estimates associated with estimating dermal absorption from water have a greater degree of uncertainty than the other risk estimates presented in this BHHRA. These results are presented in Tables 5-55 and 5-56.

The estimated noncancer hazard based on childhood exposure is equal to or greater than 1 at several sampling locations: W005 (1) at RM 4, W023 (1) at RM 11, W027 (2) near the mouth of Multnomah Channel, and W035 (2) in Swan Island Lagoon. In all instances, MCPP is the primary contributor to the estimated hazard. These results are presented in Tables 5-53 and 5-54.

5.3 CUMULATIVE RISK ESTIMATES

Cumulative risk and hazard estimates were calculated for those populations where concurrent exposure to more than one media was assumed to be plausible. Recreational/subsistence and tribal fishers were further evaluated on the basis of whether they were assumed to fish predominately from the shore or from a boat. Populations for which concurrent exposure to more than one media was considered for are as follows:

- Transients: Beach sediment, surface water
- Divers: In-water sediment, surface water
- Recreational beach users: Beach sediment, surface water
- Recreational fishers (beach): Beach sediment, fish tissue (fillet)
- Recreational fishers (boat): In-water sediment, fish tissue (fillet)
- Subsistence fishers (beach): Beach sediment, fish tissue (fillet), shellfish tissue
- Subsistence fishers (boat): In-water sediment, fish tissue (fillet), shellfish tissue
- Tribal fishers (beach): Beach sediment, fish tissue (fillet and whole body)
- Tribal fishers (boat): In-water sediment, fish tissue (fillet and whole body)

Cumulative risk estimates are generally presented for each one-half river mile per side of the river, and the risk estimates for specific media appropriate to each one-half mile segment were used to calculate the total risk or hazard. For example, cumulative risks for recreational fishers who fish from a boat and consume smallmouth bass would include the risks associated with exposure to in-water sediment at the specific half-mile, shellfish collected within same half-mile and side-of-river specific segment, and smallmouth bass from the larger river mile assessment. The results of the cumulative risk estimates are presented in Tables 5-87 through 5-111. Chemicals that resulted in a cancer risk greater than 1×10^{-6} or an HQ greater than 1 under any of the exposure scenarios for any of the exposure point concentrations evaluated in this BHHRA are presented in Table 5-112.

5.4 SUMMARY OF RISK CHARACTERIZATION

Cancer risk and noncancer hazard from site-related contamination was characterized based on current and potential future uses at Portland Harbor, and a large number of different exposures scenarios were evaluated. Exposure to bioaccumulative contaminants (PCBs, dioxins/furans, and organochlorine pesticides, primarily DDx compounds) via consumption of resident fish consistently poses the greatest potential for human exposure to in-water contamination. In general, the risks associated with consumption of resident fish are greater by an order of magnitude or more than risks associated with exposure to sediment or surface water. The greatest non-cancer hazard estimates are associated with bioaccumulation through the food chain and exposure to infants via breastfeeding. Because the smallest scale over which fish consumption was evaluated was per river mile, the resolution of cumulative risks on a smaller scale is not informative. The highest relative cumulative risk or hazard estimates are at RM 4, RM 7, Swan Island Lagoon, and RM 11. However, assuming exposure to sediment alone, the risk estimates are greater than 1×10^{-4} at RM 6W and 7W for the tribal fisher; the risk estimates for all other locations and scenarios are less than 1×10^{-4}. Assuming shellfish consumption alone, the highest relative cumulative risk or hazard estimates are at RM 3E, RM 5W, RM 6W, RM 6E, RM 7W and RM 11E.

6.0 UNCERTAINTY ANALYSIS

The presence of uncertainty is inherent in the risk assessment process, from the sampling and analysis of chemicals in environmental media to the assessment of exposure and toxicity, and risk characterization. EPA policy calls for numerical risk estimates to always be accompanied by descriptive information regarding the uncertainties of each step in the risk assessment to ensure an objective and balanced characterization of the true risks and hazards.

The term "uncertainty" is often used in risk assessment to describe what are, in reality, two conceptually different terms: uncertainty and variability. Uncertainty can be described as the lack of a precise knowledge resulting in a fundamental data gap. Variability describes the natural heterogeneity of a population. Uncertainty can sometimes be reduced or eliminated through further measurements or study. By contrast, variability is inherent in what is being observed. Although variability can be better understood, it cannot be reduced through further measurement or study, although it may be more precisely defined. However, the additional cost of further data collection may become disproportional to the reduction in uncertainty.

The risks and hazards presented are consistent with EPA's stated goal of RME representing the high end of the possible risk distribution, which is generally considered to be greater than the 90th percentile. However, these estimates are based on numerous and often conservative assumptions and, in the absence of definitive information, assumptions are used to ensure that actual sites risks are not underestimated. The cumulative effect of these assumptions can result in an analysis with an overall conservativeness greater than the individual components. Accordingly, it is important to note that the risks presented here are based on numerous conservative assumptions in order to be protective of human health and to ensure that the risks presented here are more likely to be overestimated rather than underestimated.

6.1 DATA EVALUATION

As discussed in Section 2, sediment, surface water, groundwater seep, and biota data were collected during the RI. Data of confirmed quality that meet the DQOs for risk assessment were used in this BHHRA to estimate exposures. Although uncertainty is inherent in environmental sampling, the use of the EPA's DQO planning process (EPA 2000e) minimized the uncertainty associated with the data collected during the RI. A discussion of key data evaluation uncertainties is presented in the following sections.

6.1.1 Use of Target Species to Represent All Types of Biota Consumed

Because it is not practical to collect samples of every resident fish and shellfish species consumed by humans within the Study Area, as recommended by EPA

guidance (2000a), target resident species were selected to represent the diet of all types likely consumed by humans. Four target species were collected to represent a diet consisting of resident fish: smallmouth bass, black crappie, common carp, and brown bullhead. Crayfish and clam tissue samples were collected to represent a diet containing locally-harvested shellfish. Factors considered in selecting the target species included likely consumption by humans, home range, the potential for bioaccumulation of COPCs, the trophic level of species, and their abundance.

PCBs generally represent the greatest contributors to the estimated risks, and detected concentrations are highest in brown bullhead and common carp. Therefore, the use of target resident species as representative of all biota consumed is unlikely to underestimate potential risks. If non-resident species are consumed, the risks may be less, commensurate with the amount of non-resident species present in the diet.

6.1.2 Source of Chemicals for Anadromous and Wide-Ranging Fish Species

Salmon, lamprey, and sturgeon have traditionally represented a substantial portion of the fish diet of tribal members. These species likely spend a substantial portion of their lives outside of the Study Area, and thus contaminant concentrations in these species may bear little relationship to sediment concentrations in the Study Area.

The Washington Department of Ecology analyzed returning fall Chinook salmon, as fillet tissue with skin, collected from three coastal rivers (the Queets, Quinault, and Chehalis Rivers) in 2004 (Ecology 2007). PCBs as Aroclors were detected at concentrations ranging from 5.0 µg/kg to 6.3 µg/kg in the Ecology study, relative to the maximum detected concentration of 20 µg/kg for salmon fillet tissue with skin collected from the Lower Willamette. The dioxin TEQ concentrations ranged from 0.09 picograms per gram (pg/g) to 0.23 pg/g in the Washington coastal rivers relative to the maximum detected concentration of 2 pg/g for salmon fillet tissue with skin collected from the Lower Willamette. A comparison of the tissue concentrations from the Ecology study and the Lower Willamette indicates that the concentration of PCBs measured as Aroclors and congeners are noticeably greater in salmon collected from the Clackamas fish hatchery relative to concentrations detected in the Ecology study. The reported concentrations of total DDT and dioxins as TEQs are generally consistent between the Ecology study and results from Portland Harbor. These results are summarized in Table 6-2. While the Chehalis River passes through some developed areas and therefore may have localized sources, both the Queets and Quinault Rivers are located almost entirely within Olympic National Forest and wilderness areas, so the potential for contribution from localized sources should be minimal. The degree to which contaminant concentrations in anadromous fish are due to exposures that occur within the Study Area is unknown. However, approximately 95 percent of the cumulative tribal fish consumption risk is due to contaminants detected in resident species, even though they only account for 50 percent of the estimated diet. As a result, while sources of bioaccumulative chemicals other than

Portland Harbor may contribute to tissue concentrations in anadromous fish species, the uncertainty associated with the source of chemicals to non-resident fish species should not affect the conclusions of this BHHRA for tribal fish consumption.

6.1.3 Use of Either Whole Body or Fillet Samples to Represent Fish Consumption

Different contaminants are preferentially accumulated in different parts of an organism. Organic compounds tend to accumulate to a greater degree in tissues with a higher fat content, while heavy metals accumulate more in muscle tissues. Thus, diets consisting of different parts of the fish would result in varying levels of exposure to the consumer. The COPCs with the greatest contribution to the cumulative risk and hazard are persistent chlorinated organic compounds (PCBs, DDx, and various PCDD/PCDF congeners) that preferentially accumulate in fatty tissue.

Smallmouth bass and common carp fillet-with-skin and the remainder-of-body samples were analyzed separately in Round 3B, and whole body concentrations were calculated from these results on a weighted average basis. This analysis provided the opportunity to compare concentrations of chemicals in fillet tissue with estimated concentrations in whole body tissue for the same fish. This analysis focused on PCBs, since they contribute to the majority of risks from tissue consumption in the BHHRA and preferentially accumulate in fatty tissue. Mercury was also evaluated because it preferentially accumulates in muscle tissue and would provide a range of the differences between concentrations in the two tissue types.

Total PCB concentrations in samples of smallmouth bass fillet ranged from 11 to 22 percent of the whole body concentration (approximately 4 to 10 times higher in whole body tissue); the concentration of total PCBs in fillet of common carp ranged from 50 to 80 percent of the whole body concentration (approximately 1 to 2 times higher in whole body tissue).

Mercury concentrations in smallmouth bass fillet tissue ranged from 100 to 220 percent of the whole body concentration (approximately 1 to 2 times lower in whole body tissue); mercury concentrations in carp fillet tissue ranged from 110 to 140 percent of the whole body concentration (approximately 1 to 1.5 times lower in whole body tissue). The results of this analysis are presented in Table F6-1.

Based on information presented in the Columbia Slough consumption survey (Adolfson 1996), the majority of fishers surveyed consume only the fillet, which may not include skin. According to the CRITFC Survey (CRITFC 1994), tribal fish consumers are also most likely to consume the fillet. However, some individuals or groups consume other portions of the fish. Assuming a diet of whole body or fillet tissue with skin represents a conservative assumption and provides a range of risks associated with different dietary habits. Because it is unlikely that a diet consists entirely of whole body tissue, the evaluation of risks associated with consumption of fish for recreational and subsistence fishers are based on fillet data. As noted in the

Columbia Slough survey, perhaps as many as 25 percent of consumers "use the entire fish or make soup from the fish." To the extent that consumption is more than just the fillet, the intake of persistent chlorinated compounds, and the associated risks and hazards will be greater than estimated assuming fillet-only consumption.

6.1.4 Use of Undepurated Tissue to Represent Clam Consumption

Only a limited number clam tissue samples (five of 22) collected in the Study Area were depurated prior to analysis. Depuration is a common practice in the preparation of clams for human consumption, although they may also be consumed undepurated. With the exception of certain metals, average chemical concentrations detected in clam tissue in the Study Area were higher in undepurated than in depurated samples. However, depurated clam tissue samples were collected from edges of the site at the northern and southern stretches, and the concentrations are shown in Tables 3-24 and 3-25. Using the concentrations from undepurated samples provides a health-protective approach to assessing risk from consumption of clams. A comparison of exposure concentrations calculated using depurated and undepurated clam tissue is presented in Table F6-12.

6.1.5 Use of Different Tissue Sample Preparation to Assess the Same Chemical

Samples of resident fish tissue from Round 1 were analyzed for mercury in fillet tissue without skin, while during Round 3, smallmouth bass and common carp samples were analyzed in fillet tissue with skin. The Round 1 and Round 3 datasets were combined for Study Area analysis. For the reasons presented in Section 6.1.3, the comparability of analytical data from fillet tissue with skin and fillet tissue without skin creates uncertainty in the BHHRA. Because mercury preferentially accumulates in muscle tissue, concentrations would be expected to be higher in the fillet tissue samples without skin. However, for smallmouth bass, mercury concentrations were generally higher in fillet tissue with skin, while in common carp mercury concentrations were generally higher in fillet tissue without skin. A comparison of mercury tissue concentrations is provided in Table 6-3. The uncertainty associated with the use of different tissue types to assess risks from mercury should not affect the conclusions of this BHHRA.

6.1.6 Exclusion of Non-Detected Chemicals Where Detection Limits Exceeded Analytical Concentration Goals

Although site-specific Analytical Concentration Goals (ACGs) were established for each media, ACGs for some chemicals were not attainable in some instances with present laboratory methods. DLs for chemicals that were analyzed but never detected were compared to the appropriate ACG for each media, and the results of that analysis are presented in Tables 6-5 through 6-7.

Chemicals that were not detected were not quantitatively evaluated in the BHHRA. If chemicals were present at concentrations above the ACGs but below the DLs, those chemicals would contribute to the estimated risk and hazard. However, given the number of chemicals that were detected at concentrations above their respective ACGs and the magnitude of difference between detected concentrations and ACGs, it is unlikely that exclusion of chemicals that were not detected would affect the conclusions of this BHHRA.

6.1.7 Removal of Non-Detected Results Greater Than the Maximum Detected Concentration for a Given Exposure Area

As discussed in Section 3.4, if the DL for non-detected result was greater than the maximum detected concentration for an exposure area, that result not included when calculating the EPC. These results are presented in Tables F2-7 through F2-13. Inclusion of non-detected data greater than the maximum detected concentrations would likely have resulted in higher risk estimates in the risk characterization of the BHHRA.

6.1.8 Using N-Qualified Data

As discussed in Section 2.2.3 of the RI, data were qualified using the "N" qualifier, when the identity of the analyte is not definitive, generally a result of the presence of an analytical interference in the sample. Examples include samples analyzed for chlorinated pesticide by EPA Method 8081A, which were most commonly N-qualified as a result of analytical interference due to the presence of PCBs in the samples. These N-qualified data were used in the BHHRA for calculating EPCs in fish and/or clam tissue.

Chemicals identified as contaminants potentially posing unacceptable risks (i.e., resulting in cancer risks greater than 1×10^{-6} or HQs greater than 1) based solely on N-qualified data were evaluated further. These chemicals are:

- Heptachlor epoxide. The identification of heptachlor epoxide as a contaminant potentially posing unacceptable risks was based on one N-qualified result from an undepurated clam sample collected from RM 6 during Round 1. It was also detected in clam samples collected during Round 3, including samples from RM 6. The Round 3 data were not N-qualified and did not result in cancer risks greater than 1×10^{-6}.
- Alpha-hexachlorocyclohexane (alpha-HCH). The identification of alpha-HCH as a contaminant potentially posing unacceptable risks was based on a single N-qualified result in a black crappie whole body sample collected from RM 6 to 9. Alpha-HCH was also detected in smallmouth bass and common carp in the Round 3 samples (which did not include black crappie). The Round 3 data were not N-qualified and did not result in cancer risks greater than 1×10^{-6}.
- Beta-hexachlorocyclohexane (beta-HCH). The identification of beta-HCH as a contaminant potentially posing unacceptable risks was based on a single

N-qualified result in a smallmouth bass fillet sample collected from RM 3 in Round 1. Beta-HCH was not detected in the whole body sample collected from RM 3 in Round 1 or in the fillet samples collected from RM 3 in Round 3. Beta-HCH was detected in other smallmouth bass samples collected during Round 3. The Round 3 data were not N-qualified and did not result in cancer risks greater than 1×10^{-6}.

- Heptachlor. The identification of heptachlor as a contaminant potentially posing unacceptable risks was based on a single N-qualified result in a black crappie whole body sample collected from RM 3 to 6.

6.1.9 Using One-Half The Detection Limit for Non-Detect Results in Summed Analytes

When data are presented as summed values (e.g., total PCB congeners), one-half the detection limit was used as a surrogate concentration when calculating the summed value for those specific analytes reported as non-detect. Use of one-half the detection limit assumes that there is equal probability that the actual concentration in the sample may be greater or less than the surrogate value. In general, the detection limits for non-detect results were low relative to detected concentrations. In addition, by only including those contaminants that were determined to be present in a given medium, the uncertainty associated with the use of surrogate values for non-detect results was minimized.

6.1.10 Contaminants That Were Not Analyzed in Certain Samples

Not all fish tissue samples were analyzed for the same suite of analytes. For example, fillet samples collected in Round 1 were analyzed for PCB as Aroclors, but no analysis was done for dioxins and furans. Fillet samples of smallmouth bass and common carp collected in Round 3B were analyzed for PCB, dioxin, and furan congeners. In samples where congeners were analyzed, the risks from the total dioxin TEQ, which is not otherwise measured, comprise approximately 1 to 70 percent of the cumulative risks. Therefore, the use of black crappie and brown bullhead fillet tissue, which were only analyzed in Round 1, likely underestimate the actual risks particularly in those areas where PCBs and dioxin/furans are the predominant contaminants.

In addition, not all clam samples were analyzed for the same number of contaminants due to limited tissue mass of some composites collected during Round 2. Table 6-8 presents a listing of analyses not completed for specific samples. Additional samples were collected in Round 3B and analyzed for a greater number of specific contaminants. The Round 2 and Round 3B clam tissue data were combined and evaluated on a river-mile basis in the BHHRA. Therefore, EPCs were available for almost all COPCs in each exposure area.

6.1.11 Chemicals That Were Not Included as Analytes

As it is not practical to analyze for every chemical, specific chemicals and chemical groups were chosen for analysis based on an investigation of known or probable sources at in the LWR. However, the chemicals expected to have the potential for significant contributions to risk are included in the risk assessment. The list of chemicals for analysis was determined in collaboration with EPA and its partners and presented in the approved sampling and analysis plan. Subsequently, there has been interest in two additional groups of chemicals: polybrominated diphenyl ethers (PBDEs) and volatile organic compounds (VOCs) in tissue. Risks have subsequently been assessed for exposures to PBDEs in in-water sediment and resident fish tissue, as presented in Attachment F3.

VOCs were not analyzed in tissue or surface water samples. Because of their nature, VOCs are not expected to accumulate in tissue to a sufficient degree to pose significant risk via consumption relative to the other chemicals detected in tissue. Given the magnitude of concentrations and toxicities of other chemicals that were detected in surface water and tissue, VOCs are unlikely to contribute significantly to the overall risks. Therefore, the lack of analysis for VOCs is unlikely to alter the conclusions of the BHHRA.

6.1.12 Chemicals That Were Analyzed But Not Included in BHHRA

Not all detected chemicals were included in the BHHRA. The following analytes were excluded from assessment are either because there are no suspected sources, or the analyte typically only present adverse health risks at high concentrations:

- Ammonia
- Calcium
- Calcium carbonate
- Carbon dioxide
- Chloride
- Ethane
- Ethylene
- Magnesium
- Methane
- Nitrate
- Nitrite
- Oxygen
- Phosphate
- Phosphorus
- Potassium
- Silica
- Sodium
- Sulfate
- Sulfide

6.1.13 Data Not Included in BHHRA due to Collection Date

Data collected after June 2008 were not included in the BHHRA due to the completion schedule of the RI/FS. These data sets are discussed in the Portland Harbor RI Report, and include a number of in-water sediment samples. However, due to the large spatial coverage of the existing in-water sediment BHHRA dataset, this uncertainty is not expected to affect the overall conclusions of the BHHRA.

6.1.14 Compositing Methods for Biota and Beach Sediment Sampling

Compositing schemes were developed to be representative of the medium sampled and to be representative of each exposure unit. Fish were composited based on an estimate of the average home range for each species (ODFW 2005). The home ranges for common carp and brown bullhead may be as large or larger than the Study Area, the home range for bass may be larger or smaller than the one mile assumed in the BHHRA. For example, bass may only reside on one side of a river mile reach instead of throughout the one mile reach on both sides of the river. Smallmouth bass were composited on a river mile basis, while black crappie, brown bullhead, and carp were composited on a fishing zone basis. Fishing zones for brown bullhead and black crappie were from RM 3-6 and RM 6-9; fishing zones for common carp were from RM 0-4, RM 4-8 and RM 8-12. However, the compositing scheme represents only an approximation of the home ranges of the fish collected, and typically consisted of five individual fish. Replicate composite samples were collected, and risks were evaluated using both the composite samples as well as on a Study Area-wide basis. Where contaminants are evaluated on a harbor-wide basis and/or specific species are wide-ranging, this process is not likely to have an appreciable effect on the conclusions of the BHHRA. However, where samples are composited over an area larger than the actual home range of specific fish species, the result may either over- or underestimate risks, depending on the distribution of contaminant concentrations in the area over which samples are composited. For example, the highest DDx concentrations are located on the west side of the river at RM 7.5, while the EPC for smallmouth bass at that river mile combined data collected from both sides of the river.

Beach sediment was composited on a beach by beach basis, resulting in a single sample result for each exposure area. Uncertainty stems from this compositing scheme because the results of the risk evaluation are dependent on a single sample. Composite samples are generally assumed to represent the area from which the individual samples of the composite were taken, but an unrepresentative individual sample (e.g., one representing extremely localized or ephemeral contamination) used in the composite could significantly bias the composite results. The compositing scheme for beaches results in risk evaluation based on a single sample at a single point in time. If a beach was found to pose an unacceptable risk, additional samples at that beach might be warranted. However, all of the beach sediment exposure scenarios ranged from 8×10^{-9} to 9×10^{-5}, which are below or within the target risk range of 1×10^{-4} to1×10^{-6}.

6.1.15 Mislabeling of Smallmouth Bass Fish Sample

One smallmouth bass sample collected from the west side of RM 11 (LW3-SB11W-11) during the Round 3 sampling event was incorrectly recorded as LW3-SB11E-01 (RM 11 east) at the field lab. This fish became part of the final LW3-SB11E-C00B and LW3-SB11E-C00F composite samples, which are the body and fillet composites from RM 11 east. Fish SB11E-01 (actually from SB11W) accounted for 15 percent of

both sample types on a mass basis. However, since smallmouth bass exposure areas were assessed on a river mile basis, the data from RM 11E and RM 11W were included in the same EPC calculations, and the effects of this uncertainty are not expected to affect the conclusions of this BHHRA.

6.2 EXPOSURE ASSESSMENT

Uncertainties that arise during the exposure assessment can typically have some of the greatest effect on risk estimates. The following subsections address uncertainties associated with exposure models, exposure scenarios, exposure factors, and EPCs used in the risk estimates.

6.2.1 Subsurface Sediment Exposure

A complete exposure pathway requires the presence of a retention or transport medium, an exposure point, and an exposure route. Subsurface sediment was not considered an exposure medium in the BHHRA because it was assumed that potential human contact with river sediment below 30 cm in depth was unlikely, or that if it does occur, the frequency and extent would be minimal. Situations which may result in human exposure to subsurface include: potential scouring, natural hydraulic events that are not well understood, future development of near-shore and upland properties, maintenance of the navigation channel, ports, and docks, placement and maintenance of cable and pipe crossings, pilings and dolphins, anchoring and spudding of vessels, and exposure to propeller wash from vessels. Due to the low potential of exposure to subsurface sediment, the estimates presented in the BHHRA are considered sufficiently representative of baseline exposures.

6.2.2 Potential Exposure Scenarios

Some of the key uncertainties associated with the exposure scenarios evaluated in the BHHRA are discussed in the following subsections.

6.2.2.1 Shellfish Consumption

A commercial crayfish fishery exists in the LWR, and crayfish landings must be reported to ODFW by water body and county. Per ODFW, the crayfish fishery in the LWR is not considered a large fishery (Grooms 2008), and no commercial crayfish landings were reported for the Willamette River in Multnomah County from 2005 to 2007. DHS had previously received information from ODFW indicating that an average of 4,300 pounds of crayfish were harvested commercially from the portion of the Willamette River within Multnomah County each of the five years from 1997-2001. In addition to this historical commercial crayfish harvesting, DHS occasionally receives calls from citizens who are interested in harvesting crayfish from local waters who are interested in fish advisory information. According to a member of the Oregon Bass and Panfish club, crayfish traps are placed in the Portland Harbor Superfund Site boundaries and collected for bait and possibly consumption (ATSDR

2006). It is not known to what extent non-commercial harvesting of crayfish occurs within the Study Area, if at all, or whether those crayfish are consumed and/or used for bait.

Evidence of current consumption of freshwater clams from Portland Harbor is limited. According to a project conducted by the Linnton Community Center (Wagner 2004), transients reportedly consume clams from the river on a limited and infrequent basis. As part of the project, conversations were conducted with transients about their consumption of fish or shellfish from the Willamette River. These conversations were not conducted by a trained individual and were not documented. Transients reported consuming various fish species, as well as crayfish and clams, and many indicated that they were in the area temporarily, move from location to location frequently, or have variable diets based on what is easily available. Assuming that clam consumption occurs, the Linnton Community Center project suggests that it does not occur on an ongoing basis within the Study Area. DEQ and EPA staff have occasionally received calls from individuals who claim to have harvested clams and are inquiring whether consumption is safe, and individuals have been observed harvesting clams from the shore in Portland.

6.2.2.2 Wet Suit Divers

Commercial diving companies in the Portland area were contacted to develop a better understanding of potential diver exposures within the Study Area. All of the diving companies that were contacted indicated that the standard of practice for commercial divers is the use of dry suits and helmets when diving in the LWR (Hutton 2008, Johns 2008, and Burch 2008). EPA Region 10 reported observing divers in wet suits and with regulators that are held with the diver's teeth within the Study Area. An evaluation was also performed of helmet diving with use of a neck dam, which allows can allow water to leak into the diving helmet. Commercial divers as recently as 2009 have been observed using techniques to don a diving helmet which increase exposure (Sheldrake personal communication with RSS, 2009, DEQ, 2008). The observed wet suit divers were performing environmental investigation and remedial activities, which are not activities evaluated as part of a commercial diver scenario. Also, it is not known whether the individuals who were observed diving in wet suits on specific occasions are diving within the Study Area on a regular basis, as they do not work for the commercial diving companies in the Portland area. Recreational diving also takes place in Portland Harbor (Oregon Public Broadcasting Think Out Loud, "Are you going to swim in that?" August 22, 2008). Therefore, including a wet suit diver scenario with associated ingestion from use of a recreational type regulator, rather than a full face mask or diving helmet, and full body dermal exposure in this BHHRA (in addition to a dry suit diver scenario) is a conservative approach.

6.2.2.3 Potential Future Domestic Water Use

The evaluation of surface water as a domestic water source is based on the assumption that surface water is drawn from the Study Area. Within the Study Area, the LWR is not currently used as a domestic water source. According to the City of

Portland, the primary domestic water source for Portland is the Bull Run watershed, which is supplemented by a groundwater supply from the Columbia South Shore Well Field (City of Portland 2008). In addition, the Willamette River was determined not to be a viable water source for future water demands through 2030 (City of Portland 2008). Thus, it is unlikely that individuals at households receiving water from the city would be exposed to contaminants at concentrations greater than the MCL. As presented in Section 5.2.8, cPAHs and MCPP are the only COPCs that posed an estimated cancer risk greater than 1×10^{-4} (cPAHs) or a noncancer hazard greater than 1 (MCPP). The uncertainties associated with assessing dermal exposures to dissolved PAHs are discussed further in Section 6.2.4.2. Although there is no MCL established for MCPP, the associated HQ is greater than 1 at only one of the locations evaluated, W035, located at RM 8.5, where the estimated hazard is 2.

6.2.3 Potentially Complete and Insignificant Exposure Pathways

Exposure pathways that have been determined to be potentially complete and insignificant were not evaluated further in this BHHRA. As described in Section 3.2, these exposure pathways have a "source or release from a source, an exposure point where contact can occur, and an exposure route by which contact can occur; however, the pathway is considered a negligible contributor to the overall risk." The exposure pathways identified as potentially complete and insignificant were related to Willamette River surface water exposures to populations evaluated in this BHHRA. Ingestion and dermal absorption of chemicals from surface water were quantitatively evaluated for the populations that are expected to have the most frequent contact with surface water. Surface water exposures were not evaluated were for dockside workers, in-water workers, tribal fishers, and fishers.

The BHHRA identified and evaluated the exposure pathways that were expected to result in the most significant exposure to COPCs in the Study Area. The magnitude of exposures experienced by populations for these exposure pathways are typically expected to be much greater than that expected for the exposure pathways identified as "insignificant." Thus, the assessment of risk to populations from exposure pathways that were quantitatively evaluated in this BHHRA would be adequately protective of exposed populations in the Study Area. However, the uncertainty associated with not directly evaluating exposure pathways considered insignificant could underestimate risks for the Study Area. Due to the low potential of exposure for these pathways, this uncertainty is not expected to impact the conclusions of this BHHRA.

6.2.4 Exposure Factors

Assumptions about exposure factors typically result in uncertainty in any risk assessment. As discussed previously, the scenarios evaluated are representative of exposures that could occur in the Study Area under either current or future conditions. RME and CT values were used for the exposure scenarios to help assess the overall effect that variability in each of the exposure assumptions has on the risk estimates.

The range of risk estimates between these two exposure scenarios provides a measure of the uncertainty surrounding these estimates.

A range of consumption rates for fish consumption were used to evaluate variability on the risk estimates, thus the resulting risks in this BHHRA represent a range of possible outcomes, including estimates that may be representative of the upper range of plausible exposures.

The following exposure factor uncertainties have been identified and analyzed further to determine the potential effects on the risk estimates:

6.2.4.1 Exposure Parameters for Sediment Exposure Scenarios

The parameters used in the BHHRA to evaluate beach and in-water sediment exposure used were intended to provide conservative estimates based on potential uses in the Study Area.

Beach areas that are accessible to the general public were identified as potential human use areas, even though it is not known whether recreational beach use actually occurs at these locations, and the extent to which the beach may be used and the nature of the contact with sediments is unknown. Future changes in land use may make some beach areas more- or less-accessible to the general public, which increases uncertainty about future exposure. When evaluating in-water sediment, each on-half mile river mile segment on each side of the navigation channel was considered a potential exposure area for all in-water sediment exposure scenarios, regardless of the feasibility or practicality of use of the area. Information from this approach can be used to inform the public about relative risks throughout the river and can help focus the feasibility study.

There are uncertainties associated in the selection of the exposure duration, frequency, and intake parameters used to evaluate both beach and in-water sediment exposures. These scenarios assume long-term repeated use of the same beach or one-half mile river mile segment, which may not accurately reflect actual use practices. The exposure frequencies evaluated range from 94 days/year up to 250 days/year. Default intake parameters for soil exposure were generally used; however, to account for an assumed greater moisture content of beach sediments, the dermal adherence factor used to evaluate child recreational beach exposure was 10-fold greater than the default for soil. Consistent with EPA guidance (2004), only those compounds or classes of compounds for which dermal absorption factors are available were quantitatively evaluated via dermal contact exposure. COPCs for which dermal absorption factors were not available were not quantitatively evaluated, as dermal absorption was essentially assumed to be zero. However, as the majority of COPCs were quantitatively evaluated, this uncertainty does not substantially change the conclusions of this BHHRA. Most of the uncertainties associated with the sediment exposure parameters are likely to overestimate the risks associated with direct exposure to sediment.

6.2.4.2 Exposure Parameters for Surface Water and Groundwater Seep Exposure Scenarios

Although dermal absorption of PAHs from water was quantitatively evaluated in the BHHRA, the dermal permeability coefficient (K_p) falls outside of the effective predictive domain (EPD) for a number of the PAHs, including the following:

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Indeno(1,2,3-cd)pyrene
- Dibenzo(a,h)anthracene

EPA dermal assessment guidance (EPA 2004) states that "although the methodology [for predicting the absorbed dose per event] can be used to predict dermal exposures and risk to contaminants in water outside the EPD, there appears to be greater uncertainty for these contaminants." The range of uncertainty associated with the Kp value can be several orders of magnitude. For instance, the predicted Kp value recommended by EPA (2004) for benzo(a)pyrene is 0.7 centimeters per hour (cm/hr), while the range of predicted Kp values presented by EPA (2004) is 0.024 cm/hr (95 percent lower confidence level) to 20 cm/hr (95 percent upper confidence level). This uncertainty could result in over-estimation or under-estimation of risk from exposure to surface water. With the exception of arsenic, the only exceedances of 1×10^{-6} risk from surface water scenarios are the result of dermal exposure to PAHs in surface water. However, all of the surface water exposure scenarios were below or within the target risk range of 1×10^{-4} to 1×10^{-6}.

6.2.4.3 Exposure Parameters for Fish/Shellfish Consumption Scenarios

Site-specific information regarding fish consumption is not available for Portland Harbor. In the absence of specific data, fish consumption data representative from several sources was considered and selected as being representative of the general population of the greater Portland area, as well as that portion of the population that actively fishes the Lower Willamette and utilizes fish from the river as a partial source of food. However, the rates presented in the CSFII study represent per capita consumption rates rather than true long-term averaged consumption rates. Further, the large range between the percentile values is indicative of substantial variability in the underlying data. For example, consumption rates consumers are 200 g/day at the 90^{th} percentile and 506 g/day at the 99^{th} percentile. The consumption rate for consumers and non-consumers is approximately 18 g/day at the 90^{th} percentile and 142 g/day at the 99^{th} percentile. As discussed in Section 3.5.9.6, the RME consumption rate selected for recreational fishers of 49 g/day is based on data from the Columbia Slough study. That study was a creel survey, and the representativeness of the rate is dependent on several factors, including but not limited to:

- Willingness of anglers to participate
- Communication. If a substantial number of anglers consist of 1st or 2nd generation ethnic minorities, then language may be a barrier.
- Discrepancy between individuals who catch fish and those who prepare meals. Men generally fish but women generally prepare seafood and are much more familiar with the mass of seafood consumed.
- Difficulty in translating from the items inspected in an angler's basket to portion sizes and amounts consumed, since this requires assumptions about edible portions and cleaning factors.
- Lack of a random or representative sample. Interviewers can only speak with who they encounter.
- Timing and seasonality of interviews.
- Weather conditions may bias the results of any day's interviews.

In addition to the consumption rates, uncertainty also exists with respect to the relative percentage of the diet of obtained from the Study Area or within individual exposure areas versus other nearby sources of fish, and the degree to which different methods of preparation and cooking may reduce concentrations of persistent lipophilic contaminants.

Uncertainties associated with tribal consumption rates largely relate to limitations inherent in the CRTFIC consumption survey on which the consumption rates used in the BHHRA are based. These consumption rates may be biased low for tribal members because:

- Tribal members who have a traditional lifestyle (and likely a higher consumption rate) would have been unlikely to travel to the tribal offices that were used for administering the CRITFC fish consumption interviews.
- The fish consumption rates for some tribal members that were perceived as being outliers (consumption rates were too high) were dropped from the CRITFC data before the consumption rates were calculated.
- Current fish consumption rates may be suppressed and, therefore, do not reflect the potential of the higher consumption rates if fishery resources improved or if contaminant concentrations in the water body decrease.

Conversely, conservative assumptions were used with respect to exposure frequency and duration, as well as the relative contribution of fish from the Lower Willamette to the overall tribal diet. According to the CRITFC survey, none of the respondents fished the Willamette River for resident fish and at most, approximately 4 percent fished the Willamette for anadromous fish. However, future use of the site by tribal members may change if fishery resources improved.

Information regarding consumption of shellfish from the Study Area relies in part from information obtained from a community project sponsored by the Linnton Community Center, as discussed in Section 3.3.6. However, it is not known to what

extent shellfish consumption actually occurs. Because site-specific shellfish consumption rates are not available, nationwide CSFII (USDA 1998) shellfish consumption data were used. As with the rates for fish consumption, these are based on per capita consumption rates from the general population. In the nationwide survey, shrimp accounted for more than 80 percent of the shellfish consumed, crayfish accounted for less than one percent of diet, and freshwater clams were not included in the nationwide survey. It is not known to what extent fishers substitute alternative local types of shellfish. However, the mean nationwide shellfish consumption rate from freshwater sources is 0.01 g/day; upper percentiles for freshwater shellfish consumption rates are not available (EPA 2002b).

6.2.4.4 Assumptions about a Multi-Species Diet

The non-tribal multi-species diet assumes equal proportions of all four resident fish species, the tribal multi-species diet assumed equal proportions of the four resident fish species, as well as dietary percentages of salmon, lamprey, and sturgeon derived from the CRITFC survey. Variations of these dietary assumptions would result in different risk estimates. The risks due to consumption of the individual species that make up the multi-species diet were evaluated separately, and the results are presented in Table F6-3. The range of risks from fish consumption scenarios encompasses the potential variations in the composition of a multi-species diet. The range of the magnitude of risks associated with a diet consisting solely of the individual species is generally less than an order of magnitude. The magnitude in the difference of risk estimates based on diet composition shows that an assumption of equal proportions of the four resident fish species could result in over or under-estimation of actual risks from a multi-species diet.

6.2.5 Exposure Point Concentrations

The following uncertainties related to calculation of EPCs for this risk assessment were analyzed further to determine the potential effects on the risk estimates.

6.2.5.1 Using 5-10 Samples to Calculate the 95 percent UCL on the Mean

Data sets with fewer than 10 samples generally provide poor estimates of the mean concentration, defined as a large difference between the sample mean and the 95 percent UCL. In general, the UCL approaches the true mean as more samples are included in the calculation of the EPC. Study Area-wide fish tissue EPCs that were calculated as the 95 percent UCL on the mean using less than 10 samples included EPCs for whole body brown bullhead and common carp fillet. The 95 percent UCLs calculated using less than 10 samples are presented in Appendix F2, and a comparison of maximum reported concentrations and Study Area-wide EPCs for PCBs and dioxins based on fewer than 10 samples is presented Table F6-4.

6.2.5.2 Nondetects Greater than Maximum Detected Concentrations

Consistent with EPA guidance, analytical results reported as non-detect for which the detection limit was greater than the maximum detected concentration in a given exposure area were removed from the dataset prior to calculation of the 95 percent UCL. These sample identifications, detection limits, and associated maximum concentrations are listed by media and exposure area in the tables in Attachment F2. If the actual concentrations were closer to the detection limit for surface water and in-water sediment, the risk estimates would still be less than 1×10^{-6}.

6.2.5.3 Using the Maximum Concentration to Represent Exposure

The maximum concentration was used in instances where there were either less than five detected results or fives samples for a given analyte and exposure area, including EPCs calculated to represent Study Area-wide exposure. Use of the maximum concentration to represent exposure occurred for all media, and occurred most frequently for the fish and shellfish consumption scenarios. Contaminants and exposure points for which the maximum detected concentration was used instead of a 95 percent UCL on the mean are presented in the exposure point concentration tables in Section 3. In some cases, the maximum concentration for a contaminant was anomalously high, and may not be representative of tissue concentrations resulting from exposure to CERCLA-related contamination within the Study Area. However, EPA's UCL guidance (EPA 2002) notes that defaulting to the maximum observed concentration may not be protective when sample sizes are very small because the observed maximum may be smaller than the population mean.

Generally, the ratios between the maximum and minimum detected concentrations are less than 3. For in-water sediments, the ratios are less than 4. When comparisons are made within an exposure area for biota, the majority of the ratios of the 95 percent UCL/maximum EPCs to the mean are equal to or less than 2, and the remaining ratios are less than 4. An analysis of scenarios for which using the maximum concentration to represent exposure significantly affected the result of the risk estimate, and consequently which chemicals were designated as contaminants potentially posing unacceptable risks for a scenario, is presented in Tables F6-5 through F6-8 in Attachment F6.

6.2.5.4 Anomalous Antimony and Lead Results in Smallmouth Bass

A smallmouth bass sample collected during the Round 3 sampling effort at RM 10E (LW3-SB010E-C00B) had anomalously high detected concentrations of lead and antimony in the tissue analyzed as whole body-without-fillet. As described in the Round 3B Fish and Invertebrate Tissue and Collocated Sediment Data Report, Addendum 1 (Integral 2008), the sample was reanalyzed, and because of the consistently high detection of these compounds, the results of the lead and antimony re-analyses for this sample were averaged for use in the BHHRA. The resulting concentrations in body-without-fillet tissue from this sample are 1,640 mg/kg lead, and 8.41 mg/kg antimony, which are 160 times higher than the next highest lead and

antimony concentration detected in smallmouth bass within the Study Area. These concentrations are consistent with what would be expected from fish that swallowed fishing gear containing lead and antimony or other similar metal objects, and thus may not be representative of tissue concentrations resulting from exposure to contamination within the Study Area. However, these concentrations were used with the corresponding fillet concentrations to calculate a whole body concentration for use in the BHHRA, which was also anomalously high. The concentrations of lead and antimony for this sample (LW3-SB010E-C00WB) were the maximum concentrations for the RM 10E smallmouth bass exposure area, and due to the low number of smallmouth bass samples within the exposure area, they were used as the EPCs. The maximum concentrations of this sample are a conservative estimate of potential exposures from this river mile stretch. The concentrations from this sample were also used in the calculation of Study Area-wide EPCs for smallmouth bass, creating a high bias in the dataset.

6.2.5.5 Possible Effects of Preparation and Cooking Methods

Cooking and preparation methods of fish tissue can change the concentration of lipophilic contaminants in fish tissues; EPA (1997b) states that "cleaning and cooking techniques may reduce the levels of some chemical pollutants in the fish." PCBs tend to concentrate in fatty tissues. Trimming away fatty tissues, including the skin, may reduce the exposure to PCBs. Removing the skin can reduce PCB concentrations in raw fillet by 50 percent by (EPA 2000c). Cooking can also reduce the concentrations as much as 87 percent, depending on the method (Wilson et al. 1998). However, one study showed a net gain in PCB concentrations after cooking (EPA 2000c). The potential for reduction in PCB concentrations due to cooking is subject to a substantial degree of variability, and some consumption practices make use of whole fish, reductions in PCB concentrations were not considered quantitatively in the risk assessment. EPA's guidance on assessing contaminant concentrations for fish consumption advisories (EPA 2000) includes a summary of contaminant reductions observed in several studies due to skinning, trimming, and cooking. Depending on species and preparation/cooking method, observed PCB concentrations range from 16 to 80 percent of those found in whole body fish. This information is summarized in Table F6-9.

6.2.5.6 Assumptions about Arsenic Speciation

Tissue concentrations of arsenic were reported as total arsenic, while EPA toxicity criteria are based on inorganic arsenic. A study conducted on the middle Willamette River (EVS 2000) measured composites of resident fish (largescale sucker, carp, smallmouth bass, and northern pikeminnow) from a 45-mile section of the river extending from the Willamette (River Mile 26.5) to Wheatland Ferry (River Mile 72). Total arsenic and inorganic arsenic concentrations were determined in composites of whole body, fillet with skin, and composites of that portion of the fish remaining after removing fillets. Percent inorganic arsenic ranged from 2 percent (carp) to 13.3 percent (sucker). The average percent of inorganic arsenic was 4.2 percent for the

carp and 3.8 percent for the smallmouth bass. Consistent with the recommendation in the Columbia River Basin Fish Contaminant Survey (EPA 2002e), the EPC for inorganic arsenic was estimated as 10 percent of the total arsenic detected in tissue.

Inorganic arsenic in clams was found to range as high as 50 percent of total arsenic in data collected in the Lower Duwamish River. However, the Lower Duwamish is an estuarine system, while the Lower Willamette in Portland Harbor is freshwater system. Since the actual percent of arsenic that is inorganic in clam tissue from the Study Area is unknown, this results in uncertainty in the estimate of inorganic arsenic EPCs in shellfish. The clam tissue data collected from the Study Area was evaluated to determine whether a higher percentage of inorganic arsenic might have a significant effect on overall risk from the consumption of clam tissue:

- All of the arsenic concentrations in clam tissue are within a factor of 2. In addition, the arsenic concentrations in clams are normally distributed.
- Due to the narrow range of arsenic concentrations, the risks from consumption of clams are within a factor of 2 throughout the Study Area.
- If inorganic arsenic is assumed to be 50 percent of the total arsenic rather than the assumption of 10 percent used in the BHHRA, the cumulative risks from consumption of clams increase by a factor of 1.1 to 1.3. Arsenic is not the primary contributor to risks from consumption of clams.

Given all of the other uncertainties associated with risks from clam consumption, the inorganic arsenic assumption is a minor uncertainty with minimal effect on the overall risk estimates.

Although arsenic resulted in risks greater than 1×10^{-6} for some of the fish consumption scenarios, the contribution of arsenic to the cumulative risk was substantially less than that from PCBs. Therefore, the assumptions about inorganic arsenic are not likely to affect the overall conclusions of the BHHRA.

6.2.5.7 Polychlorinated Biphenyls

PCBs were analyzed as Aroclors in some media and as individual PCB congeners in others. This introduces some uncertainty when comparing cumulative risk across media. Congener analysis may provide a more accurate measure of PCBs in environmental samples than does the Aroclor analysis. Although most PCBs may have originally entered the environment as technical Aroclor mixtures, environmental processes, such as weathering and bioaccumulation, may have led to changes in the congener distributions in environmental media such that they no longer closely match the technical Aroclor mixtures used as standards in the laboratory analysis, leading to inaccuracies in quantitation.

The results for PCBs in whole body tissue samples analyzed for both PCBs as Aroclors and as individual PCB congeners were qualitatively compared to evaluate correlations associated with the use of Aroclor data. Windward (2005) analyzed fish

tissue from the Lower Duwamish Waterway as PCB Aroclors and as individual PCB congeners. The PCB Aroclor data and PCB congener data were significantly correlated for both fillet and whole body tissue. It should be noted that the Lower Duwamish Waterway is not freshwater, and different species were assessed in the Lower Duwamish study compared to Portland Harbor. These correlations suggest that PCB Aroclor data may be used in the place of congener data if congener data are not available.

When available, PCB congener data were included in cumulative risk sums for tissue because differences in bioaccumulation in addition to weathering results in greater uncertainty in the PCB Aroclor analysis for tissue. However, fillet tissue collected in Round 1 was analyzed for PCB Aroclors only, Round 3 smallmouth bass and common carp samples were analyzed for PCB congeners only. Because PCB congener data are available for smallmouth bass and common carp fillet tissue, cumulative risks for exposure to fillet tissue from consumption include only the most recent tissue data for these two species. This introduces uncertainty to the cumulative risk estimates for exposure to fillet tissue when comparing risks across all four resident species. A comparison of the results for PCBs as Aroclors and PCBs as individual congeners for tissue samples is provided in Table F6-11. This comparison is based on the whole body tissue data from Round 1, which is the only sampling event where Aroclors and congeners were analyzed in the same tissue samples. As shown in Table F6-10, sometimes the congener results are higher and other times the Aroclor results are higher.

PCB Aroclor data were included in cumulative risk sums for sediment because the PCB Aroclor dataset is larger than the congener dataset.

PCB congener data were included in the risk evaluation for surface water because the PCB Aroclor data was derived from the results of the congener analysis for the samples used in the risk characterization of this BHHRA. Total PCB congeners did not screen in as COPCs for any surface water scenarios. If PCB Aroclor data from the surface water dataset were used in the COPC screening, PCBs would still not be considered a COPC for any surface water scenarios.

When PCB congener data were used, the total PCB concentration was adjusted by subtracting the concentrations of coplanar PCBs from the total PCB concentration. This was done for purposes of estimating cancer risks because the coplanar PCBs were evaluated separately for the cancer endpoint.

6.2.5.8 Bioavailability of Chemicals

The toxicity values used in the risk assessment are often based on laboratory studies in which the chemical is administered in a controlled setting via food or water. Absorption from environmental media may be lower than that observed in the laboratory. Studies have shown that conditions in environmental media (e.g., pH, organic carbon content) can affect the bioavailability of a chemical (Ruby et al. 1999,

Pu et al. 2003, Saghir et al. 2007). If the bioavailability of a chemical in a given environmental medium is less than that in the laboratory study used to derive the toxicity value, the risk assessment will overestimate the exposure to that chemical in that medium. The National Research Council has recommended that consideration of bioavailability be incorporated in decision-making at sites (National Academy of Sciences 2003). While site-specific information on the bioavailability of chemicals in sediment is not available, it is important to recognize that there is uncertainty associated with not incorporating bioavailability into the risk estimates, especially related to sediment-associated chemicals.

6.2.5.9 Exposure Areas for Consumption of Smallmouth Bass

Fish consumption on a river mile basis was assessed using data from smallmouth bass. Uncertainties associated with the home range of smallmouth bass are discussed in Section 6.1.13. In Round 1, samples were composited on a per river mile basis, Round 3, samples were composited on a per river mile basis for each side of river. The Round 1 and Round 3 results were combined, and the EPC thus represents an exposure area of one river mile. A study by ODFW (ODFW 2005) that included tracking the movement of smallmouth bass in the Lower Willamette indicated that their home range is typically between 0.1 and 1.2 km, and they are most frequently found in near-shore areas.

Figure 6-1 displays the ratios of concentrations of DDT, DDE, DDD, cPAH, dioxin/furan TEQ, and PCB congeners detected in composite smallmouth bass samples collected at the east side of the river mile compared to concentrations for those detected in composite samples collected at the west side of the river mile. At RM 8, 9, and 10, the ratios are all less than 1, indicating concentrations on the east side of the river are generally less than concentrations on the west side of the river. For the remaining river miles, some ratios exceed one. East to west side concentration ratios for PCBs at river mile 11 are highest of any river mile evaluated. As previously discussed in Section 6.1.14, that a fish from RM 11W was included in the composite for RM 11E due to a mislabeling of the sample. Due to the low number of samples for each exposure area, the maximum detected concentration from either side of the river was typically used as the RME EPC for the river mile exposure areas. In addition, the area over which fishing occurs should also be considered. Given an exposure duration of 30 to 70 years, it is possible that fish would be collected over an area greater than a single river mile. Therefore, use of an exposure area consisting of a single river mile for evaluating consumption of smallmouth bass is generally health protective and unlikely to underestimate risks.

6.2.5.10 EPCs in Surface Water for Recreational Beach Users

Only data collected from the low water sampling event was used to assess recreational exposures to surface water, in order to represent surface water conditions during the time of year when most frequent recreational use occurs. There is some

uncertainty in the representativeness of this dataset for surface water conditions for recreational users.

Because exposure to surface water by transients can occur throughout the year, data from sampling events during three seasons of the year were used for this scenario and can be used to assess the representativeness of the single low water sampling event. Arsenic was the only surface water COPC detected in recreational exposure areas. The Study Area-wide average total arsenic concentration for transient exposure to surface water, using year-round data, is 0.48 µg/l. The Study Area-wide average total arsenic concentration for recreational beach user exposure to surface water, using low flow data, is 0.51 µg/l. Given the similarity of these results, the uncertainty associated with the recreational beach user surface water dataset should not affect the conclusions of this BHHRA.

6.3 TOXICITY ASSESSMENT

The results of animal studies are often used to predict the potential human health effects of a chemical. Extrapolation of toxicological data from animal studies to humans is one of the largest sources of uncertainty in evaluating toxicity. Much of the toxicity information used in this BHHRA comes from EPA's Integrated Risk Information System (IRIS), which states the following on its website:

> In general IRIS values cannot be validly used to accurately predict the incidence of human disease or the type of effects that chemical exposures have on humans. This is due to the numerous uncertainties involved in risk assessment, including those associated with extrapolations from animal data to humans and from high experimental doses to lower environmental exposures. The organs affected and the type of adverse effect resulting from chemical exposure may differ between study animals and humans. In addition, many factors besides exposure to a chemical influence the occurrence and extent of human disease (EPA 2010b, http://www.epa.gov/iris/limits.htm).

EPA applies uncertainty factors, typically a factor 10, when deriving reference doses, to account for limitations in the data. These limitations include variation in susceptibility among the members of the human population, uncertainty in extrapolating animal data to humans, uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure, uncertainty in extrapolating from a LOAEL rather than from a NOAEL, and uncertainty associated with extrapolation when the database is incomplete. As a result, actual risks within the Study Area are likely to be lower than the estimates calculated in this BHHRA.

In addition, the following specific uncertainties have been identified.

6.3.1 Early Life Exposure to Carcinogens

As discussed in Section 3.5.6, early-in-life susceptibility to carcinogens has long been recognized as a public health concern. EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (EPA 2005b) provides a process to evaluate risks from early-life exposure to carcinogens known to act via a mutagenic mode of action. The only exposure scenarios for which early-life exposures are considered are recreational beach use, fish consumption, and household use of surface water. Of the COPCs identified in the risk assessment, only cPAHs have been identified as mutagenic.

6.3.2 Lack of Toxicity Values for Delta-hexachlorocyclohexane, Thallium, and Titanium

Delta-HCH was detected in tissue and in-water sediment. An SF or RfD toxicity value could not be identified for delta-HCH according to the hierarchy of sources of toxicity values recommended for use at Superfund sites (EPA 2003b). Also, an STSC review concluded that the other hexachlorocyclohexane isomers could not be used as surrogates for delta-HCH due to differences in toxicity (EPA 2002d). Potential risk from delta-HCH was not quantitatively evaluated because of the lack of availability of toxicity data.

Thallium was detected in in-water sediment and surface water, and titanium was detected in in-water sediment. Thallium and titanium are naturally occurring elements, and although thallium may have a wide spectrum of effects on humans and animals (EPA 2009a), titanium has been characterized as having extremely low toxicity (Friberg et al 1986). An SF or RfD toxicity value could not be identified for titanium according to the hierarchy of sources of toxicity values recommended for use at Superfund sites (EPA 2003b), and consultation with EPA indicated no surrogate toxicity value was available. Therefore potential risk from exposure to titanium was not quantitatively evaluated in this BHHRA.

6.3.3 Use of Toxicity Values From Surrogate Chemicals for Some Chemicals that Lack Toxicity Values

For some chemicals, if a RfD or SF toxicity value was not available from the recommended hierarchy, a structurally similar chemical was identified as a surrogate. The RfD or SF for the surrogate was selected as the toxicity value and the surrogate chemical was indicated in Section 4. Uncertainty exists in using surrogate chemicals to represent the toxicity of chemicals for which toxicity values are not available. Using surrogate toxicity values could over- or under-estimate risk for a specific chemical.

Based on the results of the BHHRA, the chemicals that exceeded the minimum target cancer risks of 1×10^{-6} or hazard quotient of 1 did not rely on surrogate toxicity

values. Therefore, the use of surrogate toxicity values should not affect the conclusions of this BHHRA.

6.3.4 Toxicity Values for Chromium

Chromium was analyzed as total chromium in all media. Although toxicity values exist for both trivalent and hexavalent chromium, hexavalent chromium exhibits greater toxicity that the trivalent form. The reference dose for hexavalent chromium is 0.003 mg/kg-day, versus 1.5 mg/kg-day for trivalent chromium. Hexavalent chromium can be reduced to trivalent chromium in an aqueous environmental medium if an appropriate reducing agent is available, and thus trivalent chromium is more prevalent in the environment (ATSDR 2008). Screening values for trivalent chromium were used in the selection of total chromium as a COPC for in-water sediment, beach sediment, the groundwater seep, and surface water. This is an uncertainty because the trivalent chromium screening level is for insoluble salts.

The highest HQ for chromium from fish consumption was 0.004. Even if a portion of the chromium were present as hexavalent chromium, the HQ would likely still be less than 1. Additionally, EPA currently considers the carcinogenic potential of hexavalent chromium via oral exposure as "cannot be determined." Toxicity criteria derived by the New Jersey Dept. of Environmental Protection was used as a Tier 3 source for evaluating the cancer risks associated with oral exposures to hexavalent chromium.

6.3.5 Toxicity Values for Polychlorinated Biphenyls and Applicability to Environmental Data

The toxicity values for PCBs were applied to both PCB congeners (not including coplanar congeners) and Aroclors. The RfD for PCBs is based on an immunotoxicity endpoint for Aroclor 1254 (EPA 2010b). Several other Aroclors have been detected in media within the Study Area, indicating the mixture of PCBs differs from that used in the study to develop the RfD. The cancer SF for PCBs was derived for PCB mixtures based on administered doses of Aroclors to rats. The PCB mixtures used in the studies included the coplanar PCB congeners (dioxin-like PCBs), and coplanar PCBs may have contributed to the carcinogenicity observed in the study. Because the cancer risk from coplanar PCB congeners was evaluated separately, including both the total PCB and coplanar PCB congener risks in the cumulative cancer risk may result in an overestimate of the cancer risks. Although the potential double counting of PCB mass was corrected for by using the PCB adjusted values, there was no correction for the potential double counting of toxicity of dioxin-like PCBs in the PCB TEQ cancer risk estimate.

PCBs are classified as probable human carcinogens based on adequate dose-response data from studies in rats. However, the human carcinogenicity data are inadequate. Several cohort studies have been conducted that analyzed cancer mortality in workers

exposed to PCBs. These studies did not find a conclusive association between PCB exposure and cancer; however they were limited by small sample sizes, brief follow-up periods, and confounding exposures to other potential carcinogens. Therefore, using a cancer SF based on the dose-response observed in rats adds further uncertainties to the cancer risk estimates from PCBs as a dose-response has not been observed in humans.

In addition to the uncertainties with toxicity values for total PCBs, there are uncertainties with the toxicity values for the PCB TEQ, which is evaluated using toxicity values for dioxin and dioxin-like compounds. In its 2001 evaluation of the dioxin reassessment, members of the EPA's Science Advisory Board (SAB) did not reach consensus on the classification of 2,3,7,8-TCDD as a carcinogen (EPA 2001d). The National Academy of Sciences (NAS 2006) discussed the primary uncertainties with the toxicity values for dioxin and dioxin-like compounds as follows:

- The estimation of risks at doses below the range of existing reliable data may result in an overestimate of risk. An estimate of risk for typical human exposures to dioxin and dioxin like compounds would be lower in a sub-linear extrapolation model than in the linear model that was used to derive the 2,3,7,8-TCDD SF.

- The issue of appropriately assessing the toxicity of various mixtures of these compounds in the environment. The relative concentrations may change over an exposure period, even though the potency of the individual congeners remains constant. The estimated risk in a given sample depends on both potency and concentration.

The above uncertainties apply to risks from dioxins and furans, as well as risks from dioxin-like PCBs.

6.3.6 Adjustment of Oral Toxicity Values for Dermal Absorption

As discussed in Section 4.7, an adjustment was applied to the oral toxicity factor to account for the estimated absorbed dose when evaluating dermal exposures when the following conditions were met:

- The toxicity value derived from the critical study is based on an administered dose (e.g., through diet or by gavage)

- A scientifically defensible database demonstrates the GI absorption of the chemical is less than 50 percent in a medium similar to the one used in the critical study.

EPA (2004) recommends the adjustment of oral toxicity values to reflect dermal absorption only when GI absorption was less than 50 percent, eliminating the need for small adjustments in the oral toxicity value that are not supported by the level of

accuracy in the critical studies that are the source of the toxicity values. Organic chemicals are generally well absorbed across the GI tract, absorption of inorganic chemicals is dependent on a number of factors, but is generally less than for organic chemicals. However, in the absence of a specific value for GI absorption, a default of 100 percent was used. EPA 2004 states that assuming 100 percent absorption may underestimate dermal risk for those chemicals that are poorly absorbed because it overestimates the dose at the site of action. The extent of underestimation is proportional to the actual GI absorption. Inorganic COPCs for which the default value of 100 percent GI absorption was used are aluminum, arsenic, boron, cobalt, copper, iron, molybdenum, selenium, thallium, and zinc.

6.4 RISK CHARACTERIZATION

Uncertainties arise during risk characterization due to the methods used in calculating, summing, and presenting risks. The following subsections address uncertainties associated with the risk characterization of this BHHRA.

6.4.1 Endpoint-specific Hazard Indices

In deriving endpoint-specific HIs, only one health endpoint is used for each chemical, even though some chemicals may have a myriad of health effects as exposures increase. As an example, a majority of the non-cancer affect from the site is from PCBs and total TEQ. The endpoint used for deriving the RfD for PCBs is immunotoxicity, while the endpoint used for deriving the RfD for dioxin/furan TEQ and PCB TEQs is reproductive effects. If the reproductive endpoint for PCBs based upon the lowest observed adverse effects level (LOAEL) of 0.02 mg/kg/day is used with the same Uncertainty Factor as the immunological endpoint to derive an RfD for a reproduction endpoint for PCBs, the RfD for reproductive effects would be a factor of 4 greater than the RfD for immunological effects. Using this ratio, the endpoint-specific HI for reproduction for this exposure scenario for PCBs would be 5,000/4 = 1,250. The total HI for reproduction effects, combining HIs for total TEQ (500) and non-dioxin-like PCBs (1,250), would increase from 500 to 1,750. For the chemicals that have the largest non-cancer contribution in the HHRA, there is a possibility of under-predicting non-cancer health effects by using only one endpoint per chemical.

6.4.2 Risks from Cumulative or Overlapping Scenarios

Where multiple exposure scenarios exist for a given population, the risks for each of the exposure scenarios that are considered potentially complete and significant for a given population were summed to estimate the cumulative risks for that population (Tables 5-87 through 5-111). In calculating the cumulative risks, the maximum cancer risk for each RME scenario was used. This provides a conservative approach, as the same individual may not experience the maximum exposure under more than one exposure scenario. However, due to the fact that risks from one scenario are usually orders of magnitude higher than any other scenario for a given receptor, risks

from potential cumulative scenarios should not affect the conclusions of this BHHRA.

In addition to cumulative exposure scenarios for a given population, an individual may be a member of multiple exposure populations, and thus overlapping exposure scenarios. Because there are numerous possible combinations of overlapping scenarios due to variations in exposure points and exposure assumptions, a model was not developed to quantitatively evaluate overlapping scenarios in this BHHRA. However, because the risk from fish and shellfish consumption is typically at least 10-fold greater than other exposure pathways, if an individual consumes fish, the relative contribution from other exposure scenarios is not likely to contribute significantly to the overall risks for that individual. This BHHRA presents the risks for all of the exposure scenarios, so the risks for a given overlapping scenario could be calculated simply by summing the risks for each of the exposure scenarios that make up the overlapping scenario.

This BHHRA assessed potential risks from exposure to media within the Study Area. Upland sites were not included in this BHHRA. If exposure to upland sites were incorporated with exposures to media within the study, the overall estimate of cumulative risk would likely be higher than the risk estimates in this BHHRA.

6.4.3 Risks from Background

Metals are naturally occurring and the concentrations present in tissue, water, or sediment may not be directly related to contamination. Reported concentrations of arsenic and mercury in samples collected within the Study Area result in estimated risks greater than 1×10^{-6} or an HQ of 1 for one or more of the exposure scenarios evaluated in the BHHRA. Exposure concentrations of arsenic in beach sediment ranged from 0.7 mg/kg to 9.9 mg/kg, within the general range of 7 mg/kg used as a background concentration of arsenic by DEQ (DEQ 2007). At the background concentration of 7 mg/kg, the calculated risk from arsenic would exceed 1×10^{-6} for several of the beach sediment and in-water sediment exposure scenarios evaluated in this BHHRA.

Neither background nor anthropogenic tissue concentrations of COPCs were established for the Study Area. Regional tissue concentrations were measured as part of the Columbia River Basin Fish Contaminant Survey in five anadromous species (Pacific lamprey, smelt, coho salmon, fall and spring Chinook salmon, steelhead) and six resident species (largescale sucker, bridgelip sucker, mountain whitefish, rainbow trout, white sturgeon, walleye). All samples were composites; the size of the individual fish varied with species. Concentrations of certain contaminants are higher in tissue collected within the Study Area than observed in the Columbia River study, and the sources of the regional tissue concentrations are unknown. Consistent with EPA policy, risk estimates were presented in this BHHRA without accounting for

contributions from background. However, it is important to recognize that background concentrations may result in unacceptable risk and hazard estimates.

6.4.4 Risks from Exposure to Lead

The maximum EPC calculated for lead are associated with a probability of exceeding protective blood lead levels in the fetus of a pregnant woman who consumes fish from the Study Area. This EPC may be attributable to lead in the gut of the fish rather than tissue concentrations. Protective lead concentrations in tissue were estimated using the EPA Adult Lead Methodology (ALM) (EPA 2003c), based on agreements with the EPA to follow the same methodology used in the CRITFC (1994) survey to assess tissue exposures from lead. The ALM as adapted for the Portland Harbor BHHRA focuses on potential affects to the fetus when considering fish consumption by pregnant women. However, the ALM was developed for evaluating exposure to lead in soil and may not be appropriate to use for fish consumption. Furthermore, the ALM is sensitive to the bioavailability of ingested lead. For purposes of calculating a tissue concentration of lead that is expected to be without adverse effects, the default bioavailability of lead in soil was used, and it is not known whether this is an appropriate assumption for lead in tissue.

6.4.5 Future Risks

This BHHRA estimated current and future risks for exposure within the Study Area, based on known and reasonably anticipated future uses of the Study Area. However, the LWR is a dynamic, industrialized waterway, and if the land uses in certain areas of the Study Area were to change in the future in a manner with the uses considered in the BHHRA, risk and hazard estimates presented here may not be representative of conditions in the future.

6.5 OVERALL ASSESSMENT OF UNCERTAINTY

A summary of the uncertainties and a qualitative classification of their magnitude, their impact on the health protectiveness of the assessment, and their significance to risk management decisions are presented in Table 6-1. For each of the uncertainties identified and discussed in this section, Table 6-1 provides a qualitative assessment (using High, Medium, and Low as descriptors) for each of these properties. In addition, the table presents whether an uncertainty is more likely to over-estimate or under-estimate actual risks from the Study Area. While there are numerous uncertainties identified for this BHHRA, and the cumulative effect of these uncertainties could be significant to the conclusions of the BHHRA, some of these uncertainties would be expected to have more of a significant effect on risk management decisions than other uncertainties. These are identified with a “High” descriptor under the “Significance to Risk Management” column in Table 6-1.

Risk assessments typically include conservative assumptions to minimize the chances of underestimating exposure and/or risks of adverse effects to human health, and therefore potentially underestimating the need for remedial actions. In this BHHRA, conservative assumptions were incorporated into the identification of exposure scenarios, the selection of exposure assumptions, the development of EPCs, and the use of toxicity values. Only a portion of the uncertainties in this BHHRA are quantifiable. Further analysis of the data and review of pertinent published literature provided a possible range of values for some of the uncertainties presented in this section. The magnitudes of these ranges are provided in Attachment F6.

While it is not probable that the maximum values of the uncertainties apply for every tissue consumption exposure scenario and contaminant, this magnitude of uncertainty indicates that risks may actually be less than 1×10^{-4} or HI of 1 for certain scenarios.

While conservative, the results of the BHHRA are intended to show the relative risks associated with the exposure scenarios, and which contaminants are contributing the highest percentage of the calculated risks.

7.0 SUMMARY

The overall objective of this BHHRA is intended to provide an analysis of baseline risks and help determine the need for action at the Site, and to provide risk managers with an understanding of the actual and potential risks to human health posed by the site, and any uncertainties associated with the assessment.

The populations evaluated in the BHHRA were identified based on human activities currently known to occur within the Study Area or that could occur in the future, as described in the Programmatic Work Plan or in subsequent direction from EPA. Populations and associated exposure scenarios that were quantitatively evaluated in this BHHRA include:

- Dockside Workers – Direct exposure to beach sediment
- In-water Workers – Direct exposure to in-water sediment
- Recreational Beach Users – Direct exposure to beach sediment and surface water
- Transients – Direct exposure to beach sediment, surface water, and groundwater seep
- Divers – Direct exposure to in-water sediment and surface water
- Recreational and Subsistence Fishers – Direct exposure to beach or in-water sediment, consumption fish and shellfish
- Tribal Fishers – Direct exposure to beach and in-water sediment, consumption of fish
- Potential Future Domestic Water Use – Direct exposure to surface water used as a domestic water source
- Infants - Indirect exposure to bioaccumulative contaminants (PCBs, dioxin/furans, DDx, and PBDEs) in environmental media via indirect exposures due to breastfeeding.

7.1 SUMMARY OF RISKS

A comparison of the estimated risks by exposure media can help focus risk management decisions by identifying the media contributing most to the overall human health risks at the Study Area. As discussed in Sections 5, the magnitude of risk varies greatly across the different scenarios. Figures 7-1 and 7-2 display the

ranges of total cumulative cancer risk and noncancer HIs, respectively, for each media type, based on RME exposure assumptions for each media evaluated in the BHHRA. The estimated risks associated with consumption of fish and shellfish are orders of magnitude higher than risks from other scenarios, and exceed a cumulative cancer risk of 1×10^{-4} and a HI of 1. Scenarios for which the cumulative estimated cancer risk is greater than 1×10^{-4} or the HI is greater than 1 are consumption of fish and shellfish, and direct contact with in-water sediment by tribal and high frequency fishers.

7.2 CONTAMINANTS POTENTIALLY POSING UNACCEPTABLE RISKS

One role of the BHHRA is to identify those contaminants that pose the greatest risks to current and future receptors, along with the media and exposures routes associated with those risks. This information is used to inform response actions. This section presents the primary contributors to human health risk at the Site. The exposure scenarios and chemicals discussed here represent a subset of the scenarios and contaminants evaluated in this BHHRA.

Contaminants were identified as potentially posing unacceptable risks if the estimated cancer risk is greater than 1×10^{-6} or the HQ is greater than 1 for any of the exposure scenarios evaluated in this BHHRA, regardless of the uncertainties associated with the estimates. Given the uncertainties in the analytical data discussed in Section 6, the preliminary list was further refined to select the final listing of contaminants potentially posing unacceptable risks for this BHHRA. This can assist with the development of the FS by focusing on those scenarios and contaminants associated with the greatest overall risk in the Study Area. While these scenarios and contaminants may be the focus of the remedial analyses, other exposure scenarios and contaminants potentially posing unacceptable risks may still be considered in remedial decisions for the Site.

α-, β-, and γ-Hexachlorocyclohexane and heptachlor were detected in fish tissue only as N-qualified data. Due to retention time issues in the analytical methods used for the Round 1 tissue samples, some of the pesticide tissue data were N-qualified, indicating that the identity of the chemical could not be confirmed. In the subsequent Rounds 2 and 3 sampling events, different analytical methods were used so that the identification of pesticides was not an issue in tissue. EPA guidance (1989) recommends caution in the use of data where there are uncertainties in the identification of contaminants. Therefore, if a chemical was identified as potentially posing unacceptable risks based only on the use of N-qualified data, that chemical is not recommended for further evaluation for potential risks to human health.

The contaminants potentially posing unacceptable risks to human health based on the results of this BHHRA that are recommended for further evaluation for potential risks to human health are presented in Table 7-1.

Additional considerations in the evaluation of contaminants potentially posing unacceptable risk included:

- The relative percentage of each contaminant's contribution to the total human health risk consistent with assumptions on exposure areas.
- Uncertainties associated with the exposure scenarios, such as the likelihood of future site use, number of assumptions made in estimating exposure, or level of uncertainty in estimates of exposure variables.
- Frequency of detection, both on a localized basis and Study Area-wide.
- Comparison of risks within the Study Area to risks based on measured regional contaminant concentrations for similar exposure scenarios, indicating background or other anthropogenic sources of chemicals in the region.
- Magnitude of risk greater than EPA's target range for managing cancer risk of 1×10^{-4} to 1×10^{-6} and noncancer hazard of 1.

7.2.1 Fish Consumption Scenarios

Twenty four contaminants (PCBs, dioxins, four metals, bis(2-ethylhexyl)phthalate (BEHP), PAHs, hexachlorobenzene, and five pesticides) are identified as potentially posing unacceptable risks associated with consumption of fish:

- PCBs (PCBs and PCB TEQs): Based on the magnitude of the estimated risks greater than 1×10^{-4}, the overall spatial scale, and the relative contribution to cumulative risk estimates.

- Dioxins/furans: Based on localized and Study Area-wide exposures, the magnitude of the risk estimates greater than 1×10^{-4}, the overall spatial scale, and the relative contribution to cumulative risk estimates.

- Metals: Antimony, arsenic, and mercury were associated with one or more fish consumption scenarios that resulted in a risk estimate that exceeded a cancer risk of 1×10^{-6} or HQ of 1.
    - The overall estimated risk estimates for arsenic are greater than 1×10^{-4} based on Study Area-wide exposures.
    - The HQ associated with antimony is greater than 1 based on tribal consumption.
    - Lead, based on a measured tissue concentration greater than the protective tissue concentrations derived using blood lead models. However, this is due to only a single result of smallmouth bass whole body sample collected at RM 10 with an anomalously high result, as discussed in Section 6.1.14
    - Mercury, based on an HQ greater than 1 for both localized and Study Area-wide exposures.

- BEHP, based on a cancer risk estimate greater than 1×10^{-6} for tribal consumption of whole body tissue.

- PAHs: Benzo(a)anthracene, benzo(a)pyrene, dibenzo(a)anthracene, and total cPAHs, based on cancer risk estimates greater than 1×10^{-6}. Cancer risk estimates for total carcinogenic PAH are greater than 1×10^{-6} at five river mile segments and Study Area-wide.

- Organochlorine Pesticides: Dieldrin, total chlordane, total DDD, total DDE, and total DDT are identified based on estimated cancer risks greater than 1×10^{-6} or an HQ of 1.
    - Dieldrin, based on estimated cancer risks greater than 1×10^{-6} for consumption of fish on a localized and Study Area-wide basis.
    - Total chlordane, based on estimated cancer risks greater than 1×10^{-6} for consumption of fish on a Study Area-wide basis.
    - DDx compounds, based on estimated cancer risks greater than 1×10^{-6} for consumption of fish on a localized and Study Area-wide basis.

- PBDEs: based on an HQ greater than 1 for consumption of fish on a localized basis.

Considering the magnitude and relative contribution to the overall risk estimates, as well as their frequency of detection, PCBs and dioxins/furans are the most significant contributors to risk from fish consumption scenarios. Estimated risks from PCBs and dioxins/furans are greater than 1×10^{-4} or an HQ of 1 for both the CT and RME evaluations at both localized and Study Area-wide exposures. Figure 7-3 illustrates the relative contribution of individual contaminants to cumulative risk estimates based on the Study Area-wide multi-species fish consumption by subsistence fishers. PCBs are the most significant contributor to the overall risk estimate, and taken together with dioxins/furans, account for the majority of the estimated risk on a Study Area-wide basis. On a river mile basis, PCBs pose the highest risks at all locations except RM 7, where dioxins/furans pose the highest risks. Figure 7-4 shows the relative contributions to the overall risk estimate based on tribal fish consumption.

PCBs and dioxins/furans have been detected in fish tissue collected outside of the Study Area in both the Willamette and Columbia Rivers. In a risk assessment for the mid-Willamette (EVS 2000), PCB concentrations were found to result in a HQ greater than 1 assuming both a 142 g/day and a 17.5 g/day consumption rate, and an estimated cancer risk greater than 1×10^{-4} for the 142 g/day consumption rate. Dioxins and furans were also found to result in an estimated cancer risk greater than 1×10^{-4} using a 142 g/day consumption rate (non-cancer endpoints were not evaluated for dioxins and furans). In the Columbia River Basin Fish Contaminant Survey (EPA 2002c), the estimated cancer risks associated with PCBs and dioxins/furans were greater than 1×10^{-4} assuming a consumption rate

of 142 g/day, and the estimated risk due to PCBs was greater than 1×10^{-4} assuming a consumption rate of 7.5 g/day. While ambient concentrations have not been established for fish tissue, as discussed in Section 6.4.2, regional tissue concentrations may be associated with unacceptable risks from fish consumption, especially at higher consumption rates. While the concentrations in the Study Area are higher than the regional tissue concentrations, the sources of PCBs and dioxins and furans in regional tissue data are unknown, and efforts are underway to reduce regional tissue concentrations.

7.2.2 Shellfish Consumption Scenarios

Seventeen contaminants (PCBs, dioxins, arsenic, PAHs, pentachlorophenol, and five pesticides) were identified as potentially posing unacceptable risks due to consumption of shellfish, based on estimated cancer risks greater than 1×10^{-6} or a HQ of 1:

- PCBs (Total PCBs and PCB TEQs): Based on cancer risk estimates greater than 1×10^{-4} and/or HQs greater than 1 for shellfish consumption in localized and Study Area-wide exposures, the magnitude and spatial scale of the risk estimates greater than 1×10^{-4}, their relative contribution to cumulative risk estimates, and their frequency of detection.

- Dioxins/furans: Based on cancer risk estimates greater than 1×10^{-4} and/or HQs greater than 1 for shellfish consumption in localized and Study Area-wide exposures, the magnitude and spatial scale of the risk estimates greater than 1×10^{-4}, their relative contribution to cumulative risk estimates, and their frequency of detection.

- Arsenic: Based on cancer risk estimates that greater than 1×10^{-6} from clams and crayfish at both consumption rates and on a localized and Study Area-wide scale. No cancer risk estimates exceeded 1×10^{-4}. Though arsenic is identified as a contaminant potentially posing unacceptable risk on both a localized and Study Area-wide spatial scale, concentrations in shellfish tissue are due in part to the contribution of background concentrations.

- cPAHs: Based on cancer risk estimates greater than 1×10^{-6} from both clams and crayfish at both consumption rates and on a localized and Study Area-wide scale. Cancer risk estimates greater than 1×10^{-4} from clams collected at locations RM 5W and RM 6W and assuming a consumption rate of 18 g/day. cPAHs are considered a primary contributor to risk for the shellfish consumption pathway at those locations because of the magnitude of the risk estimates and their relative contribution to the cumulative risk.

- Pentachlorophenol: Pentachlorophenol was detected only in a single crayfish composite sample collected near RM 8. It was not detected in the remaining

40 shellfish samples. This single detection of pentachlorophenol resulted in a cancer risk estimate within the range of 1×10^{-6} to 1×10^{-4}.

- Organochlorine pesticides (Aldrin, dieldrin, DDx): Based on an estimated cancer risk greater than 1×10^{-6} or a HQ of 1.
    - Aldrin, based on an estimated cancer risk greater than 1×10^{-6} for consumption of clams at RM 8W and on a Study Area-wide basis, assuming a consumption rate of 18 g/day.
    - Dieldrin, based on an estimated cancer risk greater than 1×10^{-6} for consumption of clams near RM 8W and Study Area-wide, assuming a consumption rate of 18 g/day.
    - DDx, based on an estimated cancer risk greater than 1×10^{-6} for consumption of clams near RM 6W, RM 7W, RM 8W and Study Area-wide, assuming a consumption rate of 18 g/day.

Considering the magnitude and relative contribution to the total risk estimates and their frequency of detection, PCBs, dioxins/furans, and cPAHs are the most significant contributors to the risk estimates associated with consumption of shellfish. On a Study Area-wide basis, PCBs and dioxins/furans combined contribute approximately 52 percent and 92 percent, respectively, of the cumulative cancer risk from consumption of clams and crayfish, cPAHs contribute approximately 41 percent and 4 percent, respectively, of the cumulative cancer risk from consumption of clams (undepurated samples) and crayfish. PCBs pose the highest risks from consumption of clams at all locations except RM 4W, RM 5W, and RM 6W, where cPAHs pose the highest risks, and RM 4E and RM 7W, where dioxins/furans pose the highest risks.

7.2.3 In-Water Sediment Scenarios

PAHs (primarily benzo[a]pyrene), arsenic, PCBs, and dioxins are identified as contaminants potentially posing unacceptable risk for in-water sediment. PAHs and dioxins are identified for all of the in-water sediment scenarios, arsenic and PCBs were identified for the tribal fisher and high frequency fisher scenarios only. The relative contribution of each contaminant to cumulative cancer risk estimates varied by river mile. On a Study Area-wide basis, estimated risks from cPAHs and dioxins/furans each contributed approximately 50 percent of the cumulative cancer risk estimate. As previously discussed, cumulative cancer risks associated with arsenic are due in part to naturally occurring concentrations in sediment. Cumulative cancer risks from PCBs are greater than 1×10^{-6} at four one-half mile river segments, and from dioxins at two one-half mile segments. Cumulative cancer risks from cPAHs are greater than 1×10^{-6} for at 22 one-half mile river segments. Carcinogenic PAHs contribute significantly to risks associated with in-water sediment exposures at many locations throughout the Study Area. PCBs and dioxins/furans contribute significantly to the risk estimates at RM 2E, RM 3.5E, RM 6.5E, RM 8.5W, RM 9W, RM 11E, and Swan Island Lagoon (PCBs) and RM 7W (dioxins/furans).

7.2.4 Beach Sediment Scenarios

PAHs (primarily benzo[a]pyrene) and arsenic were identified as potentially posing unacceptable risk in beach sediment. Risks greater than 1×10^{-6} associated with exposure to arsenic in beach sediment are due in part to naturally occurring concentrations of arsenic. Risks greater than 1×10^{-6} associated with exposure to benzo(a)pyrene was limited to a few locations, with the maximum cumulative cancer risk at beach location 06B025.

7.2.5 Surface Water Scenarios

PAHs contribute significantly to estimated cancer risks that are greater than 1×10^{-4} assuming use of river water as a domestic water source and greater than 1×10^{-6} for divers at RM 6W. However, as noted in Section 5.2.8, the estimated risks associated with dermal exposure to PAHs in water should be used with caution, as PAHs are not within the Effective Prediction Domain of the model used to estimate the dermally-absorbed dose. Additional risk management considerations during remedy selection should consider the limited spatial scale and degree of uncertainty associated with the diver exposure assumptions. HIs greater than 1 at Multnomah Channel and RM 8.5 were due to MCPP and associated with use of river water as a potential drinking water source.

8.0 REFERENCES

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LOWER WILLAMETTE GROUP

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

ATTACHMENT F1: DECISIONS INVOLVING THE EPA REGARDING THE BHHRA METHODS

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Attachment F1. Decisions Involving the EPA Regarding the BHHRA Methods

Issue	EPA Directive?	Decision	Date/Documentation Source
Data Use Rules			
Dataset	--	Only Category 1 QA2 data will be used in the BHHRA	Post SCRA Data Treatment Summary for the RI and BLRAs (submitted to EPA on May 28, 2008)
Duplicates (Field Splits)	--	Field splits will be averaged according to the following rules: If all results are detected, average detects If all results are not detected, report the minimum detection limit and flag result as not detected If results are a mix of detect and not detected, report the detected value	Guidelines for Data Averaging and Treatment of Nondetected Values for the Round 1 Database (June 10, 2004) and Proposed Data Use Rules and Data Integration for BHHRA (submitted to EPA on May 28, 2008)
Replicates - Data analysis and reporting	--	When calculating a mean or an upper confidence limit (UCL) and when reporting data in general, replicates will be included in the dataset as discrete samples.	Proposed Data Use Rules and Data Integration for BHHRA (submitted to EPA on May 28, 2008)
Replicates - Spatial analysis	--	When generating Thiessen polygons (or any other task which spatially weights data), replicates with unique coordinates will be included as separate samples. Data associated with the first sample will be used for replicates that have the same coordinates (the second or third replicate is excluded).	Proposed Data Use Rules and Data Integration for BHHRA (submitted to EPA on May 28, 2008)
Determining the presence of an analyte for inclusion in the BHHRA and for the purpose of calculating group sums	--	For all media, if an analyte is detected at least once in the study area for a given medium, it will be considered present in that medium (for biota, presence/absence will be assessed separately for each individual species and tissue type).	Proposed Data Use Rules and Data Integration for BHHRA (submitted to EPA on May 28, 2008)
Summing of analytes for chemical groups	--	If at least one group component for a given sample is detected, the following will be used for the sums: If an analyte is detected, the detected value will be used in the sum If an analyte is not detected, but determined to be present, ½ the detection limit will be used in the sum If an analyte is not detected and determined not to be present, 0 will be used in the sum If all the analytes for a group are non-detect, the maximum detection limit (or maximum toxicity-weight detection limit for TEQs) will be used and reported as not detected.	Proposed Data Use Rules and Data Integration for BHHRA (submitted to EPA on May 28, 2008)
Handling of surface water collected by different methods	--	XAD-column and XAD-filter results will be combined as follows: If both are detects, sum If one is detect and one is not detected, use detect value If both are not detected, use the maximum non-detect result XAD and peristaltic samples will be treated as separate samples.	Proposed Data Use Rules and Data Integration for BHHRA (submitted to EPA on May 28, 2008)
Minimum number of samples to calculate a 95% UCL with ProUCL Statistical Package	--	If less than 5 detected values, maximum detect will be used instead of 95% UCL for EPC. If between 6 and 10, 95% UCL will be used and discussed in uncertainty section. If more than 10, 95% UCL will be used.	Proposed Data Use Rules and Data Integration for BHHRA (submitted to EPA on May 28, 2008)
Data Assessment and COPC Screening			
PBDEs	Yes	Polybrominated diphenyl ethers (PBDEs) will be assessed quantitatively in the BHHRA consistent with the approach used for other chemicals. The assessment must include the breastmilk exposure pathway. The assessment of PBDEs could occur as an attachment.	EPA's response to non-directed RI/RA comment resolution dated December 8, 2010
Use of the upstream tissue data collected by the LWG during Round 1	Yes	Upstream fish tissue data should not be used in background assessments or risk assessment but could be presented in the RI Report for “informational purposes”.	RI/RA Issue Resolution Table dated April 30, 2008

Attachment F1. Decisions Involving the EPA Regarding the BHHRA Methods

Issue	EPA Directive?	Decision	Date/Documentation Source
Use of deep TZW results	Yes	LWG would screen deep TZW results in the RI to assess potential TZW loading impacts to surface water and surface sediment but would not include deep TZW results in development of EPCs for the baseline risk assessments.	Agreement between LWG and EPA on May 14, 2008, as documented in the Tech Issue Status Table
Evaluation of data collected outside of study area (i.e., from RM 1 to RM 2, Multnomah Channel, and from RM 11.8 to 12.2)	--	Site-wide risk scenarios would be developed for the Study Area from RM 2 to RM 11.8 and that separate EPCs and baseline risk evaluations would be prepared for the areas between RM1 and RM2, upper Multnomah Channel, and RM 11.8 to RM 12.2.	Agreement between LWG and EPA on June 11, 2008, as documented in the Tech Issue Status Table
Selection of COPCs - All media. Use of background.	--	Any chemical that exceeds that screening level for a given media must be carried through the quantitative risk assessment consistent with Superfund guidance on background.	EPA Comments on the Round 1 Work Plan (August 15, 2002)
Selection of COPCs - All media. Use of frequency of detection.	--	Because the site is hetergeneous in nature and the location of potential sources may result in relatively isolated "hot spots" of certain chemicals, frequency of detection should not be used in selecting COPCs.	EPA Comments on the Round 1 Work Plan (August 15, 2002) and Programmatic Work Plan, Appendix C (April 23, 2004)
Selection of COPCs - Sediment and water. Risk-based screening levels.	--	EPA's regional screening levels would be used as the risk-based screening levels for selection of COPCs in sediment and water.	Email communication from Dana Davoli on August 13, 2008
Selection of COPCs - Tissue. Risk-based screening levels.	--	Because there are no existing screening levels for tissue consumption that are accepted by Region 10, all analytes detected in tissue (per species and tissue type) within the study area were carried forward as COPCs.	Programmatic Work Plan, Appendix C (April 23, 2004)
Exposure Assessment			
Terminology - tribal fishers	--	EPA obtained the Tribes' input on the name to use for the Native American fishers, and requested "Tribal".	Email communication from Dana Davoli on August 21, 2008
Terminology - fishers that are not specifically Native American - terminology	Yes	The non-Native American fishers are described as Subsistence and Recreational fishers.	Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment - Final Resolution (December 6, 2012)
Selection of resident fish species for evaluation in the BHHRA	--	Target resident fish species were selected based on common human consumption, limited home range, potential for bioaccumulation, different feeding guilds, and relatively abundant species. The selected target species are black crappie, brown bullhead, common carp, and smallmouth bass.	Programmatic Work Plan, Appendix C (April 23, 2004)
Exposure Pathways - Evaluation of surface water as a drinking water source	Yes	Risks from drinking surface water would be evaluated in the BHHRA. Only the vertically integrated and transect samples would be included in the dataset for this evaluation. Maximum detected concentrations would be screened against MCLs and Region 6 screening levels. For chemicals that screen in, EPCs would be calculated for individual transects and individual vertically integrated sample locations. Temporal averages would be included in the EPCs. Site-wide EPCs would also be calculated. Total metals concentration data would be used. XAD column and filter data would be summed. RME and CT EPCs would be calculated using the same approach as for biota (e.g., 5 or more detected samples are needed to calculate a 95% UCL). EPA and LWG BHHRA leads subsequently agreed to use the EPA Regional Screening Levels, which replaced the Region 6 screening levels. Per EPA's Directed Comments on the draft BHHRA, the averaged concentrations of near-bottom and near-surface surface water data where both samples were collected will also be included in the drinking water dataset.	RI/RA Issue Resolution Table dated April 30, 2008

Attachment F1. Decisions Involving the EPA Regarding the BHHRA Methods

Issue	EPA Directive?	Decision	Date/Documentation Source
Exposure Pathways - Shellfish consumption		EPA concluded that crayfish consumption must be included along with fish consumption in the BHHRA.	EPA's Response to LWG's "Portland Harbor Human Health Issues: Status Update" (March 14, 2003)
Exposure Pathways - Clam consumption	Yes	EPA required that clam consumption be included as part of the shellfish consumption evaluated in the BHHRA. EPA and the LWG agreed to include the clam consumption scenario in the HHRA using 1-mile segments for calculating EPCs.	EPA's Identification of Round 3 Data Gaps dated December 2, 2005 and RI/RA Issue Resolution Table dated April 30, 2008
Exposure Pathways - Evaluation of subsurface sediment in BHHRA		EPA and LWG agreed that subsurface sediment would not be evaluated in the BHHRA due to the short term nature of erosion events.	RI/RA Issue Resolution Table dated April 30, 2008
Exposure Pathways - Breast milk scenario		EPA required that the evaluation of human milk by infants be included for all receptors where PCBs, DDx, and/or dioxins are COPCs.	General Responses to EPA's Non-Directive Comment Key Issues on the Baseline Human Health Risk Assessment dated November 18, 2010
Exposure Pathways - Combined Adult and Child Scenario		EPA required that adult and child scenarios be combined. The adult and child scenarios can be presented separately, and an additional scenario for combined adult/child exposures would be included as a separate table.	General Responses to EPA's Non-Directive Comment Key Issues on the Baseline Human Health Risk Assessment dated November 18, 2010
Exposure Pathways and Parameters - Diver scenarios	Yes	EPA directed that the commercial diver scenario be evaluated in the BHHRA. The exposure parameters used in the BHHRA for the diver scenario were provided by EPA.	Letter from EPA (September 15, 2008)
Exposure Areas - Sediment, non-divers	--	The in-water sediment EPCs would be calculated on a ½ -river mile basis for each side of the river.	EPA's Comments (February 24, 2005) and the final Exposure Point Concentration Calculation Approach and Summary of Exposure Factors Technical Memorandum (April 21, 2006)
Exposure Areas - Sediment, divers	--	The in-water sediment EPCs used for fishers would also be used for the diver scenario.	Agreement between LWG, DEQ and EPA on June 2, 2008, as documented in the Meeting Summary Memo dated June 9, 2008
Exposure areas - Clam consumption, adult fishers	--	EPCs for the clam consumption scenario would be calculated on a river mile basis. River mile designations would be used to delineate clam exposure areas. The river mile designation for specific clam sample locations was agreed upon between LWG, DEQ, and EPA.	RI/RA Issue Resolution Table dated April 30, 2008. Agreement between LWG, DEQ and EPA on June 2, 2008, as documented in the Meeting Summary Memo dated June 9, 2008
Exposure Areas - Smallmouth bass	--	EPCs will be calculated for smallmouth bass by river mile. EPA and LWG agreed that the LWG would calculate bass EPCs using 1-mile segments combining both sides of the river.	EPA's Comments on the Draft Programmatic Work Plan (February 11, 2004). Agreement between LWG, DEQ and EPA on May 14, 2008, as documented in the Tech Issue Status Table
EPCs - Smallmouth bass	--	In calculating the EPCs, 95% UCLs will be calculated for datasets with 5 or more samples using the latest version of ProUCL. Non-detects (NDs) will be incorporated per the latest ProUCL guidance (i.e., using the full detection limit with a non-detect flag). The 95% UCL will be used as the RME EPC. EPCs that are calculated using fewer than 10 samples will be identified and discussed in the uncertainty section. Where fewer than 5 samples are available or if ProUCL is unable to calculate a 95% UCL, the maximum concentration for the dataset will be used as the RME EPC. The arithmetic average, regardless of dataset size, will be used as the CT EPC.	EPA's Comments on the Draft Programmatic Work Plan (February 11, 2004). Agreement between LWG, DEQ and EPA on May 14, 2008, as documented in the Tech Issue Status Table

Attachment F1. Decisions Involving the EPA Regarding the BHHRA Methods

Issue	EPA Directive?	Decision	Date/Documentation Source
EPCs - Tissue: lack of adjustments for cooking/preparation methods	--	Impacts from preparation and cooking should not be included in the risk characterization of the baseline risk assessment. However, a discussion of preparation and cooking could be included in the uncertainty section.	EPA's Response to LWG's "Portland Harbor Human Health Issues: Status Update" (March 14, 2003)
EPCs - Surface Water, divers	Yes	EPA directed the LWG to calculate surface water EPCs for divers on a 1/2 river mile basis for single point stations, and on a transect-by-transect basis for transect samples. Near bottom/near surface or East/Middle/West samples from Round 3 transects would be averaged to calculate an integrated result for each sampling location per sampling event. The averaged samples from Round 3 would then be combined to be consistent with Round 2 data, as described in Attachment F2 of the BHHRA.	Letter from EPA (September 15, 2008)
EPCs - Surface water, recreational beach users	--	The BHHRA recreational surface water EPCs would not change from the Round 2 Report BHHRA EPCs.	Agreement between LWG, DEQ and EPA on June 2, 2008, as documented in the Meeting Summary Memo dated June 9, 2008
EPCs - Surface water, transients	--	Near bottom/near surface or East/Middle/West samples from Round 3 transects would be averaged to calculate an integrated result for each sampling location per sampling event. The averaged samples from Round 3 would then be combined to be consistent with Round 2 data, as described in Attachment F2 of the BHHRA.	Agreement between LWG, DEQ and EPA on June 2, 2008, as documented in the Meeting Summary Memo dated June 9, 2008
EPCs - Shellfish (crayfish)	Yes	EPCs for crayfish would be calculated for each individual sample site as well as for the entire Site	EPA's Comments on the Draft Programmatic Work Plan (February 11, 2004)
Exposure Assumptions - Fish consumption. No site-specific data.	--	EPA will not accept data from fish consumption studies or surveys for use in the risk assessment nor for comparison with existing studies.	EPA's Comments on the Draft Programmatic Work Plan (July 25, 2003)
Exposure Assumptions - Fish consumption. Subsistence and Recreational fish consumption	Yes	EPA provided the exposure assumptions used to evaluate the Subsistence and Recreational fish consumption scenarios.	Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment - Final Resolution (December 6, 2012)
Exposure Assumptions - Fish consumption. Tribal fish consumption.	Yes	A multiple species diet consisting of resident fish species as well as salmon, sturgeon, and lamprey would be evaluated in the BHHRA for tribal fish consumers.	EPA's Comments on the Draft Programmatic Work Plan (February 11, 2004)
Exposure Assumptions - Dockside worker, recreational beach user, transient, and fisher (beach sediment)	--	Exposure parameters for the dockside worker, recreational beach user, and transient and for the fishers for exposure to beach sediment were selected by EPA's risk assessors and EPA's partners.	EPA's Comments on the Draft Programmatic Work Plan (July 25, 2003)
Exposure Assumptions - All scenarios except divers and fish consumers.	--	Exposure parameters for receptors assessed in the Round 2 Report, other than non-tribal fish consumers, were agreed upon by the LWG and EPA prior to the Round 2 Report.	Programmatic Work Plan, Appendix C (April 23, 2004) and the Exposure Point Concentration Calculation Approach and Summary of Exposure Factors Technical Memorandum (April 21, 2006)

Attachment F1. Decisions Involving the EPA Regarding the BHHRA Methods

Issue	EPA Directive?	Decision	Date/Documentation Source
Exposure Assumptions - Inorganic arsenic in fish tissue	--	Due to a limited database for the Willamette, a minimum of 10% inorganic arsenic should be assumed for resident fish species. EPA agreed to use an assumption of 10% inorganic arsenic for clam tissue if the effect of assuming a higher percentage was evaluated in the uncertainty section.	EPA Comments on the Round 1 Work Plan (August 15, 2002) and email communication from Eric Blischke on September 26, 2007
Exposure Assumptions - PCB concentrations		Total PCBs will be calculated as the sum of Aroclors and the sum of congeners. Noncarcinogenic risks will be estimated using total PCBs. The concentration of dioxin-like congeners will be subtracted from the total PCB concentration, and the adjusted total PCB concentration will be used for carcinogenic risk evaluations.	Programmatic Work Plan, Appendix C (April 23, 2004)
Toxicity Assessment			
Toxic Equivalency Factors (TEFs)	--	The World Health Organization (WHO) 2005 TEFs will be used in assessing the toxicity of dioxin, furan, and dioxin-like PCB congeners.	Proposed Data Use Rules and Data Integration for BHHRA (submitted to the EPA on May 28, 2008)
Use of Region 6 toxicity values for TCE	--	The Region 6 screening levels use the EPA 2001 toxicity values for TCE, including a cancer slope factor of 0.4 (mg/kg-day)-1 for inhalation and ingestion. This toxicity value is recommended by Region 10 for use in the BHHRA.	Email communication from Dana Davoli on June 23, 2008 (included Region 10 Human Health Screening Memo, 2007)
Risk Characterization			
RME risk for diver in dry suit	Yes	The diver in dry suit scenario would be assessed for RME exposure only. The diver in wet suit scenario would be assessed for both RME and CT exposures.	Letter from EPA (September 15, 2008)
Assessment of risks from ingestion of tissue containing lead	--	A probability function for the fetal blood lead level from the Adult Lead Model should be used to calculate the probabilities of fetal blood lead levels associated with ingestion of biota tissue containing lead.	EPA Comments on the Round 2 Report (January 15, 2008)
Additional Evaluation of Surface Water and Transition Zone Water			
Additional Evaluation of Surface Water and Transition Zone Water		EPA and the LWG agreed to move the additional evaluation of surface water and transition zone water data relative to screening criteria to the RI Report	General Responses to EPA's Non-Directive Comment Key Issues on the Baseline Human Health Risk Assessment dated November 18, 2010
Uncertainty Assessment			
Probabilistic risk assessment	--	EPA would not accept a probability assessment unless the methodologies to be used, parameters to be distributed, and sources of the distributions were provided in the Work Plan.	EPA Comments on the Programmatic Work Plan (July 25, 2003)
Smallmouth bass exposure areas	--	EPA and the LWG agreed that a discussion of variations in bass tissue concentrations on opposite sides of the river within a given segment would be included in the uncertainty section of the BHHRA.	Agreement between LWG, DEQ and EPA on May 14, 2008, as documented in the Tech Issue Status Table

Attachment F1. Decisions Involving the EPA Regarding the BHHRA Methods

Issue	EPA Directive?	Decision	Date/Documentation Source
Discussion of assumptions and uncertainties	--	Statements about the conservative nature of the risk assessment should be removed from the text. Uncertainties should be discussed in the uncertainty section.	EPA Comments on the Round 2 Report (January 15, 2008)
Presentation of uncertainty analyses	--	Uncertainty and assumptions used would be discussed in a factual manner throughout the BHHRA consistent with EPA RAGS A guidance. The report would be organized to address uncertainties at the end of a report section rather than in an uncertainty section at the end of the report. For example, the uncertainty in the effects assessment would be presented at the end of effects assessment section. Judgmental and qualifying language would not be used in the uncertainty discussions.	RI/RA Issue Resolution Table dated April 30, 2008

Abbreviations:

95% UCL	95% Upper Confidence Limit on the Mean
BHHRA	Baseline Human Health Risk Assessment
BLRA	Baseline Risk Assessments
COC	Contaminant of Concern
COPC	Contaminant of Potential Concern
CT	Central Tendency
DEQ	Oregon Department of Environmental Quality
EPA	United States Environmental Protection Agency
EPC Tech Memo	*Portland Harbor RI/FS Technical Memorandum For Human Health Risk Assessment: Exposure Point Concentration Calculation Approach and Summary of*
EPCs	Exposure Point Concentration
LWG	Lower Willamette Group
MCLs	Maximum Contaminant Level
PBDE	Polybrominated Diphenyl Ethers
Programmatic Work Plan, Appendix C	*Portland Harbor RI/FS Programmatic Work Plan. Appendix C: Human Health Risk Assessment Approach.* Kennedy/Jenks Consultants, 23 April, 2004.
RAGS	Risk Assessment Guidance for Superfund
RI/RA	Remedial Investigation/Risk Assessment
RM	River Mile
RME	Reasonable Maximum Exposure
Round 2 Report	*Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report* . Integral Consulting, Inc. et. al. 2007
SCRA	Site Characterization and Risk Assessment (database)
TCE	Trichloroethylene
TEF	Toxic Equivalency Factor
TZW	Transition Zone Water
WQC	Water Quality Criteria

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

ATTACHMENT F2: SUMMARY OF DATA MANAGEMENT AND DATA USE IN THE BHHRA

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table F2-1. BHHRA Exposure Areas for Clam Consumption and Corresponding Sample IDs

BHHRA Exposure Area	Clam SampleID	River Mile of Sample Collection	Sample Location Name
Undepurated Clams			
1 E	LW3-CA01E-C00	1.5	CA01E
2 E	LW2-BTFC001	1.9	FC001
	LW2-BTFC002	2.3	FC002
2 W	LW3-CA02W-C00	2.3	CA02W
	LW2-BTFC003	2.9	FC003
3 E	LW2-BTFC004	3.2	FC004
	LW2-BTFC005	3.7	FC005
	LW2-BTFC006 Rep 1	3.7	FC0061
3 W	LW3-CA03W-C00	3.4	CA03W
4 E	LW2-BTFC007	4.2	FC007
	LW2-BTFC008	4.4	FC008
	LW2-BTFC009	4.4	FC009
	LW2-BTFC010	4.7	FC010
4 W	LW3-CA04W-C00	4	CA04W
	LW2-BTFC011	4.6	FC011
	LW2-BTFC012	4.8	FC012
5 E	LW3-CA05E-C00	5.5	CA05E
	LW2-BTFC013	5.7	FC013
5 W	LW3-CA05W-C00	5.6	CA05W
	LW2-BTFC014	5.9	FC014
6 E	LW2-BTFC016	6.7	FC016
	LWG0106R002SDS015C10	6.7	06R002
6 W	LW2-BTFC015	6.4	FC015
	LW2-BTFC017	6.9	FC017
7 E	LW2-BTFC019	7.4	FC019
7 W	LW2-BTFC018	7.2	FC018
	LWG0107R006SDS015C00	7.3	07R006
	LW2-BTFC020	7.5	FC020
	LWG0107R003SDS015C00	7.5	07R003
	LW2-BTFC021	7.8	FC021
8 E	LW2-BTFC023	8.1	FC023
	LW2-BTFC027 Rep 1	8.7	FC0271
8 SIL	LW2-BTFC022	8	FC022
	LW2-BTFC026	8.5	FC026
	LW2-BTFC029	8.9	FC029
8 W	LW2-BTFC024	8.1	FC024
	LW2-BTFC025	8.5	FC025
	LW2-BTFC028	8.8	FC028
9 E	LW2-BTFC031	9.5	FC031
	LW2-BTFC033	9.9	FC033
9 W	LW2-BTFC030	9.3	FC030
	LW2-BTFC032	9.7	FC032
10 W	LW3-CA10W-C00	10.2	CA10W

Table F2-1. BHHRA Exposure Areas for Clam Consumption and Corresponding Sample IDs

BHHRA Exposure Area	Clam SampleID	River Mile of Sample Collection	Sample Location Name
11 E	LW3-CA11E-C00	11.3	CA11E
11 W	LW3-CA12W-C00	11.9	CA12W
12 E	LW3-CA12E-C00	12.1	CA12E
Depurated Clams			
1 E	LW3-CA01E-C00D	1.5	CA01E
2 W	LW3-CA02W-C00D	2.3	CA02W
10 W	LW3-CA10W-C00D	10.2	CA10W
11 E	LW3-CA11E-C00D	11.3	CA11E
12 E	LW3-CA12E-C00D	12.1	CA12E

Abbreviations:

E East
W West
SIL Swan Island Lagoon
BHHRA Baseline Human Health Risk Assessment

Table F2-2. BHHRA Summed Analytes and Components

Analyte Group	Name of Sum	cas_rn	Component Analytes
PCBs	Total Aroclors	12674-11-2	Aroclor 1016
		11104-28-2	Aroclor 1221
		11141-16-5	Aroclor 1232
		53469-21-9	Aroclor 1242
		12672-29-6	Aroclor 1248
		11097-69-1	Aroclor 1254
		11096-82-5	Aroclor 1260
		37324-23-5	Aroclor 1262
		11100-14-4	Aroclor 1268
	Total PCB Congeners	2051-60-7	PCB001
		2051-61-8	PCB002
		2051-62-9	PCB003
		13029-08-8	PCB004
		PCB004_010	PCB004 & 010
		16605-91-7	PCB005
		PCB005_008	PCB005 & 008
		25569-80-6	PCB006
		33284-50-3	PCB007
		PCB007_009	PCB007 & 009
		34883-43-7	PCB008
		34883-39-1	PCB009
		33146-45-1	PCB010
		2050-67-1	PCB011
		PCB012_013	PCB012 & 013
		34883-41-5	PCB014
		2050-68-2	PCB015
		38444-78-9	PCB016
		PCB016_032	PCB016 & 032
		37680-66-3	PCB017
		37680-65-2	PCB018
		PCB018_030	PCB018 & 030
		38444-73-4	PCB019
		PCB020_021_033	PCB020 & 021 & 033
		PCB020_028	PCB020 & 028
		PCB021_033	PCB021 & 033
		38444-85-8	PCB022
		55720-44-0	PCB023
		55702-45-9	PCB024
		PCB024_027	PCB024 & 027
		55712-37-3	PCB025
		38444-81-4	PCB026
		PCB026_029	PCB026 & 029
		38444-76-7	PCB027
		7012-37-5	PCB028
		15862-07-4	PCB029
		35693-92-6	PCB030
		16606-02-3	PCB031
		38444-77-8	PCB032
		38444-86-9	PCB033
		37680-68-5	PCB034
		37680-69-6	PCB035
		38444-87-0	PCB036
		38444-90-5	PCB037
		53555-66-1	PCB038
		38444-88-1	PCB039
		38444-93-8	PCB040
		PCB040_041_071	PCB040 & 041 & 071
		PCB041_064_071_	PCB041 & 064 & 071 & 072
		36559-22-5	PCB042
		PCB042_059	PCB042 & 059
		70362-46-8	PCB043
		PCB043_049	PCB043 & 049
		41464-39-5	PCB044
		PCB044_047_065	PCB044 & 047 & 065
		70362-45-7	PCB045
		PCB045_051	PCB045 & 051
		41464-47-5	PCB046
		2437-79-8	PCB047
		70362-47-9	PCB048
		PCB048_074	PCB048 & 074
		PCB048_075	PCB048 & 075
		41464-40-8	PCB049
		PCB049_069	PCB049 & 069
		62796-65-0	PCB050
		PCB050_053	PCB050 & 053
		68194-04-7	PCB051
		35693-99-3	PCB052
		PCB052_069	PCB052 & 069
		41464-41-9	PCB053

Table F2-2. BHHRA Summed Analytes and Components

Analyte Group	Name of Sum	cas_rn	Component Analytes
		15968-05-5	PCB054
		74338-24-2	PCB055
		41464-43-1	PCB056
		PCB056_060	PCB056 & 060
		70424-67-8	PCB057
		41464-49-7	PCB058
		PCB059_062_075	PCB059 & 062 & 075
		33025-41-1	PCB060
		PCB061_070	PCB061 & 070
		PCB061_070_074_	PCB061 & 070 & 074 & 076
		54230-22-7	PCB062
		74472-34-7	PCB063
		52663-58-8	PCB064
		33284-54-7	PCB065
		32598-10-0	PCB066
		PCB066_076	PCB066 & 076
		73575-53-8	PCB067
		73575-52-7	PCB068
		32598-11-1	PCB070
		41464-42-0	PCB072
		74338-23-1	PCB073
		32690-93-0	PCB074
		32598-13-3	PCB077
		70362-49-1	PCB078
		41464-48-6	PCB079
		33284-52-5	PCB080
		70362-50-4	PCB081
		52663-62-4	PCB082
		60145-20-2	PCB083
		PCB083_099	PCB083 & 099
		52663-60-2	PCB084
		PCB084_092	PCB084 & 092
		PCB085_116	PCB085 & 116
		PCB085_116_117	PCB085 & 116 & 117
		55312-69-1	PCB086
		PCB086_087_097_	PCB086 & 087 & 097 & 108 & 119 & 1
		38380-02-8	PCB087
		PCB087_117_125	PCB087 & 117 & 125
		PCB088_091	PCB088 & 091
		73575-57-2	PCB089
		68194-07-0	PCB090
		PCB090_101	PCB090 & 101
		PCB090_101_113	PCB090 & 101 & 113
		52663-61-3	PCB092
		73575-56-1	PCB093
		PCB093_095_098_	PCB093 & 095 & 098 & 100 & 102
		73575-55-0	PCB094
		38379-99-6	PCB095
		PCB095_098_102	PCB095 & 098 & 102
		73575-54-9	PCB096
		41464-51-1	PCB097
		38380-01-7	PCB099
		39485-83-1	PCB100
		37680-73-2	PCB101
		60145-21-3	PCB103
		56558-16-8	PCB104
		32598-14-4	PCB105
		70424-69-0	PCB106
		PCB106_118	PCB106 & 118
		PCB107_109	PCB107 & 109
		PCB107_124	PCB107 & 124
		PCB108_112	PCB108 & 112
		74472-35-8	PCB109
		38380-03-9	PCB110
		PCB110_115	PCB110 & 115
		39635-32-0	PCB111
		PCB111_115	PCB111 & 115
		74472-36-9	PCB112
		68194-10-5	PCB113
		74472-37-0	PCB114
		31508-00-6	PCB118
		56558-17-9	PCB119
		68194-12-7	PCB120
		56558-18-0	PCB121
		76842-07-4	PCB122
		65510-44-3	PCB123
		70424-70-3	PCB124
		57465-28-8	PCB126
		39635-33-1	PCB127

Table F2-2. BHHRA Summed Analytes and Components

Analyte Group	Name of Sum	cas_rn	Component Analytes
		38380-07-3	PCB128
		PCB128_162	PCB128 & 162
		PCB128_166	PCB128 & 166
		55215-18-4	PCB129
		PCB129_138_160_	PCB129 & 138 & 160 & 163
		52663-66-8	PCB130
		61798-70-7	PCB131
		38380-05-1	PCB132
		PCB132_161	PCB132 & 161
		35694-04-3	PCB133
		PCB133_142	PCB133 & 142
		PCB134_143	PCB134 & 143
		52744-13-5	PCB135
		PCB135_151_154	PCB135 & 151 & 154
		38411-22-2	PCB136
		35694-06-5	PCB137
		35065-28-2	PCB138
		PCB138_163_164	PCB138 & 163 & 164
		PCB139_140	PCB139 & 140
		PCB139_149	PCB139 & 149
		59291-64-4	PCB140
		52712-04-6	PCB141
		41411-61-4	PCB142
		68194-14-9	PCB144
		74472-40-5	PCB145
		51908-16-8	PCB146
		PCB146_165	PCB146 & 165
		68194-13-8	PCB147
		PCB147_149	PCB147 & 149
		74472-41-6	PCB148
		38380-04-0	PCB149
		68194-08-1	PCB150
		52663-63-5	PCB151
		68194-09-2	PCB152
		35065-27-1	PCB153
		PCB153_168	PCB153 & 168
		60145-22-4	PCB154
		33979-03-2	PCB155
		38380-08-4	PCB156
		PCB156_157	PCB156 & 157
		69782-90-7	PCB157
		74472-42-7	PCB158
		PCB158_160	PCB158 & 160
		39635-35-3	PCB159
		74472-43-8	PCB161
		39635-34-2	PCB162
		74472-45-0	PCB164
		74472-46-1	PCB165
		41411-63-6	PCB166
		52663-72-6	PCB167
		59291-65-5	PCB168
		32774-16-6	PCB169
		35065-30-6	PCB170
		52663-71-5	PCB171
		PCB171_173	PCB171 & 173
		52663-74-8	PCB172
		68194-16-1	PCB173
		38411-25-5	PCB174
		40186-70-7	PCB175
		52663-65-7	PCB176
		52663-70-4	PCB177
		52663-67-9	PCB178
		52663-64-6	PCB179
		35065-29-3	PCB180
		PCB180_193	PCB180 & 193
		74472-47-2	PCB181
		60145-23-5	PCB182
		PCB182_187	PCB182 & 187
		52663-69-1	PCB183
		PCB183_185	PCB183 & 185
		74472-48-3	PCB184
		52712-05-7	PCB185
		74472-49-4	PCB186
		52663-68-0	PCB187
		74487-85-7	PCB188
		39635-31-9	PCB189
		41411-64-7	PCB190
		74472-50-7	PCB191
		74472-51-8	PCB192

Table F2-2. BHHRA Summed Analytes and Components

Analyte Group	Name of Sum	cas_rn	Component Analytes
		69782-91-8	PCB193
		35694-08-7	PCB194
		52663-78-2	PCB195
		42740-50-1	PCB196
		PCB196_203	PCB196 & 203
		33091-17-7	PCB197
		PCB197_200	PCB197 & 200
		68194-17-2	PCB198
		PCB198_199	PCB198 & 199
		52663-75-9	PCB199
		52663-73-7	PCB200
		40186-71-8	PCB201
		2136-99-4	PCB202
		52663-76-0	PCB203
		74472-52-9	PCB204
		74472-53-0	PCB205
		40186-72-9	PCB206
		52663-79-3	PCB207
		52663-77-1	PCB208
		2051-24-3	PCB209
	Total Dioxin-Like PCBs	= sum of PCBs 77, 81, 105, 114, 118, 123, 126, 156, 157, 167, 169, 189	
	Total PCBs, Adjusted	= Total PCB Congeners - Total Dioxin-Like PCBs	
Pesticides	Total DDD	53-19-0	2,4'-DDD
		72-54-8	4,4'-DDD
	Total DDE	3424-82-6	2,4'-DDE
		72-55-9	4,4'-DDE
	Total DDT	789-02-6	2,4'-DDT
		50-29-3	4,4'-DDT
	Total Chlordane	5103-71-9	cis-Chlordane
		5103-73-1	cis-Nonachlor
		27304-13-8	Oxychlordane
		5103-74-2	trans-Chlordane
		39765-80-5	trans-Nonachlor
	Total Endosulfan	959-98-8	alpha-Endosulfan
		33213-65-9	beta-Endosulfan
		1031-07-8	endosulfan sulfate
VOCs	Total Xylenes	95-47-6	o-Xylene
		1330-20-7	Xylene
		179601-23-1	m,p-Xylene

Table F2-3.
Analytes Determined To Be Not Present and Excluded from Summed Analyte Totals

Exposure Medium	Chemical Group	Excluded Analytes
Black Crappie, Fillet	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total DDD	2,4'-DDD
	Total DDE	2,4'-DDE
	Total Endosulfans	alpha-Endosulfan, beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	cis-Chlordane, cis-Nonachlor, Oxychlordane, trans-Chlordane
Black Crappie, Whole Body	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners[a]	PCB005, PCB014, PCB023, PCB055, PCB073, PCB080, PCB106, PCB112, PCB142, PCB161, PCB184, PCB186, PCB192, PCB204
	Total DDD	2,4'-DDD
	Total DDE	2,4'-DDE
	Total Endosulfans	alpha-Endosulfan, beta-Endosulfan
	Total Chlordanes	cis-Nonachlor
	Total Dioxin/Furan TEQ	Octachlorodibenzofuran
Brown Bullhead, Fillet	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total DDE	2,4'-DDE
	Total Endosulfans	alpha-Endosulfan, beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	cis-Chlordane, cis-Nonachlor, Oxychlordane, trans-Chlordane
Brown Bullhead, Whole Body	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB002, PCB005, PCB007, PCB012 & 013, PCB014, PCB023, PCB038, PCB055, PCB080, PCB106, PCB112, PCB142, PCB145, PCB161, PCB186, PCB192, PCB204
	Total DDE	2,4'-DDE
	Total Endosulfans	alpha-Endosulfan, Endosulfan sulfate
	Total Chlordanes	cis-Nonachlor, Oxychlordane
Common Carp, Fillet	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB080, PCB142, PCB169, PCB192
Common Carp, Whole Body	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB080, PCB142, PCB192
Smallmouth Bass, Fillet	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB014, PCB036, PCB080, PCB112, PCB142, PCB169, PCB192
	Total Endosulfans	alpha-Endosulfan, beta-Endosulfan
	Total Dioxin/Furan TEQ	1,2,3,4,6,7,8-Heptachlorodibenzofuran
Smallmouth Bass, Whole Body	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB014, PCB080, PCB142, PCB192
Clam, Undepurated	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB014, PCB078, PCB161, PCB192
	Total Dioxin/Furan TEQ	1,2,3,7,8,9-Hexachlorodibenzofuran
Clam, Depurated	Total PCB Congeners	PCB014, PCB024, PCB055, PCB058, PCB078, PCB080, PCB081, PCB106, PCB112, PCB142, PCB161, PCB169, PCB186, PCB192, PCB204
	Total Dioxin/Furan TEQ	1,2,3,4,7,8,9-Heptachlorodibenzofuran, 1,2,3,7,8,9-Hexachlorodibenzofuran, 2,3,4,6,7,8-Hexachlorodibenzofuran, 2,3,7,8-Tetrachlorodibenzo-p-dioxin
Crayfish	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB005, PCB007, PCB014, PCB036, PCB038, PCB055, PCB078, PCB080, PCB106, PCB142, PCB145, PCB161, PCB182, PCB186, PCB192
	Total Endosulfans	alpha-Endosulfan, Endosulfan sulfate

Table F2-3.
Analytes Determined To Be Not Present and Excluded from Summed Analyte Totals

Exposure Medium	Chemical Group	Excluded Analytes
Chinook, Fillet	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Arochlor 1260, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB005, PCB010, PCB014, PCB035, PCB078, PCB106, PCB112, PCB127, PCB142, PCB161
	Total DDD	2,4'-DDD, 4,4'-DDD
	Total DDE	2,4'-DDE
	Total DDT	2,4'-DDT
	Total Endosulfans	beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	cis-Chlordane, trans-Chlordane
	Total Dioxin/Furan TEQ	1,2,3,4,7,8,9-Heptachlorodibenzofuran, 1,2,3,4,7,8-Hexachlorodibenzofuran, 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8-Hexachlorodibenzofuran, 1,2,3,7,8,9-Hexachlorodibenzofuran, 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin, 2,3,4,6,7,8-Hexachlorodibenzofuran
Chinook, Fillet Without Skin	Total PCB Congeners	PCB005, PCB007, PCB010, PCB012 & 13, PCB014, PCB035, PCB038, PCB055, PCB078, PCB080, PCB106, PCB112, PCB127, PCB142, PCB161
	Total Dioxin/Furan TEQ	Octachlorodibenzofuran, Octachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8-Heptachlorodibenzofuran, 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin, 1,2,3,4,7,8,9-Heptachlorodibenzofuran, 1,2,3,4,7,8-Hexachlorodibenzofuran, 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8-Hexachlorodibenzofuran, 1,2,3,7,8,9-Hexachlorodibenzofuran, 2,3,4,6,7,8-Hexachlorodibenzofuran
Chinook, Whole Body	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Arochlor 1260, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB106, PCB112, PCB142, PCB161
	Total DDD	2,4'-DDD, 4,4'-DDD
	Total DDE	2,4'-DDE
	Total DDT	2,4'-DDT
	Total Endosulfans	beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	trans-Chlordane
	Total Dioxin/Furan TEQ	1,2,3,4,7,8-Hexachlorodibenzofuran, 1,2,3,6,7,8-Hexachlorodibenzofuran, 1,2,3,7,8,9-Hexachlorodibenzofuran
Pacific Lamprey, Whole Body	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Arochlor 1260, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB055, PCB073, PCB078, PCB080, PCB106, PCB112, PCB142, PCB161
	Total DDD	2,4'-DDD, 4,4'-DDD
	Total DDE	2,4'-DDE, 4,4'-DDE
	Total DDT	2,4'-DDT, 4,4'-DDT
	Total Endosulfans	alpha-Endosulfan, beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	cis-Chlordane, trans-Chlordane
	Total Dioxin/Furan TEQ	Octachlorodibenzofuran, 1,2,3,4,7,8,9-Heptachlorodibenzofuran, 1,2,3,7,8,9-Hexachlorodibenzofuran
Sturgeon, Fillet Without Skin	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Arochlor 1254, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB014, PCB035, PCB036, PCB055, PCB078, PCB080, PCB106, PCB112, PCB142, PCB161, PCB186, PCB192
	Total DDD	2,4'-DDD, 4,4'-DDD
	Total DDE	2,4'-DDE
	Total DDT	2,4'-DDT
	Total Endosulfans	beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	trans-Chlordane
	Total Dioxin/Furan TEQ	1,2,3,7,8,9-Hexachlorodibenzofuran

Table F2-3.
Analytes Determined To Be Not Present and Excluded from Summed Analyte Totals

Exposure Medium	Chemical Group	Excluded Analytes
Inwater Sediment	Total Aroclors	Aroclor 1232, Aroclor 1262
	Total PCB Congeners	PCB161
	Total Xylenes	Xylene
Industrial Beach Sediment	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1262, Aroclor 1268
	Total DDD	2,4'-DDD
	Total DDE	2,4'-DDE, 4,4'-DDE
	Total Endosulfans	alpha-Endosulfan, beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	cis-Chlordane, cis-Nonachlor, Oxychlordane, trans-Chlordane, trans-Nonachlor
Non-Industrial Beach Sediment	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1262, Aroclor 1268
	Total Endosulfans	alpha-Endosulfan, beta-Endosulfan, Endosulfan sulfate
	Total Chlordanes	cis-Nonachlor, Oxychlordane, trans-Nonachlor
Surface Water, Bioaccumulation	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB161
Surface Water, Direct Contact, Non-divers	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB078, PCB142, PCB161, PCB186
Surface Water, Direct Contact, Divers	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB161
Surface Water, Drinking Water	Total Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1262, Aroclor 1268
	Total PCB Congeners	PCB078, PCB142, PCB161, PCB186
Transition Zone Water	Total DDE	2,4'-DDE
	Total Dioxin/Furan TEQ	1,2,3,7,8,9-Hexachlorodibenzofuran, Octachlorodibenzo-p-dioxin, Octachlorodibenzofuran, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8-Heptachlorodibenzofuran, 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin, 1,2,3,7,8-Pentachlorodibenzo-p-dioxin, 2,3,4,6,7,8-Hexachlorodibenzofuran

Notes:

a List of PCB congeners determined to be not present also includes dioxin-like PCB congeners excluded in calculation of total PCB TEQ.

Abbreviations:

PCB Polychlorinated Biphenyls
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethylene
DDT Dichlorodiphenyltrichloroethane

Table F2-4.
Number of Analyte Results Required To Calculate Each Summed Analyte, And Number of Samples With No Total Calculated

Calculated Total	Maximum Number of Analytes	Maximum Number of Analytes with Results For Total to be Calculated With "A" Qualifier[a]	Minimum Number of Analytes With Results Required To Calculate Total	Number of Samples with No Total Calculated[b]	Number of Samples with Total Calculated
Total Aroclors	9	7	2	In-Water Sediment - 1	In-Water Sediment - 821
Total PCB Congeners	209	150	100	In-Water Sediment - 85	In-Water Sediment - 208
Total PCB TEQ	12	12	12[c]	In-Water Sediment - 85	In-Water Sediment - 208
Total Dioxin TEQ	17	17	17	None.	--
Total DDD	2	2	0	None.	--
Total DDE	2	2	0	None.	--
Total DDT	2	2	0	None.	--
Total Chlordanes	5	5	0	None.	--
Total Endosulfans	3	3	0	None.	--
Total Xylenes	3	0	0	None.	--

Abbreviations:

PCB Polychlorinated Biphenyls
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethylene
DDT Dichlorodiphenyltrichloroethane
-- Totals calculated for all samples within baseline human health risk assessment dataset with data for the given analyte group.

Notes:

a "A" qualification indicates a limited number of analytes contributed to the summed total, but the minimum number required was present. Number listed is the maximum number of analytical results that result in "A" qualification.

b Number of samples from each medium for which a sum was not calculated due to too few individual analyte results.

c If coelutions exist in a sample that include all individual congeners for the sum (ie. PCBs 156&157), the sum may be calculated with fewer than 12 analytes.

Table F2-5.
Samples for Which Summed Analytical Concentrations Were Not Calculated Due to Limited Number of Individual Analytical Results

Calculated Total	Medium (Samples Without Sums)	Sampling Task Description	Sample IDs With No Summed Total Calculated	
Total Aroclors	In-Water Sediment (1)	Portland Harbor Sediment Investigation	WR-WSI98SD0660	
Total PCB Congeners	Industrial Beach Sediment (2)	Round 2a beach sediment composites	LW2-B002 LW2-B004	
	In-Water Sediment (85)	City outfall sediment investigation	WLCOFJ02520352030 WLCOFJ0252A0152A010 WLCOFJ0252A0252A020 WLCOFJ0252A0352A030 WLCOFJ0252A0452A040 WLCOFJ0252A0552A050 WLCOFJ0252C0152C010 WLCOFJ0252C0252C020 WLCOFJ0252C0352C030 WLCOFJ0252C0452C040 WLCOFJ0252C0552C050 WLCOFJ02530153010 WLCOFJ02530253020 WLCOFJ02530353030 WLCOFJ02530453040 WLCOFJ02530553050 WLCOFJ02M0201M2010 WLCOFJ02M0202M2020 WLCOFJ02M02031M2031 WLCOFJ02M0203M2030 WLCOFJ02M0204M2040 WLCOFJ02M0205M2050 WLCOFJ02M0301M3010 WLCOFJ02M0302M3020 WLCOFJ02M0303M3030 WLCOFJ02M0304M3040 WLCOFJ02M0305M3050 WLCOFJ02S0201S2010 WLCOFJ02S0202S2020 WLCOFJ02S0203S2030 WLCOFJ02S0204S2040	WLCOFJ02190119010 WLCOFJ02190219020 WLCOFJ02190319030 WLCOFJ0219A0119A010 WLCOFJ0219A0219A020 WLCOFJ0219A0319A030 WLCOFJ02220122010 WLCOFJ02220222020 WLCOFJ022203122031 WLCOFJ02220322030 WLCOFJ02220422040 WLCOFJ02220522050 WLCOFJ02220622060 WLCOFJ0222B0122B010 WLCOFJ0222B0222B020 WLCOFJ0222B0322B030 WLCOFJ0222B0422B040 WLCOFJ0222C0122C010 WLCOFJ0222C0222C020 WLCOFJ0222C0322C030 WLCOFJ0222C0422C040 WLCOFJ02240124010 WLCOFJ02240224020 WLCOFJ02240324030 WLCOFJ02240424040 WLCOFJ02240524050 WLCOFJ02480148010 WLCOFJ02480248020 WLCOFJ02480348030 WLCOFJ02480548050 WLCOFJ02480648060

Table F2-5.
Samples for Which Summed Analytical Concentrations Were Not Calculated Due to Limited Number of Individual Analytical Results

Calculated Total	Medium (Samples Without Sums)	Sampling Task Description	Sample IDs With No Summed Total Calculated	
			WLCOFJ02S0205S2050 WLCOFJ02S0501S5010 WLCOFJ02S0502S5020 WLCOFJ02S0503S5030 WLCOFJ02S0504S5040 WLCOFJ02S0505S5050 WLCOFJ02S0506S5060 WLCOFJ02S0507S5070 WLCOFJ02S0601S6010 WLCOFJ02500650060 WLCOFJ02520152010 WLCOFJ02520252020	WLCOFJ02490149010 WLCOFJ02490249020 WLCOFJ02490349030 WLCOFJ02490449040 WLCOFJ02490549050 WLCOFJ02490649060 WLCOFJ02500150010 WLCOFJ02500250020 WLCOFJ02500350030 WLCOFJ02500450040 WLCOFJ02500550050
Total PCB TEQ	In-Water Sediment (85)	City outfall sediment investigation	Same samples as for PCB Congeners	

Abbreviations:

PCB Polychlorinated Biphenyls
TEQ Toxic Equivalency

Table F2-6:
PEFs Used to Calculate B(a)Eq For the Purposes of Mapping Total Carcinogenic PAHs

Analyte	PEF
Benzo(a)anthracene	0.1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-cd)pyrene	0.1
Benzo(b+k)fluoranthene	0.1
Benzo(j+k)fluoranthene	0.01

Source: U.S. EPA. 1993. Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. U.S. Environmental Protection Agency, Office of Research and Development. EPA/600/R-93/089. July 1993.

Abbreviations:

PEF	Potency equivalent factor
B(a)Eq	Benzo(a)pyrene equivalence
PAHs	Polycyclic aromatic hydrocarbons

TABLE F2-7.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Brown Bullhead

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration in Exposure Area	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
FZ: RM 6-9	F	**Metals**					
		Cadmium	LWG01FZ0609TSBBFLC30	mg/kg	1.0E-03	8.0E-03	No
		Pesticides					
		Total Chlordanes	LWG01FZ0609TSBBFLC20	ug/kg	1.6E+00	1.1E+01	No
		Total Chlordanes	LWG01FZ0609TSBBFLC30	ug/kg	1.6E+00	4.0E+00	No
		Total DDD	LWG01FZ0609TSBBFLC20	ug/kg	2.8E+00	8.6E+00	No
		Total DDD	LWG01FZ0609TSBBFLC30	ug/kg	2.8E+00	8.6E+00	No
FZ: RM 6-9	WB	**Metals**					
		Nickel	LWG01FZ0609TSBBWBC10	mg/kg	2.6E-01	3.3E-01	No
		Pesticides					
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSBBWBC10	ug/kg	1.9E+00	9.6E+00	No
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSBBWBC30	ug/kg	1.9E+00	4.0E+00	No
		Total Chlordanes	LWG01FZ0609TSBBWBC10	ug/kg	7.8E+00	2.0E+01	No
Study Area-wide	F	**Metals**					
		Cadmium	LWG01FZ0609TSBBFLC30	mg/kg	1.0E-03	8.0E-03	No
		Phthalates					
		Bis(2-ethylhexyl) phthalate	LWG01FZ0609TSBBFLC20	ug/kg	1.0E+02	2.2E+02	No
		Pesticides					
		Deildrin	LWG01FZ0609TSBBFLC20	ug/kg	2.1E+00	1.4E+01	No
		Deildrin	LWG01FZ0609TSBBFLC30	ug/kg		4.0E+00	Yes
		Total Chlordanes	LWG01FZ0609TSBBFLC20	ug/kg	1.6E+00	1.1E+01	No
		Total Chlordanes	LWG01FZ0609TSBBFLC30	ug/kg		4.0E+00	Yes
		Total DDD	LWG01FZ0609TSBBFLC20	ug/kg	4.3E+00	8.6	No
		Total DDD	LWG01FZ0609TSBBFLC30	ug/kg		8.6	Yes
Study Area-wide	WB	**Metals**					
		Nickel	LWG01FZ0609TSBBWBC10	mg/kg	3.2E-01	3.3E-01	No
		Pesticides					
		Dieldrin	LWG01FZ0609TSBBWBC30	ug/kg	2.6E+00	4.0E+00	No
		Dieldrin	LWG01FZ0609TSBBWBC10	ug/kg		1.4E+01	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSBBWBC10	ug/kg	1.9E+00	9.6	No
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSBBWBC30	ug/kg		4	Yes
		Methoxychlor	LWG01FZ0609TSBBWBC30	ug/kg	1.1E+00	4.0E+00	No
		Methoxychlor	LWG01FZ0609TSBBWBC10	ug/kg		4.8E+00	Yes
		Total Endosulfan	LWG01FZ0609TSBBWBC10	ug/kg	8.6E+00	15	No

Notes:

a Exposure areas not listed indicate there were no non-detected results with detection limits exceeding the maximum detected concentrations that were removed from the dataset prior to the calculation of exposure point concentrations.

Abbreviations:

F = Fillet tissue.
mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.
WB = Whole body.

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
FZ: RM 0 to 4	F	**Butyltins**					
		Butyltin ion	LW3-CP0004-C20F	ug/kg	3.5E-01	5.5E-01	No
		Butyltin ion	LW3-CP0004-C30F	ug/kg	3.5E-01	5.5E-01	No
		Pesticides					
		Endrin	LW3-CP0004-C10F	ug/kg	2.1E-02	2.4E-02	No
		Endrin aldehyde	LW3-CP0004-C30F	ug/kg	3.4E-03	3.9E-03	No
FZ: RM 0 to 4	WB	**Polynuclear Aromatic Hydrocarbons**					
		Benzo(a)anthracene	LW3-CP0004-C20WB	ug/kg	3.2E-01	1.1E+00	No
		Benzo(b)fluoranthene	LW3-CP0004-C20WB	ug/kg	3.4E-01	1.1E+00	No
		Benzo(g,h,i)perylene	LW3-CP0004-C20WB	ug/kg	3.2E-01	1.1E+00	No
		Benzo(k)fluoranthene	LW3-CP0004-C20WB	ug/kg	2.6E-01	9.0E-01	No
		Dibenzo(a,h)anthracene	LW3-CP0004-C20WB	ug/kg	2.4E-01	9.0E-01	No
		Indeno(1,2,3-cd)pyrene	LW3-CP0004-C20WB	ug/kg	2.7E-01	9.8E-01	No
		Naphthalene	LW3-CP0004-C20WB	ug/kg	2.5E+00	6.5E+00	No
		Naphthalene	LW3-CP0004-C10WB	ug/kg	2.5E+00	3.5E+00	No
		Phenanthrene	LW3-CP0004-C20WB	ug/kg	7.9E+00	8.5E+00	No
		Semi-Volatile Organic Compounds					
		Benzyl alcohol	LW3-CP0004-C20WB	ug/kg	8.0E+01	1.6E+02	No
		Isophorone	LW3-CP0004-C10WB	ug/kg	5.9E+00	9.2E+00	No
		Isophorone	LW3-CP0004-C20WB	ug/kg	5.9E+00	9.2E+00	No
		Phenols					
		4-Nitrophenol	LW3-CP0004-C10WB	ug/kg	8.6E+00	9.9E+00	No
		Pesticides					
		delta-Hexachlorocyclohexane	LW3-CP0004-C30WB	ug/kg	2.3E-03	2.3E-03	No
		Endrin aldehyde	LW3-CP0004-C10WB	ug/kg	7.4E-03	9.6E-03	No
FZ: RM 4 to 8	F	**Pesticides**					
		Endrin	LW3-CP0408-C20F	ug/kg	2.2E-02	2.8E-02	No
		Endrin ketone	LW3-CP0408-C20F	ug/kg	1.1E-03	8.1E-02	No
		Endrin ketone	LW3-CP0408-C30F	ug/kg	1.1E-03	8.3E-02	No
FZ: RM 4 to 8	WB	**Semi-Volatile Organic Compounds**					
		Benzyl alcohol	LW3-CP0408-C10WB	ug/kg	3.1E+01	1.0E+02	No
		Benzyl alcohol	LW3-CP0408-C20WB	ug/kg	3.1E+01	1.3E+02	No
		Isophorone	LW3-CP0408-C10WB	ug/kg	5.9E+00	9.2E+00	No
		Pesticides					
		Endrin ketone	LW3-CP0408-C30WB	ug/kg	8.7E-04	3.6E-02	No
		Endrin ketone	LW3-CP0408-C20WB	ug/kg	8.7E-04	3.7E-02	No

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
FZ: RM 8 to 12	F	**Pesticides**					
		Endrin aldehyde	LW3-CP0812-C30F	ug/kg	1.6E-03	1.7E-03	No
		Methoxychlor	LW3-CP0812-C11F	ug/kg	6.9E-03	4.9E-02	No
		Methoxychlor	LW3-CP0812-C30F	ug/kg	6.9E-03	4.8E-02	No
FZ: RM 8 to 12	WB	**Semi-Volatile Organic Compounds**					
		Benzyl alcohol	LW3-CP0812-C20WB	ug/kg	3.1E+01	5.0E+01	No
		Phenols					
		Phenol	LW3-CP0812-C30WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LW3-CP0812-C20WB	ug/kg	4.3E+01	4.5E+01	No
		Pesticides					
		delta-Hexachlorocyclohexane	LW3-CP0812-C30WB	ug/kg	2.5E-03	3.4E-03	No
		Endrin aldehyde	LW3-CP0812-C20WB	ug/kg	2.2E-03	1.5E-02	No
		Endrin aldehyde	LW3-CP0812-C30WB	ug/kg	2.2E-03	1.4E-02	No
		Endrin ketone	LW3-CP0812-C30WB	ug/kg	1.5E-02	3.6E-02	No
		Heptachlor	LW3-CP0812-C11WB	ug/kg	7.1E-03	2.5E-02	No
		Methoxychlor	LW3-CP0812-C30WB	ug/kg	6.2E-03	2.1E-02	No
		Methoxychlor	LW3-CP0812-C11WB	ug/kg	6.2E-03	2.3E-02	No
FZ: RM 3 to 6	F	**Pesticides**					
		Total Chlordanes	LWG01FZ0306TSCPFLC20	ug/kg	1.5E+01	1.7E+01	No
FZ: RM 3 to 6	WB	**Pesticides**					
		Methoxychlor	LWG01FZ0306TSCPWBC20	ug/kg	4.2E+00	4.8E+00	No
		Methoxychlor	LWG01FZ0306TSCPWBC30	ug/kg	4.2E+00	4.8E+00	No
FZ: RM 6 to 9	WB	**Pesticides**					
		Total Endosulfan	LWG01FZ0306TSCPWBC20	ug/kg	1.4E+01	2.0E+01	No
Study Area-wide	F	**Metals**					
		Selenium	LWG01FZ0609TSCPFLC10	mg/kg	3.0E-01	5.0E-01	No
		Selenium	LWG01FZ0609TSCPFLC30	mg/kg	3.0E-01	4.0E-01	No
		Butyltins					
		Butyltin ion	LW3-CP0812-C20F	ug/kg	1.2E+00	3.4E+00	No
		Semi-Volatile Organic Compounds					
		Hexachlorobutadiene	LWG01FZ0306TSCPFLC10	ug/kg	1.7E-01	4.0E+00	No
		Hexachlorobutadiene	LWG01FZ0306TSCPFLC20	ug/kg	1.7E-01	4.0E+00	No
		Hexachlorobutadiene	LWG01FZ0306TSCPFLC30	ug/kg	1.7E-01	4.0E+00	No
		Hexachlorobutadiene	LWG01FZ0609TSCPFLC10	ug/kg	1.7E-01	4.6E+00	No
		Hexachlorobutadiene	LWG01FZ0609TSCPFLC20	ug/kg	1.7E-01	4.0E+00	No
		Hexachlorobutadiene	LWG01FZ0609TSCPFLC30	ug/kg	1.7E-01	4.6E+00	No

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Pesticides					
		Aldrin	LWG01FZ0306TSCPFLC10	ug/kg	1.2E-01	4.0E+00	No
		Aldrin	LWG01FZ0306TSCPFLC20	ug/kg	1.2E-01	4.0E+00	No
		Aldrin	LWG01FZ0306TSCPFLC30	ug/kg	1.2E-01	4.0E+00	No
		Aldrin	LWG01FZ0609TSCPFLC10	ug/kg	1.2E-01	1.3E+01	Yes
		Aldrin	LWG01FZ0609TSCPFLC20	ug/kg	1.2E-01	4.0E+00	No
		Aldrin	LWG01FZ0609TSCPFLC30	ug/kg	1.2E-01	9.8E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC10	ug/kg	4.0E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC20	ug/kg	4.0E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC30	ug/kg	4.0E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC10	ug/kg	4.0E-02	6.4E+00	Yes
		alpha-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC20	ug/kg	4.0E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC30	ug/kg	4.0E-02	6.4E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC10	ug/kg	2.3E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC20	ug/kg	2.3E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC30	ug/kg	2.3E-02	5.9E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC10	ug/kg	2.3E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC20	ug/kg	2.3E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC30	ug/kg	2.3E-02	8.5E+00	Yes
		Dieldrin	LWG01FZ0306TSCPFLC10	ug/kg	2.3E+00	5.3E+00	No
		Dieldrin	LWG01FZ0306TSCPFLC20	ug/kg	2.3E+00	4.0E+00	No
		Dieldrin	LWG01FZ0306TSCPFLC30	ug/kg	2.3E+00	7.2E+00	No
		Dieldrin	LWG01FZ0609TSCPFLC10	ug/kg	2.3E+00	1.4E+01	No
		Dieldrin	LWG01FZ0609TSCPFLC20	ug/kg	2.3E+00	4.0E+00	No
		Dieldrin	LWG01FZ0609TSCPFLC30	ug/kg	2.3E+00	9.8E+00	No
		Endrin	LW3-CP0004-C10F	ug/kg	2.2E-02	2.4E-02	No
		Endrin	LW3-CP0408-C20F	ug/kg	2.2E-02	2.8E-02	No
		Endrin	LWG01FZ0306TSCPFLC10	ug/kg	2.2E-02	4.0E+00	Yes
		Endrin	LWG01FZ0306TSCPFLC20	ug/kg	2.2E-02	4.0E+00	Yes
		Endrin	LWG01FZ0306TSCPFLC30	ug/kg	2.2E-02	3.1E+01	Yes
		Endrin	LWG01FZ0609TSCPFLC10	ug/kg	2.2E-02	2.0E+01	Yes
		Endrin	LWG01FZ0609TSCPFLC20	ug/kg	2.2E-02	4.0E+00	Yes
		Endrin	LWG01FZ0609TSCPFLC30	ug/kg	2.2E-02	9.8E+00	Yes
		Endrin aldehyde	LW3-CP0004-C30F	ug/kg	3.4E-03	3.9E-03	No
		Endrin aldehyde	LW3-CP0408-C10F	ug/kg	3.4E-03	4.0E-03	No
		Endrin aldehyde	LWG01FZ0306TSCPFLC10	ug/kg	3.4E-03	4.0E+00	Yes
		Endrin aldehyde	LWG01FZ0306TSCPFLC20	ug/kg	3.4E-03	4.0E+00	Yes

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Endrin aldehyde	LWG01FZ0306TSCPFLC30	ug/kg	3.4E-03	4.0E+00	Yes
		Endrin aldehyde	LWG01FZ0609TSCPFLC10	ug/kg	3.4E-03	8.5E+00	Yes
		Endrin aldehyde	LWG01FZ0609TSCPFLC20	ug/kg	3.4E-03	4.0E+00	Yes
		Endrin aldehyde	LWG01FZ0609TSCPFLC30	ug/kg	3.4E-03	8.5E+00	Yes
		Endrin ketone	LW3-CP0408-C20F	ug/kg	6.7E-03	8.1E-02	No
		Endrin ketone	LW3-CP0408-C30F	ug/kg	6.7E-03	8.3E-02	No
		Endrin ketone	LW3-CP0812-C11F	ug/kg	6.7E-03	8.3E-02	No
		Endrin ketone	LW3-CP0812-C30F	ug/kg	6.7E-03	8.1E-02	No
		Endrin ketone	LWG01FZ0306TSCPFLC10	ug/kg	6.7E-03	4.0E+00	Yes
		Endrin ketone	LWG01FZ0306TSCPFLC20	ug/kg	6.7E-03	4.0E+00	Yes
		Endrin ketone	LWG01FZ0306TSCPFLC30	ug/kg	6.7E-03	4.0E+00	Yes
		Endrin ketone	LWG01FZ0609TSCPFLC10	ug/kg	6.7E-03	7.5E+00	Yes
		Endrin ketone	LWG01FZ0609TSCPFLC20	ug/kg	6.7E-03	4.0E+00	Yes
		Endrin ketone	LWG01FZ0609TSCPFLC30	ug/kg	6.7E-03	7.5E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC10	ug/kg	3.6E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC20	ug/kg	3.6E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0306TSCPFLC30	ug/kg	3.6E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC10	ug/kg	3.6E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC20	ug/kg	3.6E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSCPFLC30	ug/kg	3.6E-02	9.6E+00	Yes
		Heptachlor epoxide	LWG01FZ0306TSCPFLC10	ug/kg	1.5E-01	4.0E+00	No
		Heptachlor epoxide	LWG01FZ0306TSCPFLC20	ug/kg	1.5E-01	4.0E+00	No
		Heptachlor epoxide	LWG01FZ0306TSCPFLC30	ug/kg	1.5E-01	4.0E+00	No
		Heptachlor epoxide	LWG01FZ0609TSCPFLC10	ug/kg	1.5E-01	8.0E+00	No
		Heptachlor epoxide	LWG01FZ0609TSCPFLC20	ug/kg	1.5E-01	4.0E+00	No
		Heptachlor epoxide	LWG01FZ0609TSCPFLC30	ug/kg	1.5E-01	8.0E+00	No
		Total Chlordanes	LWG01FZ0306TSCPFLC20	ug/kg	1.5E+01	1.7E+01	No
		Total Chlordanes	LWG01FZ0609TSCPFLC10	ug/kg	1.5E+01	2.0E+01	No
		Total Endosulfan	LWG01FZ0609TSCPFLC10	ug/kg	8.1E+00	2.0E+01	No
		Total Endosulfan	LWG01FZ0609TSCPFLC30	ug/kg	8.1E+00	9.8E+00	No
Study Area-wide	WB	**Polynuclear Aromatic Hydrocarbons**					
		Acenaphthylene	LWG01FZ0306TSCPWBC10	ug/kg	4.2E+00	3.2E+01	No
		Acenaphthylene	LWG01FZ0306TSCPWBC20	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthylene	LWG01FZ0306TSCPWBC30	ug/kg	4.2E+00	3.2E+01	No
		Acenaphthylene	LWG01FZ0609TSCPWBC10	ug/kg	4.2E+00	3.1E+01	No
		Acenaphthylene	LWG01FZ0609TSCPWBC20	ug/kg	4.2E+00	3.2E+01	No
		Acenaphthylene	LWG01FZ0609TSCPWBC30	ug/kg	4.2E+00	3.3E+01	No

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Anthracene	LWG01FZ0306TSCPWBC10	ug/kg	7.6E+00	3.2E+01	No
		Anthracene	LWG01FZ0306TSCPWBC20	ug/kg	7.6E+00	3.3E+01	No
		Anthracene	LWG01FZ0306TSCPWBC30	ug/kg	7.6E+00	3.2E+01	No
		Anthracene	LWG01FZ0609TSCPWBC10	ug/kg	7.6E+00	3.1E+01	No
		Anthracene	LWG01FZ0609TSCPWBC20	ug/kg	7.6E+00	3.2E+01	No
		Anthracene	LWG01FZ0609TSCPWBC30	ug/kg	7.6E+00	3.3E+01	No
		Benzo(a)anthracene	LW3-CP0004-C20WB	ug/kg	3.2E-01	1.1E+00	No
		Benzo(a)anthracene	LW3-CP0408-C30WB	ug/kg	3.2E-01	5.0E-01	No
		Benzo(a)anthracene	LW3-CP0408-C10WB	ug/kg	3.2E-01	5.0E-01	No
		Benzo(a)anthracene	LW3-CP0408-C20WB	ug/kg	3.2E-01	2.0E+00	No
		Benzo(a)anthracene	LWG01FZ0306TSCPWBC10	ug/kg	3.2E-01	3.2E+01	No
		Benzo(a)anthracene	LWG01FZ0306TSCPWBC20	ug/kg	3.2E-01	3.3E+01	Yes
		Benzo(a)anthracene	LWG01FZ0306TSCPWBC30	ug/kg	3.2E-01	3.2E+01	No
		Benzo(a)anthracene	LWG01FZ0609TSCPWBC10	ug/kg	3.2E-01	3.1E+01	No
		Benzo(a)anthracene	LWG01FZ0609TSCPWBC20	ug/kg	3.2E-01	3.2E+01	No
		Benzo(a)anthracene	LWG01FZ0609TSCPWBC30	ug/kg	3.2E-01	3.3E+01	Yes
		Benzo(a)pyrene	LW3-CP0004-C10WB	ug/kg	5.4E-01	6.3E-01	No
		Benzo(a)pyrene	LW3-CP0004-C20WB	ug/kg	5.4E-01	1.3E+00	No
		Benzo(a)pyrene	LW3-CP0408-C30WB	ug/kg	5.4E-01	6.1E-01	No
		Benzo(a)pyrene	LW3-CP0408-C10WB	ug/kg	5.4E-01	6.2E-01	No
		Benzo(a)pyrene	LW3-CP0408-C20WB	ug/kg	5.4E-01	2.4E+00	No
		Benzo(a)pyrene	LWG01FZ0306TSCPWBC10	ug/kg	5.4E-01	3.2E+01	No
		Benzo(a)pyrene	LWG01FZ0306TSCPWBC20	ug/kg	5.4E-01	3.3E+01	No
		Benzo(a)pyrene	LWG01FZ0306TSCPWBC30	ug/kg	5.4E-01	3.2E+01	No
		Benzo(a)pyrene	LWG01FZ0609TSCPWBC10	ug/kg	5.4E-01	3.1E+01	No
		Benzo(a)pyrene	LWG01FZ0609TSCPWBC20	ug/kg	5.4E-01	3.2E+01	No
		Benzo(a)pyrene	LWG01FZ0609TSCPWBC30	ug/kg	5.4E-01	3.3E+01	No
		Benzo(b)fluoranthene	LW3-CP0004-C20WB	ug/kg	1.0E+00	1.1E+00	No
		Benzo(b)fluoranthene	LW3-CP0408-C20WB	ug/kg	1.0E+00	2.0E+00	No
		Benzo(b)fluoranthene	LWG01FZ0306TSCPWBC10	ug/kg	1.0E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG01FZ0306TSCPWBC20	ug/kg	1.0E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG01FZ0306TSCPWBC30	ug/kg	1.0E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG01FZ0609TSCPWBC10	ug/kg	1.0E+00	3.1E+01	No
		Benzo(b)fluoranthene	LWG01FZ0609TSCPWBC20	ug/kg	1.0E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG01FZ0609TSCPWBC30	ug/kg	1.0E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LW3-CP0004-C20WB	ug/kg	5.6E-01	1.1E+00	No
		Benzo(g,h,i)perylene	LW3-CP0408-C20WB	ug/kg	5.6E-01	2.2E+00	No

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(g,h,i)perylene	LWG01FZ0306TSCPWBC10	ug/kg	5.6E-01	3.2E+01	No
		Benzo(g,h,i)perylene	LWG01FZ0306TSCPWBC20	ug/kg	5.6E-01	3.3E+01	No
		Benzo(g,h,i)perylene	LWG01FZ0306TSCPWBC30	ug/kg	5.6E-01	3.2E+01	No
		Benzo(g,h,i)perylene	LWG01FZ0609TSCPWBC10	ug/kg	5.6E-01	3.1E+01	No
		Benzo(g,h,i)perylene	LWG01FZ0609TSCPWBC20	ug/kg	5.6E-01	3.2E+01	No
		Benzo(g,h,i)perylene	LWG01FZ0609TSCPWBC30	ug/kg	5.6E-01	3.3E+01	No
		Benzo(k)fluoranthene	LW3-CP0004-C20WB	ug/kg	4.1E-01	9.0E-01	No
		Benzo(k)fluoranthene	LW3-CP0408-C30WB	ug/kg	4.1E-01	4.2E-01	No
		Benzo(k)fluoranthene	LW3-CP0408-C10WB	ug/kg	4.1E-01	4.3E-01	No
		Benzo(k)fluoranthene	LWG01FZ0306TSCPWBC10	ug/kg	4.1E-01	3.2E+01	No
		Benzo(k)fluoranthene	LWG01FZ0306TSCPWBC20	ug/kg	4.1E-01	3.3E+01	No
		Benzo(k)fluoranthene	LWG01FZ0306TSCPWBC30	ug/kg	4.1E-01	3.2E+01	No
		Benzo(k)fluoranthene	LWG01FZ0609TSCPWBC10	ug/kg	4.1E-01	3.1E+01	No
		Benzo(k)fluoranthene	LWG01FZ0609TSCPWBC20	ug/kg	4.1E-01	3.2E+01	No
		Benzo(k)fluoranthene	LWG01FZ0609TSCPWBC30	ug/kg	4.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LW3-CP0004-C20WB	ug/kg	2.5E-01	9.0E-01	No
		Dibenzo(a,h)anthracene	LW3-CP0408-C30WB	ug/kg	2.5E-01	4.5E-01	No
		Dibenzo(a,h)anthracene	LW3-CP0408-C10WB	ug/kg	2.5E-01	4.5E-01	No
		Dibenzo(a,h)anthracene	LW3-CP0408-C20WB	ug/kg	2.5E-01	1.7E+00	No
		Dibenzo(a,h)anthracene	LWG01FZ0306TSCPWBC10	ug/kg	2.5E-01	3.2E+01	Yes
		Dibenzo(a,h)anthracene	LWG01FZ0306TSCPWBC20	ug/kg	2.5E-01	3.3E+01	Yes
		Dibenzo(a,h)anthracene	LWG01FZ0306TSCPWBC30	ug/kg	2.5E-01	3.2E+01	Yes
		Dibenzo(a,h)anthracene	LWG01FZ0609TSCPWBC10	ug/kg	2.5E-01	3.1E+01	Yes
		Dibenzo(a,h)anthracene	LWG01FZ0609TSCPWBC20	ug/kg	2.5E-01	3.2E+01	Yes
		Dibenzo(a,h)anthracene	LWG01FZ0609TSCPWBC30	ug/kg	2.5E-01	3.3E+01	Yes
		Fluoranthene	LWG01FZ0306TSCPWBC10	ug/kg	2.4E+01	3.2E+01	No
		Fluoranthene	LWG01FZ0306TSCPWBC20	ug/kg	2.4E+01	3.3E+01	No
		Fluoranthene	LWG01FZ0306TSCPWBC30	ug/kg	2.4E+01	3.2E+01	No
		Fluoranthene	LWG01FZ0609TSCPWBC10	ug/kg	2.4E+01	3.1E+01	No
		Fluoranthene	LWG01FZ0609TSCPWBC20	ug/kg	2.4E+01	3.2E+01	No
		Fluoranthene	LWG01FZ0609TSCPWBC30	ug/kg	2.4E+01	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LW3-CP0004-C20WB	ug/kg	6.0E-01	9.8E-01	No
		Indeno(1,2,3-cd)pyrene	LW3-CP0408-C20WB	ug/kg	6.0E-01	1.9E+00	No
		Indeno(1,2,3-cd)pyrene	LWG01FZ0306TSCPWBC10	ug/kg	6.0E-01	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG01FZ0306TSCPWBC20	ug/kg	6.0E-01	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG01FZ0306TSCPWBC30	ug/kg	6.0E-01	3.2E+01	No

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Indeno(1,2,3-cd)pyrene	LWG01FZ0609TSCPWBC10	ug/kg	6.0E-01	3.1E+01	No
		Indeno(1,2,3-cd)pyrene	LWG01FZ0609TSCPWBC20	ug/kg	6.0E-01	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG01FZ0609TSCPWBC30	ug/kg	6.0E-01	3.3E+01	No
		Phenanthrene	LWG01FZ0306TSCPWBC10	ug/kg	1.6E+01	3.2E+01	No
		Phenanthrene	LWG01FZ0306TSCPWBC20	ug/kg	1.6E+01	3.3E+01	No
		Phenanthrene	LWG01FZ0306TSCPWBC30	ug/kg	1.6E+01	3.2E+01	No
		Phenanthrene	LWG01FZ0609TSCPWBC10	ug/kg	1.6E+01	3.1E+01	No
		Phenanthrene	LWG01FZ0609TSCPWBC20	ug/kg	1.6E+01	3.2E+01	No
		Phenanthrene	LWG01FZ0609TSCPWBC30	ug/kg	1.6E+01	3.3E+01	No
		Pyrene	LWG01FZ0306TSCPWBC10	ug/kg	7.3E+00	3.2E+01	No
		Pyrene	LWG01FZ0306TSCPWBC20	ug/kg	7.3E+00	3.3E+01	No
		Pyrene	LWG01FZ0306TSCPWBC30	ug/kg	7.3E+00	3.2E+01	No
		Pyrene	LWG01FZ0609TSCPWBC10	ug/kg	7.3E+00	3.1E+01	No
		Pyrene	LWG01FZ0609TSCPWBC20	ug/kg	7.3E+00	3.2E+01	No
		Pyrene	LWG01FZ0609TSCPWBC30	ug/kg	7.3E+00	3.3E+01	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG01FZ0306TSCPWBC10	ug/kg	4.7E+02	8.3E+03	No
		Benzoic acid	LWG01FZ0306TSCPWBC20	ug/kg	4.7E+02	8.2E+03	No
		Benzoic acid	LWG01FZ0306TSCPWBC30	ug/kg	4.7E+02	8.3E+03	No
		Benzoic acid	LWG01FZ0609TSCPWBC10	ug/kg	4.7E+02	8.2E+03	No
		Benzoic acid	LWG01FZ0609TSCPWBC20	ug/kg	4.7E+02	8.3E+03	No
		Benzoic acid	LWG01FZ0609TSCPWBC30	ug/kg	4.7E+02	8.3E+03	No
		Benzyl alcohol	LW3-CP0004-C20WB	ug/kg	8.0E+01	1.6E+02	No
		Benzyl alcohol	LW3-CP0408-C10WB	ug/kg	8.0E+01	1.0E+02	No
		Benzyl alcohol	LW3-CP0408-C20WB	ug/kg	8.0E+01	1.3E+02	No
		Benzyl alcohol	LWG01FZ0306TSCPWBC10	ug/kg	8.0E+01	6.4E+02	No
		Benzyl alcohol	LWG01FZ0306TSCPWBC20	ug/kg	8.0E+01	6.6E+02	No
		Benzyl alcohol	LWG01FZ0306TSCPWBC30	ug/kg	8.0E+01	6.5E+02	No
		Benzyl alcohol	LWG01FZ0609TSCPWBC10	ug/kg	8.0E+01	6.2E+02	No
		Benzyl alcohol	LWG01FZ0609TSCPWBC20	ug/kg	8.0E+01	6.4E+02	No
		Benzyl alcohol	LWG01FZ0609TSCPWBC30	ug/kg	8.0E+01	6.5E+02	No
		Bis(2-chloroethoxy) methane	LWG01FZ0306TSCPWBC10	ug/kg	3.0E+01	3.2E+02	No
		Bis(2-chloroethoxy) methane	LWG01FZ0306TSCPWBC20	ug/kg	3.0E+01	3.3E+02	No
		Bis(2-chloroethoxy) methane	LWG01FZ0306TSCPWBC30	ug/kg	3.0E+01	3.2E+02	No
		Bis(2-chloroethoxy) methane	LWG01FZ0609TSCPWBC10	ug/kg	3.0E+01	3.1E+02	No
		Bis(2-chloroethoxy) methane	LWG01FZ0609TSCPWBC20	ug/kg	3.0E+01	3.2E+02	No
		Bis(2-chloroethoxy) methane	LWG01FZ0609TSCPWBC30	ug/kg	3.0E+01	3.3E+02	No

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Dibenzofuran	LWG01FZ0306TSCPWBC10	ug/kg	6.0E+00	3.2E+01	No
		Dibenzofuran	LWG01FZ0306TSCPWBC20	ug/kg	6.0E+00	3.3E+01	No
		Dibenzofuran	LWG01FZ0306TSCPWBC30	ug/kg	6.0E+00	3.2E+01	No
		Dibenzofuran	LWG01FZ0609TSCPWBC10	ug/kg	6.0E+00	3.1E+01	No
		Dibenzofuran	LWG01FZ0609TSCPWBC20	ug/kg	6.0E+00	3.2E+01	No
		Dibenzofuran	LWG01FZ0609TSCPWBC30	ug/kg	6.0E+00	3.3E+01	No
		Hexachlorobenzene	LWG01FZ0306TSCPWBC10	ug/kg	4.5E+00	3.2E+01	No
		Hexachlorobenzene	LWG01FZ0306TSCPWBC20	ug/kg	4.5E+00	6.4E+00	No
		Hexachlorobenzene	LWG01FZ0306TSCPWBC30	ug/kg	4.5E+00	6.4E+00	No
		Hexachlorobenzene	LWG01FZ0609TSCPWBC20	ug/kg	4.5E+00	6.4E+00	No
		Hexachlorobenzene	LWG01FZ0609TSCPWBC30	ug/kg	4.5E+00	6.4E+00	No
		Hexachlorobutadiene	LWG01FZ0306TSCPWBC10	ug/kg	2.6E-01	1.0E+00	No
		Hexachlorobutadiene	LWG01FZ0306TSCPWBC20	ug/kg	2.6E-01	4.6E+00	No
		Hexachlorobutadiene	LWG01FZ0306TSCPWBC30	ug/kg	2.6E-01	4.6E+00	No
		Hexachlorobutadiene	LWG01FZ0609TSCPWBC10	ug/kg	2.6E-01	4.6E+00	No
		Hexachlorobutadiene	LWG01FZ0609TSCPWBC20	ug/kg	2.6E-01	4.0E+00	No
		Hexachlorobutadiene	LWG01FZ0609TSCPWBC30	ug/kg	2.6E-01	4.6E+00	No
		Isophorone	LW3-CP0004-C10WB	ug/kg	5.9E+00	9.2E+00	No
		Isophorone	LW3-CP0004-C20WB	ug/kg	5.9E+00	9.2E+00	No
		Isophorone	LW3-CP0408-C10WB	ug/kg	5.9E+00	9.2E+00	No
		Isophorone	LW3-CP0812-C11WB	ug/kg	5.9E+00	9.2E+00	No
		Isophorone	LW3-CP0812-C20WB	ug/kg	5.9E+00	9.2E+00	No
		Isophorone	LW3-CP0812-C30WB	ug/kg	5.9E+00	9.2E+00	No
		Isophorone	LWG01FZ0306TSCPWBC10	ug/kg	5.9E+00	1.7E+03	Yes
		Isophorone	LWG01FZ0306TSCPWBC20	ug/kg	5.9E+00	1.6E+03	Yes
		Isophorone	LWG01FZ0306TSCPWBC30	ug/kg	5.9E+00	1.7E+03	Yes
		Isophorone	LWG01FZ0609TSCPWBC10	ug/kg	5.9E+00	1.6E+03	Yes
		Isophorone	LWG01FZ0609TSCPWBC20	ug/kg	5.9E+00	1.7E+03	Yes
		Isophorone	LWG01FZ0609TSCPWBC30	ug/kg	5.9E+00	1.7E+03	Yes
		Phenols					
		4-Nitrophenol	LW3-CP0004-C10WB	ug/kg	9.5E+00	9.9E+00	No
		4-Nitrophenol	LWG01FZ0306TSCPWBC10	ug/kg	9.5E+00	3.2E+03	Yes
		4-Nitrophenol	LWG01FZ0306TSCPWBC20	ug/kg	9.5E+00	3.3E+03	Yes
		4-Nitrophenol	LWG01FZ0306TSCPWBC30	ug/kg	9.5E+00	3.2E+03	Yes
		4-Nitrophenol	LWG01FZ0609TSCPWBC10	ug/kg	9.5E+00	3.1E+03	Yes
		4-Nitrophenol	LWG01FZ0609TSCPWBC20	ug/kg	9.5E+00	3.2E+03	Yes
		4-Nitrophenol	LWG01FZ0609TSCPWBC30	ug/kg	9.5E+00	3.3E+03	Yes

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Phenol	LW3-CP0004-C20WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LW3-CP0004-C30WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LW3-CP0004-C10WB	ug/kg	4.3E+01	4.9E+01	No
		Phenol	LW3-CP0408-C30WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LW3-CP0408-C20WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LW3-CP0408-C10WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LW3-CP0812-C30WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LW3-CP0812-C20WB	ug/kg	4.3E+01	4.5E+01	No
		Phenol	LWG01FZ0306TSCPWBC10	ug/kg	4.3E+01	6.4E+02	No
		Phenol	LWG01FZ0306TSCPWBC20	ug/kg	4.3E+01	6.6E+02	No
		Phenol	LWG01FZ0306TSCPWBC30	ug/kg	4.3E+01	6.5E+02	No
		Phenol	LWG01FZ0609TSCPWBC10	ug/kg	4.3E+01	6.2E+02	No
		Phenol	LWG01FZ0609TSCPWBC20	ug/kg	4.3E+01	6.4E+02	No
		Phenol	LWG01FZ0609TSCPWBC30	ug/kg	4.3E+01	6.5E+02	No
		Pesticides					
		Aldrin	LWG01FZ0306TSCPWBC10	ug/kg	1.6E-01	1.0E+00	No
		Aldrin	LWG01FZ0306TSCPWBC20	ug/kg	1.6E-01	1.3E+01	No
		Aldrin	LWG01FZ0306TSCPWBC30	ug/kg	1.6E-01	1.0E+00	No
		Aldrin	LWG01FZ0609TSCPWBC10	ug/kg	1.6E-01	4.0E+00	No
		Aldrin	LWG01FZ0609TSCPWBC20	ug/kg	1.6E-01	4.0E+00	No
		Aldrin	LWG01FZ0609TSCPWBC30	ug/kg	1.6E-01	9.9E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC10	ug/kg	5.0E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC20	ug/kg	5.0E-02	6.4E+00	Yes
		alpha-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC30	ug/kg	5.0E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC10	ug/kg	5.0E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC20	ug/kg	5.0E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC30	ug/kg	5.0E-02	6.4E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC10	ug/kg	4.2E-02	1.5E+00	No
		beta-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC20	ug/kg	4.2E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC30	ug/kg	4.2E-02	3.0E+00	No
		beta-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC10	ug/kg	4.2E-02	6.1E+00	Yes
		beta-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC20	ug/kg	4.2E-02	4.0E+00	No
		beta-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC30	ug/kg	4.2E-02	8.5E+00	Yes
		delta-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC10	ug/kg	4.0E-03	1.0E+00	Yes
		delta-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC20	ug/kg	4.0E-03	7.3E+00	Yes
		delta-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC30	ug/kg	4.0E-03	1.0E+00	Yes
		delta-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC10	ug/kg	4.0E-03	4.0E+00	Yes

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		delta-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC20	ug/kg	4.0E-03	4.0E+00	Yes
		delta-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC30	ug/kg	4.0E-03	7.3E+00	Yes
		Dieldrin	LWG01FZ0306TSCPWBC20	ug/kg	3.0E+00	1.4E+01	No
		Dieldrin	LWG01FZ0306TSCPWBC30	ug/kg	3.0E+00	6.2E+00	No
		Dieldrin	LWG01FZ0609TSCPWBC10	ug/kg	3.0E+00	5.2E+00	No
		Dieldrin	LWG01FZ0609TSCPWBC20	ug/kg	3.0E+00	4.0E+00	No
		Dieldrin	LWG01FZ0609TSCPWBC30	ug/kg	3.0E+00	9.9E+00	No
		Endrin	LWG01FZ0306TSCPWBC10	ug/kg	2.9E-02	1.0E+00	No
		Endrin	LWG01FZ0306TSCPWBC20	ug/kg	2.9E-02	2.0E+01	Yes
		Endrin	LWG01FZ0306TSCPWBC30	ug/kg	2.9E-02	1.0E+00	No
		Endrin	LWG01FZ0609TSCPWBC10	ug/kg	2.9E-02	4.0E+00	Yes
		Endrin	LWG01FZ0306TSCPWBC30	ug/kg	2.9E-02	1.0E+00	No
		Endrin	LWG01FZ0609TSCPWBC10	ug/kg	2.9E-02	4.0E+00	Yes
		Endrin	LWG01FZ0609TSCPWBC20	ug/kg	2.9E-02	4.0E+00	Yes
		Endrin	LWG01FZ0609TSCPWBC30	ug/kg	2.9E-02	9.9E+00	Yes
		Endrin aldehyde	LW3-CP0004-C10WB	ug/kg	7.4E-03	9.6E-03	No
		Endrin aldehyde	LW3-CP0408-C30WB	ug/kg	7.4E-03	1.4E-02	No
		Endrin aldehyde	LW3-CP0408-C20WB	ug/kg	7.4E-03	1.5E-02	No
		Endrin aldehyde	LW3-CP0812-C20WB	ug/kg	7.4E-03	1.5E-02	No
		Endrin aldehyde	LW3-CP0812-C30WB	ug/kg	7.4E-03	1.4E-02	No
		Endrin aldehyde	LWG01FZ0306TSCPWBC10	ug/kg	7.4E-03	2.0E+00	Yes
		Endrin aldehyde	LWG01FZ0306TSCPWBC20	ug/kg	7.4E-03	8.5E+00	Yes
		Endrin aldehyde	LWG01FZ0306TSCPWBC30	ug/kg	7.4E-03	1.8E+00	Yes
		Endrin aldehyde	LWG01FZ0609TSCPWBC10	ug/kg	7.4E-03	4.0E+00	Yes
		Endrin aldehyde	LWG01FZ0609TSCPWBC20	ug/kg	7.4E-03	4.0E+00	Yes
		Endrin aldehyde	LWG01FZ0609TSCPWBC30	ug/kg	7.4E-03	8.5E+00	Yes
		Endrin ketone	LW3-CP0408-C30WB	ug/kg	1.5E-02	3.6E-02	No
		Endrin ketone	LW3-CP0408-C20WB	ug/kg	1.5E-02	3.7E-02	No
		Endrin ketone	LW3-CP0812-C30WB	ug/kg	1.5E-02	3.6E-02	No
		Endrin ketone	LWG01FZ0306TSCPWBC10	ug/kg	1.5E-02	1.0E+00	No
		Endrin ketone	LWG01FZ0306TSCPWBC20	ug/kg	1.5E-02	7.5E+00	Yes
		Endrin ketone	LWG01FZ0306TSCPWBC30	ug/kg	1.5E-02	1.0E+00	No
		Endrin ketone	LWG01FZ0609TSCPWBC10	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG01FZ0609TSCPWBC20	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG01FZ0609TSCPWBC30	ug/kg	1.5E-02	7.5E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC10	ug/kg	4.6E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC20	ug/kg	4.6E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0306TSCPWBC30	ug/kg	4.6E-02	1.7E+00	No
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC10	ug/kg	4.6E-02	4.0E+00	No

TABLE F2-8.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Common Carp

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC20	ug/kg	4.6E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG01FZ0609TSCPWBC30	ug/kg	4.6E-02	9.6E+00	Yes
		Heptachlor	LW3-CP0408-C20WB	ug/kg	7.1E-03	3.0E-02	No
		Heptachlor	LW3-CP0812-C11WB	ug/kg	7.1E-03	2.5E-02	No
		Heptachlor	LWG01FZ0306TSCPWBC10	ug/kg	7.1E-03	1.1E+00	Yes
		Heptachlor	LWG01FZ0306TSCPWBC20	ug/kg	7.1E-03	1.3E+01	Yes
		Heptachlor	LWG01FZ0306TSCPWBC30	ug/kg	7.1E-03	1.0E+00	Yes
		Heptachlor	LWG01FZ0609TSCPWBC10	ug/kg	7.1E-03	4.0E+00	Yes
		Heptachlor	LWG01FZ0609TSCPWBC20	ug/kg	7.1E-03	4.0E+00	Yes
		Heptachlor	LWG01FZ0609TSCPWBC30	ug/kg	7.1E-03	9.9E+00	Yes
		Heptachlor epoxide	LWG01FZ0306TSCPWBC10	ug/kg	2.1E-01	1.0E+00	No
		Heptachlor epoxide	LWG01FZ0306TSCPWBC20	ug/kg	2.1E-01	8.0E+00	No
		Heptachlor epoxide	LWG01FZ0306TSCPWBC30	ug/kg	2.1E-01	1.0E+00	No
		Heptachlor epoxide	LWG01FZ0609TSCPWBC10	ug/kg	2.1E-01	4.0E+00	No
		Heptachlor epoxide	LWG01FZ0609TSCPWBC20	ug/kg	2.1E-01	4.0E+00	No
		Heptachlor epoxide	LWG01FZ0609TSCPWBC30	ug/kg	2.1E-01	8.0E+00	No
		Methoxychlor	LWG01FZ0306TSCPWBC20	ug/kg	4.2E+00	4.8E+00	No
		Methoxychlor	LWG01FZ0306TSCPWBC30	ug/kg	4.2E+00	4.8E+00	No
		Methoxychlor	LWG01FZ0609TSCPWBC20	ug/kg	4.2E+00	4.8E+00	No
		Methoxychlor	LWG01FZ0609TSCPWBC30	ug/kg	4.2E+00	4.8E+00	No
		Total Endosulfan	LWG01FZ0306TSCPWBC20	ug/kg	1.4E+01	2.0E+01	No
		Total Endosulfan	LWG01FZ0609TSCPWBC20	ug/kg	1.4E+01	1.5E+01	No

Notes:

a Exposure areas not listed indicate there were no non-detected results with detection limits exceeding the maximum detected concentrations that were removed from

Abbreviations:

F = Fillet tissue.
mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.
WB = Whole body.

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 3	F	**Semi-Volatile Organic Compounds**					
		Hexachlorobenzene	LWG0103R014TSSBFLC00	ug/kg	4.3E-01	1.3E+00	No
		Hexachlorobutadiene	LWG0103R014TSSBFLC00	ug/kg	2.2E-02	1.0E+00	No
		Pesticides					
		Aldrin	LW3-SB03E-C00F	ug/kg	5.2E-03	6.7E-03	No
		Aldrin	LWG0103R014TSSBFLC00	ug/kg	5.2E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R014TSSBFLC00	ug/kg	4.3E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R014TSSBFLC00	ug/kg	2.4E-02	1.0E+00	No
RM 3	WB	**Metals**					
		Antimony	LW3-SB03E-C00WB	mg/kg	1.0E-03	5.7E-03	No
		Antimony	LW3-SB03W-C00WB	mg/kg	1.0E-03	5.8E-03	No
		Silver	LW3-SB03E-C00WB	mg/kg	1.6E-03	2.0E-03	No
		Butyltins					
		Tributyltin ion	LW3-SB03W-C00WB	ug/kg	8.1E-01	1.4E+00	No
		Polynuclear Aromatic Hydrocarbons					
		2-Methylnaphthalene	LWG0103R014TSSBWBC00	ug/kg	4.5E+00	3.1E+01	No
		Acenaphthene	LWG0103R014TSSBWBC00	ug/kg	6.8E+00	3.1E+01	No
		Acenaphthylene	LWG0103R014TSSBWBC00	ug/kg	6.9E-01	3.1E+01	No
		Anthracene	LWG0103R014TSSBWBC00	ug/kg	3.2E+00	3.1E+01	No
		Benzo(a)anthracene	LWG0103R014TSSBWBC00	ug/kg	4.8E-01	3.1E+01	No
		Chrysene	LWG0103R014TSSBWBC00	ug/kg	2.0E+00	3.1E+01	No
		Fluoranthene	LWG0103R014TSSBWBC00	ug/kg	9.5E+00	3.1E+01	No
		Fluorene	LWG0103R014TSSBWBC00	ug/kg	1.2E+01	3.1E+01	No
		Naphthalene	LWG0103R014TSSBWBC00	ug/kg	1.7E+00	3.1E+01	No
		Phenanthrene	LWG0103R014TSSBWBC00	ug/kg	1.7E+01	3.1E+01	No
		Pyrene	LWG0103R014TSSBWBC00	ug/kg	6.2E+00	3.1E+01	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0103R014TSSBWBC00	ug/kg	5.9E+02	8.3E+03	No
		Benzyl alcohol	LWG0103R014TSSBWBC00	ug/kg	2.5E+01	3.1E+02	No
		Bis(2-chloroethoxy) methane	LWG0103R014TSSBWBC00	ug/kg	1.4E+01	1.5E+02	No
		Dibenzofuran	LWG0103R014TSSBWBC00	ug/kg	3.5E+00	3.1E+01	No
		Hexachlorobenzene	LWG0103R014TSSBWBC00	ug/kg	1.9E+00	6.4E+00	No
		Hexachlorobutadiene	LWG0103R014TSSBWBC00	ug/kg	2.3E-02	4.0E+00	Yes
		Pesticides					
		Aldrin	LWG0103R014TSSBWBC00	ug/kg	2.2E-02	4.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R014TSSBWBC00	ug/kg	2.4E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LW3-SB03E-C00WB	ug/kg	8.3E-03	2.3E-02	No
		beta-Hexachlorocyclohexane	LWG0103R014TSSBWBC00	ug/kg	8.3E-03	4.0E+00	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Dieldrin	LWG0103R014TSSBWBC00	ug/kg	2.9E+00	1.4E+01	No
		Endrin	LWG0103R014TSSBWBC00	ug/kg	3.0E-02	3.1E+01	Yes
		Endrin aldehyde	LW3-SB03E-C00WB	ug/kg	6.2E-03	1.5E-02	No
		Endrin aldehyde	LWG0103R014TSSBWBC00	ug/kg	6.2E-03	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0103R014TSSBWBC00	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor	LW3-SB03E-C00WB	ug/kg	2.7E-02	2.8E-02	No
		Heptachlor	LWG0103R014TSSBWBC00	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor epoxide	LWG0103R014TSSBWBC00	ug/kg	1.5E-01	4.0E+00	No
		Total Endosulfan	LWG0103R014TSSBWBC00	ug/kg	7.6E-01	4.0E+00	No
RM 4	F	**Pesticides**					
		Total Endosulfan	LW3-SB04W-C00F	ug/kg	9.2E-02	9.8E-02	No
RM 4	WB	**Polynuclear Aromatic Hydrocarbons**					
		2-Methylnaphthalene	LWG0104R023TSSBWBC10	ug/kg	2.4E+00	3.1E+01	No
		2-Methylnaphthalene	LWG0104R023TSSBWBC20	ug/kg	2.4E+00	3.0E+01	No
		2-Methylnaphthalene	LWG0104R023TSSBWBC30	ug/kg	2.4E+00	3.0E+01	No
		Acenaphthylene	LWG0104R023TSSBWBC10	ug/kg	6.3E-01	3.1E+01	No
		Acenaphthylene	LWG0104R023TSSBWBC20	ug/kg	6.3E-01	3.0E+01	No
		Acenaphthylene	LWG0104R023TSSBWBC30	ug/kg	6.3E-01	3.0E+01	No
		Anthracene	LWG0104R023TSSBWBC10	ug/kg	1.3E+00	3.1E+01	No
		Anthracene	LWG0104R023TSSBWBC20	ug/kg	1.3E+00	3.0E+01	No
		Anthracene	LWG0104R023TSSBWBC30	ug/kg	1.3E+00	3.0E+01	No
		Benzo(a)anthracene	LWG0104R023TSSBWBC10	ug/kg	1.9E-01	3.1E+01	Yes
		Benzo(a)anthracene	LWG0104R023TSSBWBC20	ug/kg	1.9E-01	3.0E+01	Yes
		Benzo(a)anthracene	LWG0104R023TSSBWBC30	ug/kg	1.9E-01	3.0E+01	Yes
		Benzo(a)pyrene	LW3-SB04W-C00WB	ug/kg	1.8E-01	2.6E-01	No
		Benzo(a)pyrene	LWG0104R023TSSBWBC10	ug/kg	1.8E-01	3.1E+01	Yes
		Benzo(a)pyrene	LWG0104R023TSSBWBC20	ug/kg	1.8E-01	3.0E+01	Yes
		Benzo(a)pyrene	LWG0104R023TSSBWBC30	ug/kg	1.8E-01	3.0E+01	Yes
		Benzo(b)fluoranthene	LWG0104R023TSSBWBC10	ug/kg	3.5E-01	3.1E+01	No
		Benzo(b)fluoranthene	LWG0104R023TSSBWBC20	ug/kg	3.5E-01	3.0E+01	No
		Benzo(b)fluoranthene	LWG0104R023TSSBWBC30	ug/kg	3.5E-01	3.0E+01	No
		Benzo(g,h,i)perylene	LW3-SB04W-C00WB	ug/kg	2.0E-01	2.4E-01	No
		Benzo(g,h,i)perylene	LWG0104R023TSSBWBC10	ug/kg	2.0E-01	3.1E+01	Yes
		Benzo(g,h,i)perylene	LWG0104R023TSSBWBC20	ug/kg	2.0E-01	3.0E+01	Yes
		Benzo(g,h,i)perylene	LWG0104R023TSSBWBC30	ug/kg	2.0E-01	3.0E+01	Yes
		Benzo(k)fluoranthene	LWG0104R023TSSBWBC10	ug/kg	1.8E-01	3.1E+01	Yes
		Benzo(k)fluoranthene	LWG0104R023TSSBWBC20	ug/kg	1.8E-01	3.0E+01	Yes
		Benzo(k)fluoranthene	LWG0104R023TSSBWBC30	ug/kg	1.8E-01	3.0E+01	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Chrysene	LWG0104R023TSSBWBC10	ug/kg	2.7E-01	3.1E+01	Yes
		Chrysene	LWG0104R023TSSBWBC20	ug/kg	2.7E-01	3.0E+01	Yes
		Chrysene	LWG0104R023TSSBWBC30	ug/kg	2.7E-01	3.0E+01	Yes
		Dibenzo(a,h)anthracene	LW3-SB04W-C00WB	ug/kg	1.3E-01	1.9E-01	No
		Dibenzo(a,h)anthracene	LWG0104R023TSSBWBC10	ug/kg	1.3E-01	3.1E+01	Yes
		Dibenzo(a,h)anthracene	LWG0104R023TSSBWBC20	ug/kg	1.3E-01	3.0E+01	Yes
		Dibenzo(a,h)anthracene	LWG0104R023TSSBWBC30	ug/kg	1.3E-01	3.0E+01	Yes
		Fluorene	LWG0104R023TSSBWBC10	ug/kg	7.0E+00	3.1E+01	No
		Fluorene	LWG0104R023TSSBWBC20	ug/kg	7.0E+00	3.0E+01	No
		Fluorene	LWG0104R023TSSBWBC30	ug/kg	7.0E+00	3.0E+01	No
		Indeno(1,2,3-cd)pyrene	LW3-SB04W-C00WB	ug/kg	1.8E-01	2.1E-01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R023TSSBWBC10	ug/kg	1.8E-01	3.1E+01	Yes
		Indeno(1,2,3-cd)pyrene	LWG0104R023TSSBWBC20	ug/kg	1.8E-01	3.0E+01	Yes
		Indeno(1,2,3-cd)pyrene	LWG0104R023TSSBWBC30	ug/kg	1.8E-01	3.0E+01	Yes
		Naphthalene	LWG0104R023TSSBWBC10	ug/kg	1.5E+00	3.1E+01	No
		Naphthalene	LWG0104R023TSSBWBC20	ug/kg	1.5E+00	3.0E+01	No
		Naphthalene	LWG0104R023TSSBWBC30	ug/kg	1.5E+00	3.0E+01	No
		Phenanthrene	LWG0104R023TSSBWBC10	ug/kg	2.4E+01	3.1E+01	No
		Phenanthrene	LWG0104R023TSSBWBC20	ug/kg	2.4E+01	3.0E+01	No
		Phenanthrene	LWG0104R023TSSBWBC30	ug/kg	2.4E+01	3.0E+01	No
		Phthalates					
		Dibutyl phthalate	LWG0104R023TSSBWBC10	ug/kg	2.7E+01	3.1E+02	No
		Dibutyl phthalate	LWG0104R023TSSBWBC20	ug/kg	2.7E+01	3.0E+02	No
		Dibutyl phthalate	LWG0104R023TSSBWBC30	ug/kg	2.7E+01	3.0E+02	No
		Diethyl phthalate	LW3-SB04E-C01WB	ug/kg	1.0E+01	1.3E+01	No
		Diethyl phthalate	LWG0104R023TSSBWBC10	ug/kg	1.0E+01	1.5E+02	No
		Diethyl phthalate	LWG0104R023TSSBWBC20	ug/kg	1.0E+01	1.5E+02	No
		Diethyl phthalate	LWG0104R023TSSBWBC30	ug/kg	1.0E+01	1.5E+02	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0104R023TSSBWBC10	ug/kg	4.8E+02	8.3E+03	No
		Benzoic acid	LWG0104R023TSSBWBC20	ug/kg	4.8E+02	8.3E+03	No
		Benzoic acid	LWG0104R023TSSBWBC30	ug/kg	4.8E+02	8.3E+03	No
		Benzyl alcohol	LWG0104R023TSSBWBC10	ug/kg	3.2E+01	3.1E+02	No
		Benzyl alcohol	LWG0104R023TSSBWBC20	ug/kg	3.2E+01	3.0E+02	No
		Benzyl alcohol	LWG0104R023TSSBWBC30	ug/kg	3.2E+01	3.0E+02	No
		Bis(2-chloroethoxy) methane	LWG0104R023TSSBWBC10	ug/kg	1.3E+01	1.5E+02	No
		Bis(2-chloroethoxy) methane	LWG0104R023TSSBWBC20	ug/kg	1.3E+01	1.5E+02	No
		Bis(2-chloroethoxy) methane	LWG0104R023TSSBWBC30	ug/kg	1.3E+01	1.5E+02	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Dibenzofuran	LWG0104R023TSSBWBC10	ug/kg	2.8E+00	3.1E+01	No
		Dibenzofuran	LWG0104R023TSSBWBC20	ug/kg	2.8E+00	3.0E+01	No
		Dibenzofuran	LWG0104R023TSSBWBC30	ug/kg	2.8E+00	3.0E+01	No
		Hexachlorobenzene	LWG0104R023TSSBWBC10	ug/kg	2.3E+00	6.4E+00	No
		Hexachlorobenzene	LWG0104R023TSSBWBC20	ug/kg	2.3E+00	6.4E+00	No
		Hexachlorobenzene	LWG0104R023TSSBWBC30	ug/kg	2.3E+00	6.4E+00	No
		Hexachlorobutadiene	LWG0104R023TSSBWBC10	ug/kg	7.0E-02	4.0E+00	No
		Hexachlorobutadiene	LWG0104R023TSSBWBC20	ug/kg	7.0E-02	4.0E+00	No
		Hexachlorobutadiene	LWG0104R023TSSBWBC30	ug/kg	7.0E-02	4.6E+00	No
		Phenols					
		4-Nitrophenol	LWG0104R023TSSBWBC10	ug/kg	1.3E+01	1.5E+03	Yes
		4-Nitrophenol	LWG0104R023TSSBWBC20	ug/kg	1.3E+01	1.5E+03	Yes
		4-Nitrophenol	LWG0104R023TSSBWBC30	ug/kg	1.3E+01	1.5E+03	Yes
		Pesticides					
		Aldrin	LWG0104R023TSSBWBC10	ug/kg	1.8E-02	4.0E+00	Yes
		Aldrin	LWG0104R023TSSBWBC20	ug/kg	1.8E-02	4.0E+00	Yes
		Aldrin	LWG0104R023TSSBWBC30	ug/kg	1.8E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0104R023TSSBWBC10	ug/kg	3.5E-02	4.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0104R023TSSBWBC20	ug/kg	3.5E-02	4.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0104R023TSSBWBC30	ug/kg	3.5E-02	1.0E+00	No
		beta-Hexachlorocyclohexane	LWG0104R023TSSBWBC10	ug/kg	1.3E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0104R023TSSBWBC20	ug/kg	1.3E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0104R023TSSBWBC30	ug/kg	1.3E-02	1.2E+00	No
		Dieldrin	LWG0104R023TSSBWBC10	ug/kg	2.6E+00	1.4E+01	No
		Dieldrin	LWG0104R023TSSBWBC20	ug/kg	2.6E+00	1.4E+01	No
		Dieldrin	LWG0104R023TSSBWBC30	ug/kg	2.6E+00	1.4E+01	No
		Endrin	LWG0104R023TSSBWBC10	ug/kg	3.0E-02	3.1E+01	Yes
		Endrin	LWG0104R023TSSBWBC20	ug/kg	3.0E-02	4.0E+00	Yes
		Endrin	LWG0104R023TSSBWBC30	ug/kg	3.0E-02	1.8E+00	No
		gamma-Hexachlorocyclohexane	LW3-SB04W-C00WB	ug/kg	2.0E-02	2.8E-02	No
		gamma-Hexachlorocyclohexane	LWG0104R023TSSBWBC10	ug/kg	2.0E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0104R023TSSBWBC20	ug/kg	2.0E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0104R023TSSBWBC30	ug/kg	2.0E-02	1.0E+00	No
		Heptachlor	LWG0104R023TSSBWBC10	ug/kg	1.4E-02	4.0E+00	Yes
		Heptachlor	LWG0104R023TSSBWBC20	ug/kg	1.4E-02	4.0E+00	Yes
		Heptachlor	LWG0104R023TSSBWBC30	ug/kg	1.4E-02	1.1E+00	No
		Heptachlor epoxide	LWG0104R023TSSBWBC10	ug/kg	1.3E-01	4.0E+00	No
		Heptachlor epoxide	LWG0104R023TSSBWBC20	ug/kg	1.3E-01	4.0E+00	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Heptachlor epoxide	LWG0104R023TSSBWBC30	ug/kg	1.3E-01	1.0E+00	No
		Total Endosulfan	LWG0104R023TSSBWBC10	ug/kg	5.9E-01	4.0E+00	No
		Total Endosulfan	LWG0104R023TSSBWBC20	ug/kg	5.9E-01	4.0E+00	No
		Total Endosulfan	LWG0104R023TSSBWBC30	ug/kg	5.9E-01	1.5E+00	No
RM 5	F	**Semi-Volatile Organic Compounds**					
		Hexachlorobenzene	LWG0105R006TSSBFLC00	ug/kg	3.9E-01	1.0E+00	No
		Pesticides					
		Dieldrin	LWG0105R006TSSBFLC00	ug/kg	3.7E-01	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0105R006TSSBFLC00	ug/kg	9.0E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0105R006TSSBFLC00	ug/kg	2.0E-02	1.0E+00	No
		Total Chlordanes	LWG0105R006TSSBFLC00	ug/kg	1.7E+00	2.9E+00	No
		Total Endosulfan	LWG0105R006TSSBFLC00	ug/kg	1.1E-01	1.0E+00	No
RM 5	WB	**Polynuclear Aromatic Hydrocarbons**					
		2-Methylnaphthalene	LWG0105R006TSSBWBC00	ug/kg	2.9E+00	3.1E+01	No
		Acenaphthene	LWG0105R006TSSBWBC00	ug/kg	1.0E+01	3.7E+01	No
		Acenaphthylene	LWG0105R006TSSBWBC00	ug/kg	9.8E-01	3.1E+01	No
		Anthracene	LWG0105R006TSSBWBC00	ug/kg	5.9E-01	3.1E+01	No
		Benzo(a)anthracene	LWG0105R006TSSBWBC00	ug/kg	5.7E-01	3.1E+01	No
		Benzo(a)pyrene	LWG0105R006TSSBWBC00	ug/kg	6.6E-01	3.1E+01	No
		Benzo(b)fluoranthene	LWG0105R006TSSBWBC00	ug/kg	4.5E-01	3.1E+01	No
		Benzo(g,h,i)perylene	LWG0105R006TSSBWBC00	ug/kg	6.0E-01	3.1E+01	No
		Benzo(k)fluoranthene	LWG0105R006TSSBWBC00	ug/kg	3.8E-01	3.1E+01	No
		Chrysene	LWG0105R006TSSBWBC00	ug/kg	6.8E-01	3.1E+01	No
		Dibenzo(a,h)anthracene	LWG0105R006TSSBWBC00	ug/kg	1.3E-01	3.1E+01	Yes
		Fluoranthene	LWG0105R006TSSBWBC00	ug/kg	2.1E+00	3.1E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0105R006TSSBWBC00	ug/kg	5.1E-01	3.1E+01	No
		Naphthalene	LWG0105R006TSSBWBC00	ug/kg	2.7E+00	3.1E+01	No
		Phenanthrene	LWG0105R006TSSBWBC00	ug/kg	2.9E+01	3.1E+01	No
		Pyrene	LWG0105R006TSSBWBC00	ug/kg	2.2E+00	3.1E+01	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0105R006TSSBWBC00	ug/kg	4.1E+02	8.3E+03	No
		Benzyl alcohol	LWG0105R006TSSBWBC00	ug/kg	2.6E+01	3.1E+02	No
		Bis(2-chloroethoxy) methane	LWG0105R006TSSBWBC00	ug/kg	1.2E+01	1.5E+02	No
		Dibenzofuran	LWG0105R006TSSBWBC00	ug/kg	2.6E+00	3.1E+01	No
		Hexachlorobenzene	LWG0105R006TSSBWBC00	ug/kg	2.5E+00	6.4E+00	No
		Hexachlorobutadiene	LWG0105R006TSSBWBC00	ug/kg	8.0E-02	4.6E+00	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Pesticides					
		Aldrin	LWG0105R006TSSBWBC00	ug/kg	2.7E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0105R006TSSBWBC00	ug/kg	3.8E-02	1.0E+00	No
		Dieldrin	LWG0105R006TSSBWBC00	ug/kg	2.6E+00	5.8E+00	No
		Endrin	LWG0105R006TSSBWBC00	ug/kg	2.1E-02	1.4E+00	No
		gamma-Hexachlorocyclohexane	LWG0105R006TSSBWBC00	ug/kg	1.7E-02	1.0E+00	No
		Heptachlor epoxide	LWG0105R006TSSBWBC00	ug/kg	1.3E-01	1.0E+00	No
		Total Chlordanes	LWG0105R006TSSBWBC00	ug/kg	1.4E+01	3.2E+01	No
		Total Endosulfan	LWG0105R006TSSBWBC00	ug/kg	7.1E-01	1.2E+00	No
RM 6	F	**Metals**					
		Cadmium	LW3-SB06E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB06W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	LWG0106R024TSSBFLC00	ug/kg	3.6E-01	1.0E+00	No
		Pesticides					
		Dieldrin	LWG0106R024TSSBFLC00	ug/kg	3.6E-01	1.0E+00	No
		Endrin	LWG0106R024TSSBFLC00	ug/kg	3.0E-03	1.0E+00	Yes
		gamma-Hexachlorocyclohexane	LW3-SB06E-C00F	ug/kg	4.0E-03	7.0E-03	No
		gamma-Hexachlorocyclohexane	LWG0106R024TSSBFLC00	ug/kg	4.0E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0106R024TSSBFLC00	ug/kg	1.8E-02	1.0E+00	No
		Total Endosulfan	LWG0106R024TSSBFLC00	ug/kg	8.5E-02	1.0E+00	No
RM 6	WB	**Metals**					
		Antimony	LW3-SB06E-C00WB	mg/kg	1.0E-03	5.8E-03	No
		Antimony	LW3-SB06W-C00WB	mg/kg	1.0E-03	5.0E-03	No
		Silver	LW3-SB06E-C00WB	mg/kg	1.6E-03	1.8E-03	No
		Butyltins					
		Tributyltin ion	LW3-SB06W-C00WB	ug/kg	8.6E-01	2.1E+00	No
		Polynuclear Aromatic Hydrocarbons					
		2-Methylnaphthalene	LWG0106R024TSSBWBC00	ug/kg	1.1E+01	3.2E+01	No
		Acenaphthylene	LWG0106R024TSSBWBC00	ug/kg	2.9E+00	3.2E+01	No
		Anthracene	LWG0106R024TSSBWBC00	ug/kg	6.8E+00	3.2E+01	No
		Benzo(a)anthracene	LW3-SB06W-C00WB	ug/kg	1.5E-01	2.2E-01	No
		Benzo(a)anthracene	LWG0106R024TSSBWBC00	ug/kg	1.5E-01	3.2E+01	Yes
		Benzo(a)pyrene	LW3-SB06W-C00WB	ug/kg	1.5E-01	2.7E-01	No
		Benzo(a)pyrene	LWG0106R024TSSBWBC00	ug/kg	1.5E-01	3.2E+01	Yes
		Benzo(b)fluoranthene	LW3-SB06W-C00WB	ug/kg	1.4E-01	2.3E-01	No
		Benzo(b)fluoranthene	LWG0106R024TSSBWBC00	ug/kg	1.4E-01	3.2E+01	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(g,h,i)perylene	LW3-SB06E-C00WB	ug/kg	1.3E-01	2.4E-01	No
		Benzo(g,h,i)perylene	LWG0106R024TSSBWBC00	ug/kg	1.3E-01	3.2E+01	Yes
		Benzo(k)fluoranthene	LW3-SB06W-C00WB	ug/kg	1.1E-01	1.9E-01	No
		Benzo(k)fluoranthene	LWG0106R024TSSBWBC00	ug/kg	1.1E-01	3.2E+01	Yes
		Chrysene	LWG0106R024TSSBWBC00	ug/kg	1.9E-01	3.2E+01	Yes
		Fluoranthene	LWG0106R024TSSBWBC00	ug/kg	1.3E+01	3.2E+01	No
		Fluorene	LWG0106R024TSSBWBC00	ug/kg	2.0E+01	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0106R024TSSBWBC00	ug/kg	1.2E-01	3.2E+01	Yes
		Naphthalene	LWG0106R024TSSBWBC00	ug/kg	2.1E+01	3.2E+01	No
		Pyrene	LWG0106R024TSSBWBC00	ug/kg	1.1E+01	3.2E+01	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0106R024TSSBWBC00	ug/kg	4.5E+02	8.2E+03	No
		Benzyl alcohol	LWG0106R024TSSBWBC00	ug/kg	2.6E+01	3.2E+02	No
		Bis(2-chloroethoxy) methane	LWG0106R024TSSBWBC00	ug/kg	1.8E+01	1.6E+02	No
		Dibenzofuran	LWG0106R024TSSBWBC00	ug/kg	4.0E+00	3.2E+01	No
		Hexachlorobutadiene	LWG0106R024TSSBWBC00	ug/kg	1.5E-01	1.0E+00	No
		Phenols					
		4-Nitrophenol	LWG0106R024TSSBWBC00	ug/kg	1.4E+01	1.6E+03	Yes
		Pesticides					
		Aldrin	LWG0106R024TSSBWBC00	ug/kg	2.4E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0106R024TSSBWBC00	ug/kg	2.8E-02	1.0E+00	No
		beta-Hexachlorocyclohexane	LW3-SB06W-C00WB	ug/kg	2.4E-02	2.4E-02	No
		beta-Hexachlorocyclohexane	LWG0106R024TSSBWBC00	ug/kg	2.4E-02	8.5E+00	Yes
		Dieldrin	LWG0106R024TSSBWBC00	ug/kg	2.4E+00	1.4E+01	No
		Endrin	LWG0106R024TSSBWBC00	ug/kg	1.7E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0106R024TSSBWBC00	ug/kg	3.5E-02	1.0E+00	No
		Heptachlor	LWG0106R024TSSBWBC00	ug/kg	1.2E-02	1.0E+00	No
		Heptachlor epoxide	LWG0106R024TSSBWBC00	ug/kg	1.2E-01	1.0E+00	No
		Total Endosulfan	LWG0106R024TSSBWBC00	ug/kg	5.0E-01	1.0E+00	No
RM 7	F	**Pesticides**					
		beta-Hexachlorocyclohexane	LW3-SB07E-C00F	ug/kg	5.0E-03	2.4E-02	No
RM 7	WB	**Metals**					
		Cadmium	LW3-SB07W-C00WB	mg/kg	2.4E-03	3.0E-03	No
		Silver	LWG0107R009TSSBWBC10	mg/kg	2.3E-03	5.5E-03	No
		Silver	LWG0107R009TSSBWBC20	mg/kg	2.3E-03	3.0E-03	No
		Silver	LWG0107R009TSSBWBC30	mg/kg	2.3E-03	7.0E-03	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Butyltins					
		Tributyltin ion	LW3-SB07W-C00WB	ug/kg	7.8E-01	1.5E+00	No
		Polynuclear Aromatic Hydrocarbons					
		Acenaphthylene	LWG0107R009TSSBWBC10	ug/kg	1.4E+00	2.9E+01	No
		Acenaphthylene	LWG0107R009TSSBWBC20	ug/kg	1.4E+00	2.5E+01	No
		Acenaphthylene	LWG0107R009TSSBWBC30	ug/kg	1.4E+00	3.3E+01	No
		Anthracene	LWG0107R009TSSBWBC10	ug/kg	3.6E+00	2.9E+01	No
		Anthracene	LWG0107R009TSSBWBC20	ug/kg	3.6E+00	2.5E+01	No
		Anthracene	LWG0107R009TSSBWBC30	ug/kg	3.6E+00	3.3E+01	No
		Benzo(a)anthracene	LW3-SB07E-C00WB	ug/kg	1.5E-01	2.1E-01	No
		Benzo(a)anthracene	LWG0107R009TSSBWBC10	ug/kg	1.5E-01	2.9E+01	Yes
		Benzo(a)anthracene	LWG0107R009TSSBWBC20	ug/kg	1.5E-01	2.5E+01	Yes
		Benzo(a)anthracene	LWG0107R009TSSBWBC30	ug/kg	1.5E-01	3.3E+01	Yes
		Benzo(b)fluoranthene	LW3-SB07E-C00WB	ug/kg	1.4E-01	2.2E-01	No
		Benzo(b)fluoranthene	LWG0107R009TSSBWBC10	ug/kg	1.4E-01	2.9E+01	Yes
		Benzo(b)fluoranthene	LWG0107R009TSSBWBC20	ug/kg	1.4E-01	2.5E+01	Yes
		Benzo(b)fluoranthene	LWG0107R009TSSBWBC30	ug/kg	1.4E-01	3.3E+01	Yes
		Benzo(g,h,i)perylene	LW3-SB07E-C00WB	ug/kg	1.4E-01	2.4E-01	No
		Benzo(g,h,i)perylene	LWG0107R009TSSBWBC10	ug/kg	1.4E-01	2.9E+01	Yes
		Benzo(g,h,i)perylene	LWG0107R009TSSBWBC20	ug/kg	1.4E-01	2.5E+01	Yes
		Benzo(g,h,i)perylene	LWG0107R009TSSBWBC30	ug/kg	1.4E-01	3.3E+01	Yes
		Benzo(k)fluoranthene	LW3-SB07E-C00WB	ug/kg	1.1E-01	1.8E-01	No
		Benzo(k)fluoranthene	LWG0107R009TSSBWBC10	ug/kg	1.1E-01	2.9E+01	Yes
		Benzo(k)fluoranthene	LWG0107R009TSSBWBC20	ug/kg	1.1E-01	2.5E+01	Yes
		Benzo(k)fluoranthene	LWG0107R009TSSBWBC30	ug/kg	1.1E-01	3.3E+01	Yes
		Chrysene	LW3-SB07E-C00WB	ug/kg	1.8E-01	2.5E-01	No
		Chrysene	LWG0107R009TSSBWBC10	ug/kg	1.8E-01	2.9E+01	Yes
		Chrysene	LWG0107R009TSSBWBC20	ug/kg	1.8E-01	2.5E+01	Yes
		Chrysene	LWG0107R009TSSBWBC30	ug/kg	1.8E-01	3.3E+01	Yes
		Fluoranthene	LWG0107R009TSSBWBC10	ug/kg	1.1E+01	2.9E+01	No
		Fluoranthene	LWG0107R009TSSBWBC20	ug/kg	1.1E+01	2.5E+01	No
		Fluoranthene	LWG0107R009TSSBWBC30	ug/kg	1.1E+01	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LW3-SB07E-C00WB	ug/kg	1.3E-01	2.1E-01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R009TSSBWBC10	ug/kg	1.3E-01	2.9E+01	Yes
		Indeno(1,2,3-cd)pyrene	LWG0107R009TSSBWBC20	ug/kg	1.3E-01	2.5E+01	Yes
		Indeno(1,2,3-cd)pyrene	LWG0107R009TSSBWBC30	ug/kg	1.3E-01	3.3E+01	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Pyrene	LWG0107R009TSSBWBC10	ug/kg	8.6E+00	2.9E+01	No
		Pyrene	LWG0107R009TSSBWBC20	ug/kg	8.6E+00	2.5E+01	No
		Pyrene	LWG0107R009TSSBWBC30	ug/kg	8.6E+00	3.3E+01	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0107R009TSSBWBC10	ug/kg	5.3E+02	8.3E+03	No
		Benzoic acid	LWG0107R009TSSBWBC20	ug/kg	5.3E+02	8.2E+03	No
		Benzoic acid	LWG0107R009TSSBWBC30	ug/kg	5.3E+02	8.3E+03	No
		Benzyl alcohol	LWG0107R009TSSBWBC10	ug/kg	2.8E+01	2.9E+02	No
		Benzyl alcohol	LWG0107R009TSSBWBC20	ug/kg	2.8E+01	2.5E+02	No
		Benzyl alcohol	LWG0107R009TSSBWBC30	ug/kg	2.8E+01	3.3E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R009TSSBWBC10	ug/kg	1.3E+01	1.4E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R009TSSBWBC20	ug/kg	1.3E+01	1.3E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R009TSSBWBC30	ug/kg	1.3E+01	1.6E+02	No
		Hexachlorobenzene	LWG0107R009TSSBWBC10	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0107R009TSSBWBC30	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobutadiene	LWG0107R009TSSBWBC10	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0107R009TSSBWBC20	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0107R009TSSBWBC30	ug/kg	1.4E+00	4.0E+00	No
		Phenols					
		4-Nitrophenol	LWG0107R009TSSBWBC10	ug/kg	1.2E+01	1.4E+03	Yes
		4-Nitrophenol	LWG0107R009TSSBWBC20	ug/kg	1.2E+01	1.3E+03	Yes
		4-Nitrophenol	LWG0107R009TSSBWBC30	ug/kg	1.2E+01	1.6E+03	Yes
		Pesticides					
		Aldrin	LWG0107R009TSSBWBC10	ug/kg	3.4E-02	4.0E+00	Yes
		Aldrin	LWG0107R009TSSBWBC20	ug/kg	3.4E-02	4.0E+00	Yes
		Aldrin	LWG0107R009TSSBWBC30	ug/kg	3.4E-02	4.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0107R009TSSBWBC10	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0107R009TSSBWBC20	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0107R009TSSBWBC30	ug/kg	4.2E-02	4.0E+00	No
		beta-Hexachlorocyclohexane	LWG0107R009TSSBWBC10	ug/kg	3.6E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0107R009TSSBWBC20	ug/kg	3.6E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0107R009TSSBWBC30	ug/kg	3.6E-02	8.5E+00	Yes
		Dieldrin	LWG0107R009TSSBWBC10	ug/kg	2.2E+00	1.4E+01	No
		Dieldrin	LWG0107R009TSSBWBC20	ug/kg	2.2E+00	4.0E+00	No
		Dieldrin	LWG0107R009TSSBWBC30	ug/kg	2.2E+00	5.5E+00	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Endrin	LWG0107R009TSSBWBC10	ug/kg	1.6E-02	4.0E+00	Yes
		Endrin	LWG0107R009TSSBWBC20	ug/kg	1.6E-02	4.0E+00	Yes
		Endrin	LWG0107R009TSSBWBC30	ug/kg	1.6E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0107R009TSSBWBC10	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0107R009TSSBWBC20	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0107R009TSSBWBC30	ug/kg	3.5E-02	4.0E+00	Yes
		Heptachlor	LW3-SB07E-C00WB	ug/kg	8.7E-03	1.2E-02	No
		Heptachlor	LWG0107R009TSSBWBC10	ug/kg	8.7E-03	4.9E+00	Yes
		Heptachlor	LWG0107R009TSSBWBC20	ug/kg	8.7E-03	4.0E+00	Yes
		Heptachlor	LWG0107R009TSSBWBC30	ug/kg	8.7E-03	4.0E+00	Yes
		Heptachlor epoxide	LWG0107R009TSSBWBC10	ug/kg	1.0E-01	4.1E+00	No
		Heptachlor epoxide	LWG0107R009TSSBWBC20	ug/kg	1.0E-01	4.0E+00	No
		Heptachlor epoxide	LWG0107R009TSSBWBC30	ug/kg	1.0E-01	4.0E+00	No
		Total Endosulfan	LWG0107R009TSSBWBC10	ug/kg	5.6E-01	4.0E+00	No
		Total Endosulfan	LWG0107R009TSSBWBC20	ug/kg	5.6E-01	4.0E+00	No
		Total Endosulfan	LWG0107R009TSSBWBC30	ug/kg	5.6E-01	4.0E+00	No
RM 8	F	**Metals**					
		Cadmium	LW3-SB08E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB08W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	LWG0108R032TSSBFLC00	ug/kg	3.5E-01	1.0E+00	No
		Pesticides					
		Aldrin	LW3-SB08E-C00F	ug/kg	5.0E-03	4.1E-02	No
		Aldrin	LWG0108R032TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes
		gamma-Hexachlorocyclohexane	LW3-SB08E-C00F	ug/kg	3.0E-03	7.0E-03	No
		gamma-Hexachlorocyclohexane	LWG0108R032TSSBFLC00	ug/kg	3.0E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0108R032TSSBFLC00	ug/kg	1.6E-02	1.0E+00	No
		Total Endosulfan	LWG0108R032TSSBFLC00	ug/kg	7.7E-02	1.0E+00	No
RM 8	WB	**Metals**					
		Silver	LWG0108R032TSSBWBC00	mg/kg	2.2E-03	4.0E-03	No
		Polynuclear Aromatic Hydrocarbons					
		2-Methylnaphthalene	LWG0108R032TSSBWBC00	ug/kg	3.1E+00	3.2E+01	No
		Acenaphthene	LWG0108R032TSSBWBC00	ug/kg	7.6E+00	3.2E+01	No
		Acenaphthylene	LWG0108R032TSSBWBC00	ug/kg	1.9E+00	3.2E+01	No
		Anthracene	LWG0108R032TSSBWBC00	ug/kg	1.3E+00	3.2E+01	No
		Benzo(a)anthracene	LWG0108R032TSSBWBC00	ug/kg	9.4E-01	3.2E+01	No
		Benzo(a)pyrene	LWG0108R032TSSBWBC00	ug/kg	9.3E-01	3.2E+01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(b)fluoranthene	LWG0108R032TSSBWBC00	ug/kg	6.5E-01	3.2E+01	No
		Benzo(g,h,i)perylene	LWG0108R032TSSBWBC00	ug/kg	2.5E+00	3.2E+01	No
		Benzo(k)fluoranthene	LWG0108R032TSSBWBC00	ug/kg	5.4E-01	3.2E+01	No
		Chrysene	LWG0108R032TSSBWBC00	ug/kg	1.1E+00	3.2E+01	No
		Dibenzo(a,h)anthracene	LW3-SB08E-C00WB	ug/kg	1.6E-01	2.0E-01	No
		Dibenzo(a,h)anthracene	LWG0108R032TSSBWBC00	ug/kg	1.6E-01	3.2E+01	Yes
		Fluoranthene	LWG0108R032TSSBWBC00	ug/kg	1.5E+01	3.2E+01	No
		Fluorene	LWG0108R032TSSBWBC00	ug/kg	6.7E+00	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0108R032TSSBWBC00	ug/kg	1.8E+00	3.2E+01	No
		Naphthalene	LWG0108R032TSSBWBC00	ug/kg	6.2E+00	3.2E+01	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0108R032TSSBWBC00	ug/kg	5.1E+02	8.3E+03	No
		Benzyl alcohol	LWG0108R032TSSBWBC00	ug/kg	3.0E+01	3.2E+02	No
		Bis(2-chloroethoxy) methane	LWG0108R032TSSBWBC00	ug/kg	1.3E+01	1.6E+02	No
		Dibenzofuran	LWG0108R032TSSBWBC00	ug/kg	2.3E+00	3.2E+01	No
		Hexachlorobenzene	LWG0108R032TSSBWBC00	ug/kg	2.1E+00	6.4E+00	No
		Hexachlorobutadiene	LWG0108R032TSSBWBC00	ug/kg	2.5E-01	4.0E+00	No
		Phenols					
		4-Methylphenol	LWG0108R032TSSBWBC00	ug/kg	1.1E+01	3.2E+01	No
		4-Nitrophenol	LWG0108R032TSSBWBC00	ug/kg	1.2E+01	1.6E+03	Yes
		Pesticides					
		Aldrin	LW3-SB08E-C00WB	ug/kg	2.2E-02	2.3E-02	No
		Aldrin	LWG0108R032TSSBWBC00	ug/kg	2.2E-02	4.0E+00	Yes
		alpha-Hexachlorocyclohexane	LW3-SB08E-C00WB	ug/kg	2.4E-02	3.5E-02	No
		alpha-Hexachlorocyclohexane	LWG0108R032TSSBWBC00	ug/kg	2.4E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LW3-SB08E-C00WB	ug/kg	1.5E-02	2.7E-02	No
		beta-Hexachlorocyclohexane	LWG0108R032TSSBWBC00	ug/kg	1.5E-02	8.5E+00	Yes
		Endrin	LWG0108R032TSSBWBC00	ug/kg	1.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0108R032TSSBWBC00	ug/kg	2.5E-02	4.0E+00	Yes
		Heptachlor epoxide	LWG0108R032TSSBWBC00	ug/kg	9.8E-02	7.0E+00	No
		Total Endosulfan	LWG0108R032TSSBWBC00	ug/kg	4.2E-01	4.0E+00	No
RM 9	F	**Semi-Volatile Organic Compounds**					
		Hexachlorobenzene	LWG0109R006TSSBFLC00	ug/kg	5.2E-01	1.0E+00	No
		Pesticides					
		Aldrin	LWG0109R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0109R006TSSBFLC00	ug/kg	6.0E-03	1.0E+00	Yes
		Endrin	LWG0109R006TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		gamma-Hexachlorocyclohexane	LW3-SB09E-C00F	ug/kg	5.0E-03	6.0E-03	No
		gamma-Hexachlorocyclohexane	LWG0109R006TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0109R006TSSBFLC00	ug/kg	2.4E-02	1.0E+00	No
		Total Endosulfan	LWG0109R006TSSBFLC00	ug/kg	9.8E-02	1.0E+00	No
RM 9	WB	**Metals**					
		Silver	LWG0109R006TSSBWBC00	mg/kg	2.5E-03	3.0E-03	No
		Polynuclear Aromatic Hydrocarbons					
		1-Methylnaphthalene	LW3-SB09E-C00WB	ug/kg	2.3E+00	8.1E+00	No
		2-Methylnaphthalene	LWG0109R006TSSBWBC00	ug/kg	6.3E+00	3.2E+01	No
		Acenaphthene	LWG0109R006TSSBWBC00	ug/kg	4.3E+00	3.2E+01	No
		Acenaphthylene	LWG0109R006TSSBWBC00	ug/kg	1.1E+00	3.2E+01	No
		Anthracene	LWG0109R006TSSBWBC00	ug/kg	1.7E+00	3.2E+01	No
		Benzo(a)anthracene	LWG0109R006TSSBWBC00	ug/kg	1.1E+00	3.2E+01	No
		Benzo(a)pyrene	LWG0109R006TSSBWBC00	ug/kg	1.3E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG0109R006TSSBWBC00	ug/kg	1.0E+00	3.2E+01	No
		Benzo(g,h,i)perylene	LWG0109R006TSSBWBC00	ug/kg	1.2E+00	3.2E+01	No
		Benzo(k)fluoranthene	LWG0109R006TSSBWBC00	ug/kg	9.2E-01	3.2E+01	No
		Chrysene	LWG0109R006TSSBWBC00	ug/kg	1.3E+00	3.2E+01	No
		Dibenzothiophene	LW3-SB09E-C00WB	ug/kg	1.3E+00	2.0E+00	No
		Fluoranthene	LWG0109R006TSSBWBC00	ug/kg	5.1E+00	3.2E+01	No
		Fluorene	LW3-SB09E-C00WB	ug/kg	5.6E+00	4.3E+00	No
		Indeno(1,2,3-cd)pyrene	LWG0109R006TSSBWBC00	ug/kg	1.2E+00	3.2E+01	No
		Naphthalene	LWG0109R006TSSBWBC00	ug/kg	5.9E+00	3.2E+01	No
		Phenanthrene	LWG0109R006TSSBWBC00	ug/kg	1.3E+01	3.2E+01	No
		Pyrene	LWG0109R006TSSBWBC00	ug/kg	2.3E+00	3.2E+01	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0109R006TSSBWBC00	ug/kg	4.8E+02	8.2E+03	No
		Benzyl alcohol	LWG0109R006TSSBWBC00	ug/kg	3.3E+01	3.2E+02	No
		Bis(2-chloroethoxy) methane	LWG0109R006TSSBWBC00	ug/kg	1.3E+01	1.6E+02	No
		Dibenzofuran	LW3-SB09E-C00WB	ug/kg	2.3E+00	3.6E+00	No
		Dibenzofuran	LWG0109R006TSSBWBC00	ug/kg	2.3E+00	3.2E+01	No
		Hexachlorobenzene	LWG0109R006TSSBWBC00	ug/kg	2.8E+00	6.4E+00	No
		Phenols					
		4-Methylphenol	LWG0109R006TSSBWBC00	ug/kg	1.3E+01	3.2E+01	No
		Pesticides					
		Aldrin	LWG0109R006TSSBWBC00	ug/kg	4.0E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0109R006TSSBWBC00	ug/kg	3.4E-02	4.0E+00	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		beta-Hexachlorocyclohexane	LW3-SB09W-C00WB	ug/kg	1.5E-02	2.1E-02	No
		beta-Hexachlorocyclohexane	LWG0109R006TSSBWBC00	ug/kg	1.5E-02	8.5E+00	Yes
		Dieldrin	LWG0109R006TSSBWBC00	ug/kg	2.9E+00	1.4E+01	No
		Endrin	LWG0109R006TSSBWBC00	ug/kg	3.0E-02	4.0E+00	Yes
		Endrin ketone	LW3-SB09W-C00WB	ug/kg	4.6E-03	2.0E-02	No
		Endrin ketone	LWG0109R006TSSBWBC00	ug/kg	4.6E-03	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LW3-SB09E-C00WB	ug/kg	2.4E-02	2.6E-02	No
		gamma-Hexachlorocyclohexane	LWG0109R006TSSBWBC00	ug/kg	2.4E-02	4.0E+00	Yes
		Heptachlor epoxide	LWG0109R006TSSBWBC00	ug/kg	1.5E-01	4.0E+00	No
		Total Endosulfan	LWG0109R006TSSBWBC00	ug/kg	6.0E-01	4.0E+00	No
RM 10	F	**Semi-Volatile Organic Compounds**					
		Hexachlorobutadiene	LW3-SB010W-C00F	ug/kg	6.0E-03	7.0E-03	No
		Pesticides					
		alpha-Hexachlorocyclohexane	LW3-SB010W-C00F	ug/kg	5.0E-03	5.5E-02	No
		Endrin ketone	LW3-SB010W-C00F	ug/kg	1.1E-02	1.9E-02	No
		gamma-Hexachlorocyclohexane	LW3-SB010W-C00F	ug/kg	1.1E-02	3.5E-02	No
RM 10	WB	**Semi-Volatile Organic Compounds**					
		Benzoic acid	LW3-SB010W-C00WB	ug/kg	3.5E+02	4.0E+02	No
		Hexachlorobutadiene	LW3-SB010W-C00WB	ug/kg	9.8E-03	1.7E-02	No
		Pesticides					
		Aldrin	LW3-SB010E-C00WB	ug/kg	2.0E-02	2.4E-02	No
		alpha-Hexachlorocyclohexane	LW3-SB010W-C00WB	ug/kg	2.5E-02	4.1E-02	No
		Endrin aldehyde	LW3-SB010E-C00WB	ug/kg	5.2E-03	7.7E-03	No
		Endrin ketone	LW3-SB010W-C00WB	ug/kg	1.0E-02	1.9E-02	No
		Heptachlor	LW3-SB010W-C00WB	ug/kg	1.1E-02	1.4E-02	No
RM 11	F	**Pesticides**					
		beta-Hexachlorocyclohexane	LW3-SB011E-C00F	ug/kg	5.0E-03	2.4E-02	No
		Heptachlor	LW3-SB011E-C00F	ug/kg	5.0E-03	3.1E-02	No
RM 11	WB	**Polynuclear Aromatic Hydrocarbons**					
		1-Methylnaphthalene	LW3-SB011E-C00WB	ug/kg	1.2E+00	2.4E+00	No
		2-Methylnaphthalene	LW3-SB011E-C00WB	ug/kg	1.9E+00	3.5E+00	No
		Acenaphthylene	LW3-SB011E-C00WB	ug/kg	1.4E-01	5.4E-01	No
		Semi-Volatile Organic Compounds					
		Benzyl alcohol	LW3-SB011E-C00WB	ug/kg	1.4E+01	2.2E+01	No
		Hexachlorobutadiene	LW3-SB011W-C00WB	ug/kg	5.2E-03	1.9E-02	No
		Pesticides					
		Endrin ketone	LW3-SB011W-C00WB	ug/kg	3.5E-03	6.7E-03	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
Study Area Wide	F	**Metals**					
		Cadmium	LW3-SB011E-C00F	mg/kg	1.0E-03	3.0E-03	No
		Cadmium	LW3-SB010W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB010E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB011W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB02E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB03E-C00F	mg/kg	1.0E-03	3.0E-03	No
		Cadmium	LW3-SB03W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB04E-C01F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB04W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB05W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB06E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB06W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB07E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB07W-C00F	mg/kg	1.0E-03	3.0E-03	No
		Cadmium	LW3-SB08E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB08W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB09E-C00F	mg/kg	1.0E-03	2.0E-03	No
		Cadmium	LW3-SB09W-C00F	mg/kg	1.0E-03	2.0E-03	No
		Phthalates					
		Dibutyl phthalate	LW3-SB010E-C00F	ug/kg	4.3E+01	4.8E+01	No
		Dibutyl phthalate	LW3-SB02E-C00F	ug/kg	4.3E+01	4.6E+01	No
		Dibutyl phthalate	LW3-SB03E-C00F	ug/kg	4.3E+01	5.1E+01	No
		Dibutyl phthalate	LW3-SB03W-C00F	ug/kg	4.3E+01	5.8E+01	No
		Dibutyl phthalate	LW3-SB05W-C00F	ug/kg	4.3E+01	8.4E+01	No
		Dibutyl phthalate	LW3-SB06E-C00F	ug/kg	4.3E+01	4.4E+01	No
		Dibutyl phthalate	LW3-SB06W-C00F	ug/kg	4.3E+01	7.0E+01	No
		Dibutyl phthalate	LW3-SB07E-C00F	ug/kg	4.3E+01	4.7E+01	No
		Dibutyl phthalate	LW3-SB07W-C00F	ug/kg	4.3E+01	6.4E+01	No
		Dibutyl phthalate	LW3-SB09E-C00F	ug/kg	4.3E+01	9.1E+01	No
		Dibutyl phthalate	LW3-SB09W-C00F	ug/kg	4.3E+01	5.5E+01	No
		Diethyl phthalate	LW3-SB010E-C00F	ug/kg	1.7E+01	2.0E+01	No
		Diethyl phthalate	LW3-SB011W-C00F	ug/kg	1.7E+01	3.6E+01	No
		Diethyl phthalate	LW3-SB05W-C00F	ug/kg	1.7E+01	2.1E+01	No
		Diethyl phthalate	LW3-SB08W-C00F	ug/kg	1.7E+01	2.5E+01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	LWG0103R014TSSBFLC00	ug/kg	8.8E-01	1.3E+00	No
		Hexachlorobenzene	LWG0105R006TSSBFLC00	ug/kg	8.8E-01	1.0E+00	No
		Hexachlorobenzene	LWG0106R024TSSBFLC00	ug/kg	8.8E-01	1.0E+00	No
		Hexachlorobenzene	LWG0108R032TSSBFLC00	ug/kg	8.8E-01	1.0E+00	No
		Hexachlorobenzene	LWG0109R006TSSBFLC00	ug/kg	8.8E-01	1.0E+00	No
		Hexachlorobutadiene	LWG0103R014TSSBFLC00	ug/kg	1.7E-01	1.0E+00	No
		Hexachlorobutadiene	LWG0105R006TSSBFLC00	ug/kg	1.7E-01	1.0E+00	No
		Hexachlorobutadiene	LWG0106R024TSSBFLC00	ug/kg	1.7E-01	1.0E+00	No
		Hexachlorobutadiene	LWG0108R032TSSBFLC00	ug/kg	1.7E-01	1.0E+00	No
		Hexachlorobutadiene	LWG0109R006TSSBFLC00	ug/kg	1.7E-01	1.0E+00	No
		Phenols					
		4-Nitrophenol	LW3-SB05W-C00F	ug/kg	1.3E+01	1.5E+01	No
		4-Nitrophenol	LW3-SB06E-C00F	ug/kg	1.3E+01	1.5E+01	No
		4-Nitrophenol	LW3-SB07E-C00F	ug/kg	1.3E+01	1.5E+01	No
		4-Nitrophenol	LW3-SB09E-C00F	ug/kg	1.3E+01	1.4E+01	No
		4-Nitrophenol	LW3-SB09W-C00F	ug/kg	1.3E+01	1.4E+01	No
		Pesticides					
		Aldrin	LW3-SB010W-C00F	ug/kg	1.1E-02	4.2E-02	No
		Aldrin	LW3-SB010E-C00F	ug/kg	1.1E-02	4.2E-02	No
		Aldrin	LW3-SB011E-C00F	ug/kg	1.1E-02	4.1E-02	No
		Aldrin	LW3-SB011W-C00F	ug/kg	1.1E-02	4.2E-02	No
		Aldrin	LW3-SB05W-C00F	ug/kg	1.1E-02	4.3E-02	No
		Aldrin	LW3-SB06E-C00F	ug/kg	1.1E-02	4.2E-02	No
		Aldrin	LW3-SB06W-C00F	ug/kg	1.1E-02	4.1E-02	No
		Aldrin	LWG0106R024TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Aldrin	LW3-SB07E-C00F	ug/kg	1.1E-02	4.1E-02	No
		Aldrin	LW3-SB07W-C00F	ug/kg	1.1E-02	4.2E-02	No
		Aldrin	LW3-SB08E-C00F	ug/kg	1.1E-02	4.1E-02	No
		Aldrin	LWG0109R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Aldrin	LWG0103R014TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Aldrin	LWG0105R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Aldrin	LWG0108R032TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LW3-SB010W-C00F	ug/kg	6.0E-03	5.5E-02	No
		alpha-Hexachlorocyclohexane	LW3-SB011E-C00F	ug/kg	6.0E-03	9.0E-03	No
		alpha-Hexachlorocyclohexane	LW3-SB06W-C00F	ug/kg	6.0E-03	7.0E-03	No
		alpha-Hexachlorocyclohexane	LWG0106R024TSSBFLC00	ug/kg	6.0E-03	1.0E+00	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		alpha-Hexachlorocyclohexane	LW3-SB07W-C00F	ug/kg	6.0E-03	7.0E-03	No
		alpha-Hexachlorocyclohexane	LWG0109R006TSSBFLC00	ug/kg	6.0E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R014TSSBFLC00	ug/kg	6.0E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0105R006TSSBFLC00	ug/kg	6.0E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0108R032TSSBFLC00	ug/kg	6.0E-03	1.0E+00	Yes
		Endrin	LWG0106R024TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin	LWG0109R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin	LWG0103R014TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin	LWG0105R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin	LWG0108R032TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin ketone	LW3-SB011E-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB010W-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB011W-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB010W-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB011W-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB02E-C00F	ug/kg	1.1E-02	8.3E-02	No
		Endrin ketone	LW3-SB03E-C00F	ug/kg	1.1E-02	8.4E-02	No
		Endrin ketone	LW3-SB03W-C00F	ug/kg	1.1E-02	8.2E-02	No
		Endrin ketone	LW3-SB04W-C00F	ug/kg	1.1E-02	8.2E-02	No
		Endrin ketone	LW3-SB05W-C00F	ug/kg	1.1E-02	2.0E-02	No
		Endrin ketone	LW3-SB07E-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB07W-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB08E-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB08W-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LWG0103R014TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin ketone	LWG0105R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin ketone	LW3-SB06E-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB06W-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LWG0106R024TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin ketone	LWG0108R032TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		Endrin ketone	LW3-SB09E-C00F	ug/kg	1.1E-02	1.9E-02	No
		Endrin ketone	LW3-SB09W-C00F	ug/kg	1.1E-02	2.0E-02	No
		Endrin ketone	LWG0109R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LW3-SB010W-C00F	ug/kg	1.1E-02	3.5E-02	No
		gamma-Hexachlorocyclohexane	LWG0103R014TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0105R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0106R024TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0108R032TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0109R006TSSBFLC00	ug/kg	1.1E-02	1.0E+00	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Heptachlor	LW3-SB011E-C00F	ug/kg	5.0E-03	3.1E-02	No
		Heptachlor	LW3-SB010W-C00F	ug/kg	5.0E-03	3.2E-02	No
		Heptachlor	LW3-SB010E-C00F	ug/kg	5.0E-03	3.2E-02	No
		Heptachlor	LW3-SB02E-C00F	ug/kg	5.0E-03	6.2E-03	No
		Heptachlor	LW3-SB03E-C00F	ug/kg	5.0E-03	6.4E-03	No
		Heptachlor	LW3-SB05W-C00F	ug/kg	5.0E-03	3.3E-02	No
		Heptachlor	LW3-SB07E-C00F	ug/kg	5.0E-03	3.1E-02	No
		Heptachlor	LW3-SB07W-C00F	ug/kg	5.0E-03	3.2E-02	No
		Heptachlor	LW3-SB08E-C00F	ug/kg	5.0E-03	3.2E-02	No
		Heptachlor	LWG0103R014TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes
		Heptachlor	LWG0105R006TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes
		Heptachlor	LW3-SB06E-C00F	ug/kg	5.0E-03	3.2E-02	No
		Heptachlor	LW3-SB06W-C00F	ug/kg	5.0E-03	3.1E-02	No
		Heptachlor	LWG0106R024TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes
		Heptachlor	LWG0108R032TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes
		Heptachlor	LWG0109R006TSSBFLC00	ug/kg	5.0E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R014TSSBFLC00	ug/kg	2.7E-02	1.0E+00	No
		Heptachlor epoxide	LWG0105R006TSSBFLC00	ug/kg	2.7E-02	1.0E+00	No
		Heptachlor epoxide	LWG0106R024TSSBFLC00	ug/kg	2.7E-02	1.0E+00	No
		Heptachlor epoxide	LWG0108R032TSSBFLC00	ug/kg	2.7E-02	1.0E+00	No
		Heptachlor epoxide	LWG0109R006TSSBFLC00	ug/kg	2.7E-02	1.0E+00	No
		Total Endosulfan	LW3-SB03E-C00F	ug/kg	1.1E-01	1.4E-01	No
		Total Endosulfan	LWG0103R014TSSBFLC00	ug/kg	1.1E-01	1.0E+00	No
		Total Endosulfan	LWG0105R006TSSBFLC00	ug/kg	1.1E-01	1.0E+00	No
		Total Endosulfan	LWG0106R024TSSBFLC00	ug/kg	1.1E-01	1.0E+00	No
		Total Endosulfan	LWG0108R032TSSBFLC00	ug/kg	1.1E-01	1.0E+00	No
		Total Endosulfan	LWG0109R006TSSBFLC00	ug/kg	1.1E-01	1.0E+00	No
Study Area-wide	WB	**Butyltins**					
		Tributyltin ion	LW3-SB06W-C00WB	ug/kg	1.6E+00	2.1E+00	No
		Tributyltin ion	LW3-SB08E-C00WB	ug/kg	1.6E+00	4.9E+00	No
		Polynuclear Aromatic Hydrocarbons					
		Acenaphthylene	LWG0106R024TSSBWBC00	ug/kg	2.9E+00	3.2E+01	No
		Acenaphthylene	LWG0107R009TSSBWBC10	ug/kg	2.9E+00	2.9E+01	No
		Acenaphthylene	LWG0107R009TSSBWBC20	ug/kg	2.9E+00	2.5E+01	No
		Acenaphthylene	LWG0107R009TSSBWBC30	ug/kg	2.9E+00	3.3E+01	No
		Acenaphthylene	LWG0108R032TSSBWBC00	ug/kg	2.9E+00	3.2E+01	No
		Acenaphthylene	LWG0109R006TSSBWBC00	ug/kg	2.9E+00	3.2E+01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Acenaphthylene	LWG0103R014TSSBWBC00	ug/kg	2.9E+00	3.1E+01	No
		Acenaphthylene	LWG0104R023TSSBWBC10	ug/kg	2.9E+00	3.1E+01	No
		Acenaphthylene	LWG0104R023TSSBWBC20	ug/kg	2.9E+00	3.0E+01	No
		Acenaphthylene	LWG0104R023TSSBWBC30	ug/kg	2.9E+00	3.0E+01	No
		Acenaphthylene	LWG0105R006TSSBWBC00	ug/kg	2.9E+00	3.1E+01	No
		Acenaphthylene	LWG0108R010TSSBWBC10	ug/kg	2.9E+00	3.3E+01	No
		Acenaphthylene	LWG0108R010TSSBWBC20	ug/kg	2.9E+00	3.2E+01	No
		Acenaphthylene	LWG0108R010TSSBWBC30	ug/kg	2.9E+00	3.1E+01	No
		Anthracene	LWG0106R024TSSBWBC00	ug/kg	6.8E+00	3.2E+01	No
		Anthracene	LWG0107R009TSSBWBC10	ug/kg	6.8E+00	2.9E+01	No
		Anthracene	LWG0107R009TSSBWBC20	ug/kg	6.8E+00	2.5E+01	No
		Anthracene	LWG0107R009TSSBWBC30	ug/kg	6.8E+00	3.3E+01	No
		Anthracene	LWG0108R032TSSBWBC00	ug/kg	6.8E+00	3.2E+01	No
		Anthracene	LWG0109R006TSSBWBC00	ug/kg	6.8E+00	3.2E+01	No
		Anthracene	LWG0103R014TSSBWBC00	ug/kg	6.8E+00	3.1E+01	No
		Anthracene	LWG0104R023TSSBWBC10	ug/kg	6.8E+00	3.1E+01	No
		Anthracene	LWG0104R023TSSBWBC20	ug/kg	6.8E+00	3.0E+01	No
		Anthracene	LWG0104R023TSSBWBC30	ug/kg	6.8E+00	3.0E+01	No
		Anthracene	LWG0105R006TSSBWBC00	ug/kg	6.8E+00	3.1E+01	No
		Anthracene	LWG0108R010TSSBWBC10	ug/kg	6.8E+00	3.3E+01	No
		Anthracene	LWG0108R010TSSBWBC20	ug/kg	6.8E+00	3.2E+01	No
		Anthracene	LWG0108R010TSSBWBC30	ug/kg	6.8E+00	3.1E+01	No
		Benzo(a)anthracene	LWG0106R024TSSBWBC00	ug/kg	1.1E+00	3.2E+01	No
		Benzo(a)anthracene	LWG0107R009TSSBWBC10	ug/kg	1.1E+00	2.9E+01	No
		Benzo(a)anthracene	LWG0107R009TSSBWBC20	ug/kg	1.1E+00	2.5E+01	No
		Benzo(a)anthracene	LWG0107R009TSSBWBC30	ug/kg	1.1E+00	3.3E+01	No
		Benzo(a)anthracene	LWG0108R032TSSBWBC00	ug/kg	1.1E+00	3.2E+01	No
		Benzo(a)anthracene	LWG0109R006TSSBWBC00	ug/kg	1.1E+00	3.2E+01	No
		Benzo(a)anthracene	LWG0103R014TSSBWBC00	ug/kg	1.1E+00	3.1E+01	No
		Benzo(a)anthracene	LWG0104R023TSSBWBC10	ug/kg	1.1E+00	3.1E+01	No
		Benzo(a)anthracene	LWG0104R023TSSBWBC20	ug/kg	1.1E+00	3.0E+01	No
		Benzo(a)anthracene	LWG0104R023TSSBWBC30	ug/kg	1.1E+00	3.0E+01	No
		Benzo(a)anthracene	LWG0105R006TSSBWBC00	ug/kg	1.1E+00	3.1E+01	No
		Benzo(a)anthracene	LWG0108R010TSSBWBC10	ug/kg	1.1E+00	3.3E+01	No
		Benzo(a)anthracene	LWG0108R010TSSBWBC20	ug/kg	1.1E+00	3.2E+01	No
		Benzo(a)anthracene	LWG0108R010TSSBWBC30	ug/kg	1.1E+00	3.1E+01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(a)pyrene	LWG0106R024TSSBWBC00	ug/kg	1.3E+00	3.2E+01	No
		Benzo(a)pyrene	LWG0108R032TSSBWBC00	ug/kg	1.3E+00	3.2E+01	No
		Benzo(a)pyrene	LWG0109R006TSSBWBC00	ug/kg	1.3E+00	3.2E+01	No
		Benzo(a)pyrene	LWG0103R014TSSBWBC00	ug/kg	1.3E+00	3.1E+01	No
		Benzo(a)pyrene	LWG0104R023TSSBWBC10	ug/kg	1.3E+00	3.1E+01	No
		Benzo(a)pyrene	LWG0104R023TSSBWBC20	ug/kg	1.3E+00	3.0E+01	No
		Benzo(a)pyrene	LWG0104R023TSSBWBC30	ug/kg	1.3E+00	3.0E+01	No
		Benzo(a)pyrene	LWG0105R006TSSBWBC00	ug/kg	1.3E+00	3.1E+01	No
		Benzo(a)pyrene	LWG0107R009TSSBWBC10	ug/kg	1.3E+00	2.9E+01	No
		Benzo(a)pyrene	LWG0107R009TSSBWBC20	ug/kg	1.3E+00	2.5E+01	No
		Benzo(a)pyrene	LWG0107R009TSSBWBC30	ug/kg	1.3E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0108R010TSSBWBC10	ug/kg	1.3E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0108R010TSSBWBC20	ug/kg	1.3E+00	3.2E+01	No
		Benzo(a)pyrene	LWG0108R010TSSBWBC30	ug/kg	1.3E+00	3.1E+01	No
		Benzo(b)fluoranthene	LWG0108R032TSSBWBC00	ug/kg	1.0E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG0109R006TSSBWBC00	ug/kg	1.0E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG0103R014TSSBWBC00	ug/kg	1.0E+00	3.1E+01	No
		Benzo(b)fluoranthene	LWG0104R023TSSBWBC10	ug/kg	1.0E+00	3.1E+01	No
		Benzo(b)fluoranthene	LWG0104R023TSSBWBC20	ug/kg	1.0E+00	3.0E+01	No
		Benzo(b)fluoranthene	LWG0104R023TSSBWBC30	ug/kg	1.0E+00	3.0E+01	No
		Benzo(b)fluoranthene	LWG0105R006TSSBWBC00	ug/kg	1.0E+00	3.1E+01	No
		Benzo(b)fluoranthene	LWG0106R024TSSBWBC00	ug/kg	1.0E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG0107R009TSSBWBC10	ug/kg	1.0E+00	2.9E+01	No
		Benzo(b)fluoranthene	LWG0107R009TSSBWBC20	ug/kg	1.0E+00	2.5E+01	No
		Benzo(b)fluoranthene	LWG0107R009TSSBWBC30	ug/kg	1.0E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0108R010TSSBWBC10	ug/kg	1.0E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0108R010TSSBWBC20	ug/kg	1.0E+00	3.2E+01	No
		Benzo(b)fluoranthene	LWG0108R010TSSBWBC30	ug/kg	1.0E+00	3.1E+01	No
		Benzo(g,h,i)perylene	LWG0109R006TSSBWBC00	ug/kg	2.5E+00	3.2E+01	No
		Benzo(g,h,i)perylene	LWG0103R014TSSBWBC00	ug/kg	2.5E+00	3.1E+01	No
		Benzo(g,h,i)perylene	LWG0104R023TSSBWBC10	ug/kg	2.5E+00	3.1E+01	No
		Benzo(g,h,i)perylene	LWG0104R023TSSBWBC20	ug/kg	2.5E+00	3.0E+01	No
		Benzo(g,h,i)perylene	LWG0104R023TSSBWBC30	ug/kg	2.5E+00	3.0E+01	No
		Benzo(g,h,i)perylene	LWG0105R006TSSBWBC00	ug/kg	2.5E+00	3.1E+01	No
		Benzo(g,h,i)perylene	LWG0106R024TSSBWBC00	ug/kg	2.5E+00	3.2E+01	No
		Benzo(g,h,i)perylene	LWG0107R009TSSBWBC10	ug/kg	2.5E+00	2.9E+01	No
		Benzo(g,h,i)perylene	LWG0107R009TSSBWBC20	ug/kg	2.5E+00	2.5E+01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(g,h,i)perylene	LWG0107R009TSSBWBC30	ug/kg	2.5E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0108R010TSSBWBC10	ug/kg	2.5E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0108R010TSSBWBC20	ug/kg	2.5E+00	3.2E+01	No
		Benzo(g,h,i)perylene	LWG0108R010TSSBWBC30	ug/kg	2.5E+00	3.1E+01	No
		Benzo(g,h,i)perylene	LWG0108R032TSSBWBC00	ug/kg	2.5E+00	3.2E+01	No
		Benzo(k)fluoranthene	LWG0103R014TSSBWBC00	ug/kg	9.2E-01	3.1E+01	No
		Benzo(k)fluoranthene	LWG0104R023TSSBWBC10	ug/kg	9.2E-01	3.1E+01	No
		Benzo(k)fluoranthene	LWG0104R023TSSBWBC20	ug/kg	9.2E-01	3.0E+01	No
		Benzo(k)fluoranthene	LWG0104R023TSSBWBC30	ug/kg	9.2E-01	3.0E+01	No
		Benzo(k)fluoranthene	LWG0105R006TSSBWBC00	ug/kg	9.2E-01	3.1E+01	No
		Benzo(k)fluoranthene	LWG0106R024TSSBWBC00	ug/kg	9.2E-01	3.2E+01	No
		Benzo(k)fluoranthene	LWG0107R009TSSBWBC10	ug/kg	9.2E-01	2.9E+01	No
		Benzo(k)fluoranthene	LWG0107R009TSSBWBC20	ug/kg	9.2E-01	2.5E+01	No
		Benzo(k)fluoranthene	LWG0107R009TSSBWBC30	ug/kg	9.2E-01	3.3E+01	No
		Benzo(k)fluoranthene	LWG0108R010TSSBWBC10	ug/kg	9.2E-01	3.3E+01	No
		Benzo(k)fluoranthene	LWG0108R010TSSBWBC20	ug/kg	9.2E-01	3.2E+01	No
		Benzo(k)fluoranthene	LWG0108R010TSSBWBC30	ug/kg	9.2E-01	3.1E+01	No
		Benzo(k)fluoranthene	LWG0108R032TSSBWBC00	ug/kg	9.2E-01	3.2E+01	No
		Benzo(k)fluoranthene	LWG0109R006TSSBWBC00	ug/kg	9.2E-01	3.2E+01	No
		Chrysene	LWG0103R014TSSBWBC00	ug/kg	2.0E+00	3.1E+01	No
		Chrysene	LWG0104R023TSSBWBC10	ug/kg	2.0E+00	3.1E+01	No
		Chrysene	LWG0104R023TSSBWBC20	ug/kg	2.0E+00	3.0E+01	No
		Chrysene	LWG0104R023TSSBWBC30	ug/kg	2.0E+00	3.0E+01	No
		Chrysene	LWG0105R006TSSBWBC00	ug/kg	2.0E+00	3.1E+01	No
		Chrysene	LWG0106R024TSSBWBC00	ug/kg	2.0E+00	3.2E+01	No
		Chrysene	LWG0107R009TSSBWBC10	ug/kg	2.0E+00	2.9E+01	No
		Chrysene	LWG0107R009TSSBWBC20	ug/kg	2.0E+00	2.5E+01	No
		Chrysene	LWG0107R009TSSBWBC30	ug/kg	2.0E+00	3.3E+01	No
		Chrysene	LWG0108R010TSSBWBC10	ug/kg	2.0E+00	3.3E+01	No
		Chrysene	LWG0108R010TSSBWBC20	ug/kg	2.0E+00	3.2E+01	No
		Chrysene	LWG0108R010TSSBWBC30	ug/kg	2.0E+00	3.1E+01	No
		Chrysene	LWG0108R032TSSBWBC00	ug/kg	2.0E+00	3.2E+01	No
		Chrysene	LWG0109R006TSSBWBC00	ug/kg	2.0E+00	3.2E+01	No
		Dibenzo(a,h)anthracene	LW3-SB010E-C00WB	ug/kg	1.6E-01	4.3E-01	No
		Dibenzo(a,h)anthracene	LW3-SB011E-C00WB	ug/kg	1.6E-01	4.7E-01	No
		Dibenzo(a,h)anthracene	LW3-SB011W-C00WB	ug/kg	1.6E-01	2.0E-01	No
		Dibenzo(a,h)anthracene	LW3-SB010W-C00WB	ug/kg	1.6E-01	1.8E-01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Dibenzo(a,h)anthracene	LW3-SB02E-C00WB	ug/kg	1.6E-01	1.8E-01	No
		Dibenzo(a,h)anthracene	LW3-SB03E-C00WB	ug/kg	1.6E-01	4.4E-01	No
		Dibenzo(a,h)anthracene	LW3-SB03W-C00WB	ug/kg	1.6E-01	2.0E-01	No
		Dibenzo(a,h)anthracene	LW3-SB04W-C00WB	ug/kg	1.6E-01	1.9E-01	No
		Dibenzo(a,h)anthracene	LWG0103R014TSSBWBC00	ug/kg	1.6E-01	3.1E+01	Yes
		Dibenzo(a,h)anthracene	LWG0104R023TSSBWBC10	ug/kg	1.6E-01	3.1E+01	Yes
		Dibenzo(a,h)anthracene	LWG0104R023TSSBWBC20	ug/kg	1.6E-01	3.0E+01	Yes
		Dibenzo(a,h)anthracene	LWG0104R023TSSBWBC30	ug/kg	1.6E-01	3.0E+01	Yes
		Dibenzo(a,h)anthracene	LWG0105R006TSSBWBC00	ug/kg	1.6E-01	3.1E+01	Yes
		Dibenzo(a,h)anthracene	LW3-SB06E-C00WB	ug/kg	1.6E-01	2.0E-01	No
		Dibenzo(a,h)anthracene	LW3-SB06W-C00WB	ug/kg	1.6E-01	2.0E-01	No
		Dibenzo(a,h)anthracene	LWG0106R024TSSBWBC00	ug/kg	1.6E-01	3.2E+01	Yes
		Dibenzo(a,h)anthracene	LW3-SB07E-C00WB	ug/kg	1.6E-01	1.9E-01	No
		Dibenzo(a,h)anthracene	LW3-SB07W-C00WB	ug/kg	1.6E-01	2.0E-01	No
		Dibenzo(a,h)anthracene	LWG0107R009TSSBWBC10	ug/kg	1.6E-01	2.9E+01	Yes
		Dibenzo(a,h)anthracene	LWG0107R009TSSBWBC20	ug/kg	1.6E-01	2.5E+01	Yes
		Dibenzo(a,h)anthracene	LWG0107R009TSSBWBC30	ug/kg	1.6E-01	3.3E+01	Yes
		Dibenzo(a,h)anthracene	LWG0108R010TSSBWBC10	ug/kg	1.6E-01	3.3E+01	Yes
		Dibenzo(a,h)anthracene	LWG0108R010TSSBWBC20	ug/kg	1.6E-01	3.2E+01	Yes
		Dibenzo(a,h)anthracene	LWG0108R010TSSBWBC30	ug/kg	1.6E-01	3.1E+01	Yes
		Dibenzo(a,h)anthracene	LW3-SB08E-C00WB	ug/kg	1.6E-01	2.0E-01	No
		Dibenzo(a,h)anthracene	LWG0108R032TSSBWBC00	ug/kg	1.6E-01	3.2E+01	Yes
		Dibenzo(a,h)anthracene	LW3-SB09E-C00WB	ug/kg	1.6E-01	1.6E+00	No
		Dibenzo(a,h)anthracene	LW3-SB09W-C00WB	ug/kg	1.6E-01	4.4E-01	No
		Dibenzo(a,h)anthracene	LWG0109R006TSSBWBC00	ug/kg	1.6E-01	3.2E+01	Yes
		Indeno(1,2,3-cd)pyrene	LWG0103R014TSSBWBC00	ug/kg	1.8E+00	3.1E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R023TSSBWBC10	ug/kg	1.8E+00	3.1E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R023TSSBWBC20	ug/kg	1.8E+00	3.0E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R023TSSBWBC30	ug/kg	1.8E+00	3.0E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0105R006TSSBWBC00	ug/kg	1.8E+00	3.1E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0106R024TSSBWBC00	ug/kg	1.8E+00	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R009TSSBWBC10	ug/kg	1.8E+00	2.9E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R009TSSBWBC20	ug/kg	1.8E+00	2.5E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R009TSSBWBC30	ug/kg	1.8E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0108R010TSSBWBC10	ug/kg	1.8E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0108R010TSSBWBC20	ug/kg	1.8E+00	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0108R010TSSBWBC30	ug/kg	1.8E+00	3.1E+01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Indeno(1,2,3-cd)pyrene	LWG0108R032TSSBWBC00	ug/kg	1.8E+00	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0109R006TSSBWBC00	ug/kg	1.8E+00	3.2E+01	No
		Phthalates					
		Dibutyl phthalate	LW3-SB02E-C00WB	ug/kg	3.7E+01	4.8E+01	No
		Dibutyl phthalate	LW3-SB06W-C00WB	ug/kg	3.7E+01	5.6E+01	No
		Dibutyl phthalate	LW3-SB08E-C00WB	ug/kg	3.7E+01	5.6E+01	No
		Dibutyl phthalate	LW3-SB08W-C00WB	ug/kg	3.7E+01	4.0E+01	No
		Dibutyl phthalate	LW3-SB09E-C00WB	ug/kg	3.7E+01	4.1E+01	No
		Dibutyl phthalate	LWG0103R014TSSBWBC00	ug/kg	3.7E+01	3.1E+02	No
		Dibutyl phthalate	LWG0104R023TSSBWBC10	ug/kg	3.7E+01	3.1E+02	No
		Dibutyl phthalate	LWG0104R023TSSBWBC20	ug/kg	3.7E+01	3.0E+02	No
		Dibutyl phthalate	LWG0104R023TSSBWBC30	ug/kg	3.7E+01	3.0E+02	No
		Dibutyl phthalate	LWG0105R006TSSBWBC00	ug/kg	3.7E+01	3.1E+02	No
		Dibutyl phthalate	LWG0106R024TSSBWBC00	ug/kg	3.7E+01	3.2E+02	No
		Dibutyl phthalate	LWG0107R009TSSBWBC10	ug/kg	3.7E+01	2.9E+02	No
		Dibutyl phthalate	LWG0107R009TSSBWBC20	ug/kg	3.7E+01	2.5E+02	No
		Dibutyl phthalate	LWG0107R009TSSBWBC30	ug/kg	3.7E+01	3.3E+02	No
		Dibutyl phthalate	LWG0108R010TSSBWBC10	ug/kg	3.7E+01	3.3E+02	No
		Dibutyl phthalate	LWG0108R010TSSBWBC20	ug/kg	3.7E+01	3.2E+02	No
		Dibutyl phthalate	LWG0108R010TSSBWBC30	ug/kg	3.7E+01	3.1E+02	No
		Dibutyl phthalate	LWG0108R032TSSBWBC00	ug/kg	3.7E+01	3.2E+02	No
		Dibutyl phthalate	LWG0109R006TSSBWBC00	ug/kg	3.7E+01	3.2E+02	No
		Diethyl phthalate	LW3-SB010E-C00WB	ug/kg	1.0E+01	1.4E+01	No
		Diethyl phthalate	LW3-SB011E-C00WB	ug/kg	1.0E+01	1.4E+01	No
		Diethyl phthalate	LW3-SB010W-C00WB	ug/kg	1.0E+01	1.1E+01	No
		Diethyl phthalate	LW3-SB011W-C00WB	ug/kg	1.0E+01	2.2E+01	No
		Diethyl phthalate	LW3-SB02E-C00WB	ug/kg	1.0E+01	1.1E+01	No
		Diethyl phthalate	LW3-SB03E-C00WB	ug/kg	1.0E+01	1.7E+01	No
		Diethyl phthalate	LW3-SB03W-C00WB	ug/kg	1.0E+01	1.3E+01	No
		Diethyl phthalate	LW3-SB04E-C01WB	ug/kg	1.0E+01	1.3E+01	No
		Diethyl phthalate	LW3-SB05W-C00WB	ug/kg	1.0E+01	1.9E+01	No
		Diethyl phthalate	LW3-SB06E-C00WB	ug/kg	1.0E+01	1.4E+01	No
		Diethyl phthalate	LW3-SB06W-C00WB	ug/kg	1.0E+01	1.2E+01	No
		Diethyl phthalate	LW3-SB07E-C00WB	ug/kg	1.0E+01	1.1E+01	No
		Diethyl phthalate	LW3-SB07W-C00WB	ug/kg	1.0E+01	1.4E+01	No
		Diethyl phthalate	LW3-SB08E-C00WB	ug/kg	1.0E+01	1.7E+01	No
		Diethyl phthalate	LW3-SB08W-C00WB	ug/kg	1.0E+01	1.6E+01	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Diethyl phthalate	LW3-SB09E-C00WB	ug/kg	1.0E+01	1.6E+01	No
		Diethyl phthalate	LW3-SB09W-C00WB	ug/kg	1.0E+01	1.4E+01	No
		Diethyl phthalate	LWG0103R014TSSBWBC00	ug/kg	1.0E+01	1.5E+02	No
		Diethyl phthalate	LWG0104R023TSSBWBC10	ug/kg	1.0E+01	1.5E+02	No
		Diethyl phthalate	LWG0104R023TSSBWBC20	ug/kg	1.0E+01	1.5E+02	No
		Diethyl phthalate	LWG0104R023TSSBWBC30	ug/kg	1.0E+01	1.5E+02	No
		Diethyl phthalate	LWG0105R006TSSBWBC00	ug/kg	1.0E+01	1.5E+02	No
		Diethyl phthalate	LWG0106R024TSSBWBC00	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0107R009TSSBWBC10	ug/kg	1.0E+01	1.4E+02	No
		Diethyl phthalate	LWG0107R009TSSBWBC20	ug/kg	1.0E+01	1.3E+02	No
		Diethyl phthalate	LWG0107R009TSSBWBC30	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0108R010TSSBWBC10	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0108R010TSSBWBC20	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0108R010TSSBWBC10	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0108R010TSSBWBC20	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0108R010TSSBWBC30	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0108R032TSSBWBC00	ug/kg	1.0E+01	1.6E+02	No
		Diethyl phthalate	LWG0109R006TSSBWBC00	ug/kg	1.0E+01	1.6E+02	No
		Semi-Volatile Organic Compounds					
		Benzoic acid	LWG0107R009TSSBWBC10	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0107R009TSSBWBC20	ug/kg	6.1E+02	8.2E+03	No
		Benzoic acid	LWG0108R032TSSBWBC00	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0109R006TSSBWBC00	ug/kg	6.1E+02	8.2E+03	No
		Benzoic acid	LWG0103R014TSSBWBC00	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0104R023TSSBWBC10	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0104R023TSSBWBC20	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0104R023TSSBWBC30	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0105R006TSSBWBC00	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0106R024TSSBWBC00	ug/kg	6.1E+02	8.2E+03	No
		Benzoic acid	LWG0107R009TSSBWBC30	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0108R010TSSBWBC10	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0108R010TSSBWBC20	ug/kg	6.1E+02	8.3E+03	No
		Benzoic acid	LWG0108R010TSSBWBC30	ug/kg	6.1E+02	8.2E+03	No
		Benzyl alcohol	LWG0109R006TSSBWBC00	ug/kg	3.3E+01	3.2E+02	No
		Benzyl alcohol	LWG0103R014TSSBWBC00	ug/kg	3.3E+01	3.1E+02	No
		Benzyl alcohol	LWG0104R023TSSBWBC10	ug/kg	3.3E+01	3.1E+02	No
		Benzyl alcohol	LWG0104R023TSSBWBC20	ug/kg	3.3E+01	3.0E+02	No
		Benzyl alcohol	LWG0104R023TSSBWBC30	ug/kg	3.3E+01	3.0E+02	No
		Benzyl alcohol	LWG0105R006TSSBWBC00	ug/kg	3.3E+01	3.1E+02	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzyl alcohol	LWG0106R024TSSBWBC00	ug/kg	3.3E+01	3.2E+02	No
		Benzyl alcohol	LWG0107R009TSSBWBC10	ug/kg	3.3E+01	2.9E+02	No
		Benzyl alcohol	LWG0107R009TSSBWBC20	ug/kg	3.3E+01	2.5E+02	No
		Benzyl alcohol	LWG0107R009TSSBWBC30	ug/kg	3.3E+01	3.3E+02	No
		Benzyl alcohol	LWG0108R010TSSBWBC10	ug/kg	3.3E+01	3.3E+02	No
		Benzyl alcohol	LWG0108R010TSSBWBC20	ug/kg	3.3E+01	3.2E+02	No
		Benzyl alcohol	LWG0108R010TSSBWBC30	ug/kg	3.3E+01	3.1E+02	No
		Benzyl alcohol	LWG0108R032TSSBWBC00	ug/kg	3.3E+01	3.2E+02	No
		Bis(2-chloroethoxy) methane	LWG0109R006TSSBWBC00	ug/kg	2.2E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0103R014TSSBWBC00	ug/kg	2.2E+01	1.5E+02	No
		Bis(2-chloroethoxy) methane	LWG0104R023TSSBWBC10	ug/kg	2.2E+01	1.5E+02	No
		Bis(2-chloroethoxy) methane	LWG0104R023TSSBWBC20	ug/kg	2.2E+01	1.5E+02	No
		Bis(2-chloroethoxy) methane	LWG0104R023TSSBWBC30	ug/kg	2.2E+01	1.5E+02	No
		Bis(2-chloroethoxy) methane	LWG0105R006TSSBWBC00	ug/kg	2.2E+01	1.5E+02	No
		Bis(2-chloroethoxy) methane	LWG0106R024TSSBWBC00	ug/kg	2.2E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R009TSSBWBC10	ug/kg	2.2E+01	1.4E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R009TSSBWBC20	ug/kg	2.2E+01	1.3E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R009TSSBWBC30	ug/kg	2.2E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0108R010TSSBWBC10	ug/kg	2.2E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0108R010TSSBWBC20	ug/kg	2.2E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0108R010TSSBWBC30	ug/kg	2.2E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0108R032TSSBWBC00	ug/kg	2.2E+01	1.6E+02	No
		Hexachlorobenzene	LWG0103R014TSSBWBC00	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0104R023TSSBWBC10	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0104R023TSSBWBC20	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0104R023TSSBWBC30	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0105R006TSSBWBC00	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0107R009TSSBWBC10	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0107R009TSSBWBC30	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0108R010TSSBWBC10	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0108R010TSSBWBC20	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0108R010TSSBWBC30	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0108R032TSSBWBC00	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobenzene	LWG0109R006TSSBWBC00	ug/kg	4.8E+00	6.4E+00	No
		Hexachlorobutadiene	LWG0103R014TSSBWBC00	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0104R023TSSBWBC10	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0104R023TSSBWBC20	ug/kg	1.4E+00	4.0E+00	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Hexachlorobutadiene	LWG0104R023TSSBWBC30	ug/kg	1.4E+00	4.6E+00	No
		Hexachlorobutadiene	LWG0105R006TSSBWBC00	ug/kg	1.4E+00	4.6E+00	No
		Hexachlorobutadiene	LWG0107R009TSSBWBC10	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0107R009TSSBWBC20	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0107R009TSSBWBC30	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0108R010TSSBWBC10	ug/kg	1.4E+00	4.6E+00	No
		Hexachlorobutadiene	LWG0108R010TSSBWBC20	ug/kg	1.4E+00	4.6E+00	No
		Hexachlorobutadiene	LWG0108R010TSSBWBC30	ug/kg	1.4E+00	4.6E+00	No
		Hexachlorobutadiene	LWG0108R032TSSBWBC00	ug/kg	1.4E+00	4.0E+00	No
		Hexachlorobutadiene	LWG0109R006TSSBWBC00	ug/kg	1.4E+00	4.0E+00	No
		Phenols					
		4-Methylphenol	LWG0103R014TSSBWBC00	ug/kg	1.3E+01	3.1E+01	No
		4-Methylphenol	LWG0104R023TSSBWBC10	ug/kg	1.3E+01	3.1E+01	No
		4-Methylphenol	LWG0104R023TSSBWBC20	ug/kg	1.3E+01	3.0E+01	No
		4-Methylphenol	LWG0104R023TSSBWBC30	ug/kg	1.3E+01	3.0E+01	No
		4-Methylphenol	LWG0105R006TSSBWBC00	ug/kg	1.3E+01	3.1E+01	No
		4-Methylphenol	LWG0106R024TSSBWBC00	ug/kg	1.3E+01	3.2E+01	No
		4-Methylphenol	LWG0107R009TSSBWBC10	ug/kg	1.3E+01	2.9E+01	No
		4-Methylphenol	LWG0107R009TSSBWBC20	ug/kg	1.3E+01	2.5E+01	No
		4-Methylphenol	LWG0107R009TSSBWBC30	ug/kg	1.3E+01	3.3E+01	No
		4-Methylphenol	LWG0108R010TSSBWBC10	ug/kg	1.3E+01	3.3E+01	No
		4-Methylphenol	LWG0108R010TSSBWBC20	ug/kg	1.3E+01	3.2E+01	No
		4-Methylphenol	LWG0108R010TSSBWBC30	ug/kg	1.3E+01	3.1E+01	No
		4-Methylphenol	LWG0108R032TSSBWBC00	ug/kg	1.3E+01	3.2E+01	No
		4-Methylphenol	LWG0109R006TSSBWBC00	ug/kg	1.3E+01	3.2E+01	No
		4-Nitrophenol	LWG0103R014TSSBWBC00	ug/kg	1.4E+01	1.5E+03	Yes
		4-Nitrophenol	LWG0104R023TSSBWBC10	ug/kg	1.4E+01	1.5E+03	Yes
		4-Nitrophenol	LWG0104R023TSSBWBC20	ug/kg	1.4E+01	1.5E+03	Yes
		4-Nitrophenol	LWG0104R023TSSBWBC30	ug/kg	1.4E+01	1.5E+03	Yes
		4-Nitrophenol	LWG0105R006TSSBWBC00	ug/kg	1.4E+01	1.5E+03	Yes
		4-Nitrophenol	LWG0106R024TSSBWBC00	ug/kg	1.4E+01	1.6E+03	Yes
		4-Nitrophenol	LWG0107R009TSSBWBC10	ug/kg	1.4E+01	1.4E+03	No
		4-Nitrophenol	LWG0107R009TSSBWBC20	ug/kg	1.4E+01	1.3E+03	No
		4-Nitrophenol	LWG0107R009TSSBWBC30	ug/kg	1.4E+01	1.6E+03	Yes
		4-Nitrophenol	LWG0108R010TSSBWBC10	ug/kg	1.4E+01	1.6E+03	Yes
		4-Nitrophenol	LWG0108R010TSSBWBC20	ug/kg	1.4E+01	1.6E+03	Yes
		4-Nitrophenol	LWG0108R010TSSBWBC30	ug/kg	1.4E+01	1.6E+03	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		4-Nitrophenol	LWG0108R032TSSBWBC00	ug/kg	1.4E+01	1.6E+03	Yes
		4-Nitrophenol	LWG0109R006TSSBWBC00	ug/kg	1.4E+01	1.6E+03	Yes
		Phenol	LWG0103R014TSSBWBC00	ug/kg	2.7E+02	3.1E+02	No
		Phenol	LWG0104R023TSSBWBC10	ug/kg	2.7E+02	3.1E+02	No
		Phenol	LWG0104R023TSSBWBC20	ug/kg	2.7E+02	3.0E+02	No
		Phenol	LWG0104R023TSSBWBC30	ug/kg	2.7E+02	3.0E+02	No
		Phenol	LWG0105R006TSSBWBC00	ug/kg	2.7E+02	3.1E+02	No
		Phenol	LWG0106R024TSSBWBC00	ug/kg	2.7E+02	3.2E+02	No
		Phenol	LWG0107R009TSSBWBC10	ug/kg	2.7E+02	2.9E+02	No
		Phenol	LWG0107R009TSSBWBC30	ug/kg	2.7E+02	3.3E+02	No
		Phenol	LWG0108R010TSSBWBC10	ug/kg	2.7E+02	3.3E+02	No
		Phenol	LWG0108R010TSSBWBC20	ug/kg	2.7E+02	3.2E+02	No
		Phenol	LWG0108R010TSSBWBC30	ug/kg	2.7E+02	3.1E+02	No
		Phenol	LWG0108R032TSSBWBC00	ug/kg	2.7E+02	3.2E+02	No
		Phenol	LWG0109R006TSSBWBC00	ug/kg	2.7E+02	3.2E+02	No
		Pesticides					
		Aldrin	LWG0105R006TSSBWBC00	ug/kg	4.0E-02	1.0E+00	No
		Aldrin	LWG0106R024TSSBWBC00	ug/kg	4.0E-02	1.0E+00	No
		Aldrin	LWG0107R009TSSBWBC10	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0107R009TSSBWBC20	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0107R009TSSBWBC30	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0108R032TSSBWBC00	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0109R006TSSBWBC00	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0103R014TSSBWBC00	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0104R023TSSBWBC10	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0104R023TSSBWBC20	ug/kg	4.0E-02	4.0E+00	No
		Aldrin	LWG0104R023TSSBWBC30	ug/kg	4.0E-02	1.0E+00	No
		Aldrin	LWG0108R010TSSBWBC10	ug/kg	4.0E-02	1.3E+01	Yes
		Aldrin	LWG0108R010TSSBWBC20	ug/kg	4.0E-02	1.3E+01	Yes
		Aldrin	LWG0108R010TSSBWBC30	ug/kg	4.0E-02	1.0E+01	Yes
		alpha-Hexachlorocyclohexane	LWG0105R006TSSBWBC00	ug/kg	4.2E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0106R024TSSBWBC00	ug/kg	4.2E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0107R009TSSBWBC10	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0107R009TSSBWBC20	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0107R009TSSBWBC30	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0108R032TSSBWBC00	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0109R006TSSBWBC00	ug/kg	4.2E-02	4.0E+00	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		alpha-Hexachlorocyclohexane	LWG0103R014TSSBWBC00	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0104R023TSSBWBC10	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0104R023TSSBWBC20	ug/kg	4.2E-02	4.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0104R023TSSBWBC30	ug/kg	4.2E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0108R010TSSBWBC10	ug/kg	4.2E-02	6.4E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0108R010TSSBWBC20	ug/kg	4.2E-02	6.4E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0108R010TSSBWBC30	ug/kg	4.2E-02	6.4E+00	Yes
		beta-Hexachlorocyclohexane	LW3-SB010E-C00WB	ug/kg	3.6E-02	3.8E-02	No
		beta-Hexachlorocyclohexane	LWG0105R006TSSBWBC00	ug/kg	3.6E-02	1.4E+00	No
		beta-Hexachlorocyclohexane	LWG0106R024TSSBWBC00	ug/kg	3.6E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG0108R032TSSBWBC00	ug/kg	3.6E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG0109R006TSSBWBC00	ug/kg	3.6E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG0103R014TSSBWBC00	ug/kg	3.6E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0104R023TSSBWBC10	ug/kg	3.6E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0104R023TSSBWBC20	ug/kg	3.6E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0104R023TSSBWBC30	ug/kg	3.6E-02	1.2E+00	No
		beta-Hexachlorocyclohexane	LWG0107R009TSSBWBC10	ug/kg	3.6E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0107R009TSSBWBC20	ug/kg	3.6E-02	4.0E+00	Yes
		beta-Hexachlorocyclohexane	LWG0107R009TSSBWBC30	ug/kg	3.6E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG0108R010TSSBWBC10	ug/kg	3.6E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG0108R010TSSBWBC20	ug/kg	3.6E-02	8.5E+00	Yes
		beta-Hexachlorocyclohexane	LWG0108R010TSSBWBC30	ug/kg	3.6E-02	8.5E+00	Yes
		Dieldrin	LWG0106R024TSSBWBC00	ug/kg	7.3E+00	1.4E+01	No
		Dieldrin	LWG0109R006TSSBWBC00	ug/kg	7.3E+00	1.4E+01	No
		Dieldrin	LWG0103R014TSSBWBC00	ug/kg	7.3E+00	1.4E+01	No
		Dieldrin	LWG0104R023TSSBWBC10	ug/kg	7.3E+00	1.4E+01	No
		Dieldrin	LWG0104R023TSSBWBC20	ug/kg	7.3E+00	1.4E+01	No
		Dieldrin	LWG0104R023TSSBWBC30	ug/kg	7.3E+00	1.4E+01	No
		Dieldrin	LWG0107R009TSSBWBC10	ug/kg	7.3E+00	1.4E+01	No
		Dieldrin	LWG0108R010TSSBWBC10	ug/kg	7.3E+00	2.0E+01	No
		Dieldrin	LWG0108R010TSSBWBC20	ug/kg	7.3E+00	2.0E+01	No
		Dieldrin	LWG0108R010TSSBWBC30	ug/kg	7.3E+00	1.0E+01	No
		Endrin	LWG0108R032TSSBWBC00	ug/kg	5.4E-02	4.0E+00	No
		Endrin	LWG0109R006TSSBWBC00	ug/kg	5.4E-02	4.0E+00	No
		Endrin	LWG0103R014TSSBWBC00	ug/kg	5.4E-02	3.1E+01	Yes
		Endrin	LWG0104R023TSSBWBC10	ug/kg	5.4E-02	3.1E+01	Yes
		Endrin	LWG0104R023TSSBWBC20	ug/kg	5.4E-02	4.0E+00	No

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Endrin	LWG0104R023TSSBWBC30	ug/kg	5.4E-02	1.8E+00	No
		Endrin	LWG0105R006TSSBWBC00	ug/kg	5.4E-02	1.4E+00	No
		Endrin	LWG0106R024TSSBWBC00	ug/kg	5.4E-02	1.0E+00	No
		Endrin	LWG0107R009TSSBWBC10	ug/kg	5.4E-02	4.0E+00	No
		Endrin	LWG0107R009TSSBWBC20	ug/kg	5.4E-02	4.0E+00	No
		Endrin	LWG0107R009TSSBWBC30	ug/kg	5.4E-02	4.0E+00	No
		Endrin	LWG0108R010TSSBWBC10	ug/kg	5.4E-02	2.0E+01	Yes
		Endrin	LWG0108R010TSSBWBC20	ug/kg	5.4E-02	2.0E+01	Yes
		Endrin	LWG0108R010TSSBWBC30	ug/kg	5.4E-02	1.0E+01	Yes
		Endrin aldehyde	LW3-SB011E-C00WB	ug/kg	6.2E-03	1.9E-02	No
		Endrin aldehyde	LW3-SB011W-C00WB	ug/kg	6.2E-03	1.3E-02	No
		Endrin aldehyde	LW3-SB010E-C00WB	ug/kg	6.2E-03	7.7E-03	No
		Endrin aldehyde	LW3-SB03E-C00WB	ug/kg	6.2E-03	1.5E-02	No
		Endrin aldehyde	LW3-SB04E-C01WB	ug/kg	6.2E-03	2.3E-02	No
		Endrin aldehyde	LW3-SB04W-C00WB	ug/kg	6.2E-03	1.5E-02	No
		Endrin aldehyde	LW3-SB08E-C00WB	ug/kg	6.2E-03	7.0E-03	No
		Endrin aldehyde	LW3-SB08W-C00WB	ug/kg	6.2E-03	8.2E-03	No
		Endrin aldehyde	LWG0108R032TSSBWBC00	ug/kg	6.2E-03	4.0E+00	Yes
		Endrin aldehyde	LW3-SB09E-C00WB	ug/kg	6.2E-03	1.9E-02	No
		Endrin aldehyde	LWG0103R014TSSBWBC00	ug/kg	6.2E-03	4.0E+00	Yes
		Endrin aldehyde	LWG0104R023TSSBWBC10	ug/kg	6.2E-03	4.3E+00	Yes
		Endrin aldehyde	LWG0104R023TSSBWBC20	ug/kg	6.2E-03	4.0E+00	Yes
		Endrin aldehyde	LWG0104R023TSSBWBC30	ug/kg	6.2E-03	1.5E+00	Yes
		Endrin aldehyde	LW3-SB05W-C00WB	ug/kg	6.2E-03	7.6E-03	No
		Endrin aldehyde	LWG0105R006TSSBWBC00	ug/kg	6.2E-03	2.2E+00	Yes
		Endrin aldehyde	LW3-SB06E-C00WB	ug/kg	6.2E-03	1.9E-02	No
		Endrin aldehyde	LW3-SB06W-C00WB	ug/kg	6.2E-03	2.0E-02	No
		Endrin aldehyde	LWG0106R024TSSBWBC00	ug/kg	6.2E-03	1.0E+00	Yes
		Endrin aldehyde	LW3-SB07E-C00WB	ug/kg	6.2E-03	1.9E-02	No
		Endrin aldehyde	LW3-SB07W-C00WB	ug/kg	6.2E-03	2.0E-02	No
		Endrin aldehyde	LWG0107R009TSSBWBC10	ug/kg	6.2E-03	4.0E+00	Yes
		Endrin aldehyde	LWG0107R009TSSBWBC20	ug/kg	6.2E-03	4.0E+00	Yes
		Endrin aldehyde	LWG0107R009TSSBWBC30	ug/kg	6.2E-03	4.0E+00	Yes
		Endrin aldehyde	LWG0108R010TSSBWBC10	ug/kg	6.2E-03	2.0E+01	Yes
		Endrin aldehyde	LWG0108R010TSSBWBC20	ug/kg	6.2E-03	2.0E+01	Yes
		Endrin aldehyde	LWG0108R010TSSBWBC30	ug/kg	6.2E-03	8.5E+00	Yes
		Endrin aldehyde	LW3-SB09W-C00WB	ug/kg	6.2E-03	2.0E-02	No
		Endrin aldehyde	LWG0109R006TSSBWBC00	ug/kg	6.2E-03	6.0E+00	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Endrin ketone	LW3-SB010W-C00WB	ug/kg	1.5E-02	1.9E-02	No
		Endrin ketone	LW3-SB03E-C00WB	ug/kg	1.5E-02	2.5E-02	No
		Endrin ketone	LW3-SB03W-C00WB	ug/kg	1.5E-02	2.2E-02	No
		Endrin ketone	LW3-SB04W-C00WB	ug/kg	1.5E-02	2.4E-02	No
		Endrin ketone	LWG0103R014TSSBWBC00	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG0104R023TSSBWBC10	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG0104R023TSSBWBC20	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG0104R023TSSBWBC30	ug/kg	1.5E-02	1.0E+00	No
		Endrin ketone	LWG0105R006TSSBWBC00	ug/kg	1.5E-02	1.0E+00	No
		Endrin ketone	LWG0106R024TSSBWBC00	ug/kg	1.5E-02	1.0E+00	No
		Endrin ketone	LWG0107R009TSSBWBC10	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG0107R009TSSBWBC20	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG0107R009TSSBWBC30	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LWG0108R010TSSBWBC10	ug/kg	1.5E-02	2.0E+01	Yes
		Endrin ketone	LWG0108R010TSSBWBC20	ug/kg	1.5E-02	2.0E+01	Yes
		Endrin ketone	LWG0108R010TSSBWBC30	ug/kg	1.5E-02	7.5E+00	Yes
		Endrin ketone	LWG0108R032TSSBWBC00	ug/kg	1.5E-02	4.0E+00	Yes
		Endrin ketone	LW3-SB09W-C00WB	ug/kg	1.5E-02	2.0E-02	No
		Endrin ketone	LWG0109R006TSSBWBC00	ug/kg	1.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0103R014TSSBWBC00	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0104R023TSSBWBC10	ug/kg	3.5E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0104R023TSSBWBC20	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0104R023TSSBWBC30	ug/kg	3.5E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0105R006TSSBWBC00	ug/kg	3.5E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0106R024TSSBWBC00	ug/kg	3.5E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0107R009TSSBWBC10	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0107R009TSSBWBC20	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0107R009TSSBWBC30	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0108R010TSSBWBC10	ug/kg	3.5E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0108R010TSSBWBC20	ug/kg	3.5E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0108R010TSSBWBC30	ug/kg	3.5E-02	9.6E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0108R032TSSBWBC00	ug/kg	3.5E-02	4.0E+00	Yes
		gamma-Hexachlorocyclohexane	LWG0109R006TSSBWBC00	ug/kg	3.5E-02	4.0E+00	Yes
		Heptachlor	LW3-SB03E-C00WB	ug/kg	2.7E-02	2.8E-02	No
		Heptachlor	LWG0103R014TSSBWBC00	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor	LWG0104R023TSSBWBC10	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor	LWG0104R023TSSBWBC20	ug/kg	2.7E-02	4.0E+00	Yes

TABLE F2-9.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a,b]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Result	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Heptachlor	LWG0104R023TSSBWBC30	ug/kg	2.7E-02	1.1E+00	No
		Heptachlor	LWG0105R006TSSBWBC00	ug/kg	2.7E-02	1.1E+00	No
		Heptachlor	LWG0106R024TSSBWBC00	ug/kg	2.7E-02	1.0E+00	No
		Heptachlor	LWG0107R009TSSBWBC10	ug/kg	2.7E-02	4.9E+00	Yes
		Heptachlor	LWG0107R009TSSBWBC20	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor	LWG0107R009TSSBWBC30	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor	LWG0108R010TSSBWBC10	ug/kg	2.7E-02	1.3E+01	Yes
		Heptachlor	LWG0108R010TSSBWBC20	ug/kg	2.7E-02	1.3E+01	Yes
		Heptachlor	LWG0108R010TSSBWBC30	ug/kg	2.7E-02	1.0E+01	Yes
		Heptachlor	LWG0108R032TSSBWBC00	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor	LWG0109R006TSSBWBC00	ug/kg	2.7E-02	4.0E+00	Yes
		Heptachlor epoxide	LWG0103R014TSSBWBC00	ug/kg	1.8E-01	4.0E+00	No
		Heptachlor epoxide	LWG0104R023TSSBWBC10	ug/kg	1.8E-01	4.0E+00	No
		Heptachlor epoxide	LWG0104R023TSSBWBC20	ug/kg	1.8E-01	4.0E+00	No
		Heptachlor epoxide	LWG0104R023TSSBWBC30	ug/kg	1.8E-01	1.0E+00	No
		Heptachlor epoxide	LWG0105R006TSSBWBC00	ug/kg	1.8E-01	1.0E+00	No
		Heptachlor epoxide	LWG0106R024TSSBWBC00	ug/kg	1.8E-01	1.0E+00	No
		Heptachlor epoxide	LWG0107R009TSSBWBC10	ug/kg	1.8E-01	4.1E+00	No
		Heptachlor epoxide	LWG0107R009TSSBWBC20	ug/kg	1.8E-01	4.0E+00	No
		Heptachlor epoxide	LWG0107R009TSSBWBC30	ug/kg	1.8E-01	4.0E+00	No
		Heptachlor epoxide	LWG0108R010TSSBWBC10	ug/kg	1.8E-01	8.0E+00	No
		Heptachlor epoxide	LWG0108R010TSSBWBC20	ug/kg	1.8E-01	8.0E+00	No
		Heptachlor epoxide	LWG0108R010TSSBWBC30	ug/kg	1.8E-01	8.0E+00	No
		Heptachlor epoxide	LWG0108R032TSSBWBC00	ug/kg	1.8E-01	7.0E+00	No
		Heptachlor epoxide	LWG0109R006TSSBWBC00	ug/kg	1.8E-01	4.0E+00	No
		Total Chlordanes	LWG0105R006TSSBWBC00	ug/kg	2.2E+01	3.2E+01	No

Notes:

[a] Exposure areas for SMB are on a RM basis, such that samples collected from RM 1.5 - 2.5 are included in exposure area RM 2, samples collected from RM 2.5-3.5 are included in exposure area RM 3, etc. SIL is its own exposure area.

[b] Exposure areas not listed indicate there were no non-detected results with detection limits exceeding the maximum detected concentrations that were removed from the

Abbreviations:

F = Fillet tissue.
mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.
WB = Whole body.

TABLE F2-10.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 2 West	UD	**Semivolatile Organic Compounds**					
		Benzyl alcohol	LW3-CA02W-C00	ug/kg	1.2E+01	2.2E+01	No
		Pesticides					
		Endrin	LW3-CA02W-C00	ug/kg	5.7E-03	2.6E-02	No
		Heptachlor	LW3-CA02W-C00	ug/kg	7.3E-03	1.0E-02	No
RM 3 East	UD	**Pesticides**					
		alpha-Hexachlorocyclohexane	LW2-BTFC004	ug/kg	5.7E-03	1.1E-02	No
		alpha-Hexachlorocyclohexane	LW2-BTFC005	ug/kg	5.7E-03	8.4E-03	No
		Endrin ketone	LW2-BTFC004	ug/kg	3.0E-03	3.5E-03	No
		gamma-Hexachlorocyclohexane	LW2-BTFC005	ug/kg	5.4E-02	6.2E-02	No
RM 4 East	UD	**Semivolatile Organic Compounds**					
		Benzyl alcohol	LW2-BTFC009	ug/kg	1.1E+01	1.4E+01	No
		Hexachlorobenzene	LW2-BTFC009	ug/kg	4.7E-01	1.2E+01	No
		Pesticides					
		alpha-Hexachlorocyclohexane	LW2-BTFC008	ug/kg	6.1E-03	9.1E-03	No
		alpha-Hexachlorocyclohexane	LW2-BTFC010	ug/kg	6.1E-03	6.0E-02	No
		Heptachlor epoxide	LW2-BTFC010	ug/kg	4.8E-02	5.0E-02	No
RM 4 West	UD	**Phthalates**					
		Bis(2-ethylhexyl) phthalate	LW2-BTFC011	ug/kg	8.5E+01	1.4E+02	No
		Pesticides					
		alpha-Hexachlorocyclohexane	LW2-BTFC012	ug/kg	1.4E-02	1.6E-02	No
		Heptachlor	LW2-BTFC012	ug/kg	1.4E-02	1.8E-02	No
RM 5 East	UD	**Phthalates**					
		Bis(2-ethylhexyl) phthalate	LW2-BTFC013	ug/kg	7.7E+01	1.1E+02	No
		Semivolatile Organic Compounds					
		Hexachlorobutadiene	LW2-BTFC013	ug/kg	5.3E-03	1.7E+01	Yes
RM 5 West	UD	**Semivolatile Organic Compounds**					
		Benzyl alcohol	LW3-CA05W-C00	ug/kg	9.4E+00	2.2E+01	No
		Hexachlorobutadiene	LW3-CA05W-C00	ug/kg	2.5E-02	2.5E-02	No
RM 6 East	UD	**Metals**					
		Antimony	LW2-BTFC016	mg/kg	1.0E-03	2.0E-03	No
		Polynuclear Aromatic Hydrocarbons					
		2-Methylnaphthalene	LWG0106R002TSCAWBC00	ug/kg	1.8E+00	3.3E+01	No
		Acenaphthene	LWG0106R002TSCAWBC00	ug/kg	9.7E-01	3.6E+01	No
		Acenaphthylene	LWG0106R002TSCAWBC00	ug/kg	1.2E+00	3.3E+01	No
		Anthracene	LWG0106R002TSCAWBC00	ug/kg	5.5E+00	3.3E+01	No
		Benzo(a)anthracene	LWG0106R002TSCAWBC00	ug/kg	1.8E+01	3.3E+01	No
		Benzo(a)pyrene	LWG0106R002TSCAWBC00	ug/kg	3.8E+00	3.3E+01	No

TABLE F2-10.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(b)fluoranthene	LWG0106R002TSCAWBC00	ug/kg	4.2E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0106R002TSCAWBC00	ug/kg	1.5E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0106R002TSCAWBC00	ug/kg	2.8E+00	3.3E+01	No
		Chrysene	LWG0106R002TSCAWBC00	ug/kg	2.2E+01	3.3E+01	No
		Fluorene	LWG0106R002TSCAWBC00	ug/kg	2.4E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0106R002TSCAWBC00	ug/kg	1.2E+00	3.3E+01	No
		Phenanthrene	LWG0106R002TSCAWBC00	ug/kg	1.6E+01	3.3E+01	No
		Semivolatile Organic Compounds					
		Benzyl alcohol	LWG0106R002TSCAWBC00	ug/kg	2.7E+01	3.3E+02	No
		Dibenzofuran	LWG0106R002TSCAWBC00	ug/kg	1.1E+00	3.3E+01	No
		Hexachlorobenzene	LWG0106R002TSCAWBC00	ug/kg	5.5E-01	1.4E+00	No
		Pesticides					
		Aldrin	LWG0106R002TSCAWBC00	ug/kg	2.1E-01	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0106R002TSCAWBC00	ug/kg	1.1E-02	1.0E+00	No
		Dieldrin	LWG0106R002TSCAWBC00	ug/kg	7.7E-01	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0106R002TSCAWBC00	ug/kg	7.1E-02	1.0E+00	No
		Heptachlor	LWG0106R002TSCAWBC00	ug/kg	8.3E-03	1.0E+00	Yes
		Total DDT	LWG0106R002TSCAWBC00	ug/kg	1.6E+00	8.3E+00	No
RM 6 West	UD	**Pesticides**					
		alpha-Hexachlorocyclohexane	LW2-BTFC017	ug/kg	1.1E-02	2.0E-02	No
		Endrin	LW2-BTFC015	ug/kg	4.4E-02	5.3E-02	No
RM 7 West	UD	**Polynuclear Aromatic Hydrocarbons**					
		2-Methylnaphthalene	LWG0107R006TSCAWBC00	ug/kg	3.3E+00	3.1E+01	No
		2-Methylnaphthalene	LWG0107R003TSCAWBC00	ug/kg	3.3E+00	3.2E+01	No
		Acenaphthene	LWG0107R006TSCAWBC00	ug/kg	4.7E+00	3.1E+01	No
		Acenaphthene	LWG0107R003TSCAWBC00	ug/kg	4.7E+00	5.8E+01	No
		Acenaphthylene	LWG0107R006TSCAWBC00	ug/kg	2.4E+00	3.1E+01	No
		Acenaphthylene	LWG0107R003TSCAWBC00	ug/kg	2.4E+00	3.2E+01	No
		Anthracene	LWG0107R006TSCAWBC00	ug/kg	8.6E+00	3.1E+01	No
		Anthracene	LWG0107R003TSCAWBC00	ug/kg	8.6E+00	3.2E+01	No
		Benzo(a)pyrene	LWG0107R006TSCAWBC00	ug/kg	1.9E+01	3.4E+01	No
		Benzo(a)pyrene	LWG0107R003TSCAWBC00	ug/kg	1.9E+01	3.2E+01	No
		Benzo(b)fluoranthene	LWG0107R006TSCAWBC00	ug/kg	3.0E+01	3.1E+01	No
		Benzo(b)fluoranthene	LWG0107R003TSCAWBC00	ug/kg	3.0E+01	3.2E+01	No
		Benzo(g,h,i)perylene	LWG0107R006TSCAWBC00	ug/kg	7.3E+00	1.6E+02	No
		Benzo(g,h,i)perylene	LWG0107R003TSCAWBC00	ug/kg	7.3E+00	8.1E+01	No
		Benzo(k)fluoranthene	LWG0107R006TSCAWBC00	ug/kg	2.0E+01	3.1E+01	No
		Benzo(k)fluoranthene	LWG0107R003TSCAWBC00	ug/kg	2.0E+01	3.2E+01	No

TABLE F2-10.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Fluorene	LWG0107R006TSCAWBC00	ug/kg	5.2E+00	3.1E+01	No
		Fluorene	LWG0107R003TSCAWBC00	ug/kg	5.2E+00	3.2E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R006TSCAWBC00	ug/kg	6.8E+00	3.1E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R003TSCAWBC00	ug/kg	6.8E+00	3.2E+01	No
		Naphthalene	LWG0107R006TSCAWBC00	ug/kg	2.6E+00	3.1E+01	No
		Naphthalene	LWG0107R003TSCAWBC00	ug/kg	2.6E+00	3.2E+01	No
		Semivolatile Organic Compounds					
		Dibenzofuran	LWG0107R006TSCAWBC00	ug/kg	2.5E+00	3.1E+01	No
		Dibenzofuran	LWG0107R003TSCAWBC00	ug/kg	2.5E+00	3.2E+01	No
		Hexachlorobenzene	LWG0107R006TSCAWBC00	ug/kg	7.9E-01	6.4E+00	No
		Hexachlorobenzene	LWG0107R003TSCAWBC00	ug/kg	7.9E-01	1.0E+00	No
		Pesticides					
		Aldrin	LWG0107R006TSCAWBC00	ug/kg	4.0E-01	1.0E+00	No
		Aldrin	LWG0107R003TSCAWBC00	ug/kg	4.0E-01	1.1E+00	No
		Endrin	LWG0107R006TSCAWBC00	ug/kg	4.9E-02	2.4E+00	No
		Endrin	LWG0107R003TSCAWBC00	ug/kg	4.9E-02	1.0E+00	No
		Endrin aldehyde	LWG0107R006TSCAWBC00	ug/kg	3.9E-01	1.0E+00	No
		Endrin ketone	LWG0107R006TSCAWBC00	ug/kg	1.4E-02	1.0E+00	No
		Endrin ketone	LWG0107R003TSCAWBC00	ug/kg	1.4E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0107R006TSCAWBC00	ug/kg	6.4E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0107R003TSCAWBC00	ug/kg	6.4E-02	1.0E+00	No
		Heptachlor	LWG0107R006TSCAWBC00	ug/kg	2.4E-02	1.0E+00	No
		Heptachlor	LW2-BTFC020	ug/kg	2.4E-02	5.1E-02	No
		Heptachlor	LWG0107R003TSCAWBC00	ug/kg	2.4E-02	1.0E+00	No
		Heptachlor epoxide	LWG0107R006TSCAWBC00	ug/kg	1.3E+00	8.0E+00	No
		Total Endosulfan	LWG0107R006TSCAWBC00	ug/kg	1.4E+00	2.1E+00	No
RM 8 East	UD	**Metals**					
		Antimony	LW2-BTFC023	mg/kg	1.0E-03	3.0E-03	No
RM 8 West	UD	**Butyltins**					
		Tributyltin ion	LW2-BTFC025	ug/kg	3.1E+00	3.3E+00	No
RM 8 SIL	UD	**Metals**					
		Antimony	LW2-BTFC026	mg/kg	4.0E-03	6.0E-03	No
		Pesticides					
		Endrin	LW2-BTFC026	ug/kg	2.0E-02	2.0E-02	No
		Endrin ketone	LW2-BTFC026	ug/kg	3.9E-03	3.1E-02	No
RM 9 East	UD	**Pesticides**					
		alpha-Hexachlorocyclohexane	LW2-BTFC031	ug/kg	7.4E-03	7.9E-03	No

TABLE F2-10.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 9 West	UD	**Pesticides**					
		alpha-Hexachlorocyclohexane	LW2-BTFC032	ug/kg	1.5E-02	1.1E+00	No
		gamma-Hexachlorocyclohexane	LW2-BTFC032	ug/kg	6.6E-02	5.1E-01	No
		Heptachlor	LW2-BTFC032	ug/kg	1.6E-02	5.9E-02	No
Study Area-wide	D	**Butyltins**					
		Butyltin ion	LW3-CA02W-C00D	ug/kg	1.5E+00	4.4E+00	No
		Semivolatile Organic Compounds					
		Hexachlorobutadiene	LW3-CA10W-C00D	ug/kg	9.8E-03	9.9E-03	No
Study Area-wide	UD	**Metals**					
		Antimony	LW2-BTFC026	mg/kg	4.0E-03	6.0E-03	No
		Polynuclear Aromatic Hydrocarbons					
		2-Methylnaphthalene	LWG0106R002TSCAWBC00	ug/kg	2.2E+01	3.3E+01	No
		2-Methylnaphthalene	LWG0107R003TSCAWBC00	ug/kg	2.2E+01	3.2E+01	No
		2-Methylnaphthalene	LWG0107R006TSCAWBC00	ug/kg	2.2E+01	3.1E+01	No
		Acenaphthylene	LWG0106R002TSCAWBC00	ug/kg	1.4E+01	3.3E+01	No
		Acenaphthylene	LWG0107R003TSCAWBC00	ug/kg	1.4E+01	3.2E+01	No
		Acenaphthylene	LWG0107R006TSCAWBC00	ug/kg	1.4E+01	3.1E+01	No
		Phthalates					
		Bis(2-ethylhexyl) phthalate	LWG0107R003TSCAWBC00	ug/kg	1.5E+02	1.7E+02	No
		Bis(2-ethylhexyl) phthalate	LWG0107R006TSCAWBC00	ug/kg	1.5E+02	3.4E+02	No
		Semivolatile Organic Compounds					
		Bis(2-chloroethoxy) methane	LWG0106R002TSCAWBC00	ug/kg	4.6E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R006TSCAWBC00	ug/kg	4.6E+01	1.6E+02	No
		Bis(2-chloroethoxy) methane	LWG0107R003TSCAWBC00	ug/kg	4.6E+01	1.6E+02	No
		Dibenzofuran	LWG0106R002TSCAWBC00	ug/kg	1.7E+01	3.3E+01	No
		Dibenzofuran	LWG0107R006TSCAWBC00	ug/kg	1.7E+01	3.1E+01	No
		Dibenzofuran	LWG0107R003TSCAWBC00	ug/kg	1.7E+01	3.2E+01	No
		Hexachlorobenzene	LW2-BTFC009	ug/kg	1.1E+00	1.2E+01	No
		Hexachlorobenzene	LWG0106R002TSCAWBC00	ug/kg	1.1E+00	1.4E+00	No
		Hexachlorobenzene	LWG0107R006TSCAWBC00	ug/kg	1.1E+00	6.4E+00	No
		Hexachlorobutadiene	LW3-CA11E-C00	ug/kg	2.5E-02	1.0E+01	Yes
		Hexachlorobutadiene	LW2-BTFC001	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC002	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC003	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC004	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC005	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC006 Rep 1	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC007	ug/kg	2.5E-02	8.5E+00	Yes

TABLE F2-10.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Hexachlorobutadiene	LW2-BTFC008	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC009	ug/kg	2.5E-02	1.8E+01	Yes
		Hexachlorobutadiene	LW2-BTFC011	ug/kg	2.5E-02	2.3E+01	Yes
		Hexachlorobutadiene	LW2-BTFC010	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC012	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW3-CA05W-C00	ug/kg	2.5E-02	2.5E-02	No
		Hexachlorobutadiene	LW2-BTFC013	ug/kg	2.5E-02	1.7E+01	Yes
		Hexachlorobutadiene	LW2-BTFC015	ug/kg	2.5E-02	1.7E+01	Yes
		Hexachlorobutadiene	LW2-BTFC016	ug/kg	2.5E-02	1.7E+01	Yes
		Hexachlorobutadiene	LWG0106R002TSCAWBC00	ug/kg	2.5E-02	1.0E+00	No
		Hexachlorobutadiene	LW2-BTFC017	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LWG0107R006TSCAWBC00	ug/kg	2.5E-02	1.0E+00	No
		Hexachlorobutadiene	LW2-BTFC020	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LWG0107R003TSCAWBC00	ug/kg	2.5E-02	1.0E+00	No
		Hexachlorobutadiene	LW2-BTFC021	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC022	ug/kg	2.5E-02	1.7E+01	Yes
		Hexachlorobutadiene	LW2-BTFC024	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC026	ug/kg	2.5E-02	1.7E+01	Yes
		Hexachlorobutadiene	LW2-BTFC025	ug/kg	2.5E-02	1.7E+01	Yes
		Hexachlorobutadiene	LW2-BTFC028	ug/kg	2.5E-02	8.5E+00	Yes
		Hexachlorobutadiene	LW2-BTFC030	ug/kg	2.5E-02	9.0E+00	Yes
		Phenols					
		4-Nitrophenol	LWG0106R002TSCAWBC00	ug/kg	1.9E+01	1.6E+03	No
		4-Nitrophenol	LWG0107R006TSCAWBC00	ug/kg	1.9E+01	1.6E+03	No
		4-Nitrophenol	LWG0107R003TSCAWBC00	ug/kg	1.9E+01	1.6E+03	No
		Pesticides					
		alpha-Hexachlorocyclohexane	LW2-BTFC010	ug/kg	2.1E-02	6.0E-02	No
		alpha-Hexachlorocyclohexane	LW2-BTFC014	ug/kg	2.1E-02	6.3E-02	No
		alpha-Hexachlorocyclohexane	LWG0106R002TSCAWBC00	ug/kg	2.1E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LWG0107R006TSCAWBC00	ug/kg	2.1E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LW2-BTFC020	ug/kg	2.1E-02	6.4E-02	No
		alpha-Hexachlorocyclohexane	LWG0107R003TSCAWBC00	ug/kg	2.1E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LW2-BTFC032	ug/kg	2.1E-02	1.1E+00	No
		beta-Hexachlorocyclohexane	LWG0107R006TSCAWBC00	ug/kg	1.2E+00	8.5E+00	No
		Endrin	LWG0106R002TSCAWBC00	ug/kg	6.4E-02	1.0E+00	No
		Endrin	LWG0107R006TSCAWBC00	ug/kg	6.4E-02	2.4E+00	No
		Endrin	LWG0107R003TSCAWBC00	ug/kg	6.4E-02	1.0E+00	No
		Endrin aldehyde	LWG0106R002TSCAWBC00	ug/kg	3.9E-01	1.0E+00	No
		Endrin aldehyde	LWG0107R006TSCAWBC00	ug/kg	3.9E-01	1.0E+00	No

TABLE F2-10.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam

Exposure Point[a]	Tissue Type	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Endrin ketone	LW3-CA01E-C01	ug/kg	1.4E-02	1.1E-01	No
		Endrin ketone	LW3-CA10W-C00	ug/kg	1.4E-02	1.0E-01	No
		Endrin ketone	LW3-CA12W-C00	ug/kg	1.4E-02	1.1E-01	No
		Endrin ketone	LW3-CA12E-C00	ug/kg	1.4E-02	1.0E-01	No
		Endrin ketone	LW3-CA02W-C00	ug/kg	1.4E-02	1.1E-01	No
		Endrin ketone	LW3-CA03W-C00	ug/kg	1.4E-02	1.1E-01	No
		Endrin ketone	LW3-CA04W-C00	ug/kg	1.4E-02	1.1E-01	No
		Endrin ketone	LW2-BTFC011	ug/kg	1.4E-02	4.1E-02	No
		Endrin ketone	LW3-CA05E-C00	ug/kg	1.4E-02	1.1E-01	No
		Endrin ketone	LW3-CA05W-C00	ug/kg	1.4E-02	1.1E-01	No
		Endrin ketone	LW2-BTFC013	ug/kg	1.4E-02	4.2E-02	No
		Endrin ketone	LWG0106R002TSCAWBC00	ug/kg	1.4E-02	1.0E+00	No
		Endrin ketone	LWG0107R006TSCAWBC00	ug/kg	1.4E-02	1.0E+00	No
		Endrin ketone	LWG0107R003TSCAWBC00	ug/kg	1.4E-02	1.0E+00	No
		Endrin ketone	LW2-BTFC026	ug/kg	1.4E-02	3.1E-02	No
		Endrin ketone	LW2-BTFC032	ug/kg	1.4E-02	6.6E-01	No
		Endrin ketone	LW2-BTFC033	ug/kg	1.4E-02	4.2E-02	No
		gamma-Hexachlorocyclohexane	LWG0106R002TSCAWBC00	ug/kg	8.4E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0107R006TSCAWBC00	ug/kg	8.4E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LWG0107R003TSCAWBC00	ug/kg	8.4E-02	1.0E+00	No
		gamma-Hexachlorocyclohexane	LW2-BTFC032	ug/kg	8.4E-02	5.1E-01	No
		Heptachlor	LWG0106R002TSCAWBC00	ug/kg	4.2E-01	1.0E+00	No
		Heptachlor	LWG0107R006TSCAWBC00	ug/kg	4.2E-01	1.0E+00	No
		Heptachlor	LWG0107R003TSCAWBC00	ug/kg	4.2E-01	1.0E+00	No
		Heptachlor epoxide	LWG0107R006TSCAWBC00	ug/kg	2.1E+00	8.0E+00	No
		Methoxychlor	LWG0106R002TSCAWBC00	ug/kg	3.2E-01	1.6E+00	No
		Methoxychlor	LWG0107R006TSCAWBC00	ug/kg	3.2E-01	1.0E+00	No
		Methoxychlor	LWG0107R003TSCAWBC00	ug/kg	3.2E-01	1.0E+00	No
		Total Endosulfan	LWG0107R006TSCAWBC00	ug/kg	1.5E+00	2.1E+00	No

Notes:

a Exposure areas not listed indicate there were no non-detected results with detection limits exceeding the maximum detected concentrations that were removed

Abbreviations:

F = Fillet tissue.

mg/kg = milligrams per kilogram.

ug/kg = micrograms per kilogram.

WB = Whole body.

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
Study Area Wide	WB	**Polynuclear Aromatic Hydrocarbons**					
		2-Methylnaphthalene	LWG0102R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0102R015TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0103R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0103R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0103R003TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0103R004TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0103R005TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0103R032TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0104R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0104R003TSCRWBC00	ug/kg	1.1E+00	7.3E+01	No
		2-Methylnaphthalene	LWG0104R004TSCRWBC10	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0104R004TSCRWBC20	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0105R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0105R003TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0106R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0106R004TSCRWBC10	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0106R004TSCRWBC20	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0107R003TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0107R004TSCRWBC00	ug/kg	1.1E+00	3.7E+01	No
		2-Methylnaphthalene	LWG0107R006TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0108R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0108R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0108R003TSCRWBC00	ug/kg	1.1E+00	1.7E+01	No
		2-Methylnaphthalene	LWG0109R001TSCRWBC10	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0109R001TSCRWBC20	ug/kg	1.1E+00	3.3E+01	No
		2-Methylnaphthalene	LWG0109R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthene	LWG0102R001TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0102R015TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0103R001TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0103R002TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0103R003TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0103R004TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0103R005TSCRWBC00	ug/kg	4.2E+00	8.3E+01	No
		Acenaphthene	LWG0103R032TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0104R002TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0104R003TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0104R004TSCRWBC10	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0104R004TSCRWBC20	ug/kg	4.2E+00	3.3E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Acenaphthene	LWG0105R001TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0105R003TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0106R001TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0106R004TSCRWBC10	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0106R004TSCRWBC20	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0107R003TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0107R004TSCRWBC00	ug/kg	4.2E+00	3.7E+01	No
		Acenaphthene	LWG0107R006TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0108R001TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0108R002TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0108R003TSCRWBC00	ug/kg	4.2E+00	5.3E+01	No
		Acenaphthene	LWG0109R001TSCRWBC10	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0109R001TSCRWBC20	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthene	LWG0109R002TSCRWBC00	ug/kg	4.2E+00	3.3E+01	No
		Acenaphthylene	LWG0102R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0102R015TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0103R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0103R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0103R003TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0103R004TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0103R005TSCRWBC00	ug/kg	1.1E+00	9.0E+01	No
		Acenaphthylene	LWG0103R032TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0104R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0104R003TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0104R004TSCRWBC10	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0104R004TSCRWBC20	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0105R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0105R003TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0106R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0106R004TSCRWBC10	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0106R004TSCRWBC20	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0107R003TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0107R004TSCRWBC00	ug/kg	1.1E+00	3.7E+01	No
		Acenaphthylene	LWG0107R006TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0108R001TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0108R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0108R003TSCRWBC00	ug/kg	1.1E+00	1.7E+01	No
		Acenaphthylene	LWG0109R001TSCRWBC10	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0109R001TSCRWBC20	ug/kg	1.1E+00	3.3E+01	No
		Acenaphthylene	LWG0109R002TSCRWBC00	ug/kg	1.1E+00	3.3E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Anthracene	LWG0102R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0102R015TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0103R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0103R002TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0103R003TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0103R004TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0103R005TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0103R032TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0104R002TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0104R003TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0104R004TSCRWBC10	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0104R004TSCRWBC20	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0105R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0105R003TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0106R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0106R004TSCRWBC10	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0106R004TSCRWBC20	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0107R003TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0107R004TSCRWBC00	ug/kg	2.9E+00	3.7E+01	No
		Anthracene	LWG0107R006TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0108R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0108R002TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0108R003TSCRWBC00	ug/kg	2.9E+00	1.7E+01	No
		Anthracene	LWG0109R001TSCRWBC10	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0109R001TSCRWBC20	ug/kg	2.9E+00	3.3E+01	No
		Anthracene	LWG0109R002TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0102R001TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0102R015TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0103R001TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0103R002TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0103R003TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0103R004TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0103R005TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0103R032TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0104R002TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0104R003TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0104R004TSCRWBC10	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0104R004TSCRWBC20	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0105R001TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0105R003TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0106R001TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(a)pyrene	LWG0106R004TSCRWBC10	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0106R004TSCRWBC20	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0107R003TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0107R004TSCRWBC00	ug/kg	7.5E+00	3.7E+01	No
		Benzo(a)pyrene	LWG0107R006TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0108R001TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0108R002TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0108R003TSCRWBC00	ug/kg	7.5E+00	1.7E+01	No
		Benzo(a)pyrene	LWG0109R001TSCRWBC10	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0109R001TSCRWBC20	ug/kg	7.5E+00	3.3E+01	No
		Benzo(a)pyrene	LWG0109R002TSCRWBC00	ug/kg	7.5E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0102R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0102R015TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0103R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0103R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0103R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0103R004TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0103R005TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0103R032TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0104R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0104R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0104R004TSCRWBC10	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0104R004TSCRWBC20	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0105R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0105R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0106R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0106R004TSCRWBC10	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0106R004TSCRWBC20	ug/kg	5.3E+00	6.3E+01	No
		Benzo(b)fluoranthene	LWG0107R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0107R004TSCRWBC00	ug/kg	5.3E+00	3.7E+01	No
		Benzo(b)fluoranthene	LWG0107R006TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0108R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0108R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0108R003TSCRWBC00	ug/kg	5.3E+00	1.7E+01	No
		Benzo(b)fluoranthene	LWG0109R001TSCRWBC10	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0109R001TSCRWBC20	ug/kg	5.3E+00	3.3E+01	No
		Benzo(b)fluoranthene	LWG0109R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0102R001TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0102R015TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0103R001TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(g,h,i)perylene	LWG0103R002TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0103R003TSCRWBC00	ug/kg	5.6E+00	7.0E+01	No
		Benzo(g,h,i)perylene	LWG0103R004TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0103R005TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0103R032TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0104R002TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0104R003TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0104R004TSCRWBC10	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0104R004TSCRWBC20	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0105R001TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0105R003TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0106R001TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0106R004TSCRWBC10	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0106R004TSCRWBC20	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0107R003TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0107R004TSCRWBC00	ug/kg	5.6E+00	3.7E+01	No
		Benzo(g,h,i)perylene	LWG0107R006TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0108R001TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0108R002TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0108R003TSCRWBC00	ug/kg	5.6E+00	1.7E+01	No
		Benzo(g,h,i)perylene	LWG0109R001TSCRWBC10	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0109R001TSCRWBC20	ug/kg	5.6E+00	3.3E+01	No
		Benzo(g,h,i)perylene	LWG0109R002TSCRWBC00	ug/kg	5.6E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0102R001TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0102R015TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0103R001TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0103R002TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0103R003TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0103R004TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0103R005TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0103R032TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0104R002TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0104R003TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0104R004TSCRWBC10	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0104R004TSCRWBC20	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0105R001TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0105R003TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0106R001TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0106R004TSCRWBC10	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0106R004TSCRWBC20	ug/kg	5.0E+00	7.7E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Benzo(k)fluoranthene	LWG0107R003TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0107R004TSCRWBC00	ug/kg	5.0E+00	3.7E+01	No
		Benzo(k)fluoranthene	LWG0107R006TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0108R001TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0108R002TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0108R003TSCRWBC00	ug/kg	5.0E+00	1.7E+01	No
		Benzo(k)fluoranthene	LWG0109R001TSCRWBC10	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0109R001TSCRWBC20	ug/kg	5.0E+00	3.3E+01	No
		Benzo(k)fluoranthene	LWG0109R002TSCRWBC00	ug/kg	5.0E+00	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0102R001TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0102R015TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0103R001TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0103R002TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0103R003TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0103R004TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0103R005TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0103R032TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0104R002TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0104R003TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0104R004TSCRWBC10	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0104R004TSCRWBC20	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0105R001TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0105R003TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0106R001TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0106R004TSCRWBC10	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0106R004TSCRWBC20	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0107R003TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0107R004TSCRWBC00	ug/kg	7.1E-01	3.7E+01	No
		Dibenzo(a,h)anthracene	LWG0107R006TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0108R001TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0108R002TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0108R003TSCRWBC00	ug/kg	7.1E-01	1.7E+01	No
		Dibenzo(a,h)anthracene	LWG0109R001TSCRWBC10	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0109R001TSCRWBC20	ug/kg	7.1E-01	3.3E+01	No
		Dibenzo(a,h)anthracene	LWG0109R002TSCRWBC00	ug/kg	7.1E-01	3.3E+01	No
		Fluorene	LWG0102R001TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0102R015TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0103R001TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0103R002TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0103R003TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Fluorene	LWG0103R004TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0103R005TSCRWBC00	ug/kg	1.8E+00	7.0E+01	No
		Fluorene	LWG0103R032TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0104R002TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0104R003TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0104R004TSCRWBC10	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0104R004TSCRWBC20	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0105R001TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0105R003TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0106R001TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0106R004TSCRWBC10	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0106R004TSCRWBC20	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0107R003TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0107R004TSCRWBC00	ug/kg	1.8E+00	3.7E+01	No
		Fluorene	LWG0107R003TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0107R004TSCRWBC00	ug/kg	1.8E+00	3.7E+01	No
		Fluorene	LWG0107R006TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0108R001TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0108R002TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0108R003TSCRWBC00	ug/kg	1.8E+00	1.7E+01	No
		Fluorene	LWG0109R001TSCRWBC10	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0109R001TSCRWBC20	ug/kg	1.8E+00	3.3E+01	No
		Fluorene	LWG0109R002TSCRWBC00	ug/kg	1.8E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0102R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0102R015TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0103R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0103R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0103R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0103R004TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0103R005TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0103R032TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R004TSCRWBC10	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0104R004TSCRWBC20	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0105R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0105R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0106R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0106R004TSCRWBC10	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0106R004TSCRWBC20	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R003TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0107R004TSCRWBC00	ug/kg	5.3E+00	3.7E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Indeno(1,2,3-cd)pyrene	LWG0107R006TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0108R001TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0108R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0108R003TSCRWBC00	ug/kg	5.3E+00	1.7E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0109R001TSCRWBC10	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0109R001TSCRWBC20	ug/kg	5.3E+00	3.3E+01	No
		Indeno(1,2,3-cd)pyrene	LWG0109R002TSCRWBC00	ug/kg	5.3E+00	3.3E+01	No
		Naphthalene	LWG0102R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0102R015TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0103R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0103R002TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0103R003TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0103R004TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0103R005TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0103R032TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0104R002TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0104R003TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0104R004TSCRWBC10	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0104R004TSCRWBC20	ug/kg	2.9E+00	6.6E+01	No
		Naphthalene	LWG0105R001TSCRWBC00	ug/kg	2.9E+00	6.9E+01	No
		Naphthalene	LWG0105R003TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0106R001TSCRWBC00	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0106R004TSCRWBC10	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0106R004TSCRWBC20	ug/kg	2.9E+00	7.0E+01	No
		Naphthalene	LWG0107R003TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0107R004TSCRWBC00	ug/kg	2.9E+00	8.2E+01	No
		Naphthalene	LWG0107R006TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0108R001TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0108R002TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0108R003TSCRWBC00	ug/kg	2.9E+00	1.7E+01	No
		Naphthalene	LWG0109R001TSCRWBC10	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0109R001TSCRWBC20	ug/kg	2.9E+00	3.3E+01	No
		Naphthalene	LWG0109R002TSCRWBC00	ug/kg	2.9E+00	3.3E+01	No
		Phthalates					
		Butylbenzyl phthalate	LWG0102R001TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0102R015TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0103R001TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0103R002TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0103R003TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0103R004TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Butylbenzyl phthalate	LWG0103R005TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0103R032TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0104R002TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0104R003TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0104R004TSCRWBC10	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0104R004TSCRWBC20	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0105R001TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0105R003TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0106R001TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0106R004TSCRWBC10	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0106R004TSCRWBC20	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0107R003TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0107R004TSCRWBC00	ug/kg	7.1E+01	3.7E+02	No
		Butylbenzyl phthalate	LWG0107R006TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0108R001TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0108R002TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0108R003TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0109R001TSCRWBC10	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0109R001TSCRWBC20	ug/kg	7.1E+01	3.3E+02	No
		Butylbenzyl phthalate	LWG0109R002TSCRWBC00	ug/kg	7.1E+01	3.3E+02	No
		Semi-Volatile Organic Compounds					
		Dibenzofuran	LWG0102R001TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0102R015TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0103R001TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0103R002TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0103R003TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0103R004TSCRWBC00	ug/kg	4.8E-01	6.6E+01	Yes
		Dibenzofuran	LWG0103R005TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0103R032TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0104R002TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0104R003TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0104R004TSCRWBC10	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0104R004TSCRWBC20	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0105R001TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0105R003TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0106R001TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0106R004TSCRWBC10	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0106R004TSCRWBC20	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0107R003TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0107R004TSCRWBC00	ug/kg	4.8E-01	3.7E+01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Dibenzofuran	LWG0107R006TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0108R001TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0108R002TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0108R003TSCRWBC00	ug/kg	4.8E-01	1.7E+01	No
		Dibenzofuran	LWG0109R001TSCRWBC10	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0109R001TSCRWBC20	ug/kg	4.8E-01	3.3E+01	No
		Dibenzofuran	LWG0109R002TSCRWBC00	ug/kg	4.8E-01	3.3E+01	No
		Hexachlorobenzene	LWG0102R001TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0102R015TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R001TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R002TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R003TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R004TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R005TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R004TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R005TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0103R032TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0104R002TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0104R003TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0104R004TSCRWBC10	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0104R004TSCRWBC20	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0105R001TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0105R003TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0106R001TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0106R004TSCRWBC10	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0106R004TSCRWBC20	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0107R003TSCRWBC00	ug/kg	6.6E-02	2.0E+00	No
		Hexachlorobenzene	LWG0107R004TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0107R006TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0108R001TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0108R002TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0108R003TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0109R001TSCRWBC10	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0109R001TSCRWBC20	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobenzene	LWG0109R002TSCRWBC00	ug/kg	6.6E-02	1.0E+00	No
		Hexachlorobutadiene	LW3-CR01W-C00	ug/kg	1.9E-03	1.0E+01	Yes
		Hexachlorobutadiene	LW3-CR05W-C00	ug/kg	1.9E-03	2.6E-03	No
		Hexachlorobutadiene	LW3-CR06W-C00	ug/kg	1.9E-03	1.0E+01	Yes
		Hexachlorobutadiene	LW3-CR08W-C00	ug/kg	1.9E-03	9.2E-03	No
		Hexachlorobutadiene	LW3-CR11E-C01	ug/kg	1.9E-03	2.0E-03	No
		Hexachlorobutadiene	LWG0102R001TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0102R015TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Hexachlorobutadiene	LWG0103R001TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0103R002TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0103R003TSCRWBC00	ug/kg	1.9E-03	1.2E+00	Yes
		Hexachlorobutadiene	LWG0103R004TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0103R005TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0103R032TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0104R002TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0104R003TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0104R004TSCRWBC10	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0104R004TSCRWBC20	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0105R001TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0105R003TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0106R001TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0106R004TSCRWBC10	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0106R001TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0106R004TSCRWBC10	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0106R004TSCRWBC20	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0107R003TSCRWBC00	ug/kg	1.9E-03	2.0E+00	Yes
		Hexachlorobutadiene	LWG0107R004TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0107R006TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0108R001TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0108R002TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0108R003TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0109R001TSCRWBC10	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0109R001TSCRWBC20	ug/kg	1.9E-03	1.0E+00	Yes
		Hexachlorobutadiene	LWG0109R002TSCRWBC00	ug/kg	1.9E-03	1.0E+00	Yes
		Phenols					
		Pentachlorophenol	LWG0102R001TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0102R015TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0103R001TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0103R002TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0103R003TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0103R004TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0103R005TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0103R032TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0104R002TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0104R003TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0104R004TSCRWBC10	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0104R004TSCRWBC20	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0105R001TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0105R003TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0106R001TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Pentachlorophenol	LWG0106R004TSCRWBC10	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0106R004TSCRWBC20	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0107R003TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0107R004TSCRWBC00	ug/kg	1.3E+02	1.9E+02	No
		Pentachlorophenol	LWG0107R006TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0108R001TSCRWBC00	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0108R002TSCRWBC00	ug/kg	1.3E+02	1.6E+02	No
		Pentachlorophenol	LWG0109R001TSCRWBC10	ug/kg	1.3E+02	1.7E+02	No
		Pentachlorophenol	LWG0109R001TSCRWBC20	ug/kg	1.3E+02	1.6E+02	No
		Pentachlorophenol	LWG0109R002TSCRWBC00	ug/kg	1.3E+02	1.6E+02	No
		Pesticides					
		Aldrin	LWG0102R001TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0102R015TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0103R001TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0103R002TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0103R003TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0103R004TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0103R005TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0103R032TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0104R002TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0104R003TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0104R004TSCRWBC10	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0104R004TSCRWBC20	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0105R001TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0105R003TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0106R001TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0106R004TSCRWBC10	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0106R004TSCRWBC20	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0107R003TSCRWBC00	ug/kg	3.7E-02	2.0E+00	No
		Aldrin	LWG0107R004TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0107R006TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0108R001TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0108R002TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0108R003TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0109R001TSCRWBC10	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0109R001TSCRWBC20	ug/kg	3.7E-02	1.0E+00	No
		Aldrin	LWG0109R002TSCRWBC00	ug/kg	3.7E-02	1.0E+00	No
		alpha-Hexachlorocyclohexane	LW3-CR01E-ALT-C00	ug/kg	2.8E-03	1.6E-01	No
		alpha-Hexachlorocyclohexane	LW3-CR01W-C00	ug/kg	2.8E-03	1.6E-01	No
		alpha-Hexachlorocyclohexane	LW3-CR06W-C00	ug/kg	2.8E-03	1.6E-01	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		alpha-Hexachlorocyclohexane	LW3-CR12E-C00	ug/kg	2.8E-03	1.6E-01	No
		alpha-Hexachlorocyclohexane	LWG0102R001TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0102R015TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R001TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R002TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R003TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R004TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R005TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0103R032TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0104R002TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0104R003TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0104R004TSCRWBC10	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0104R004TSCRWBC20	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0105R001TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0105R001TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0105R003TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0106R001TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0106R004TSCRWBC10	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0106R004TSCRWBC20	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0107R003TSCRWBC00	ug/kg	2.8E-03	2.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0107R004TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0107R006TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0108R001TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0108R002TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0108R003TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0109R001TSCRWBC10	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0109R001TSCRWBC20	ug/kg	2.8E-03	1.0E+00	Yes
		alpha-Hexachlorocyclohexane	LWG0109R002TSCRWBC00	ug/kg	2.8E-03	1.0E+00	Yes
		Dieldrin	LWG0102R001TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0102R015TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0103R001TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0103R002TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0103R003TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0103R004TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0103R005TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0103R032TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0104R002TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0104R003TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0104R004TSCRWBC10	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0104R004TSCRWBC20	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0105R001TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Dieldrin	LWG0105R003TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0106R001TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0106R004TSCRWBC10	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0106R004TSCRWBC20	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0107R003TSCRWBC00	ug/kg	4.7E-02	2.0E+00	No
		Dieldrin	LWG0107R004TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0107R006TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0108R001TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0108R002TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0108R003TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0109R001TSCRWBC10	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0109R001TSCRWBC20	ug/kg	4.7E-02	1.0E+00	No
		Dieldrin	LWG0109R002TSCRWBC00	ug/kg	4.7E-02	1.0E+00	No
		Heptachlor epoxide	LW3-CR01W-C00	ug/kg	1.8E-03	2.3E-03	No
		Heptachlor epoxide	LW3-CR06W-C00	ug/kg	1.8E-03	1.9E-03	No
		Heptachlor epoxide	LWG0102R001TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0102R015TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R001TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R002TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R003TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R004TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R005TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0103R032TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0104R002TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0104R003TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0104R004TSCRWBC10	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0104R004TSCRWBC20	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0105R001TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0105R003TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0106R001TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0106R004TSCRWBC10	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0106R004TSCRWBC20	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0107R003TSCRWBC00	ug/kg	1.8E-03	2.0E+00	Yes
		Heptachlor epoxide	LWG0107R004TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0107R006TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0108R001TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0108R002TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0108R003TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0109R001TSCRWBC10	ug/kg	1.8E-03	1.0E+00	Yes

TABLE F2-11.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Sample ID	Units	Maximum Detected Concentration	Nondect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
		Heptachlor epoxide	LWG0109R001TSCRWBC20	ug/kg	1.8E-03	1.0E+00	Yes
		Heptachlor epoxide	LWG0109R002TSCRWBC00	ug/kg	1.8E-03	1.0E+00	Yes

Notes:

a Exposure areas not listed indicate there were no non-detected results with detection limits exceeding the maximum detected concentrations that were removed from the

Abbreviations:

F = Fillet tissue.
mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.
WB = Whole body.

TABLE F2-12.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water, Direct Contact to Divers

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
Single Point Samples						
RM 2.0 E	**Polynuclear Aromatic Hydrocarbons**					
	Naphthalene	LW2-W001	ug/l	6.5E-03	1.3E-02	No
	Naphthalene	LW3-W3026-WS-Int	ug/l	6.5E-03	1.3E-02	No
	Naphthalene	LW3-W4026-WS-Int	ug/l	6.5E-03	1.3E-02	No
	Herbicides		ug/l			
	MCPP	LW2-W001	ug/l	5.2E+00	1.5E+01	No
	MCPP	LW2-W2001	ug/l	5.2E+00	1.1E+02	No
	MCPP	LW2-W3001	ug/l	5.2E+00	5.0E+01	No
	MCPP	LW3-W3026-WS-Int	ug/l	5.2E+00	6.5E+00	No
RM 3.0 W	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)anthracene	LW2-W003	ug/l	3.0E-03	8.4E-03	No
	Benzo(a)anthracene	LW2-W2003	ug/l	3.0E-03	4.2E-03	No
	Benzo(a)pyrene	LW2-W003	ug/l	2.7E-03	6.4E-03	No
	Benzo(a)pyrene	LW2-W2003	ug/l	2.7E-03	3.2E-03	No
	Benzo(b)fluoranthene	LW2-W003	ug/l	2.8E-03	7.8E-03	No
	Benzo(b)fluoranthene	LW2-W2003	ug/l	2.8E-03	3.9E-03	No
RM 3.5 E	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(b)fluoranthene	LW3-W3028-WS-Int	ug/l	9.0E-03	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4028-WS-Int	ug/l	9.0E-03	9.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W004	ug/l	5.5E-03	8.4E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3028-WS-Int	ug/l	5.5E-03	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W4028-WS-Int	ug/l	5.5E-03	6.6E-03	No
RM 4.0 W	**Polynuclear Aromatic Hydrocarbons**		ug/l			
	Benzo(a)anthracene	LW3-W3029-WS-Int	ug/l	5.9E-03	7.8E-03	No
	Benzo(a)anthracene	LW3-W4029-WS-Int	ug/l	5.9E-03	7.8E-03	No
RM 6.0 W	**Pesticides**					
	Aldrin	LW2-W012	ug/l	2.1E-06	5.0E-04	Yes
	Aldrin	LW2-W2012	ug/l	2.1E-06	5.1E-04	Yes
	Aldrin	LW2-W3012	ug/l	2.1E-06	4.8E-04	Yes
RM 6.5 E	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)anthracene	LW2-W013-1	ug/l	2.8E-03	8.4E-03	No
	Benzo(a)anthracene	LW2-W013-2	ug/l	2.8E-03	8.4E-03	No
	Benzo(a)anthracene	LW2-W014	ug/l	2.8E-03	4.2E-03	No
	Benzo(a)anthracene	LW2-W2014	ug/l	2.8E-03	4.2E-03	No
	Benzo(a)anthracene	LW2-W3014	ug/l	2.8E-03	4.2E-03	No
	Benzo(a)anthracene	LW3-W3032-WS-Int	ug/l	2.8E-03	7.8E-03	No
	Benzo(a)anthracene	LW3-W4032-WS-Int	ug/l	2.8E-03	5.9E-03	No
	Benzo(a)pyrene	LW2-W013-1	ug/l	2.4E-03	6.4E-03	No
	Benzo(a)pyrene	LW2-W013-2	ug/l	2.4E-03	6.4E-03	No
	Benzo(a)pyrene	LW2-W014	ug/l	2.4E-03	3.2E-03	No
	Benzo(a)pyrene	LW2-W2014	ug/l	2.4E-03	3.2E-03	No
	Benzo(a)pyrene	LW2-W3014	ug/l	2.4E-03	3.2E-03	No
	Benzo(a)pyrene	LW3-W3032-WS-Int	ug/l	2.4E-03	8.6E-03	No
	Benzo(a)pyrene	LW3-W4032-WS-Int	ug/l	2.4E-03	6.5E-03	No
	Benzo(b)fluoranthene	LW2-W013-1	ug/l	1.1E-03	7.8E-03	No
	Benzo(b)fluoranthene	LW2-W2013-1	ug/l	1.1E-03	2.0E-03	No
	Benzo(b)fluoranthene	LW2-W3013-1	ug/l	1.1E-03	2.0E-03	No
	Benzo(b)fluoranthene	LW2-W013-2	ug/l	1.1E-03	7.8E-03	No
	Benzo(b)fluoranthene	LW2-W2013-2	ug/l	1.1E-03	2.0E-03	No
	Benzo(b)fluoranthene	LW2-W014	ug/l	1.1E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W2014	ug/l	1.1E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W3014	ug/l	1.1E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW3-W3032-WS-Int	ug/l	1.1E-03	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4032-WS-Int	ug/l	1.1E-03	6.9E-03	No
	Dibenzo(a,h)anthracene	LW2-W013-1	ug/l	8.8E-04	6.5E-03	No
	Dibenzo(a,h)anthracene	LW2-W2013-1	ug/l	8.8E-04	1.7E-03	No
	Dibenzo(a,h)anthracene	LW2-W3013-1	ug/l	8.8E-04	1.7E-03	No
	Dibenzo(a,h)anthracene	LW2-W013-2	ug/l	8.8E-04	6.5E-03	No
	Dibenzo(a,h)anthracene	LW2-W2013-2	ug/l	8.8E-04	1.7E-03	No
	Dibenzo(a,h)anthracene	LW2-W014	ug/l	8.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W2014	ug/l	8.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3014	ug/l	8.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW3-W3032-WS-Int	ug/l	8.8E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4032-WS-Int	ug/l	8.8E-04	5.4E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W013-1	ug/l	6.3E-04	8.4E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W2013-1	ug/l	6.3E-04	2.1E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3013-1	ug/l	6.3E-04	2.1E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W013-2	ug/l	6.3E-04	8.4E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W2013-2	ug/l	6.3E-04	2.1E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W014	ug/l	6.3E-04	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W2014	ug/l	6.3E-04	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3014	ug/l	6.3E-04	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3032-WS-Int	ug/l	6.3E-04	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3032-WSXAD-Comb-Int	ug/l	6.3E-04	7.8E-04	No
	Indeno(1,2,3-cd)pyrene	LW3-W4032-WS-Int	ug/l	6.3E-04	5.0E-03	No
	Naphthalene	LW2-W2013-1-WSXAD-Combo	ug/l	1.7E-02	1.8E-02	No
	Naphthalene	LW3-W3032-WSXAD-Comb-Int	ug/l	1.7E-02	5.3E-02	No
	Naphthalene	LW3-W4032-WSXAD-Comb-Int	ug/l	1.7E-02	2.1E-02	No

TABLE F2-12.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water, Direct Contact to Divers

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
	Pesticides					
	Aldrin	LW2-W013-1	ug/l	2.4E-06	4.7E-04	Yes
	Aldrin	LW2-W013-2	ug/l	2.4E-06	5.3E-04	Yes
	Aldrin	LW2-W014	ug/l	2.4E-06	4.9E-04	Yes
	Aldrin	LW2-W2014	ug/l	2.4E-06	4.8E-04	Yes
	Aldrin	LW2-W3014	ug/l	2.4E-06	4.9E-04	Yes
RM 6.5 W	**Polynuclear Aromatic Hydrocarbons**					
	Dibenzo(a,h)anthracene	LW2-W015	ug/l	8.7E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W2015	ug/l	8.7E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3015	ug/l	8.7E-04	3.3E-03	No
RM 7.0 W	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)anthracene	LW3-W3033-WS-Int	ug/l	7.0E-03	7.8E-03	No
	Benzo(a)anthracene	LW3-W4033-WS-Int	ug/l	7.0E-03	7.8E-03	No
	Benzo(a)pyrene	LW3-W3033-WS-Int	ug/l	6.6E-03	8.6E-03	No
	Benzo(a)pyrene	LW3-W4033-WS-Int	ug/l	6.6E-03	8.6E-03	No
	Benzo(b)fluoranthene	LW3-W3033-WS-Int	ug/l	4.9E-03	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4033-WS-Int	ug/l	4.9E-03	9.2E-03	No
	Dibenzo(a,h)anthracene	LW2-W016-1	ug/l	5.4E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W2016-1	ug/l	5.4E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3016-1	ug/l	5.4E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W016-2	ug/l	5.4E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW3-W3033-WS-Int	ug/l	5.4E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4033-WS-Int	ug/l	5.4E-04	7.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W016-1	ug/l	2.8E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W2016-1	ug/l	2.8E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3016-1	ug/l	2.8E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W016-2	ug/l	2.8E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3033-WS-Int	ug/l	2.8E-03	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W4033-WS-Int	ug/l	2.8E-03	6.6E-03	No
	Naphthalene	LW2-W016-1	ug/l	7.4E-04	1.2E-02	No
	Naphthalene	LW2-W016-WSXAD-Combo	ug/l	7.4E-04	6.0E-03	No
	Naphthalene	LW2-W2016-1	ug/l	7.4E-04	6.4E-03	No
	Naphthalene	LW2-W2016-WSXAD-Combo	ug/l	7.4E-04	4.2E-03	No
	Naphthalene	LW2-W3016-1	ug/l	7.4E-04	9.6E-03	No
	Naphthalene	LW2-W016-2	ug/l	7.4E-04	7.1E-03	No
	Naphthalene	LW3-W3033-WS-Int	ug/l	7.4E-04	2.0E-02	No
	Naphthalene	LW3-W3033-WS-Int	ug/l	7.4E-04	2.3E-02	No
	Naphthalene	LW3-W3033-WSXAD-Comb-Int	ug/l	7.4E-04	8.5E-02	Yes
	Naphthalene	LW3-W3033-WSXAD-Comb-Int	ug/l	7.4E-04	8.6E-02	Yes
	Naphthalene	LW3-W4033-WS-Int	ug/l	7.4E-04	1.3E-02	No
	Naphthalene	LW3-W4033-WSXAD-Comb-Int	ug/l	7.4E-04	1.6E-02	No
	Herbicides					
	MCPP	LW2-W016-1	ug/l	6.2E+00	3.5E+01	No
	MCPP	LW2-W3016-1	ug/l	6.2E+00	9.8E+00	No
	MCPP	LW2-W016-2	ug/l	6.2E+00	1.6E+01	No
	MCPP	LW3-W3033-WS-Int	ug/l	6.2E+00	6.6E+00	No
	MCPP	LW3-W4033-WS-Int	ug/l	6.2E+00	8.3E+00	No
RM 7.5 W	**Pesticides**					
	Aldrin	LW2-W017	ug/l	8.7E-07	5.1E-04	Yes
	Aldrin	LW2-W2017	ug/l	8.7E-07	5.1E-04	Yes
	Aldrin	LW2-W3017	ug/l	8.7E-07	4.8E-04	Yes
	Aldrin	LW3-W3034-WSXAD-Comb-Int	ug/l	8.7E-07	3.6E-06	No
SIL	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)pyrene	LW2-W018	ug/l	4.8E-03	6.4E-03	No
	Benzo(a)pyrene	LW3-W3035-WS-Int	ug/l	4.8E-03	8.6E-03	No
	Benzo(a)pyrene	LW3-W4035-WS-Int	ug/l	4.8E-03	8.6E-03	No
	Benzo(b)fluoranthene	LW2-W018	ug/l	3.8E-03	7.8E-03	No
	Benzo(b)fluoranthene	LW2-W3018	ug/l	3.8E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W020	ug/l	3.8E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W2020	ug/l	3.8E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W3020	ug/l	3.8E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W021	ug/l	3.8E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W2021	ug/l	3.8E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W3021	ug/l	3.8E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW3-W3035-WS-Int	ug/l	3.8E-03	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4035-WS-Int	ug/l	3.8E-03	9.2E-03	No
	Dibenzo(a,h)anthracene	LW2-W018	ug/l	7.8E-04	6.5E-03	No
	Dibenzo(a,h)anthracene	LW2-W2018	ug/l	7.8E-04	1.7E-03	No
	Dibenzo(a,h)anthracene	LW2-W3018	ug/l	7.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W020	ug/l	7.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W2020	ug/l	7.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3020	ug/l	7.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W021	ug/l	7.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W2021	ug/l	7.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3021	ug/l	7.8E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW3-W3035-WS-Int	ug/l	7.8E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4035-WS-Int	ug/l	7.8E-04	7.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W018	ug/l	2.9E-03	8.4E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3018	ug/l	2.9E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W020	ug/l	2.9E-03	4.2E-03	No

TABLE F2-12.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water, Direct Contact to Divers

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
	Indeno(1,2,3-cd)pyrene	LW2-W2020	ug/l	2.9E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3020	ug/l	2.9E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W021	ug/l	2.9E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W2021	ug/l	2.9E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3021	ug/l	2.9E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3035-WS-Int	ug/l	2.9E-03	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W4035-WS-Int	ug/l	2.9E-03	6.6E-03	No
	Naphthalene	LW2-W018	ug/l	6.9E-03	1.3E-02	No
	Naphthalene	LW2-W3018	ug/l	6.9E-03	2.8E-02	No
	Naphthalene	LW2-W3018-WSXAD-Combo	ug/l	6.9E-03	1.1E-02	No
	Naphthalene	LW3-W3035-WS-Int	ug/l	6.9E-03	1.3E-02	No
	Naphthalene	LW3-W3035-WSXAD-Comb-Int	ug/l	6.9E-03	5.6E-02	No
	Naphthalene	LW3-W4035-WS-Int	ug/l	6.9E-03	1.3E-02	No
	Naphthalene	LW3-W4035-WSXAD-Comb-Int	ug/l	6.9E-03	1.6E-02	No
	Pesticides					
	Aldrin	LW2-W018	ug/l	4.9E-06	4.8E-04	No
	Aldrin	LW2-W020	ug/l	4.9E-06	4.9E-04	Yes
	Aldrin	LW2-W2020	ug/l	4.9E-06	4.9E-04	Yes
	Aldrin	LW2-W3020	ug/l	4.9E-06	5.1E-04	Yes
	Aldrin	LW2-W021	ug/l	4.9E-06	4.8E-04	No
	Aldrin	LW2-W2021	ug/l	4.9E-06	4.8E-04	No
	Aldrin	LW2-W3021	ug/l	4.9E-06	4.9E-04	Yes
	Herbicides					
	MCPP	LW2-W2018	ug/l	1.9E+01	1.1E+02	No
	MCPP	LW2-W3018	ug/l	1.9E+01	2.4E+01	No
	MCPP	LW2-W2020	ug/l	1.9E+01	1.1E+02	No
	MCPP	LW2-W2021	ug/l	1.9E+01	1.1E+02	No
RM 8.5 W	**Polynuclear Aromatic Hydrocarbons**					
	Indeno(1,2,3-cd)pyrene		ug/l	5.1E-03		
Transect Samples						
Transect W025, RM 2	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)anthracene	LW3-W2025-WS-Int	ug/l	6.2E-04	7.8E-03	No
	Benzo(a)anthracene	LW3-W3025-WS-Int	ug/l	6.2E-04	7.8E-03	No
	Benzo(a)anthracene	LW3-W4025-WS-Int	ug/l	6.2E-04	7.8E-03	No
	Benzo(a)anthracene	LW3-W4025-M2	ug/l	6.2E-04	7.8E-03	No
	Benzo(a)pyrene	LW3-W2025-WS-Int	ug/l	5.1E-04	8.6E-03	No
	Benzo(a)pyrene	LW3-W3025-WS-Int	ug/l	5.1E-04	8.6E-03	No
	Benzo(a)pyrene	LW3-W4025-WS-Int	ug/l	5.1E-04	8.6E-03	No
	Benzo(a)pyrene	LW3-W4025-M2	ug/l	5.1E-04	8.6E-03	No
	Benzo(b)fluoranthene	LW3-W2025-WS-Int	ug/l	6.2E-04	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W3025-WS-Int	ug/l	6.2E-04	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4025-WS-Int	ug/l	6.2E-04	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4025-M2	ug/l	6.2E-04	9.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W2025-WS-Int	ug/l	1.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W2025-WSXAD-Comb-Int	ug/l	1.5E-04	1.5E-04	No
	Dibenzo(a,h)anthracene	LW3-W3025-WS-Int	ug/l	1.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W3025-WSXAD-Comb-Int	ug/l	1.5E-04	2.8E-03	No
	Dibenzo(a,h)anthracene	LW3-W4025-WS-Int	ug/l	1.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4025-M2	ug/l	1.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4025-M2-WSXAD-Combo	ug/l	1.5E-04	2.8E-04	No
	Indeno(1,2,3-cd)pyrene	LW3-W2025-WS-Int	ug/l	1.9E-04	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3025-WS-Int	ug/l	1.9E-04	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3025-WSXAD-Comb-Int	ug/l	1.9E-04	2.0E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W4025-WS-Int	ug/l	1.9E-04	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W4025-M2	ug/l	1.9E-04	6.6E-03	No
Transect W005, RM 3.9	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)anthracene	LW2-W005	ug/l	2.4E-03	4.2E-03	No
	Benzo(a)anthracene	LW2-W2005	ug/l	2.4E-03	4.2E-03	No
	Benzo(a)anthracene	LW2-W3005	ug/l	2.4E-03	4.2E-03	No
	Benzo(a)anthracene	LW3-W2005-WS-Int	ug/l	2.4E-03	7.8E-03	No
	Benzo(a)anthracene	LW3-W3005-WS-Int	ug/l	2.4E-03	5.9E-03	No
	Benzo(a)anthracene	LW3-W4005-WS-Int	ug/l	2.4E-03	7.8E-03	No
	Benzo(a)pyrene	LW2-W005	ug/l	2.1E-03	3.2E-03	No
	Benzo(a)pyrene	LW2-W2005	ug/l	2.1E-03	3.2E-03	No
	Benzo(a)pyrene	LW2-W3005	ug/l	2.1E-03	3.2E-03	No
	Benzo(a)pyrene	LW3-W2005-WS-Int	ug/l	2.1E-03	8.6E-03	No
	Benzo(a)pyrene	LW3-W3005-WS-Int	ug/l	2.1E-03	6.5E-03	No
	Benzo(a)pyrene	LW3-W4005-WS-Int	ug/l	2.1E-03	8.6E-03	No
	Benzo(b)fluoranthene	LW2-W005	ug/l	2.1E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W2005	ug/l	2.1E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W3005	ug/l	2.1E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW3-W2005-WS-Int	ug/l	2.1E-03	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W3005-WS-Int	ug/l	2.1E-03	6.9E-03	No
	Benzo(b)fluoranthene	LW3-W4005-WS-Int	ug/l	2.1E-03	9.2E-03	No
	Dibenzo(a,h)anthracene	LW2-W005	ug/l	3.3E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W2005	ug/l	3.3E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3005	ug/l	3.3E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW3-W1005	ug/l	3.3E-04	1.7E-03	No
	Dibenzo(a,h)anthracene	LW3-W2005-WS-Int	ug/l	3.3E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W3005-WS-Int	ug/l	3.3E-04	5.4E-03	No

TABLE F2-12.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water, Direct Contact to Divers

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
	Dibenzo(a,h)anthracene	LW3-W3005-WSXAD-Comb-Int	ug/l	3.3E-04	1.6E-03	No
	Dibenzo(a,h)anthracene	LW3-W4005-WS-Int	ug/l	3.3E-04	7.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W005	ug/l	1.5E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W2005	ug/l	1.5E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3005	ug/l	1.5E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W1005	ug/l	1.5E-03	2.1E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W2005-WS-Int	ug/l	1.5E-03	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3005-WS-Int	ug/l	1.5E-03	5.0E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W4005-WS-Int	ug/l	1.5E-03	6.6E-03	No
	Naphthalene	LW2-W3005	ug/l	2.4E-02	3.2E-02	No
	Naphthalene	LW3-W3005-WSXAD-Comb-Int	ug/l	2.4E-02	8.2E-02	No
	Naphthalene	LW3-W4005-WSXAD-Comb-Int	ug/l	2.4E-02	2.7E-02	No
	Herbicides					
	MCPP	LW2-W005	ug/l	9.1E+00	1.6E+01	No
	MCPP	LW2-W3005	ug/l	9.1E+00	1.8E+01	No
Transect W011, RM 6.3	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)pyrene	LW2-W011	ug/l	1.8E-03	6.4E-03	No
	Benzo(a)pyrene	LW2-W2011B	ug/l	1.8E-03	3.2E-03	No
	Benzo(a)pyrene	LW2-W3011	ug/l	1.8E-03	3.2E-03	No
	Benzo(a)pyrene	LW3-W2011-WS-Int	ug/l	1.8E-03	8.6E-03	No
	Benzo(a)pyrene	LW3-W3011-WS-Int	ug/l	1.8E-03	8.6E-03	No
	Benzo(a)pyrene	LW3-W4011-WS-Int	ug/l	1.8E-03	8.6E-03	No
	Benzo(b)fluoranthene	LW2-W011	ug/l	1.5E-03	7.8E-03	No
	Benzo(b)fluoranthene	LW2-W2011B	ug/l	1.5E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W3011	ug/l	1.5E-03	3.9E-03	No
	Benzo(b)fluoranthene	LW3-W2011-WS-Int	ug/l	1.5E-03	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W3011-WS-Int	ug/l	1.5E-03	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4011-WS-Int	ug/l	1.5E-03	9.2E-03	No
	Dibenzo(a,h)anthracene	LW2-W011	ug/l	2.1E-04	6.5E-03	No
	Dibenzo(a,h)anthracene	LW2-W2011B	ug/l	2.1E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3011	ug/l	2.1E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW3-W2011-WS-Int	ug/l	2.1E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W3011-WS-Int	ug/l	2.1E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W3011-WSXAD-Comb-Int	ug/l	2.1E-04	1.9E-03	No
	Dibenzo(a,h)anthracene	LW3-W4011-WS-Int	ug/l	2.1E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4011-WSXAD-Comb-Int	ug/l	2.1E-04	2.7E-04	No
	Indeno(1,2,3-cd)pyrene	LW2-W011	ug/l	1.3E-03	8.4E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W2011B	ug/l	1.3E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW2-W3011	ug/l	1.3E-03	4.2E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W2011-WS-Int	ug/l	1.3E-03	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3011-WS-Int	ug/l	1.3E-03	6.6E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W3011-WSXAD-Comb-Int	ug/l	1.3E-03	1.7E-03	No
	Indeno(1,2,3-cd)pyrene	LW3-W4011-WS-Int	ug/l	1.3E-03	6.6E-03	No
	Naphthalene	LW2-W3011	ug/l	1.5E-02	4.7E-02	No
	Naphthalene	LW3-W2011-WSXAD-Comb-Int	ug/l	1.5E-02	2.5E-02	No
	Naphthalene	LW3-W3011-WS-Int	ug/l	1.5E-02	2.0E-02	No
	Naphthalene	LW3-W3011-WSXAD-Comb-Int	ug/l	1.5E-02	9.1E-02	No
	Naphthalene	LW3-W4011-WSXAD-Comb-Int	ug/l	1.5E-02	2.0E-02	No
Transect W023, RM 11	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)pyrene	LW2-W023	ug/l	6.3E-04	6.4E-03	No
	Benzo(a)pyrene	LW2-W2023	ug/l	6.3E-04	3.2E-03	No
	Benzo(a)pyrene	LW2-W3023	ug/l	6.3E-04	3.2E-03	No
	Benzo(a)pyrene	LW3-W1023-1	ug/l	6.3E-04	1.6E-03	No
	Benzo(a)pyrene	LW3-W1023-2	ug/l	6.3E-04	1.6E-03	No
	Benzo(a)pyrene	LW3-W2023-WS-Int	ug/l	6.3E-04	8.6E-03	No
	Benzo(a)pyrene	LW3-W3023-WS-Int	ug/l	6.3E-04	8.6E-03	No
	Benzo(a)pyrene	LW3-W4023-WS-Int	ug/l	6.3E-04	8.6E-03	No
	Benzo(a)pyrene	LW3-W4023-M2	ug/l	6.3E-04	8.6E-03	No
	Benzo(b)fluoranthene	LW2-W023	ug/l	8.2E-04	7.8E-03	No
	Benzo(b)fluoranthene	LW2-W2023	ug/l	8.2E-04	3.9E-03	No
	Benzo(b)fluoranthene	LW2-W3023	ug/l	8.2E-04	3.9E-03	No
	Benzo(b)fluoranthene	LW3-W1023-1	ug/l	8.2E-04	2.0E-03	No
	Benzo(b)fluoranthene	LW3-W1023-2	ug/l	8.2E-04	2.0E-03	No
	Benzo(b)fluoranthene	LW3-W2023-WS-Int	ug/l	8.2E-04	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W3023-WS-Int	ug/l	8.2E-04	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4023-WS-Int	ug/l	8.2E-04	9.2E-03	No
	Benzo(b)fluoranthene	LW3-W4023-M2	ug/l	8.2E-04	9.2E-03	No
	Dibenzo(a,h)anthracene	LW2-W023	ug/l	4.5E-04	6.5E-03	No
	Dibenzo(a,h)anthracene	LW2-W2023	ug/l	4.5E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW2-W3023	ug/l	4.5E-04	3.3E-03	No
	Dibenzo(a,h)anthracene	LW3-W1023-1	ug/l	4.5E-04	1.7E-03	No
	Dibenzo(a,h)anthracene	LW3-W1023-2	ug/l	4.5E-04	1.7E-03	No
	Dibenzo(a,h)anthracene	LW3-W2023-WS-Int	ug/l	4.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W3023-WS-Int	ug/l	4.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4023-WS-Int	ug/l	4.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4023-M2	ug/l	4.5E-04	7.2E-03	No
	Dibenzo(a,h)anthracene	LW3-W4023-M2-WSXAD-Combo	ug/l	4.5E-04	4.5E-04	No
	Naphthalene	LW2-W3023	ug/l	3.5E-02	4.3E-02	No
	Naphthalene	LW3-W3023-WSXAD-Comb-Int	ug/l	3.5E-02	6.7E-02	No

TABLE F2-12.
Nondetects Greater Than The Maximum Detection Per Exposure Area

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water, Direct Contact to Divers

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Units	Maximum Detected Concentration	Nondetect Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
	Herbicides					
	MCPP	LW2-W023	ug/l	8.0E+00	1.6E+01	No
	MCPP	LW2-W3023	ug/l	8.0E+00	2.0E+01	No

Notes:

a Exposure areas not listed indicate there were no non-detected results with detection limits exceeding the maximum detected concentrations that were removed from the dataset prior to the calculation of exposure point concentrations.

Abbreviations:

mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 1 East	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	LW3-GSP01E	90	ug/kg	7.1E+01	No
RM 1.5 East	**Pesticides**					
	Dieldrin	LW3-DG07	0.79	ug/kg	6.9E-02	No
	Dieldrin	LW3-DG06	0.69	ug/kg	6.9E-02	No
	Dieldrin	LW3-DG05	5	ug/kg	6.9E-02	No
RM 2 East	**Pesticides**					
	Aldrin	LWG0102R015SDS015C00	9.6	ug/kg	2.6E+00	No
	Aldrin	LWG0102R001SDS015C00	10	ug/kg	2.6E+00	No
	Dieldrin	LWG0102R015SDS015C00	20	ug/kg	9.3E+00	No
	Dieldrin	LWG0102R001SDS015C00	14	ug/kg		Yes
	Total DDT	LWG0102R015SDS015C00	23	ug/kg	8.3E+00	No
RM 2.5 West	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	LW2-G041	90	ug/kg	4.3E+01	No
	Bis(2-ethylhexyl) phthalate	WLCDRD05PG00404	54	ug/kg		Yes
	Pesticides					
	Aldrin	WLCDRD05PG00404	0.26	ug/kg	2.6E-01	No
	Dieldrin	WLCDRD05PG00404	1	ug/kg	3.5E-01	No
RM 2.5 East	**Pesticides**					
	Aldrin	LW3-G609	1.3	ug/kg	1.3E+00	No
	Dieldrin	LW3-G609	3.8	ug/kg	5.3E-01	No
	Dieldrin	WLCDRD05PG00303	1	ug/kg		Yes
	Total DDT	LW3-G609	41	ug/kg	2.6E+01	No
RM 3 West	**Polychlorinated Biphenyls**					
	Total Aroclors	WR-WSI98SD0010	39	ug/kg	3.0E+01	No
	Pesticides					
	Aldrin	LWG0103R040SDS015C00	2	ug/kg	1.1E+00	No
	Dieldrin	LWG0103R040SDS015C00	3.9	ug/kg	1.3E+00	No
	Dieldrin	WR-WSI98SD0010	2			Yes

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 3 East	**Polynuclear Aromatic Hydrocarbons**					
	Naphthalene	LWG0103R001SDS015C00	59	ug/kg	2.9E+01	No
	Naphthalene	LWG0103R003SDS015C10	58	ug/kg	2.9E+01	No
	Polychlorinated Biphenyls					
	Total Aroclors	WR-WSI98SD0040	37	ug/kg	3.4E+01	No
	Pesticides					
	Dieldrin	LWG0103R041SDS015C00	0.4	ug/kg	2.0E-01	No
	Dieldrin	LWG0103R001SDS015C00	0.39	ug/kg	2.0E-01	No
	Dieldrin	LW3-G613	0.26	ug/kg	2.0E-01	No
	Dieldrin	WR-WSI98SD0040	1.9	ug/kg	2.0E-01	No
	Dieldrin	LWG0103R003SDS015C10	0.38	ug/kg	2.0E-01	No
	Dieldrin	LWG0103R003SDS015C20	0.39	ug/kg	2.0E-01	No
	Dieldrin	LWG0103R003SDS015C31	0.39	ug/kg	2.0E-01	No
RM 3.5 West	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	WR-WSI98SD0110	170	ug/kg	1.1E+02	No
	Bis(2-ethylhexyl) phthalate	WR-WSI98SD0150	120	ug/kg	1.1E+02	No
	Polychlorinated Biphenyls					
	Total Aroclors	WR-WSI98SD0110	40	ug/kg	3.8E+01	No
	Pesticides					
	Dieldrin	WR-WSI98SD0110	2	ug/kg	2.5E-01	No
	Dieldrin	WLCDRD05PG00606	1	ug/kg	2.5E-01	No
	Dieldrin	LWG0103R032SDS015C00	0.95	ug/kg	2.5E-01	No
	Dieldrin	WLCDRD05PG140140Dup	1	ug/kg	2.5E-01	No
RM 3.5 East	**Polynuclear Aromatic Hydrocarbons**					
	Naphthalene	LWG0103R005SDS015C00	120	ug/kg	6.4E+01	No
	Pesticides					
	Aldrin	LW2-C094-A	1.7	ug/kg	1.7E+00	No
	Dieldrin	WR-WSI98SD0120	1.9	ug/kg	1.2E+00	No
	Dieldrin	LW2-C094-A	1.4	ug/kg	1.2E+00	No
RM 4 West	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	WR-WSI98SD0170	140	ug/kg	1.2E+02	No
	Bis(2-ethylhexyl) phthalate	WR-WSI98SD0240	140	ug/kg	1.2E+02	No
	Bis(2-ethylhexyl) phthalate	WLCOFJ02240224020	177	ug/kg	1.2E+02	No
	Bis(2-ethylhexyl) phthalate	WR-WSI98SD0260	140	ug/kg	1.2E+02	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
	Pesticides					
	Dieldrin	WLCDRD05PG01212	1	ug/kg	2.8E-01	No
	Dieldrin	WR-WSI98SD0200	1.9	ug/kg	2.8E-01	No
	Dieldrin	WLCDRD05PG01414	1	ug/kg	2.8E-01	No
	Dieldrin	WLCDRD05PG01616	1	ug/kg	2.8E-01	No
	Dieldrin	WLCOFJ02240324030	0.959	ug/kg	2.8E-01	No
	Dieldrin	WLCOFJ02240424040	0.739	ug/kg	2.8E-01	No
	Dieldrin	WLCOFJ02240124010	0.656	ug/kg	2.8E-01	No
	Dieldrin	WLCOFJ02240224020	0.89	ug/kg	2.8E-01	No
	Dieldrin	WLCOFJ02240524050	0.977	ug/kg	2.8E-01	No
	Dieldrin	WLCDRD05PG01818	1	ug/kg	2.8E-01	No
	Dieldrin	LW3-G626	0.4	ug/kg	2.8E-01	No
	Dieldrin	LW2-G132	0.339	ug/kg	2.8E-01	No
RM 4 East	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	LWG0103R004SDS015C30	19000	ug/kg	1.4E+04	No
	Pesticides					
	Aldrin	WLCOFJ0252C0552C050	9.96	ug/kg	3.2E+00	No
	Aldrin	WLCOFJ0252C0152C010	10	ug/kg	3.2E+00	No
	Dieldrin	LWG0103R004SDS015C30	1.7	ug/kg	1.6E-01	No
	Dieldrin	LWG0103R004SDS015C11	1.2	ug/kg	1.6E-01	No
	Dieldrin	LWG0103R004SDS015C20	2.8	ug/kg	1.6E-01	No
	Dieldrin	WR-WSI98SD0210000CC	2	ug/kg	1.6E-01	No
	Dieldrin	WLCDRD05PG00909	1	ug/kg	1.6E-01	No
	Dieldrin	WLCOFJ0252C0452C040	0.791	ug/kg	1.6E-01	No
	Dieldrin	WLCDRD05PG01111	1	ug/kg	1.6E-01	No
	Dieldrin	WLCOFJ0252C0352C030	0.818	ug/kg	1.6E-01	No
	Dieldrin	WLCOFJ0252C0552C050	7.57	ug/kg	1.6E-01	No
	Dieldrin	WLCOFJ0252C0152C010	7.6	ug/kg	1.6E-01	No
	Dieldrin	WLCOFJ0252C0252C020	0.814	ug/kg	1.6E-01	No
	Dieldrin	LWG0104R003SDS015C00	0.9	ug/kg	1.6E-01	No
RM 4.5 West	**Pesticides**					
	Dieldrin	WLCDRD05PG02222	1.1	ug/kg	3.9E-01	No
	Dieldrin	LW2-C138-A	0.87	ug/kg	3.9E-01	No
	Dieldrin	LWG0104R004SDS015C00	0.7	ug/kg	3.9E-01	No
	Dieldrin	WLCDRD05PG02424	1	ug/kg	3.9E-01	No
	Dieldrin	WR-WSI98SD0350	1.9	ug/kg	3.9E-01	No
	Dieldrin	LW2-C158-A	0.76	ug/kg	3.9E-01	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 4.5 East	**Polychlorinated Biphenyls**					
	Total Aroclors	WLCT4C04UP14UP14	100	ug/kg	8.4E+01	No
	Pesticides					
	Aldrin	WR-WSI98SD0340	0.97	ug/kg	1.5E-01	No
	Aldrin	WLCDRD05PG01313	0.21	ug/kg	1.5E-01	No
	Dieldrin	WR-WSI98SD0340	1.9	ug/kg	8.4E-02	No
	Dieldrin	WLCDRD05PG01313	1	ug/kg	8.4E-02	No
RM 5 West	**Pesticides**					
	Dieldrin	WR-WSI98SD0480000CC	1.9	ug/kg	7.8E-01	No
	Dieldrin	LW2-C187-A	1	ug/kg	7.8E-01	No
RM 5 East	**Pesticides**					
	Aldrin	WLCOFJ02530453040	1.16	ug/kg	8.0E-01	No
	Aldrin	WLCOFJ02530553050	1.13	ug/kg	8.0E-01	No
	Aldrin	WLCOFJ02530153010	1.34	ug/kg	8.0E-01	No
	Aldrin	WLCOFJ02530353030	1.11	ug/kg	8.0E-01	No
	Aldrin	WLCOFJ02530253020	0.935	ug/kg	8.0E-01	No
	Aldrin	WR-WSI98SD0490	0.96	ug/kg	8.0E-01	No
	Dieldrin	WLCDRD05PG01515	1	ug/kg	7.9E-01	No
	Dieldrin	WLCOFJ02530453040	0.884	ug/kg	7.9E-01	No
	Dieldrin	WLCOFJ02530353030	0.842	ug/kg	7.9E-01	No
	Dieldrin	WLCOFJ02530553050	0.857	ug/kg	7.9E-01	No
	Dieldrin	WLCOFJ02530153010	1.02	ug/kg	7.9E-01	No
	Dieldrin	WR-WSI98SD0490	1.9	ug/kg	7.9E-01	No
	Dieldrin	WLCDRD05PG02121	1	ug/kg	7.9E-01	No
RM 5.5 West	**Metals**					
	Thallium	WR-WSI98SD0550	4	mg/kg	8.0E-02	No
	Thallium	WR-WSI98SD0570	5	mg/kg	8.0E-02	No
	Thallium	WR-WSI98SD0590	5	mg/kg	8.0E-02	No
	Pesticides					
	Dieldrin	WR-WSI98SD0550	2	ug/kg	1.5E+00	No
	Dieldrin	WR-WSI98SD0570	1.9	ug/kg	1.5E+00	No
	Dieldrin	LW3-G654	2	ug/kg	1.5E+00	No
	Dieldrin	WLCMRI02CS005CS005	2	ug/kg	1.5E+00	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 5.5 East	**Pesticides**					
	Aldrin	WLCOFJ0252A0352A030	2.83	ug/kg	2.6E+00	No
	Dieldrin	WLCOFJ0252A0352A030	5.67	ug/kg	5.3E+00	No
	Dieldrin	LWG0105R003SDS015C00	9.1	ug/kg	5.3E+00	No
RM 6 West	**Metals**					
	Arsenic	WLCMRI02CS004CS004	10	mg/kg	8.1E+00	No
	Arsenic	WR-WSI98SD0690	9	mg/kg	8.1E+00	No
	Thallium	WR-WSI98SD0690	9	mg/kg	6.0E+00	No
RM 6 East	**Pesticides**					
	Dieldrin	LW2-G247	0.319	ug/kg	1.0E-01	No
	Dieldrin	LW2-G244	0.313	ug/kg	1.0E-01	No
	Dieldrin	LW2-G249	0.285	ug/kg	1.0E-01	No
	Dieldrin	LW2-G255	0.32	ug/kg	1.0E-01	No
	Dieldrin	LW2-G254	0.621	ug/kg	1.0E-01	No
	Dieldrin	WLCOFJ02490349030	0.795	ug/kg	1.0E-01	No
	Dieldrin	WLCOFJ02490149010	0.637	ug/kg	1.0E-01	No
	Dieldrin	WLCOFJ02490249020	0.71	ug/kg	1.0E-01	No
	Dieldrin	WLCOFJ02490649060	0.646	ug/kg	1.0E-01	No
	Dieldrin	WLCOFJ02490449040	0.756	ug/kg	1.0E-01	No
	Dieldrin	WLCOFJ02490549050	0.839	ug/kg	1.0E-01	No
RM 6.5 West	**Metals**					
	Thallium	WR-WSI98SD0700000CC	8	mg/kg	1.3E-01	No
	Thallium	WR-WSI98SD0720	9	mg/kg	1.3E-01	No
	Thallium	WR-WSI98SD0750	9	mg/kg	1.3E-01	No
	Thallium	WR-WSI98SD0770	10	mg/kg	1.3E-01	No
	Thallium	WR-WSI98SD0800	5	mg/kg	1.3E-01	No
	Thallium	WR-WSI98SD0810	8	mg/kg	1.3E-01	No
	Thallium	WR-WSI98SD0780	8	mg/kg	1.3E-01	No
	Polychlorinated Biphenyls					
	Total Aroclors	WR-WSI98SD0770	760	ug/kg	3.3E+02	No
	Total Aroclors	WR-WSI98SD0810	2000	ug/kg	3.3E+02	No
	Pesticides					
	Aldrin	WR-WSI98SD0810	50	ug/kg	2.6E+01	No
	Aldrin	WR-WSI98SD0780	48	ug/kg	2.6E+01	No
	Aldrin	WR-WSI98SD0800	48	ug/kg	2.6E+01	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
	Dieldrin	LWG0106R004SDS015C00	8.4	ug/kg	3.9E+00	No
	Dieldrin	WR-WSI98SD0770	38	ug/kg	3.9E+00	No
	Dieldrin	WR-WSI98SD0800	96	ug/kg	3.9E+00	No
	Dieldrin	WR-WSI98SD0810	99	ug/kg	3.9E+00	No
	Dieldrin	WR-WSI98SD0780	95	ug/kg	3.9E+00	No
RM 6.5 East	**Pesticides**					
	Aldrin	LW2-C533-A	0.47	ug/kg	2.9E-01	No
	Aldrin	LW2-G282	0.31	ug/kg	2.9E-01	No
	Aldrin	LW2-C524-A	0.47	ug/kg	2.9E-01	No
	Aldrin	WR-WSI98SD0740	1	ug/kg	2.9E-01	No
	Dieldrin	LW2-C533-A	3.9	ug/kg	9.7E-01	No
	Dieldrin	WR-WSI98SD0740	2	ug/kg	9.7E-01	No
RM 7 West	**Polychlorinated Biphenyls**					
	Total Aroclors	WR-WSI98SD0840	2000	ug/kg	3.3E+02	No
	Total Aroclors	WR-WSI98SD0870	2000	ug/kg	3.3E+02	No
	Total Aroclors	WR-WSI98SD0900	4000	ug/kg	3.3E+02	No
	Total Aroclors	LW2-G355	1000	ug/kg	3.3E+02	No
	Total Aroclors	LWG0107R006SDS015C00	2200	ug/kg	3.3E+02	No
	Total Aroclors	WR-WSI98SD0920000CC	750	ug/kg	3.3E+02	No
	Pesticides					
	Dieldrin	WR-WSI98SD0840	98	ug/kg	1.3E+01	No
	Dieldrin	WR-WSI98SD0850	20	ug/kg	1.3E+01	No
	Dieldrin	WR-WSI98SD0830	97	ug/kg	1.3E+01	No
	Dieldrin	WR-WSI98SD0880	190	ug/kg	1.3E+01	No
	Dieldrin	WR-WSI98SD0870	100	ug/kg	1.3E+01	No
	Dieldrin	WR-WSI98SD0900	200	ug/kg	1.3E+01	No
	Dieldrin	LWG0107R006SDS015C00	270	ug/kg	1.3E+01	No
	Dieldrin	WR-WSI98SD0920000CC	38	ug/kg	1.3E+01	No
	Dieldrin	LWG2-PG-CP9A	15	ug/kg	1.3E+01	No
	Dieldrin	WR-WSI98SD0970	200	ug/kg	1.3E+01	No
RM 7 East	**Pesticides**					
	Aldrin	WLCOFJ02480648060	1.87	ug/kg	4.6E-01	No
	Aldrin	WLCOFJ02480548050	1.08	ug/kg	4.6E-01	No
	Aldrin	WLCOFJ02480148010	1.27	ug/kg	4.6E-01	No
	Aldrin	WLCOFJ02480248020	0.883	ug/kg	4.6E-01	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
	Aldrin	WLCOFJ02480348030	1.14	ug/kg	4.6E-01	No
	Aldrin	WR-WSI98SD0960	1.8	ug/kg	4.6E-01	No
	Dieldrin	WLCOFJ02480648060	1.42	ug/kg	3.5E-01	No
	Dieldrin	WLCOFJ02480548050	0.823	ug/kg	3.5E-01	No
	Dieldrin	LWG0107R004SDS015C00	0.39	ug/kg	3.5E-01	No
	Dieldrin	WLCOFJ02480148010	0.967	ug/kg	3.5E-01	No
	Dieldrin	WLCOFJ02480348030	0.866	ug/kg	3.5E-01	No
	Dieldrin	WLCOFJ02480248020	0.672	ug/kg	3.5E-01	No
	Dieldrin	WR-WSI98SD0960	2	ug/kg	3.5E-01	No
RM 7.5 West	**Metals**					
	Arsenic	WR-WSI98SD1100	6	mg/kg	5.4E+00	No
	Arsenic	WR-WSI98SD1050	6	mg/kg	5.4E+00	No
	Arsenic	WR-WSI98SD1070	6	mg/kg	5.4E+00	No
	Arsenic	WR-WSI98SD1130	6	mg/kg	5.4E+00	No
	Arsenic					
	Polychlorinated Biphenyls					
	Total Aroclors	LWG0107R003SDS015C00	2600	ug/kg	7.7E+02	No
	Pesticides					
	Aldrin	LWG0107R003SDS015C00	65	ug/kg	9.7E-01	No
	Aldrin	WLCOFJ022203122031	1.24	ug/kg	9.7E-01	No
	Aldrin	WLCOFJ02220322030	1.24	ug/kg	9.7E-01	No
	Aldrin	WLCOFJ02220122010	1.07	ug/kg	9.7E-01	No
	Aldrin	WLCOFJ02220222020	1.23	ug/kg	9.7E-01	No
	Aldrin	WLCOFJ02220522050	1.79	ug/kg	9.7E-01	No
	Aldrin	WLCOFJ02220622060	1.62	ug/kg	9.7E-01	No
	Aldrin	WLCOFJ02220422040	1.73	ug/kg	9.7E-01	No
	Aldrin	WR-WSI98SD1170000CC	0.98	ug/kg	9.7E-01	No
	Dieldrin	LWG0107R003SDS015C00	130	ug/kg	7.7E-01	Yes
	Dieldrin	WLCOFJ022203122031	0.942	ug/kg	7.7E-01	No
	Dieldrin	WLCOFJ02220122010	0.812	ug/kg	7.7E-01	No
	Dieldrin	WLCOFJ02220222020	0.932	ug/kg	7.7E-01	No
	Dieldrin	WLCOFJ02220522050	1.36	ug/kg	7.7E-01	No
	Dieldrin	WLCOFJ02220622060	1.23	ug/kg	7.7E-01	No
	Dieldrin	WLCOFJ02220322030	0.946	ug/kg	7.7E-01	No
	Dieldrin	WLCOFJ02220422040	1.31	ug/kg	7.7E-01	No
	Dieldrin	WR-WSI98SD1170000CC	2	ug/kg	7.7E-01	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 7.5 East	**Polynuclear Aromatic Hydrocarbons**					
	Naphthalene	LW2-G354	12	ug/kg	1.1E+01	No
	Naphthalene	WR-WSI98SD1020	19	ug/kg	1.1E+01	No
	Naphthalene	WR-WSI98SD1030	20	ug/kg	1.1E+01	No
	Naphthalene	WR-WSI98SD1010	19	ug/kg	1.1E+01	No
	Naphthalene	WR-WSI98SD1080	20	ug/kg	1.1E+01	No
	Naphthalene	WR-WSI98SD1060	20	ug/kg	1.1E+01	No
	Naphthalene	WR-WSI98SD1110	20	ug/kg	1.1E+01	No
	Naphthalene	WR-WSI98SD1190	19	ug/kg	1.1E+01	No
	Pesticides					
	Dieldrin	LW2-G370	0.447	ug/kg	3.4E-01	No
RM 8 West	**Pesticides**					
	Aldrin	LWG0108R002SDS015C00	0.19	ug/kg	1.2E-01	No
	Aldrin	LW2-G434	0.177	ug/kg	1.2E-01	No
	Aldrin	LW2-G431	0.198	ug/kg	1.2E-01	No
	Aldrin	WLCOFJ02190319030	1.29	ug/kg	1.2E-01	No
	Aldrin	WLCOFJ02190119010	1.4	ug/kg	1.2E-01	No
	Aldrin	WLCOFJ02190219020	3.61	ug/kg	1.2E-01	No
	Aldrin	WLCOFJ0219A0319A030	1.42	ug/kg	1.2E-01	No
	Aldrin	WLCOFJ0219A0119A010	1.14	ug/kg	1.2E-01	No
	Aldrin	WLCOFJ0219A0219A020	1.27	ug/kg	1.2E-01	No
	Aldrin	WR-WSI98SD1370000CC	0.95	ug/kg	1.2E-01	No
	Aldrin	LW2-C436-A	0.36	ug/kg	1.2E-01	No
	Aldrin	LW2-G439	0.267	ug/kg	1.2E-01	No
RM 8 East	**Pesticides**					
	Aldrin	LW3-G706	0.5	ug/kg	4.4E-01	No
	Aldrin	PSYSEA98PSY27PSY27S	2	ug/kg	4.4E-01	No
	Aldrin	PSYSEA98PSY12PSY12S	2	ug/kg	4.4E-01	No
	Aldrin	WLCOFJ02S0601S6010	1.55	ug/kg	4.4E-01	No
RM 8 SIL	**Pesticides**					
	Aldrin	WLCOFJ02M0301M3010	26.6	ug/kg	6.0E+00	No
	Aldrin	WLCOFJ02M0303M3030	11.2	ug/kg	6.0E+00	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 8.5 East	**Polynuclear Aromatic Hydrocarbons**					
	Dibenzo(a,h)anthracene	WR-WSI98SD1450	24	ug/kg	2.2E+01	No
	Pesticides					
	Aldrin	LW2-G424	0.221	ug/kg	4.1E-02	No
	Aldrin	WR-WSI98SD1380	0.95	ug/kg	4.1E-02	No
	Aldrin	LW2-G408	0.0672	ug/kg	4.1E-02	No
	Aldrin	LW2-G429	0.201	ug/kg	4.1E-02	No
	Aldrin	LW2-G433-1	0.0518	ug/kg	4.1E-02	No
	Aldrin	LW2-G433-2	0.0514	ug/kg	4.1E-02	No
	Aldrin	PSYSEA98PSY49PSY49S	2	ug/kg	4.1E-02	No
	Dieldrin	WR-WSI98SD1380	1.9	ug/kg	4.4E-01	No
	Dieldrin	PSYSEA98PSY49PSY49S	2	ug/kg	4.4E-01	No
RM 9 West	**Pesticides**					
	Aldrin	WR-WSI98SD1510000CC	9.7	ug/kg	1.4E+00	No
	Dieldrin	WR-WSI98SD1510000CC	19	ug/kg	6.3E-01	No
RM 9 East	**Polynuclear Aromatic Hydrocarbons**					
	Benzo(a)anthracene	WLCOFJ02S0501S5010	132	ug/kg	2.2E+01	No
	Benzo(a)pyrene	WLCOFJ02S0501S5010	132	ug/kg	3.5E+01	No
	Benzo(b)fluoranthene	WLCOFJ02S0501S5010	264	ug/kg	3.9E+01	No
	Dibenzo(a,h)anthracene	WLCOFJ02S0506S5060	16.8	ug/kg	4.8E+00	No
	Dibenzo(a,h)anthracene	WLCOFJ02S0501S5010	132	ug/kg	4.8E+00	No
	Indeno(1,2,3-cd)pyrene	WLCOFJ02S0501S5010	132	ug/kg	2.6E+01	No
	Naphthalene	WLCOFJ02S0506S5060	16.8	ug/kg	8.9E+00	No
	Naphthalene	WLCOFJ02S0501S5010	132	ug/kg	8.9E+00	No
	Pesticides					
	Dieldrin	WLCOFJ02S0505S5050	0.713	ug/kg	2.6E-01	No
	Dieldrin	WLCOFJ02S0502S5020	1.24	ug/kg	2.6E-01	No
	Dieldrin	WLCOFJ02S0504S5040	0.767	ug/kg	2.6E-01	No
	Dieldrin	WLCOFJ02S0507S5070	0.952	ug/kg	2.6E-01	No
	Dieldrin	WLCOFJ02S0506S5060	0.822	ug/kg	2.6E-01	No
	Dieldrin	WLCOFJ02S0501S5010	0.751	ug/kg	2.6E-01	No
	Dieldrin	WLCOFJ02S0503S5030	0.706	ug/kg	2.6E-01	No
	Dieldrin	LW2-G454	0.275	ug/kg	2.6E-01	No
	Dieldrin	WLCDRD05PG03535	0.33	ug/kg	2.6E-01	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 9.5 West	**Pesticides**					
	Aldrin	LWG0109R002SDS015C00	3.8	ug/kg	2.8E+00	No
	Total DDT	LW3-G740	12	ug/kg	9.2E+00	No
RM 9.5 East	**Polynuclear Aromatic Hydrocarbons**					
	Naphthalene	LWG0109R041SDS015C00	19	ug/kg	1.2E+01	No
	Pesticides					
	Aldrin	PSYSEA98PSY70PSY70S	6	ug/kg	4.7E-01	No
	Aldrin	PSYSEA98PSY71PSY71S	6	ug/kg	4.7E-01	No
	Dieldrin	LW2-G472	0.0574	ug/kg	4.3E-02	No
	Dieldrin	LW2-G470	0.072	ug/kg	4.3E-02	No
	Dieldrin	WLCDRD05PG03737	1	ug/kg	4.3E-02	No
	Dieldrin	LW2-G476	0.0646	ug/kg	4.3E-02	No
	Dieldrin	WLCDRD05PG136136Dup	0.2	ug/kg	4.3E-02	No
	Dieldrin	WLCDRD05PG03939	0.21	ug/kg	4.3E-02	No
	Dieldrin	PSYSEA98PSY70PSY70S	6	ug/kg	4.3E-02	Yes
	Dieldrin	LWG0109R041SDS015C00	0.53	ug/kg	4.3E-02	No
	Dieldrin	LW2-G481	0.068	ug/kg	4.3E-02	No
	Dieldrin	WLCDRD05PG04141	0.99	ug/kg	4.3E-02	No
	Dieldrin	PSYSEA98PSY71PSY71S	6	ug/kg	4.3E-02	Yes
	Dieldrin	WLCDRD05PG04343	0.3	ug/kg	4.3E-02	No
	Dieldrin	LW3-G743	0.13	ug/kg	4.3E-02	No
	Dieldrin	LW3-G742	0.22	ug/kg	4.3E-02	No
	Dieldrin	LW3-GSP10E	0.051	ug/kg	4.3E-02	No
	Dieldrin	LW2-G487	0.0513	ug/kg	4.3E-02	No
	Dieldrin	WLCDRD05PG135135Dup	0.19	ug/kg	4.3E-02	No
	Dieldrin	WLCDRD05PG04545	0.13	ug/kg	4.3E-02	No
	Total DDT	PSYSEA98PSY70PSY70S	6	ug/kg	2.8E+00	No
	Total DDT	LWG0109R041SDS015C00	5.2	ug/kg	2.8E+00	No
	Total DDT	PSYSEA98PSY71PSY71S	6	ug/kg	2.8E+00	No
RM 10 West	**Pesticides**					
	Aldrin	PSYSEA98PSY70PSY70S	6	ug/kg	5.0E-01	No
	Aldrin	PSYSEA98PSY71PSY71S	6	ug/kg	5.0E-01	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 10 East	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	LW2-G505	1100	ug/kg	3.4E+02	No
	Pesticides					
	Aldrin	LW3-G750	0.41	ug/kg	8.3E-02	No
	Aldrin	WLCDRD05PG04747	0.21	ug/kg	8.3E-02	No
	Aldrin	LW2-G500	0.639	ug/kg	8.3E-02	No
	Aldrin	LW2-G502	0.492	ug/kg	8.3E-02	No
	Aldrin	LW2-G505	5.36	ug/kg	8.3E-02	No
	Dieldrin	LW2-G495	0.096	ug/kg	9.4E-02	No
	Dieldrin	WLCDRD05PG04747	0.23	ug/kg	9.4E-02	No
	Dieldrin	LW2-G500	0.639	ug/kg	9.4E-02	No
	Dieldrin	LW2-G502	0.492	ug/kg	9.4E-02	No
	Dieldrin	LW2-G505	5.36	ug/kg	9.4E-02	No
	Total DDT	WLCDRD05PG04747	1.2	ug/kg	7.7E-01	No
	Total DDT	LW3-G750	0.91	ug/kg	7.7E-01	No
	Total DDT	LW2-G500	1.65	ug/kg	7.7E-01	No
	Total DDT	LW2-G505	5.36	ug/kg	7.7E-01	No
RM 10.5 West	**Pesticides**					
	Aldrin	LW2-G518	1.29	ug/kg	9.3E-01	No
RM 10.5 East	**Polynuclear Aromatic Hydrocarbons**					
	Naphthalene	LW2-G507	11	ug/kg	5.2E+00	No
	Naphthalene	LW2-G509	18	ug/kg	5.2E+00	No
	Naphthalene	WLCDRD05PG06161	8.1	ug/kg	5.2E+00	No
	Naphthalene	WLCDRD05PG06363	14	ug/kg	5.2E+00	No
	Phthalates					
	Bis(2-ethylhexyl) phthalate	WLCDRD05PG06363	120	ug/kg	1.1E+02	No
RM 11 East	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	LW2-G516	170	ug/kg	1.4E+02	No
	Bis(2-ethylhexyl) phthalate	LW3-G776	160			Yes
RM 11.5 West	**Metals**					
	Mercury	WLCDRD05PG134134	0.038	mg/kg	3.1E-02	No
	Pesticides					
	Dieldrin	WLCDRD05PG134134	0.68	ug/kg	9.0E-02	No
	Dieldrin	LW3-UG04-2	0.47	ug/kg	9.0E-02	No
	Dieldrin	LW3-UG04-1	0.49	ug/kg	9.0E-02	No

TABLE F2-13.
Exposure Point Concentration Summary

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Sample ID	Nondetect Concentration	Units	Maximum Detected Concentration	Non-Detect two orders of magnitude greater than Maximum Detected Concentration
RM 12 West	**Phthalates**					
	Bis(2-ethylhexyl) phthalate	LW3-G780	200	ug/kg	1.9E+02	No
	Bis(2-ethylhexyl) phthalate	LW3-G783	560	ug/kg	1.9E+02	No
RM 12 East	**Pesticides**					
	Total DDT	LW3-GCA12E-C00-R	12	ug/kg	9.4E+00	No

Notes:

a Exposure areas not listed indicate there were no non-detected results with detection limits exceeding the maximum detected concentrations that were removed from the dataset prior to the calculation of exposure point concentrations.

Abbreviations:

mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.

TABLE F2-14
Chemicals With Fewer Than 10 Samples Used In 95% UCL Calculations
Shellfish Tissue

Exposure Point[a]	Chemical of Potential Concern[b]	Number of samples used to calculate 95% UCLs, per species and tissue type	
		Crayfish, WB	Clam, UD
RM 7 West	**Polynuclear Aromatic Hydrocarbons**		
	Fluoranthene	--	5
	Pyrene	--	5
	Pesticides		
	Total Chlordanes	--	5
	Total DDD	--	5
	Total DDE	--	5
	Total DDT	--	5
Study Area-wide	**Butyltins**		
	Butyltin ion	5	--
	Polynuclear Aromatic Hydrocarbons		
	1-Methylnaphthalene	--	7
	Benzo(e)pyrene	--	7
	Perylene	--	7
	Semi-Volatile Organic Compounds		
	Benzoic acid	--	7

Notes:

a Table lists all exposure areas for which at least one 95% UCL was calculcated using less than 10 samples.

b List includes all chemicals of potential concern for which at least one 95% UCL was calculated using less than 10 samples.

Abbreviations:

-- = Not applicable. A 95% UCL was not calculated with fewer than 10 samples for this species and exposure area.
95% UCL = 95% upper confidence limit on the mean.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
RM = River mile.
UD = Undepurated.
WB= Whole body.

TABLE F2-15
Chemicals With Fewer Than 10 Samples Used In 95% UCL Calculations
In-Water Sediment

Chemical of Potential Concern[a]	Number of in-water samples used to calculate 95% UCLs, per exposure area[b]																																	
	RM 1 W	RM 1 E	RM 2 W	RM 2 E	RM 2.5 W	RM 2.5 E	MC	RM 3 W	RM 3 E	RM 3.5 E	RM 4 W	RM 4 E	RM 4.5 W	RM 4.5 E	RM 5 W	RM 5.5 E	RM 6 W	RM 6.5 W	RM 7 W	RM 7 E	RM 7.5 W	RM 7.5 E	RM 8 W	RM 8 E	SIL	RM 8.5 W	RM 9 W	RM 9 E	RM 9.5 W	RM 10 W	RM 10 E	RM 10.5 E	RM 11 W	RM 11 E	RM 12 W
Metals																																			
Arsenic	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Lead	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Mercury	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Thallium	--	--	--	--	--	--	--	--	--	6	9	5	--	6	9	5	--	--	--	9	--	7	6	6	9	7	--	--	--	--	--	--	--	--	--
Butyltins																																			
Tributyltin ion	--	--	--	--	--	--	--	--	--	--	--	9	--	--	--	--	8	5	--	--	--	--	9	--	--	--	9	--	--	--	--	--	--	--	--
Polynuclear Aromatic Hydrocarbons																																			
Benzo(a)anthracene	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Benzo(a)pyrene	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Benzo(b)fluoranthene	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Benzo(k)fluoranthene	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	--	9	9	6	7	--	8
Dibenzo(a,h)anthracene	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Indeno(1,2,3-cd)pyrene	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	6	7	5	8
Naphthalene	5	--	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	--	--	--	8
Phthalates																																			
Bis(2-ethylhexyl) phthalate	--	--	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	8	--	7	--	--
Polychlorinated Biphenyls																																			
Total Aroclors	--	--	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	--	9	9	6	7	5	8
Total PCB Congeners	--	--	--	--	--	7	--	--	--	--	--	5	5	--	--	8	--	6	7	9	9	--	--	--	--	8	6	--	6	--	--	--	--	--	--
Total PCBs, Adjusted	--	--	--	--	--	7	--	--	--	--	--	5	5	--	--	8	--	6	7	9	9	--	--	--	--	8	6	--	6	--	--	--	--	--	--
Total Dioxin-like PCBs	--	--	--	--	--	7	--	--	--	--	--	5	5	--	--	8	--	6	7	9	9	--	--	--	--	8	6	--	6	--	--	--	--	--	--
Dioxin/Furan																																			
Total PCB TEQ	5	--	--	--	--	7	--	--	--	--	--	5	5	--	--	8	--	6	7	9	9	--	--	--	--	8	6	--	6	--	--	--	--	--	--
Total Dioxin/Furan TEQ	--	5	--	8	--	--	--	5	6	--	--	6	--	--	--	5	--	--	9	--	8	--	--	--	9	5	--	--	--	--	--	--	--	--	--
Pesticides																																			
Total DDT	5	5	8	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	--	6	--	--	8

Notes:

a List includes all chemicals of potential concern for which at least one 95% UCL was calculated using less than 10 samples.

b In-water sediment exposure areas are per ½ river mile, per side of river. Table includes all exposure areas for which at least one 95% UCL was calculcated using less than 10 samples.

Abbreviations:

-- = Not applicable. A 95% UCL was not calculated with fewer than 10 samples for this medium and exposure area.
95% UCL = 95% upper confidence limit on the mean.
DDT = Dichlorodiphenyltrichloroethane.
E = East.
MC = Multnomah Channel.
PCB = Polychlorinated Biphenyls.
RM = River mile.
SIL = Swan Island Lagoon.
TEQ = Toxic equivalents.
W = West.

TABLE F2-16
Chemicals With Fewer Than 10 Samples Used In 95% UCL Calculations
Fish Tissue

Number of samples used to calculate 95% UCLs, per tissue type, species, and exposure area[a]								
	Tissue Type:	Whole Body Tissue				Fillet Tissue			Fillet Without Skin
COPC[b]	*Species:*	**Smallmouth Bass**		**Carp**	**Brown Bullhead**	**Smallmouth Bass**	**Carp**	**Brown Bullhead**	**Sturgeon**
	Exposure Area:	RM 4	RM 7	Study Area-wide	Study Area-wide	Study Area-wide	Study Area-wide	Study Area-wide	Study Area-wide
Metals									
Aluminum		5	5	--	6	--	--	6	--
Arsenic, inorganic		5	5	--	6	--	--	--	5
Cadmium		5	--	--	6	--	--	--	--
Chromium		--	--	--	6	--	--	--	5
Cobalt		--	--	--	--	--	--	--	5
Copper		5	5	--	6	--	--	6	5
Iron		--	--	--	--	--	--	--	5
Lead		5	5	--	6	--	--	--	--
Manganese		5	5	--	6	--	--	6	5
Mercury		5	5	--	6	--	--	6	5
Nickel		5	--	--	6	--	--	6	5
Selenium		--	--	--	--	--	--	--	5
Thallium		5	5	--	--	--	--	6	--
Zinc		5	5	--	6	--	--	6	5
Butyltins									
Butyltin ion		--	--	9	--	--	--	--	--
Dibutyltin ion		--	--	9	--	--	--	--	--
Tributyltin ion		--	--	9	--	--	9	--	--
Polynuclear Aromatic Hydrocarbons									
1-Methylnaphthalene		--	--	9	--	--	9	--	--
2-Methylnaphthalene		--	5	--	--	--	9	--	--
Acenaphthene		--	--	--	--	--	9	--	--
Acenaphthylene		--	--	--	--	--	9	--	--
Anthracene		--	--	--	--	--	9	--	--
Dibenzothiophene		--	--	9	--	--	9	--	--
Fluoranthene		--	--	--	--	--	9	--	--
Fluorene		--	--	--	--	--	9	--	--
Phenanthrene		--	--	--	--	--	9	--	--
Pyrene		--	--	--	--	--	9	--	--
Semi-Volatile Organic Compounds									
Benzyl alcohol		--	--	--	--	--	9	--	--
Dibenzofuran		--	--	--	--	--	9	--	--
Phenols									
4-Nitrophenol		--	--	8	--	--	9	--	--
Polychlorinated Biphenyls									
Total Aroclors		--	--	6	6	5	6	6	5
Total PCB Congeners		5	5	--	6	--	9	--	5
Total Dioxin-like PCBs		5	5	--	6	--	9	--	5
Total PCBs, Adjusted		5	5	--	6	--	9	--	5
Dioxin/Furans									
Total Dioxin/Furan TEQ		5	5	--	6	--	9	--	5
Total PCB TEQ		5	5	--	6	--	9	--	5
Pesticides									
Total DDD		5	5	--	6	--	--	--	--
Total DDE		5	5	--	6	--	--	6	5
Total DDT		--	5	--	6	--	--	--	5

Notes:

a Table lists all exposure areas for which at least one 95% UCL was calculcated using less than 10 samples.

b Table lists all COPCs for which at least one 95% UCL was calculated using less than 10 samples.

Abbreviations:

-- = Not applicable. A 95% UCL was not calculated with fewer than 10 samples for this species, tissue type, and exposure
95% UCL = 95% upper confidence limit on the mean.
COPC = Chemical of potential concern.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
PCB = Polychlorinated Biphenyls.
RM = River mile.
TEQ = Toxic equivalents.

TABLE F2-17
Chemicals With Fewer Than 10 Samples Used In 95% UCL Calculations
Surface Water Scenarios

COPC[b]	Number of surface water samples used to calculate 95% UCLs, per exposure scenario and exposure area																			
Exposure Scenario:	Diver, Direct Contact													Transient, Direct Contact			Potential Future Drinking Water Use			
Exposure Area:	2E	2W	3.5E	5.5E	6.0W	6.5E	7.0W	7.5W	8.5W	9.5W	Trans, RM 3.9	Trans, RM 6.3	Trans, RM 11	Trans, RM 3.9	Trans, RM 6.3	Trans, RM 11	Trans, RM 3.9	Trans, RM 6.3	Trans, RM 11	
Metals																				
Arsenic, total	5	5	5	5	5	--	8	5	5	5	7	6	9	7	6	9	7	6	9	
Arsenic, dissolved	--	5	--	--	--	--	8	5	--	5	7	--	9	7	--	9	7	--	9	
Pesticides																				
Aldrin	--	--	--	--	--	7	6	--	--	--	--	6	8	--	--	--	--	--	--	
Conventionals																				
Perchlorate	--	--	--	--	--	--	9	--	--	--	--	--	--	--	--	--	--	--	--	

Notes:

a Table lists all exposure areas for which at least one 95% UCL was calculcated using less than 10 samples.
b Tables lists all COPCs for which at least one 95% UCL was calculated using less than 10 samples.

Abbreviations:

-- = Not applicable. A 95% UCL was not calculated with fewer than 10 samples for this medium, receptor, and exposure area.
95% UCL = 95% upper confidence limit on the mean.
COPC = Chemical of potential concern.
Trans = Transect sampling location.
RM = River MIle.
W = West.
E = East.

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

ATTACHMENT F3: RISKS FROM EXPOSURES TO PBDES

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

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1.0 INTRODUCTION

This Attachment F3 presents an evaluation of risks to human health from polybrominated diphenyl ethers (PBDEs) in the Portland Harbor Superfund Site (Site) in Portland, Oregon. This Attachment is intended to supplement the Revised Baseline Human Health Risk Assessment (BHHRA) for the Site. The objectives and approach to assessing risks from exposures to PBDEs follows those outlined in the BHHRA.

2.0 PBDE DATA EVALUATION

The data included in the site characterization and risk assessment (SCRA) dataset are described in detail in Section 2 of the RI Report. The dataset used in this human health risk analysis for PBDEs is a subset of the data that comprised the SCRA dataset as of February 2011. All data included in the BHHRA PBDE dataset meets the data quality requirements for risk evaluation (Category 1/QA2), as agreed to between LWG, EPA, and EPA's partners in the Programmatic Work Plan (Integral et al. 2004). As directed by EPA, in-water sediment and fish tissue samples collected in 2004 and 2007 from the Portland Harbor that were analyzed for PBDE congeners and met the data criteria for inclusion in the BHHRA were used in this evaluation. Data management and reduction rules applied to the BHHRA PBDE dataset are the same as those described in Section 2 of Appendix F.

2.1 IN-WATER SEDIMENT

In-water surface sediment PBDE data used in the BHHRA includes LWG- collected data from sampling rounds 2 and 3. These sampling events include:

Round 2A sediment grabs
Round 3 sediment from upstream and downstream
Round 3B Biota - Co-located sediments
Round 3B sediment grabs

These sampling events comprise 59 samples used in the BHHRA PBDE dataset, 51 of which are within the Study Area. The BHHRA PBDE dataset for in-water sediment is consistent with the criteria described in the data evaluation section of the BHHRA (Section 2 of Appendix F).

2.2 FISH TISSUE

Common carp and smallmouth bass fish tissue were collected by the LWG from within Portland Harbor in 2007 and analyzed by the EPA in 2009. The fish tissue samples were analyzed as composite samples, fillets with skin included. The remainder tissue of the common carp and smallmouth bass samples were also analyzed. For each analytical result, whole body concentrations were calculated based on a weighted average of fillet tissue and remainder tissue concentrations, as described in Section 2 of Appendix F, and consistent with data handling for the rest of the BHHRA.

The BHHRA PBDE dataset consists of 18 smallmouth bass samples collected from RM 1.5 to 11.5, and 9 common carp tissue samples collected from RM 0 - 12.

2.3 SHELLFISH TISSUE

Shellfish tissue in the PBDE dataset included clam (*Corbicula* sp.) tissue collected during the Round 3B biota sampling event. All clam samples analyzed for PBDEs were undepurated. There were four samples collected within the Study Area (river mile (RM) 1.9 – 11.8), one sample collected from the downstream reach (RM 1.5), and one sample collected in the downtown reach (RM 12.1). All six of these sample results were included in the BHHRA PBDE dataset for clam tissue.

2.4 IDENTIFICATION OF CONTAMINANTS OF CONCERN

In-water sediment and tissue samples were analyzed for eight different PBDE congeners, as follows:

BDE 028 (2,4,4'-Tribromodiphenyl ether)
BDE 047 (2,2',4,4'-Tetrabromodiphenyl ether)
BDE 099 (2,2',4,4',5-Pentabromodiphenyl ether)
BDE 100 (2,2',4,4',6-Pentabromodiphenyl ether)
BDE 153 (2,2',4,4',5,5'-Hexabromodiphenyl ether)
BDE 154 (2,2',4,4',5,6'-Hexabromodiphenyl ether)
BDE 183 (2,2',3,4,4',5',6-Heptabromodiphenyl ether)
BDE 209 (2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether)

All detected PBDE congeners were retained as contaminants of potential concern (COPCs) for each medium and species. PBDE congeners analyzed and detected in in-water sediment are BDE 47, 99, 153, and 209. PBDE congeners analyzed and detected in carp tissue are BDE 28, 47, 100, 153, and 154. PBDE congeners analyzed and detected in smallmouth bass tissue are BDE 28, 47, 99, 100, 153, and 154, and 183. In

clam tissue, detected congeners are BDE 47, 99, 100, 153, and 154. BDE 209 was not detected in fish or shellfish tissue.

3.0 EXPOSURE ASSESSMENT

PBDE risk assessment was performed for potentially exposed human populations that may come in contact with PBDEs in in-water sediment or tissue.

The exposure assessment performed for PBDEs is consistent with the exposure assessment performed in Section 3 of the BHHRA. As described in Section 3 of Appendix F, potentially exposed human populations identified for further evaluation for exposure to PBDEs are:

- In-water workers
- Divers
- Recreational/Subsistence fishers
- Tribal fishers
- Infants exposed to human breast milk of the above populations

Exposure pathways were identified using the same methods described in Section 3 of the BHHRA. The potential exposure pathways to human populations at the Study Area include:

- Ingestion of and dermal contact with in-water sediment
- Consumption of fish and shellfish
- Infant consumption of human milk

The identified receptors, exposure routes, and exposure pathways, and the rationale for selection are also summarized in Table 3-1 of Appendix F.

3.1 CALCULATION OF EXPOSURE POINT CONCENTRATIONS

Exposure point concentrations (EPCs) were calculated for media and pathways that were evaluated quantitatively in this Attachment. The process to estimate EPCs for tissue and in-water sediment is the same as the process followed in Section 3 of the BHHRA. Individual PBDE congeners were evaluated for adult and child receptors. Risks to infants were evaluated as total PBDEs to be consistent with Oregon Department of Environmental Quality (DEQ) guidance (DEQ 2010). PBDE EPCs for exposure to in-water sediment are presented in Table F3-1.

Fish consumption was evaluated on a river mile basis and Study Area-wide assuming a multi-species diet consisting of fillet tissue. Because PBDE data in fish tissue was

limited to carp and smallmouth bass collected during Round 3 sampling, it was not possible to calculate a true weighted EPC for a multi-species diet. Smallmouth bass data were used as a surrogate for a multi-species diet on a river mile basis. Therefore, EPCs for fish consumption were calculated on a river mile basis using the smallmouth bass data. PBDE EPCs for exposure to tissue are presented in Tables F3-2 to F3-4.

3.2 PROCESS TO CALCULATE INTAKES

Intakes were calculated in the manner described in Section 3 of the BHHRA. The BHHRA presents population-specific assumptions for the evaluated receptors. Values used for intake parameters for the evaluation of risks from PBDEs are the same as those used in the BHHRA, and are presented in Table 3-22 (for receptors exposed to PBDEs in in-water sediment) and Table 3-24 (for receptors exposed to PBDEs in tissue) of Appendix F.

4.0 TOXICITY ASSESSMENT

This quantitative evaluation of noncancer hazards and cancer risks included the four PBDE congeners for which the EPA has established human health toxicity values in the Integrated Risk Information System (IRIS) database: BDE 47, BDE 99, BDE 153, and BDE 209. The EPA has established oral reference doses for the congeners BDE 47, BDE 99, BDE 153, and BDE 209. BDE 209 is the only congener analyzed that is classified as a carcinogen. PBDE congeners without carcinogenic toxicity values were not evaluated for cancer risk. Table F3-5 presents the toxicity values for the PBDE congeners that were quantitatively evaluated.

5.0 RISK CHARACTERIZATION

The risk characterization for exposure to PBDEs in in-water sediment and tissue was performed as described in Section 5 of Appendix F. Noncancer hazards and cancer risks to children and adults were calculated for individual congeners at each exposure point, and then summed to provide cumulative hazards and cancer risk estimates. Noncancer hazards to breast-feeding infants were calculated based on cumulative hazards to adult mothers by applying a PBDE-specific infant risk adjustment factor (IRAF), consistent with DEQ guidance (DEQ 2010).

5.1 RISK AND HAZARD RESULTS

5.1.1 Direct Contact with In-Water Sediment Risk Characterization Results

Potential risks from exposure to PBDEs in in-water sediment through incidental ingestion and dermal absorption were estimated for the in-water workers, tribal fishers, high- and low-frequency fishers, and divers, for both reasonable maximum exposure (RME) and central tendency (CT) scenarios. Risks and hazards from exposures to PBDEs in in-water sediment are presented in Tables F3-6 through F3-16.

Cancer risks from exposure to PBDEs in in-water sediment were orders of magnitude below the EPA target risk range of 1×10^{-6} to 1×10^{-4}. Hazards from exposure to PBDEs in in-water sediment were orders of magnitude below the EPA target hazard quotient (HQ) of 1.

5.1.2 Fish Tissue Consumption Risk Characterization Results

Potential risks from exposure to PBDEs through fish consumption were estimated for recreational child consumers of fish, using the methodology described in Section 5 of Appendix F. HQs from exposure to PBDEs through fish consumption are less than the EPA target HQ of 1. Noncancer hazards from exposures to PBDEs through fish consumption on a river mile basis are presented in Table F3-17.

Cancer risks were not calculated for fish consumption because the carcinogenic PBDE congener was not detected in the tissue samples evaluated.

5.1.3 Shellfish Tissue Risk Characterization Results

Potential risks from exposure to PBDEs through shellfish consumption were estimated for adult clam consumers, as described in Section 5 of Appendix F. HQs from exposure to PBDEs in clam tissue are less than the EPA target HQ of 1. Noncancer hazards from exposures to PBDEs in clam tissue are presented in Table F3-18.

Cancer risks were not calculated for consumption of shellfish because carcinogenic PBDE congeners were not detected in the tissue samples collected.

5.1.4 Infant Breastmilk Consumption Risk Characterization Results

The results of the infant breastmilk consumption pathway are presented for the breast-feeding infant of an adult receptor for each of the exposure scenarios previously discussed. Consistent with DEQ guidance (DEQ 2010) and based on an agreement with EPA, an IRAF was calculated for total PBDEs and applied to noncancer hazard estimates for each adult exposure scenario and exposure area.

The noncancer IRAF for total PBDEs is 38. Noncancer hazards to an infant based on exposure to PBDEs from breastmilk consumption from the adult mothers described in the previous exposure scenarios are presented in Tables F3-19 through F3-31.

A noncancer IRAF of 38 for total PBDEs means that hazards to an infant from exposures to PBDEs in breast milk are 38 times greater than hazards to the mother from PBDE exposures. The highest estimated HQ for an infant from exposure to PBDEs in breastmilk is 2, due to exposures to a mother who is a consumer of fish from RM 4. The estimated HQ for an infant due to parental consumption of clams at RM 12E is also 2, but the sample location is outside the Study Area. For exposures within the Study Area, the estimated HQs are not greater than 1 for a breastfeeding infant whose mother is exposed to PBDEs through clam consumption. There are no hazards greater than a HQ of 1 for a breastfeeding infant whose mother is exposed to PBDEs in in-water sediment.

5.1.5 Summary of Risk Characterization

Hazards and cancer risks from exposures to PBDEs were evaluated for adult, child and infant receptors from exposures to in-water sediment and tissue.

This risk evaluation shows that all estimated cancer risks are less than 1×10^{-6} for all of the scenarios evaluated.

Hazards from exposures to PBDEs in in-water sediment are less than the EPA target HQ of 1. The noncancer hazards associated with indirect exposures to infants via breastfeeding are also less than 1.

Hazards from exposures to PBDEs through shellfish consumption are less than the EPA target HQ of 1. The noncancer hazards associated with indirect exposures to infants via breastfeeding are also less than 1 for locations within the Study Area.

Hazards from exposures to PBDEs through fish consumption are less than the EPA target HQ of 1. The noncancer hazard associated with indirect exposures to infants via breastfeeding is greater than 1 for fish consumption in RM 4.

6.0 UNCERTAINTY ANALYSIS

The uncertainties associated with this evaluation of risks from exposures to PBDEs are the same uncertainties associated with the BHHRA methods discussed in Section 6 of the RI/FS Appendix F. This section emphasizes the uncertainties specific to the PBDE dataset.

Limited number of PBDE congeners analyzed.
The PBDE analysis of both in-water sediment and tissue samples included eight of 209 congeners. The congeners analyzed are those typically found most frequently in the environment and should be representative of total PBDE concentrations, but lack of analysis for the full suite of chemicals presents uncertainty in total PBDE concentrations.

Evaluation of congeners with known toxicity values.
Only PBDE congeners with published, peer reviewed toxicity values were evaluated in this risk assessment. This limited the number of congeners included in the quantitative analysis to four (BDE 47, BDE 99, BDE 153, BDE 209). The uncertainty associated with lack of toxicity information for PBDE congeners could potentially impact the conclusions of this risk evaluation.

Selection of Tissue COPCs Based On Detection of An Analyte.

The selection of PBDE COPCs was based on whether an analyte was detected in each medium or tissue type, and not based on a comparison with health-protective screening levels. There is uncertainty associated with identification of tissue COPCs based on detections alone, and this could potentially impact the conclusions of this risk evaluation for PBDEs.

No Consideration of Background.
PBDEs leach from products with residential, commercial, and industrial uses and have wide-spread presence in the environment. The concentrations detected in sediment and tissue were generally similar throughout the Study Area, indicating the potential for a background contribution. Per EPA guidance (2002), the contribution of background, both natural and anthropogenic, to site concentrations should be distinguished if possible. However, anthropogenic background concentrations for PBDEs have not been established for the Study Area. While risks from PBDEs were evaluated without accounting for contributions from background, it is important to recognize that background concentrations may result in unacceptable risks based on the exposure assumptions used.

7.0 SUMMARY AND CONCLUSIONS

This attachment presents a risk evaluation of exposure to PBDEs measured in in-water sediment and fish and shellfish tissue collected during LWG sampling events from the Study Area, upstream reach, and downtown reach.

The methods and assumptions used in this evaluation are the same as those used in the BHHRA and are presented in the text of Appendix F.

This evaluation found that cancer risks associated with exposure to PBDEs in in-water sediment and tissue consumption are orders of magnitude below the EPA

target risk level of 1 x 10^{-6}. Noncancer hazards from exposures to PBDEs in in-water sediment and through fish and shellfish consumption are also below the EPA target HQ of 1.

Noncancer hazard associated with indirect exposure to infants via breastfeeding was also assessed. The noncancer hazard due to parental fish consumption is greater than 1. Indirect exposure to infants via breastfeeding for parental in-water sediment exposure and shellfish consumption within the Study Area results in hazards that are less than 1.

TABLE F3-1.
Exposure Point Concentration Summary for PBDEs - In-Water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 1 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	3.3E-01	3.6E-01	--	Fewer than 5 detects[g]	--	3.3E-01	3.6E-01
	PBDE # 99	ug/kg	2	0	0	3.2E-01	3.7E-01				3.2E-01	3.7E-01
	PBDE # 153	ug/kg	2	2	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	2	0	0	3.8E+00	4.0E+00				3.8E+00	4.0E+00
RM 1 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	7.6E-01	7.6E-01	--	Fewer than 5 detects	--	7.6E-01	7.6E-01
	PBDE # 99	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01	6.3E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00	3.7E+00
RM 1.5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.2E-01	1.2E-01	--	Fewer than 5 detects	--	1.2E-01	1.2E-01
	PBDE # 99	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 1.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.4E+00	1.4E+00	--	Fewer than 5 detects	--	1.4E+00	1.4E+00
	PBDE # 99	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00	1.4E+00
	PBDE # 153	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01	1.8E-01
	PBDE # 209	ug/kg	1	0	0	4.5E+00	4.5E+00				4.5E+00	4.5E+00
RM 2 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	1.1E+00	1.8E+00	--	Fewer than 5 detects	--	1.1E+00	1.8E+00
	PBDE # 99	ug/kg	2	0	0	1.0E+00	1.7E+00				1.0E+00	1.7E+00
	PBDE # 153	ug/kg	2	1	1	4.2E-01	4.2E-01				4.2E-01	4.2E-01
	PBDE # 209	ug/kg	2	1	1	6.0E+00	6.0E+00				6.0E+00	6.0E+00
RM 2 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	3	0	0	1.8E+00	1.8E+00	--	Fewer than 5 detects	--	1.8E+00	1.8E+00
	PBDE # 99	ug/kg	3	0	0	2.0E+00	2.1E+00				2.0E+00	2.1E+00
	PBDE # 153	ug/kg	3	0	0	2.8E-01	2.9E-01				2.8E-01	2.9E-01
	PBDE # 209	ug/kg	3	0	0	6.9E+00	8.4E+00				6.9E+00	8.4E+00
RM 2.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	2.0E-01	2.0E-01	--	Fewer than 5 detects	--	2.0E-01	2.0E-01
	PBDE # 99	ug/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01	2.4E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 2.5 MC	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.4E-01	1.4E-01	--	Fewer than 5 detects	--	1.4E-01	1.4E-01
	PBDE # 99	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND

TABLE F3-1.
Exposure Point Concentration Summary for PBDEs - In-Water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 3 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.4E+00	1.4E+00	--	Fewer than 5 detects	--	1.4E+00	1.4E+00
	PBDE # 99	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00	1.3E+00
	PBDE # 153	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01	2.9E-01
	PBDE # 209	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00	5.3E+00
RM 3 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	1.3E+00	1.6E+00	--	Fewer than 5 detects	--	1.3E+00	1.6E+00
	PBDE # 99	ug/kg	2	0	0	1.4E+00	1.6E+00				1.4E+00	1.6E+00
	PBDE # 153	ug/kg	2	0	0	2.8E-01	3.3E-01				2.8E-01	3.3E-01
	PBDE # 209	ug/kg	2	0	0	6.4E+00	6.9E+00				6.4E+00	6.9E+00
RM 3.5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.4E-01	1.4E-01	--	Fewer than 5 detects	--	1.4E-01	1.4E-01
	PBDE # 99	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01	1.2E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 3.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	3	0	0	4.0E+00	5.2E+00	--	Fewer than 5 detects	--	4.0E+00	5.2E+00
	PBDE # 99	ug/kg	3	0	0	5.8E+00	8.2E+00				5.8E+00	8.2E+00
	PBDE # 153	ug/kg	3	0	0	1.1E+00	1.5E+00				1.1E+00	1.5E+00
	PBDE # 209	ug/kg	3	0	0	3.2E+01	5.6E+01				3.2E+01	5.6E+01
RM 4 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	3.5E-01	3.5E-01	--	Fewer than 5 detects	--	3.5E-01	3.5E-01
	PBDE # 99	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01	2.3E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	3.7E-01	3.7E-01	--	Fewer than 5 detects	--	3.7E-01	3.7E-01
	PBDE # 99	ug/kg	1	0	0	3.7E-01	3.7E-01				3.7E-01	3.7E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 5.5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.4E+00	1.4E+00	--	Fewer than 5 detects	--	1.4E+00	1.4E+00
	PBDE # 99	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00	1.2E+00
	PBDE # 153	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01	2.3E-01
	PBDE # 209	ug/kg	1	0	0	7.4E+00	7.4E+00				7.4E+00	7.4E+00
RM 5.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	1.0E+00	1.8E+00	--	Fewer than 5 detects	--	1.0E+00	1.8E+00
	PBDE # 99	ug/kg	2	1	0	1.2E+00	1.8E+00				1.2E+00	1.8E+00
	PBDE # 153	ug/kg	2	1	1	2.6E-01	2.6E-01				2.6E-01	2.6E-01
	PBDE # 209	ug/kg	2	1	1	2.8E+00	2.8E+00				2.8E+00	2.8E+00

TABLE F3-1.
Exposure Point Concentration Summary for PBDEs - In-Water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 6 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	1	1	1.3E-01	1.3E-01	--	Fewer than 5 detects	--	1.3E-01	1.3E-01
	PBDE # 99	ug/kg	2	1	1	1.3E-01	1.3E-01				1.3E-01	1.3E-01
	PBDE # 153	ug/kg	2	2	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	2	1	1	3.5E+00	3.5E+00				3.5E+00	3.5E+00
RM 6 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	2.7E-01	2.7E-01	--	Fewer than 5 detects	--	2.7E-01	2.7E-01
	PBDE # 99	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01	1.7E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 6.5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.1E-01	1.1E-01	--	Fewer than 5 detects	--	1.1E-01	1.1E-01
	PBDE # 99	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01	1.3E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 6.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	1.2E+00	1.8E+00	--	Fewer than 5 detects	--	1.2E+00	1.8E+00
	PBDE # 99	ug/kg	2	0	0	1.3E+00	1.9E+00				1.3E+00	1.9E+00
	PBDE # 153	ug/kg	2	1	1	3.5E-01	3.5E-01				3.5E-01	3.5E-01
	PBDE # 209	ug/kg	2	0	0	1.7E+01	2.5E+01				1.7E+01	2.5E+01
RM 7 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	9.5E-01	9.5E-01	--	Fewer than 5 detects	--	9.5E-01	9.5E-01
	PBDE # 99	ug/kg	1	0	0	9.9E-01	9.9E-01				9.9E-01	9.9E-01
	PBDE # 153	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01	2.9E-01
	PBDE # 209	ug/kg	1	0	0	6.1E+00	6.1E+00				6.1E+00	6.1E+00
RM 7 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	3	0	0	1.2E+00	1.7E+00	--	Fewer than 5 detects	--	1.2E+00	1.7E+00
	PBDE # 99	ug/kg	3	0	0	1.0E+00	1.5E+00				1.0E+00	1.5E+00
	PBDE # 153	ug/kg	3	1	1	2.7E-01	3.1E-01				2.7E-01	3.1E-01
	PBDE # 209	ug/kg	3	0	0	4.3E+00	6.2E+00				4.3E+00	6.2E+00
RM 7.5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	9.9E-01	1.7E+00	--	Fewer than 5 detects	--	9.9E-01	1.7E+00
	PBDE # 99	ug/kg	2	0	0	8.5E-01	1.5E+00				8.5E-01	1.5E+00
	PBDE # 153	ug/kg	2	1	1	3.1E-01	3.1E-01				3.1E-01	3.1E-01
	PBDE # 209	ug/kg	2	1	1	5.1E+00	5.1E+00				5.1E+00	5.1E+00
RM 7.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	1.9E+00	2.5E+00	--	Fewer than 5 detects	--	1.9E+00	2.5E+00
	PBDE # 99	ug/kg	2	0	0	2.2E+00	2.9E+00				2.2E+00	2.9E+00
	PBDE # 153	ug/kg	2	0	0	3.4E-01	4.5E-01				3.4E-01	4.5E-01
	PBDE # 209	ug/kg	2	0	0	8.9E+00	1.3E+01				8.9E+00	1.3E+01

TABLE F3-1.
Exposure Point Concentration Summary for PBDEs - In-Water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 8 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	8.3E-01	8.3E-01	--	Fewer than 5 detects	--	8.3E-01	8.3E-01
	PBDE # 99	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00	1.2E+00
	PBDE # 153	ug/kg	1	0	0	8.4E-01	8.4E-01				8.4E-01	8.4E-01
	PBDE # 209	ug/kg	1	0	0	4.4E+02	4.4E+02				4.4E+02	4.4E+02
RM 8 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	3	0	0	1.8E+00	2.1E+00	--	Fewer than 5 detects	--	1.8E+00	2.1E+00
	PBDE # 99	ug/kg	3	0	0	1.9E+00	2.2E+00				1.9E+00	2.2E+00
	PBDE # 153	ug/kg	3	0	0	4.2E-01	6.2E-01				4.2E-01	6.2E-01
	PBDE # 209	ug/kg	3	0	0	1.5E+01	2.4E+01				1.5E+01	2.4E+01
RM 8 SIL	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	6	0	0	1.6E+00	4.5E+00	Approx. Gamma	95% Approximate Gamma UCL	5.8E+00	1.6E+00	4.5E+00
	PBDE # 99	ug/kg	6	0	0	2.3E+00	6.2E+00	Normal	95% Student's-t UCL	4.3E+00	2.3E+00	4.3E+00
	PBDE # 153	ug/kg	6	4	0	7.1E-01	1.2E+00	--	Fewer than 5 detects	--	7.1E-01	1.2E+00
	PBDE # 209	ug/kg	6	1	0	1.9E+01	5.8E+01	Normal	95% KM (t) UCL	3.7E+01	1.9E+01	3.7E+01
RM 8.5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	2.0E+00	2.0E+00	--	Fewer than 5 detects	--	2.0E+00	2.0E+00
	PBDE # 99	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00	2.2E+00
	PBDE # 153	ug/kg	1	0	0	4.1E-01	4.1E-01				4.1E-01	4.1E-01
	PBDE # 209	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01	1.1E+01
RM 8.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	4.1E+00	4.1E+00	--	Fewer than 5 detects	--	4.1E+00	4.1E+00
	PBDE # 99	ug/kg	1	0	0	5.6E+00	5.6E+00				5.6E+00	5.6E+00
	PBDE # 153	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00	1.1E+00
	PBDE # 209	ug/kg	1	0	0	9.0E+01	9.0E+01				9.0E+01	9.0E+01
RM 9 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.3E+00	1.3E+00	--	Fewer than 5 detects	--	1.3E+00	1.3E+00
	PBDE # 99	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00	1.2E+00
	PBDE # 153	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01	1.9E-01
	PBDE # 209	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00	2.9E+00
RM 9 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	3.3E-01	3.3E-01	--	Fewer than 5 detects	--	3.3E-01	3.3E-01
	PBDE # 99	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01	1.8E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 9.5 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.8E+00	1.8E+00	--	Fewer than 5 detects	--	1.8E+00	1.8E+00
	PBDE # 99	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00	2.7E+00
	PBDE # 153	ug/kg	1	0	0	5.2E-01	5.2E-01				5.2E-01	5.2E-01
	PBDE # 209	ug/kg	1	0	0	4.6E+01	4.6E+01				4.6E+01	4.6E+01

TABLE F3-1.
Exposure Point Concentration Summary for PBDEs - In-Water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 9.5 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	9.9E-01	9.9E-01	--	Fewer than 5 detects	--	9.9E-01	9.9E-01
	PBDE # 99	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01	7.9E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00	2.0E+00
RM 11 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	2.9E+00	2.9E+00	--	Fewer than 5 detects	--	2.9E+00	2.9E+00
	PBDE # 99	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00	3.7E+00
	PBDE # 153	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01	6.3E-01
	PBDE # 209	ug/kg	1	0	0	5.7E+01	5.7E+01				5.7E+01	5.7E+01
RM 11 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	2	0	0	9.7E-01	1.5E+00	--	Fewer than 5 detects	--	9.7E-01	1.5E+00
	PBDE # 99	ug/kg	2	0	0	7.8E-01	1.2E+00				7.8E-01	1.2E+00
	PBDE # 153	ug/kg	2	2	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	2	2	ND	ND	ND				ND	ND
RM 12 West	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	3.1E-01	3.1E-01	--	Fewer than 5 detects	--	3.1E-01	3.1E-01
	PBDE # 99	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01	3.0E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
RM 12 East	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	1	0	0	1.2E+00	1.2E+00	--	Fewer than 5 detects	--	1.2E+00	1.2E+00
	PBDE # 99	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00	1.1E+00
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
	PBDE # 209	ug/kg	1	1	ND	ND	ND				ND	ND
Study Area Wide[h]	**Polybrominated Diphenyl Ethers**											
	PBDE # 47	ug/kg	51	1	0	1.4E+00	5.2E+00	Gamma	95% KM (Chebyshev) UCL	2.2E+00	1.4E+00	2.2E+00
	PBDE # 99	ug/kg	51	2	0	1.7E+00	8.2E+00	Gamma	95% KM (Chebyshev) UCL	2.8E+00	1.7E+00	2.8E+00
	PBDE # 153	ug/kg	51	21	0	5.1E-01	1.5E+00	Nonparametric	95% KM (t) UCL	5.3E-01	5.1E-01	5.3E-01
	PBDE # 209	ug/kg	51	14	0	2.2E+01	4.4E+02	Nonparametric	95% KM (Chebyshev) UCL	6.0E+01	2.2E+01	6.0E+01

Notes:

a Exposure points for in-water sediment are per half river mile, per side of river. No samples within the human health data set were taken at exposure area of RM 11.5 East, and therefore it is not listed in the table. In-water sediment data set for human health includes in-water sediment samples taken from less than 30.5 centimeters in depth and outside of the navigation channel.

b Chemicals of potential concern include all PBDE congeners detected in the BHHRA in-water sediment dataset, which is described in Section 2.

c Total number of non-detects in the dataset.

d Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.

e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.

f Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.

g 95% UCL not calculated for analytes with fewer than five detects.

h Study Area-wide data set includes samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
RM = River mile.
ug/kg = micrograms per kilogram.
ND = Not detected. Chemical not detected in given exposure area.

TABLE F3-2.
Exposure Point Concentration Summary for PBDEs - Resident Fish Species, by River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 2	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	1	1	0	ND	ND	--	Fewer than 5 detects[f]	--	ND
		PBDE #047	ug/kg	1	1	0	ND	ND				ND
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	1	0	ND	ND				ND
		PBDE #153	ug/kg	1	1	0	ND	ND				ND
		PBDE #154	ug/kg	1	1	0	ND	ND				ND
		PBDE #183	ug/kg	1	1	0	ND	ND				ND
RM 3	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	1.2E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	2	0	0	4.0E-02	5.0E-02				5.0E-02
		PBDE #183	ug/kg	2	2	0	ND	ND				ND
RM 4	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	0	0	4.6E+00	6.0E+00				6.0E+00
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	3.4E-01	5.0E-01				5.0E-01
		PBDE #154	ug/kg	2	0	0	1.6E-01	2.5E-01				2.5E-01
		PBDE #183	ug/kg	2	2	0	ND	ND				ND
RM 5	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	1	1	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	1	0	ND	ND				ND
		PBDE #153	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	1	0	0	9.0E-02	9.0E-02				9.0E-02
		PBDE #183	ug/kg	1	1	0	ND	ND				ND
RM 6	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	1	0	2.0E+00	3.0E+00				3.0E+00
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	1.4E-01	1.9E-01				1.9E-01
		PBDE #154	ug/kg	2	0	0	8.0E-02	9.0E-02				9.0E-02
		PBDE #183	ug/kg	2	2	0	ND	ND				ND

TABLE F3-2.
Exposure Point Concentration Summary for PBDEs - Resident Fish Species, by River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 7	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	8.0E-02	1.0E-01				1.0E-01
		PBDE #154	ug/kg	2	0	0	5.0E-02	6.0E-02				6.0E-02
		PBDE #183	ug/kg	2	2	0	ND	ND				ND
RM 8	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	1	1	1.3E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	2	1	1	5.0E-02	5.0E-02				5.0E-02
		PBDE #183	ug/kg	2	2	0	ND	ND				ND
RM 9	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	1	1	9.0E-02	9.0E-02				9.0E-02
		PBDE #154	ug/kg	2	1	1	3.0E-02	3.0E-02				3.0E-02
		PBDE #183	ug/kg	2	2	0	ND	ND				ND
RM 10	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	1	1	1.3E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	2	1	1	5.0E-02	5.0E-02				5.0E-02
		PBDE #183	ug/kg	2	2	0	ND	ND				ND

TABLE F3-2.
Exposure Point Concentration Summary for PBDEs - Resident Fish Species, by River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 11	F	**Polybrominated Diphenyl Ethers**										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	1	0	2.3E+00	3.4E+00				3.4E+00
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	3.2E-01	4.4E-01				4.4E-01
		PBDE #154	ug/kg	2	0	0	1.8E-01	2.8E-01				2.8E-01
		PBDE #183	ug/kg	2	2	0	ND	ND				ND

Notes:

a Exposure areas for smallmouth bass tissue are on a RM basis, such that samples collected from RM 1.5 - 2.5 are included in exposure area RM 2, etc.
b Chemicals of potential concern are PBDE congeners analyzed and detected at least once in smallmouth bass tissue within the Study Area. Congener #209 was analyzed but not detected in smallmouth bass tissue.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f 95% UCL not calculated for analytes with fewer than five detects.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
F = Fillet tissue. All smallmouth bass fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin.
ND = Not detected in the given exposure area.
PBDE = Polybrominated Diphenyl Ether
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-3.
Exposure Point Concentration Summary for PBDEs - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 1 East	UD	**Polybrominated Diphenyl Ethers**										
		PBDE #047	ug/kg	1	0	0	7.9E+00	7.9E+00	--	Fewer than 5 detects[f]	--	7.9E+00
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	0	0	3.2E+00	3.2E+00				3.2E+00
		PBDE #153	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		PBDE #154	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
RM 2 West	UD	**Polybrominated Diphenyl Ethers**										
		PBDE #047	ug/kg	1	0	0	7.9E+00	7.9E+00	--	Fewer than 5 detects	--	7.9E+00
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
		PBDE #153	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		PBDE #154	ug/kg	1	0	0	2.6E-01	2.6E-01				2.6E-01
RM 5 East	UD	**Polybrominated Diphenyl Ethers**										
		PBDE #047	ug/kg	1	0	0	1.0E+01	1.0E+01	--	Fewer than 5 detects	--	1.0E+01
		PBDE #099	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00
		PBDE #100	ug/kg	1	0	0	3.8E+00	3.8E+00				3.8E+00
		PBDE #153	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		PBDE #154	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
RM 10 West	UD	**Polybrominated Diphenyl Ethers**										
		PBDE #047	ug/kg	1	0	0	7.3E+00	7.3E+00	--	Fewer than 5 detects	--	7.3E+00
		PBDE #099	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		PBDE #100	ug/kg	1	0	0	2.8E+00	2.8E+00				2.8E+00
		PBDE #153	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		PBDE #154	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01
RM 11 East	UD	**Polybrominated Diphenyl Ethers**										
		PBDE #047	ug/kg	1	0	0	9.6E+00	9.6E+00	--	Fewer than 5 detects	--	9.6E+00
		PBDE #099	ug/kg	1	0	0	2.8E+00	2.8E+00				2.8E+00
		PBDE #100	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		PBDE #153	ug/kg	1	0	0	3.7E-01	3.7E-01				3.7E-01
		PBDE #154	ug/kg	1	0	0	3.5E-01	3.5E-01				3.5E-01
RM 12 East	UD	**Polybrominated Diphenyl Ethers**										
		PBDE #047	ug/kg	1	0	0	1.2E+01	1.2E+01	--	Fewer than 5 detects	--	1.2E+01
		PBDE #099	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00
		PBDE #100	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		PBDE #153	ug/kg	1	0	0	4.9E-01	4.9E-01				4.9E-01
		PBDE #154	ug/kg	1	0	0	4.1E-01	4.1E-01				4.1E-01

Notes:

a Exposure areas for clam tissue are on a RM basis per side of river, such that samples collected from RM 3.0 - 3.9 west of the navigation channel are included in exposure area RM 3 West, etc.
b Chemicals of potential concern are PBDE congeners analyzed and detected at least once in clam tissue within the Study Area. Congeners #28, #183, and #209 were analyzed but not detected in clam tissue.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f 95% UCL not calculated for analytes with fewer than five detects.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
ND = Not detected in the given exposure area.
PBDE = Polybrominated Diphenyl Ether
RM = River mile.
UD = Undepurated tissue.
ug/kg = micrograms per kilogram.

TABLE F3-4.
Exposure Point Concentration Summary for PBDEs - Clam, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
Study Area-Wide	UD	**Polybrominated Diphenyl Ethers**										
		PBDE #047	ug/kg	4	0	0	8.7E+00	1.0E+01	--	Fewer than 5 detects[f]	--	1.0E+01
		PBDE #099	ug/kg	4	1	0	2.1E+00	2.8E+00	--	Fewer than 5 detects	--	2.8E+00
		PBDE #100	ug/kg	4	0	0	3.4E+00	3.9E+00	--	Fewer than 5 detects	--	3.9E+00
		PBDE #153	ug/kg	4	0	0	3.0E-01	3.7E-01	--	Fewer than 5 detects	--	3.7E-01
		PBDE #154	ug/kg	4	0	0	3.0E-01	3.5E-01	--	Fewer than 5 detects	--	3.5E-01

Notes:

a Chemicals of potential concern are PBDE congeners analyzed and detected at least once in clam tissue within the Study Area. Congeners #28, #183, and #209 were analyzed but not detected in clam tissue.

b Total number of non-detects in the Study Area-wide dataset.

c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.

d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.

e 95% UCL not calculated for analytes with fewer than five detects.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
PBDE = Polybrominated Diphenyl Ether
RM = River mile.
UD = Undepurated tissue.
ug/kg = micrograms per kilogram.

TABLE F3-5.
PBDE Toxicity Data

Noncancer Toxicity Data

CAS Number	COPC[a]	Oral RfD[b] mg/kg-day	Oral Absorption Efficiency for Dermal[c]	Absorbed RfD for Dermal mg/kg-day	Primary Target Organ(s)	Combined Uncertainty/Modifying Factors
41318-75-6	PBDE #028	NL	1	NL	NL	NL
5436-43-1	PBDE #047	1.0E-04	1	1.0E-05	neurobehavioral	3000
60348-60-9	PBDE #099	1.0E-04	1	1.0E-05	neurobehavioral	3000
189084-64-8	PBDE #100	NL	1	NL	NL	NL
68631-49-2	PBDE #153	2.0E-04	1	2.0E-05	neurobehavioral	3000
207122-15-4	PBDE #154	NL	1	NL	NL	NL
68928-80-3	PBDE #183	NL	1	NL	NL	NL
1163-19-5	PBDE #209	7.0E-03	1	NL	NL	3.0E+02

Toxicity Data for Carcinogens

CAS Number	COPC[a]	Oral Cancer Slope Factor[b] (mg/kg-day)-1	Oral Absorption Efficiency for Dermal[c]	Absorbed Cancer Slope Factor for Dermal (mg/kg-day)-1	Weight of Evidence for Carcinogenicity[b]
41318-75-6	PBDE #028	NL	1	NL	Inadequate information to assess carcinogenic potential
5436-43-1	PBDE #047	NL	1	NL	Inadequate information to assess carcinogenic potential
60348-60-9	PBDE #099	NL	1	NL	Inadequate information to assess carcinogenic potential
189084-64-8	PBDE #100	NL	1	NL	Inadequate information to assess carcinogenic potential
68631-49-2	PBDE #153	NL	1	NL	Inadequate information to assess carcinogenic potential
207122-15-4	PBDE #154	NL	1	NL	Inadequate information to assess carcinogenic potential
68928-80-3	PBDE #183	NL	1	NL	Inadequate information to assess carcinogenic potential
1163-19-5	PBDE #209	7.0E-04	1	7.0E-04	Suggestive evidence of carcinogenic potential

Notes

a COPCs listed in table are PBDE congeners analyzed and detected in the BHHRA dataset, as described in Attachment F3.

b Retrieved from the EPA's IRIS database (February 2011).

c The value presented for the PBDE oral absorption efficiency for dermal is consistent with Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

Abbreviations

-- Not applicable.
CAS Chemical Abstracts Service
COPC Chemical of Potential Concern
CSF Cancer slope factor
EPA United States Environmental Protection Agency
IRIS Integrated Risk Information System, Accessed online February 2011.
mg/kg-day milligram per kilogram per day
NL Not Listed
PBDE Polybrominated Diphenyl Ethers
RfD Reference Dose

TABLE F3-6.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.6E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	9E-12	3E-11	9E-08	3E-07	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	1E-11	4E-11	1E-14	3E-14	4E-14	7E-03	7E-03	1E-10	3E-10	1E-08	4E-08	0.0000001
Exposure Point Total[c]										4E-14							0.000001
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	6E-11	2E-07	6E-07	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	5E-11	2E-07	5E-07	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-11	4E-11	1E-14	3E-14	4E-14	7E-03	7E-03	1E-10	3E-10	1E-08	4E-08	0.0000001
Exposure Point Total										4E-14							0.000002
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	4E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	9E-12	3E-08	9E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000001
	PBDE # 99	1.4E+00	ug/kg	--	--	5E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000001
	PBDE # 153	1.8E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	2E-04	2E-04	5E-12	1E-11	2E-08	7E-08	0.0000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-11	5E-11	1E-14	4E-14	5E-14	7E-03	7E-03	1E-10	4E-10	2E-08	5E-08	0.0000001
Exposure Point Total										5E-14							0.000003
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	1.7E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	3E-11	5E-08	2E-07	0.0000002
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-11	7E-11	2E-14	5E-14	6E-14	7E-03	7E-03	2E-10	5E-10	2E-08	7E-08	0.0000001
Exposure Point Total										6E-14							0.000004
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	2.1E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	2E-10	5E-07	2E-06	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	7E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	3E-11	9E-11	2E-14	7E-14	9E-14	7E-03	7E-03	2E-10	7E-10	3E-08	9E-08	0.0000001
Exposure Point Total										9E-14							0.000004
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	2E-11	5E-08	2E-07	0.0000002
	PBDE # 99	2.4E-01	ug/kg	--	--	9E-13	3E-12	--	--	--	1E-04	1E-04	6E-12	2E-11	6E-08	2E-07	0.0000002
Exposure Point Total										--							0.0000005

TABLE F3-6.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	5E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	1E-11	4E-08	1E-07	0.0000001
Exposure Point Total										--							0.0000001
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000001
	PBDE # 99	1.3E+00	ug/kg	--	--	5E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	1E-10	3E-07	1E-06	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	7E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	2E-11	6E-11	1E-14	4E-14	6E-14	7E-03	7E-03	1E-10	4E-10	2E-08	6E-08	0.0000001
Exposure Point Total										6E-14							0.000003
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 99	1.6E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 153	3.3E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	2E-04	2E-04	9E-12	3E-11	4E-08	1E-07	0.0000002
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	3E-11	8E-11	2E-14	5E-14	7E-14	7E-03	7E-03	2E-10	5E-10	3E-08	8E-08	0.0000001
Exposure Point Total										7E-14							0.000004
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	5E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	1E-11	4E-08	1E-07	0.0000001
	PBDE # 99	1.2E-01	ug/kg	--	--	4E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	9E-12	3E-08	9E-08	0.0000001
Exposure Point Total										--							0.0000003
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	5.2E+00	ug/kg	--	--	2E-11	6E-11	--	--	--	1E-04	1E-04	1E-10	4E-10	1E-06	4E-06	0.000005
	PBDE # 99	8.2E+00	ug/kg	--	--	3E-11	9E-11	--	--	--	1E-04	1E-04	2E-10	6E-10	2E-06	6E-06	0.000009
	PBDE # 153	1.5E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	2E-04	2E-04	4E-11	1E-10	2E-07	6E-07	0.000001
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	2E-10	6E-10	1E-13	4E-13	6E-13	7E-03	7E-03	1E-09	4E-09	2E-07	6E-07	0.000001
Exposure Point Total										6E-13							0.00002
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	9E-12	3E-11	9E-08	3E-07	0.0000004
	PBDE # 99	2.3E-01	ug/kg	--	--	8E-13	3E-12	--	--	--	1E-04	1E-04	6E-12	2E-11	6E-08	2E-07	0.0000002
Exposure Point Total										--							0.000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
Exposure Point Total										--							0.000001
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
	PBDE # 153	2.3E-01	ug/kg	--	--	8E-13	3E-12	--	--	--	2E-04	2E-04	6E-12	2E-11	3E-08	9E-08	0.0000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	3E-11	8E-11	2E-14	6E-14	8E-14	7E-03	7E-03	2E-10	6E-10	3E-08	8E-08	0.0000001
Exposure Point Total										8E-14							0.000003

TABLE F3-6.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	7E-12	2E-11	3E-08	1E-07	0.0000001
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-11	3E-11	7E-15	2E-14	3E-14	7E-03	7E-03	7E-11	2E-10	1E-08	3E-08	0.00000004
Exposure Point Total										3E-14							0.000004
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E-01	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	1E-11	3E-08	1E-07	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	1E-11	3E-08	1E-07	0.0000001
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	1E-11	4E-11	9E-15	3E-14	4E-14	7E-03	7E-03	9E-11	3E-10	1E-08	4E-08	0.0000001
Exposure Point Total										4E-14							0.0000003
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	7E-12	2E-11	7E-08	2E-07	0.0000003
	PBDE # 99	1.7E-01	ug/kg	--	--	6E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	1E-11	4E-08	1E-07	0.0000002
Exposure Point Total										--							0.0000005
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	4E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	9E-12	3E-08	9E-08	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	1E-11	3E-08	1E-07	0.0000001
Exposure Point Total										--							0.0000002
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	1.9E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 153	3.5E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	2E-04	2E-04	9E-12	3E-11	5E-08	1E-07	0.0000002
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	9E-11	3E-10	6E-14	2E-13	3E-13	7E-03	7E-03	6E-10	2E-09	9E-08	3E-07	0.0000004
Exposure Point Total										3E-13							0.000004
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	7E-11	2E-07	7E-07	0.000001
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	8E-11	3E-07	8E-07	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	7E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-11	7E-11	2E-14	5E-14	6E-14	7E-03	7E-03	2E-10	5E-10	2E-08	7E-08	0.0000001
Exposure Point Total										6E-14							0.000002
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	8E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-11	7E-11	2E-14	5E-14	6E-14	7E-03	7E-03	2E-10	5E-10	2E-08	7E-08	0.0000001
Exposure Point Total										6E-14							0.000004
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	8E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	2E-11	6E-11	1E-14	4E-14	5E-14	7E-03	7E-03	1E-10	4E-10	2E-08	6E-08	0.0000001
Exposure Point Total										5E-14							0.000004

TABLE F3-6.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.5E+00	ug/kg	--	--	9E-12	3E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000003
	PBDE # 99	2.9E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	4E-11	6E-08	2E-07	0.0000002
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	5E-11	1E-10	3E-14	1E-13	1E-13	7E-03	7E-03	3E-10	1E-09	5E-08	1E-07	0.0000002
Exposure Point Total										1E-13							0.000006
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	3E-12	9E-12	--	--	--	1E-04	1E-04	2E-11	6E-11	2E-07	6E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
	PBDE # 153	8.4E-01	ug/kg	--	--	3E-12	9E-12	--	--	--	2E-04	2E-04	2E-11	7E-11	1E-07	3E-07	0.0000004
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-09	5E-09	1E-12	3E-12	5E-12	7E-03	7E-03	1E-08	3E-08	2E-06	5E-06	0.000007
Exposure Point Total										5E-12							0.000009
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.1E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	2E-10	5E-07	2E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000002
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	5E-11	8E-08	2E-07	0.0000003
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	9E-11	3E-10	6E-14	2E-13	2E-13	7E-03	7E-03	6E-10	2E-09	9E-08	3E-07	0.0000004
Exposure Point Total										2E-13							0.000005
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	4E-10	1E-06	4E-06	0.000005
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	3E-10	1E-06	3E-06	0.000004
	PBDE # 153	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	2E-04	2E-04	3E-11	9E-11	2E-07	5E-07	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-10	4E-10	1E-13	3E-13	4E-13	7E-03	7E-03	1E-09	3E-09	1E-07	4E-07	0.000001
Exposure Point Total										4E-13							0.00001
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	2E-10	5E-07	2E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000002
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	3E-11	5E-08	2E-07	0.0000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	4E-11	1E-10	3E-14	9E-14	1E-13	7E-03	7E-03	3E-10	9E-10	4E-08	1E-07	0.0000002
Exposure Point Total										1E-13							0.000005
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	3E-10	1E-06	3E-06	0.000004
	PBDE # 99	5.6E+00	ug/kg	--	--	2E-11	6E-11	--	--	--	1E-04	1E-04	1E-10	4E-10	1E-06	4E-06	0.000006
	PBDE # 153	1.1E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	2E-04	2E-04	3E-11	9E-11	1E-07	4E-07	0.000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	3E-10	1E-09	2E-13	7E-13	9E-13	7E-03	7E-03	2E-09	7E-09	3E-07	1E-06	0.000001
Exposure Point Total										9E-13							0.00001
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	5E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	1E-10	3E-07	1E-06	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
	PBDE # 153	1.9E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	2E-04	2E-04	5E-12	1E-11	2E-08	7E-08	0.0000001
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-11	3E-11	7E-15	2E-14	3E-14	7E-03	7E-03	7E-11	2E-10	1E-08	3E-08	0.00000004
Exposure Point Total										3E-14							0.000003

TABLE F3-6.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	9E-12	3E-11	9E-08	3E-07	0.0000003
	PBDE # 99	1.8E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	1E-11	5E-08	1E-07	0.0000002
Exposure Point Total										--							0.000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-12	6E-12	--	--	--	2E-04	2E-04	1E-11	4E-11	7E-08	2E-07	0.0000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-10	5E-10	1E-13	4E-13	5E-13	7E-03	7E-03	1E-09	4E-09	2E-07	5E-07	0.000001
Exposure Point Total										5E-13							0.000006
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	8E-11	3E-07	8E-07	0.000001
	PBDE # 99	7.9E-01	ug/kg	--	--	3E-12	9E-12	--	--	--	1E-04	1E-04	2E-11	6E-11	2E-07	6E-07	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	7E-12	2E-11	5E-15	2E-14	2E-14	7E-03	7E-03	5E-11	2E-10	7E-09	2E-08	0.00000003
Exposure Point Total										2E-14							0.000002
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	3E-10	1E-06	3E-06	0.000004
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	5E-11	8E-08	2E-07	0.0000003
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	2E-10	6E-10	1E-13	4E-13	6E-13	7E-03	7E-03	1E-09	4E-09	2E-07	6E-07	0.000001
Exposure Point Total										6E-13							0.000008
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.5E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
Exposure Point Total										--							0.000003
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000003
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000003
Exposure Point Total										--							0.000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
	PBDE # 99	1.1E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
Exposure Point Total										--							0.000002

TABLE F3-6.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
Study Area-wide[b]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.2E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000002
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 153	5.3E-01	ug/kg	--	--	2E-12	6E-12	--	--	--	2E-04	2E-04	1E-11	4E-11	7E-08	2E-07	0.0000003
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-10	7E-10	2E-13	5E-13	6E-13	7E-03	7E-03	2E-09	5E-09	2E-07	7E-07	0.000001
Exposure Point Total										6E-13							0.000006

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-7.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.00000007
	PBDE # 99	3.2E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.00000007
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	6E-13	4E-12	4E-16	3E-15	3E-15	7E-03	7E-03	1E-11	7E-11	1E-09	1E-08	0.00000001
Exposure Point Total[c]										3E-15							0.0000002
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	1E-13	8E-13	--	--	--	1E-04	1E-04	2E-12	1E-11	2E-08	1E-07	0.0000002
	PBDE # 99	6.3E-01	ug/kg	--	--	9E-14	7E-13	--	--	--	1E-04	1E-04	2E-12	1E-11	2E-08	1E-07	0.0000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	5E-13	4E-12	4E-16	3E-15	3E-15	7E-03	7E-03	1E-11	7E-11	1E-09	1E-08	0.00000001
Exposure Point Total										3E-15							0.0000003
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	2E-12	3E-09	2E-08	0.00000003
Exposure Point Total										--							0.00000003
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 153	1.8E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	2E-04	2E-04	5E-13	4E-12	2E-09	2E-08	0.00000002
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	7E-13	5E-12	5E-16	4E-15	4E-15	7E-03	7E-03	1E-11	9E-11	2E-09	1E-08	0.00000001
Exposure Point Total										4E-15							0.0000007
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 99	1.0E+00	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 153	4.9E-01	ug/kg	--	--	7E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	9E-12	6E-09	5E-08	0.00000005
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	8E-13	6E-12	6E-16	5E-15	5E-15	7E-03	7E-03	1E-11	1E-10	2E-09	2E-08	0.00000002
Exposure Point Total										5E-15							0.0000005
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	3E-11	5E-08	3E-07	0.0000004
	PBDE # 99	2.0E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	6E-12	4E-09	3E-08	0.00000003
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	1E-12	8E-12	7E-16	5E-15	6E-15	7E-03	7E-03	2E-11	1E-10	3E-09	2E-08	0.00000002
Exposure Point Total										6E-15							0.0000009
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	1E-04	1E-04	5E-13	4E-12	5E-09	4E-08	0.00000004
	PBDE # 99	2.4E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	1E-04	1E-04	6E-13	5E-12	6E-09	5E-08	0.00000005
Exposure Point Total										--							0.0000001
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-14	2E-13	--	--	--	1E-04	1E-04	4E-13	3E-12	4E-09	3E-08	0.00000003
Exposure Point Total										--							0.00000003

TABLE F3-7.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	6E-12	4E-09	3E-08	0.00000003
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	8E-13	6E-12	5E-16	4E-15	5E-15	7E-03	7E-03	1E-11	1E-10	2E-09	1E-08	0.00000002
Exposure Point Total										5E-15							0.0000006
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	5E-12	4E-09	3E-08	0.00000003
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	9E-13	7E-12	7E-16	5E-15	6E-15	7E-03	7E-03	2E-11	1E-10	2E-09	2E-08	0.00000002
Exposure Point Total										6E-15							0.0000006
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-14	2E-13	--	--	--	1E-04	1E-04	4E-13	3E-12	4E-09	3E-08	0.00000003
	PBDE # 99	1.2E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	2E-12	3E-09	2E-08	0.00000003
Exposure Point Total										--							0.00000006
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.0E+00	ug/kg	--	--	6E-13	4E-12	--	--	--	1E-04	1E-04	1E-11	8E-11	1E-07	8E-07	0.0000009
	PBDE # 99	5.8E+00	ug/kg	--	--	9E-13	7E-12	--	--	--	1E-04	1E-04	2E-11	1E-10	2E-07	1E-06	0.000001
	PBDE # 153	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	2E-04	2E-04	3E-12	2E-11	1E-08	1E-07	0.0000001
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	5E-12	4E-11	3E-15	2E-14	3E-14	7E-03	7E-03	8E-11	6E-10	1E-08	9E-08	0.0000001
Exposure Point Total										3E-14							0.000002
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	7E-12	9E-09	7E-08	0.00000008
	PBDE # 99	2.3E-01	ug/kg	--	--	3E-14	3E-13	--	--	--	1E-04	1E-04	6E-13	5E-12	6E-09	5E-08	0.00000005
Exposure Point Total										--							0.0000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	1E-12	7E-12	1E-08	7E-08	0.00000008
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	1E-12	7E-12	1E-08	7E-08	0.00000008
Exposure Point Total										--							0.0000002
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	2.3E-01	ug/kg	--	--	3E-14	3E-13	--	--	--	2E-04	2E-04	6E-13	5E-12	3E-09	2E-08	0.00000003
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	1E-12	8E-12	8E-16	6E-15	7E-15	7E-03	7E-03	2E-11	1E-10	3E-09	2E-08	0.00000002
Exposure Point Total										7E-15							0.0000006

TABLE F3-7.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.0E+00	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	4.1E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	5E-09	4E-08	0.00000004
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	6E-13	5E-12	4E-16	3E-15	4E-15	7E-03	7E-03	1E-11	8E-11	2E-09	1E-08	0.00000001
Exposure Point Total										4E-15							0.0000005
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	7E-12	9E-09	7E-08	0.00000008
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	7E-12	9E-09	7E-08	0.00000008
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	7E-13	5E-12	5E-16	4E-15	4E-15	7E-03	7E-03	1E-11	9E-11	2E-09	1E-08	0.00000002
Exposure Point Total										4E-15							0.0000002
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	1E-04	1E-04	7E-13	5E-12	7E-09	5E-08	0.00000006
	PBDE # 99	1.7E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	1E-04	1E-04	4E-13	3E-12	4E-09	3E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	2E-12	3E-09	2E-08	0.00000002
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	3E-12	3E-09	3E-08	0.00000003
Exposure Point Total										--							0.00000005
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	4.5E-01	ug/kg	--	--	7E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	9E-12	6E-09	4E-08	0.00000005
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	3E-12	2E-11	2E-15	1E-14	2E-14	7E-03	7E-03	4E-11	3E-10	6E-09	5E-08	0.00000005
Exposure Point Total										2E-14							0.0000006
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 99	9.9E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	6E-12	4E-09	3E-08	0.00000003
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	9E-13	7E-12	6E-16	5E-15	5E-15	7E-03	7E-03	2E-11	1E-10	2E-09	2E-08	0.00000002
Exposure Point Total										5E-15							0.0000005
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 99	1.0E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 153	3.6E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	2E-04	2E-04	9E-13	7E-12	5E-09	4E-08	0.00000004
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	6E-13	5E-12	4E-16	3E-15	4E-15	7E-03	7E-03	1E-11	8E-11	2E-09	1E-08	0.00000001
Exposure Point Total										4E-15							0.0000005

TABLE F3-7.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 99	8.5E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 153	4.3E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	6E-09	4E-08	0.00000005
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	8E-13	6E-12	5E-16	4E-15	5E-15	7E-03	7E-03	1E-11	1E-10	2E-09	1E-08	0.00000002
Exposure Point Total										5E-15							0.0000005
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.9E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	6E-12	4E-11	6E-08	4E-07	0.0000005
	PBDE # 153	3.4E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	2E-04	2E-04	9E-13	7E-12	4E-09	3E-08	0.00000004
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	1E-12	1E-11	9E-16	7E-15	8E-15	7E-03	7E-03	2E-11	2E-10	3E-09	2E-08	0.00000003
Exposure Point Total										8E-15							0.000001
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	8.4E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	2E-04	2E-04	2E-12	2E-11	1E-08	8E-08	0.00000009
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	6E-11	5E-10	5E-14	3E-13	4E-13	7E-03	7E-03	1E-09	9E-09	2E-07	1E-06	0.000001
Exposure Point Total										4E-13							0.000002
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	1.9E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 153	4.2E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	5E-09	4E-08	0.00000005
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	2E-12	2E-11	2E-15	1E-14	1E-14	7E-03	7E-03	4E-11	3E-10	5E-09	4E-08	0.00000005
Exposure Point Total										1E-14							0.0000009
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000004
	PBDE # 99	2.3E+00	ug/kg	--	--	3E-13	3E-12	--	--	--	1E-04	1E-04	6E-12	4E-11	6E-08	4E-07	0.0000005
	PBDE # 153	7.1E-01	ug/kg	--	--	1E-13	8E-13	--	--	--	2E-04	2E-04	2E-12	1E-11	9E-09	7E-08	0.00000008
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	3E-12	2E-11	2E-15	1E-14	2E-14	7E-03	7E-03	5E-11	4E-10	7E-09	5E-08	0.00000006
Exposure Point Total										2E-14							0.000001
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	6E-12	4E-11	6E-08	4E-07	0.0000005
	PBDE # 153	4.1E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	5E-09	4E-08	0.00000005
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	2E-12	1E-11	1E-15	9E-15	1E-14	7E-03	7E-03	3E-11	2E-10	4E-09	3E-08	0.00000003
Exposure Point Total										1E-14							0.000001

TABLE F3-7.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	6E-13	5E-12	--	--	--	1E-04	1E-04	1E-11	8E-11	1E-07	8E-07	0.0000009
	PBDE # 99	5.6E+00	ug/kg	--	--	8E-13	6E-12	--	--	--	1E-04	1E-04	1E-11	1E-10	1E-07	1E-06	0.000001
	PBDE # 153	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	2E-04	2E-04	3E-12	2E-11	1E-08	1E-07	0.0000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	1E-11	1E-10	9E-15	7E-14	8E-14	7E-03	7E-03	2E-10	2E-09	3E-08	3E-07	0.0000003
Exposure Point Total										8E-14							0.000003
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	1.9E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	2E-04	2E-04	5E-13	4E-12	2E-09	2E-08	0.00000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	4E-13	3E-12	3E-16	2E-15	3E-15	7E-03	7E-03	7E-12	6E-11	1E-09	8E-09	0.00000001
Exposure Point Total										3E-15							0.0000006
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	6E-12	9E-09	6E-08	0.00000007
	PBDE # 99	1.8E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	1E-04	1E-04	5E-13	4E-12	5E-09	4E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	2.7E+00	ug/kg	--	--	4E-13	3E-12	--	--	--	1E-04	1E-04	7E-12	5E-11	7E-08	5E-07	0.0000006
	PBDE # 153	5.2E-01	ug/kg	--	--	8E-14	6E-13	--	--	--	2E-04	2E-04	1E-12	1E-11	7E-09	5E-08	0.00000006
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	7E-12	5E-11	5E-15	4E-14	4E-14	7E-03	7E-03	1E-10	9E-10	2E-08	1E-07	0.0000001
Exposure Point Total										4E-14							0.000001
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 99	7.9E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	3E-13	2E-12	2E-16	2E-15	2E-15	7E-03	7E-03	5E-12	4E-11	7E-10	6E-09	0.00000001
Exposure Point Total										2E-15							0.0000004
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	4E-13	3E-12	--	--	--	1E-04	1E-04	7E-12	6E-11	7E-08	6E-07	0.0000006
	PBDE # 99	3.7E+00	ug/kg	--	--	5E-13	4E-12	--	--	--	1E-04	1E-04	1E-11	7E-11	1E-07	7E-07	0.0000008
	PBDE # 153	6.3E-01	ug/kg	--	--	9E-14	7E-13	--	--	--	2E-04	2E-04	2E-12	1E-11	8E-09	6E-08	0.00000007
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	8E-12	6E-11	6E-15	4E-14	5E-14	7E-03	7E-03	1E-10	1E-09	2E-08	2E-07	0.0000002
Exposure Point Total										5E-14							0.000002
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.7E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 99	7.8E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
Exposure Point Total										--							0.0000004

TABLE F3-7.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	5E-14	3E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.00000007
	PBDE # 99	3.0E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.00000007
Exposure Point Total										--							0.0000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 99	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
Exposure Point Total										--							0.0000005
Study Area Wide[d]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 99	1.7E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000004
	PBDE # 153	5.1E-01	ug/kg	--	--	7E-14	6E-13	--	--	--	2E-04	2E-04	1E-12	1E-11	7E-09	5E-08	0.00000006
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	3E-12	2E-11	2E-15	2E-14	2E-14	7E-03	7E-03	6E-11	4E-10	8E-09	6E-08	0.00000007
Exposure Point Total										2E-14							0.0000008

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-8.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.6E-01	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	5E-11	5E-11	5E-07	5E-07	0.000001
	PBDE # 99	3.7E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	6E-10	5E-10	4E-13	4E-13	8E-13	7E-03	7E-03	6E-10	5E-10	9E-08	7E-08	0.0000002
Exposure Point Total										8E-13							0.000002
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	6.3E-01	ug/kg	--	--	1E-10	8E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	6E-10	5E-10	4E-13	3E-13	7E-13	7E-03	7E-03	6E-10	5E-10	8E-08	7E-08	0.0000001
Exposure Point Total										7E-13							0.000004
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000003
Exposure Point Total										--							0.0000003
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	1.8E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	7E-10	6E-10	5E-13	4E-13	9E-13	7E-03	7E-03	7E-10	6E-10	1E-07	8E-08	0.0000002
Exposure Point Total										9E-13							0.000008
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.7E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	4.2E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	3E-07	0.000001
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	9E-10	8E-10	6E-13	5E-13	1E-12	7E-03	7E-03	9E-10	8E-10	1E-07	1E-07	0.0000002
Exposure Point Total										1E-12							0.00001
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	2.1E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	4E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	1E-09	1E-09	9E-13	7E-13	2E-12	7E-03	7E-03	1E-09	1E-09	2E-07	2E-07	0.0000003
Exposure Point Total										2E-12							0.00001
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.000001
	PBDE # 99	2.4E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.000001
Exposure Point Total										--							0.000001
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
Exposure Point Total										--							0.0000004

TABLE F3-8.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	4E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	8E-10	7E-10	6E-13	5E-13	1E-12	7E-03	7E-03	8E-10	7E-10	1E-07	1E-07	0.0000002
Exposure Point Total										1E-12							0.000008
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	1.6E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	3.3E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000005
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	1E-09	9E-10	7E-13	6E-13	1E-12	7E-03	7E-03	1E-09	9E-10	1E-07	1E-07	0.0000003
Exposure Point Total										1E-12							0.00001
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	1.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000003
Exposure Point Total										--							0.000001
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	5.2E+00	ug/kg	--	--	8E-10	7E-10	--	--	--	1E-04	1E-04	8E-10	7E-10	8E-06	7E-06	0.00001
	PBDE # 99	8.2E+00	ug/kg	--	--	1E-09	1E-09	--	--	--	1E-04	1E-04	1E-09	1E-09	1E-05	1E-05	0.00002
	PBDE # 153	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	2E-04	2E-04	2E-10	2E-10	1E-06	1E-06	0.000002
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	8E-09	7E-09	6E-12	5E-12	1E-11	7E-03	7E-03	8E-09	7E-09	1E-06	1E-06	0.000002
Exposure Point Total										1E-11							0.00004
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	2.3E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.000001
Exposure Point Total										--							0.000002
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 99	3.7E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
Exposure Point Total										--							0.000002
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 153	2.3E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.0000003
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	1E-09	9E-10	8E-13	7E-13	1E-12	7E-03	7E-03	1E-09	9E-10	2E-07	1E-07	0.0000003
Exposure Point Total										1E-12							0.000008

TABLE F3-8.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	2.6E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000004
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	4E-10	4E-10	3E-13	2E-13	5E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001
Exposure Point Total										5E-13							0.00001
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	5E-10	4E-10	4E-13	3E-13	7E-13	7E-03	7E-03	5E-10	4E-10	8E-08	6E-08	0.0000001
Exposure Point Total										7E-13							0.000001
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.000001
	PBDE # 99	1.7E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
Exposure Point Total										--							0.000001
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
Exposure Point Total										--							0.000001
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.9E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	3.5E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	3E-07	2E-07	0.0000005
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	4E-09	3E-09	3E-12	2E-12	5E-12	7E-03	7E-03	4E-09	3E-09	5E-07	5E-07	0.000001
Exposure Point Total										5E-12							0.00001
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 99	9.9E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	4E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	9E-10	8E-10	6E-13	5E-13	1E-12	7E-03	7E-03	9E-10	8E-10	1E-07	1E-07	0.0000002
Exposure Point Total										1E-12							0.000006
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	3.1E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	9E-10	8E-10	7E-13	6E-13	1E-12	7E-03	7E-03	9E-10	8E-10	1E-07	1E-07	0.0000002
Exposure Point Total										1E-12							0.00001

TABLE F3-8.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	3.1E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	8E-10	6E-10	5E-13	5E-13	1E-12	7E-03	7E-03	8E-10	6E-10	1E-07	9E-08	0.0000002
Exposure Point Total										1E-12							0.00001
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.5E+00	ug/kg	--	--	4E-10	3E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000007
	PBDE # 99	2.9E+00	ug/kg	--	--	4E-10	4E-10	--	--	--	1E-04	1E-04	4E-10	4E-10	4E-06	4E-06	0.000008
	PBDE # 153	4.5E-01	ug/kg	--	--	7E-11	6E-11	--	--	--	2E-04	2E-04	7E-11	6E-11	3E-07	3E-07	0.000001
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	1E-12	1E-12	3E-12	7E-03	7E-03	2E-09	2E-09	3E-07	2E-07	0.000001
Exposure Point Total										3E-12							0.00002
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 153	8.4E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	2E-04	2E-04	1E-10	1E-10	6E-07	5E-07	0.000001
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	7E-08	6E-08	5E-11	4E-11	9E-11	7E-03	7E-03	7E-08	6E-08	9E-06	8E-06	0.00002
Exposure Point Total										9E-11							0.00002
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.1E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	6.2E-01	ug/kg	--	--	9E-11	8E-11	--	--	--	2E-04	2E-04	9E-11	8E-11	5E-07	4E-07	0.000001
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	4E-09	3E-09	3E-12	2E-12	5E-12	7E-03	7E-03	4E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										5E-12							0.00001
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.5E+00	ug/kg	--	--	7E-10	6E-10	--	--	--	1E-04	1E-04	7E-10	6E-10	7E-06	6E-06	0.00001
	PBDE # 99	4.3E+00	ug/kg	--	--	7E-10	5E-10	--	--	--	1E-04	1E-04	7E-10	5E-10	7E-06	5E-06	0.00001
	PBDE # 153	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	2E-04	2E-04	2E-10	2E-10	9E-07	8E-07	0.000002
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	6E-09	5E-09	4E-12	3E-12	7E-12	7E-03	7E-03	6E-09	5E-09	8E-07	7E-07	0.000001
Exposure Point Total										7E-12							0.00003
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	4.1E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	3E-07	0.000001
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	2E-09	1E-09	1E-12	1E-12	2E-12	7E-03	7E-03	2E-09	1E-09	2E-07	2E-07	0.000000
Exposure Point Total										2E-12							0.00001

TABLE F3-8.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	6E-10	5E-10	--	--	--	1E-04	1E-04	6E-10	5E-10	6E-06	5E-06	0.00001
	PBDE # 99	5.6E+00	ug/kg	--	--	8E-10	7E-10	--	--	--	1E-04	1E-04	8E-10	7E-10	8E-06	7E-06	0.00002
	PBDE # 153	1.1E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	2E-04	2E-04	2E-10	1E-10	8E-07	7E-07	0.000002
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	1E-08	1E-08	1E-11	8E-12	2E-11	7E-03	7E-03	1E-08	1E-08	2E-06	2E-06	0.000004
Exposure Point Total										2E-11							0.00003
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 153	1.9E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	4E-10	4E-10	3E-13	3E-13	6E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001
Exposure Point Total										6E-13							0.000007
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	1.8E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.000001
Exposure Point Total										--							0.000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	2.7E+00	ug/kg	--	--	4E-10	3E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000008
	PBDE # 153	5.2E-01	ug/kg	--	--	8E-11	7E-11	--	--	--	2E-04	2E-04	8E-11	7E-11	4E-07	3E-07	0.000001
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	7E-09	6E-09	5E-12	4E-12	9E-12	7E-03	7E-03	7E-09	6E-09	1E-06	8E-07	0.000002
Exposure Point Total										9E-12							0.00002
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 99	7.9E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	3E-10	3E-10	2E-13	2E-13	4E-13	7E-03	7E-03	3E-10	3E-10	4E-08	4E-08	0.0000001
Exposure Point Total										4E-13							0.000005
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	4E-10	4E-10	--	--	--	1E-04	1E-04	4E-10	4E-10	4E-06	4E-06	0.000008
	PBDE # 99	3.7E+00	ug/kg	--	--	6E-10	5E-10	--	--	--	1E-04	1E-04	6E-10	5E-10	6E-06	5E-06	0.00001
	PBDE # 153	6.3E-01	ug/kg	--	--	1E-10	8E-11	--	--	--	2E-04	2E-04	1E-10	8E-11	5E-07	4E-07	0.000001
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	9E-09	7E-09	6E-12	5E-12	1E-11	7E-03	7E-03	9E-09	7E-09	1E-06	1E-06	0.000002
Exposure Point Total										1E-11							0.00002
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
Exposure Point Total										--							0.000008

TABLE F3-8.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	3.0E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
Exposure Point Total										--							0.000002
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 99	1.1E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
Exposure Point Total										--							0.000006
Study Area Wide[b]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.2E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	2.8E+00	ug/kg	--	--	4E-10	4E-10	--	--	--	1E-04	1E-04	4E-10	4E-10	4E-06	4E-06	0.000008
	PBDE # 153	5.3E-01	ug/kg	--	--	8E-11	7E-11	--	--	--	2E-04	2E-04	8E-11	7E-11	4E-07	3E-07	0.000001
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	9E-09	8E-09	6E-12	5E-12	1E-11	7E-03	7E-03	9E-09	8E-09	1E-06	1E-06	0.000002
Exposure Point Total										1E-11							0.00002

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-9.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 99	3.2E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	2E-11	4E-11	2E-14	3E-14	5E-14	7E-03	7E-03	5E-11	1E-10	8E-09	1E-08	0.00000002
Exposure Point Total[c]										5E-14							0.0000003
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	5E-12	8E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	6.3E-01	ug/kg	--	--	4E-12	7E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000002
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	2E-11	4E-11	2E-14	3E-14	4E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.00000002
Exposure Point Total										4E-14							0.0000006
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.00000005
Exposure Point Total										--							0.00000005
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 153	1.8E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	2E-08	0.00000004
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.00000003
Exposure Point Total										5E-14							0.000001
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
	PBDE # 99	1.0E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	4.9E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	3E-08	6E-08	0.0000001
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	3E-11	6E-11	2E-14	4E-14	7E-14	7E-03	7E-03	8E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										7E-14							0.000001
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000007
	PBDE # 99	2.0E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 153	2.8E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	4E-11	8E-11	3E-14	5E-14	8E-14	7E-03	7E-03	1E-10	2E-10	1E-08	3E-08	0.00000004
Exposure Point Total										8E-14							0.000002
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	2.4E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
Exposure Point Total										--							0.0000002

TABLE F3-9.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	8E-13	2E-12	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	3E-11	6E-11	2E-14	4E-14	6E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										6E-14							0.000001
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.4E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	2.8E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	4E-11	7E-11	3E-14	5E-14	8E-14	7E-03	7E-03	9E-11	2E-10	1E-08	2E-08	0.00000004
Exposure Point Total										8E-14							0.000001
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	8E-13	2E-12	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	1.2E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.00000005
Exposure Point Total										--							0.0000001
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.0E+00	ug/kg	--	--	2E-11	4E-11	--	--	--	1E-04	1E-04	6E-11	1E-10	6E-07	1E-06	0.000002
	PBDE # 99	5.8E+00	ug/kg	--	--	4E-11	6E-11	--	--	--	1E-04	1E-04	8E-11	1E-10	8E-07	1E-06	0.000002
	PBDE # 153	1.1E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	2E-04	2E-04	1E-11	3E-11	7E-08	1E-07	0.0000002
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	2E-10	3E-10	1E-13	2E-13	4E-13	7E-03	7E-03	4E-10	8E-10	6E-08	1E-07	0.0000002
Exposure Point Total										4E-13							0.000004
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	2.3E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
Exposure Point Total										--							0.0000002
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
Exposure Point Total										--							0.0000003

TABLE F3-9.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	2.3E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	3E-12	6E-12	2E-08	3E-08	0.00000005
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	4E-11	8E-11	3E-14	6E-14	9E-14	7E-03	7E-03	1E-10	2E-10	1E-08	3E-08	0.00000004
Exposure Point Total										9E-14							0.000001
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.0E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	6E-11	1E-10	8E-09	2E-08	0.00000002
Exposure Point Total										5E-14							0.000001
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	4E-14	6E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										6E-14							0.0000003
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001
	PBDE # 99	1.7E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
Exposure Point Total										--							0.0000002
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.00000004
	PBDE # 99	1.3E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	4.5E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	6E-08	0.0000001
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	1E-10	2E-10	7E-14	1E-13	2E-13	7E-03	7E-03	2E-10	4E-10	3E-08	6E-08	0.0000001
Exposure Point Total										2E-13							0.000001
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	9.9E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	4E-11	7E-11	3E-14	5E-14	7E-14	7E-03	7E-03	9E-11	2E-10	1E-08	2E-08	0.00000003
Exposure Point Total										7E-14							0.0000009

TABLE F3-9.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.0E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	3.6E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	5E-12	9E-12	3E-08	5E-08	0.0000001
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.0000000
Exposure Point Total										5E-14							0.0000010
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	8.5E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	4.3E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	3E-11	6E-11	2E-14	4E-14	6E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										6E-14							0.0000008
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.9E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000009
	PBDE # 153	3.4E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	5E-12	9E-12	2E-08	4E-08	0.0000001
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	5E-11	1E-10	4E-14	7E-14	1E-13	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.00000005
Exposure Point Total										1E-13							0.000002
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	8.4E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	2E-04	2E-04	1E-11	2E-11	6E-08	1E-07	0.0000002
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	3E-09	5E-09	2E-12	3E-12	5E-12	7E-03	7E-03	6E-09	1E-08	9E-07	2E-06	0.000002
Exposure Point Total										5E-12							0.000003
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000007
	PBDE # 99	1.9E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 153	4.2E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	9E-11	2E-10	6E-14	1E-13	2E-13	7E-03	7E-03	2E-10	4E-10	3E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000002
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	2.3E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	6E-11	3E-07	6E-07	0.0000009
	PBDE # 153	7.1E-01	ug/kg	--	--	4E-12	8E-12	--	--	--	2E-04	2E-04	1E-11	2E-11	5E-08	9E-08	0.0000001
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	1E-10	2E-10	8E-14	1E-13	2E-13	7E-03	7E-03	3E-10	5E-10	4E-08	7E-08	0.0000001
Exposure Point Total										2E-13							0.0000018

TABLE F3-9.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	6E-11	3E-07	6E-07	0.0000009
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	7E-11	1E-10	5E-14	8E-14	1E-13	7E-03	7E-03	2E-10	3E-10	2E-08	4E-08	0.0000001
Exposure Point Total										1E-13							0.000002
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-11	4E-11	--	--	--	1E-04	1E-04	6E-11	1E-10	6E-07	1E-06	0.000002
	PBDE # 99	5.6E+00	ug/kg	--	--	3E-11	6E-11	--	--	--	1E-04	1E-04	8E-11	1E-10	8E-07	1E-06	0.000002
	PBDE # 153	1.1E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	2E-04	2E-04	2E-11	3E-11	8E-08	1E-07	0.0000002
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	5E-10	1E-09	4E-13	7E-13	1E-12	7E-03	7E-03	1E-09	2E-09	2E-07	3E-07	0.0000005
Exposure Point Total										1E-12							0.000005
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	1.9E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	2E-08	0.00000004
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	2E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	4E-11	7E-11	6E-09	1E-08	0.00000002
Exposure Point Total										3E-14							0.000001
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 99	1.8E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
Exposure Point Total										--							0.0000002
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000007
	PBDE # 99	2.7E+00	ug/kg	--	--	2E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.000001
	PBDE # 153	5.2E-01	ug/kg	--	--	3E-12	6E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	4E-08	7E-08	0.0000001
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	3E-10	5E-10	2E-13	4E-13	5E-13	7E-03	7E-03	6E-10	1E-09	9E-08	2E-07	0.0000003
Exposure Point Total										5E-13							0.000002
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	7.9E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	1E-11	2E-11	8E-15	2E-14	2E-14	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.00000001
Exposure Point Total										2E-14							0.0000007

TABLE F3-9.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	2E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.000001
	PBDE # 99	3.7E+00	ug/kg	--	--	2E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	9E-11	5E-07	9E-07	0.000001
	PBDE # 153	6.3E-01	ug/kg	--	--	4E-12	7E-12	--	--	--	2E-04	2E-04	9E-12	2E-11	4E-08	8E-08	0.0000001
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	3E-10	6E-10	2E-13	4E-13	7E-13	7E-03	7E-03	8E-10	1E-09	1E-07	2E-07	0.0000003
Exposure Point Total										7E-13							0.000003
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.7E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	7.8E-01	ug/kg	--	--	5E-12	8E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
Exposure Point Total										--							0.0000007
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 99	3.0E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
Exposure Point Total										--							0.0000002
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.1E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
Exposure Point Total										--							0.0000009
Study Area Wide[d]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	9E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	1.7E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000007
	PBDE # 153	5.1E-01	ug/kg	--	--	3E-12	6E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	4E-08	6E-08	0.0000001
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	1E-10	2E-10	9E-14	2E-13	3E-13	7E-03	7E-03	3E-10	6E-10	4E-08	8E-08	0.0000001
Exposure Point Total										3E-13							0.000001

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-10.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.6E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.0000006
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.0000006
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000001
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	1E-13	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000002
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
Exposure Point Total										--							0.0000002
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.4E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	1.8E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	8E-08	7E-08	0.0000002
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	1E-13	2E-13	7E-03	7E-03	4E-10	3E-10	6E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000005
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000004
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	5E-10	5E-10	8E-08	7E-08	0.0000001
Exposure Point Total										3E-13							0.000006
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	2.1E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	3E-10	3E-10	2E-13	2E-13	4E-13	7E-03	7E-03	8E-10	6E-10	1E-07	9E-08	0.0000002
Exposure Point Total										4E-13							0.000007
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000003
	PBDE # 99	2.4E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
Exposure Point Total										--							0.0000007

TABLE F3-10.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	5E-12	5E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
Exposure Point Total										--							0.0000002
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.3E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	1E-13	1E-13	3E-13	7E-03	7E-03	5E-10	4E-10	7E-08	6E-08	0.0000001
Exposure Point Total										3E-13							0.000005
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 99	1.6E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 153	3.3E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	1E-07	1E-07	0.0000003
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	2E-13	3E-13	7E-03	7E-03	6E-10	5E-10	9E-08	8E-08	0.0000002
Exposure Point Total										3E-13							0.000006
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	5E-12	5E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 99	1.2E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
Exposure Point Total										--							0.0000004
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	5.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	5E-10	4E-10	5E-06	4E-06	0.000009
	PBDE # 99	8.2E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	7E-10	6E-10	7E-06	6E-06	0.00001
	PBDE # 153	1.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	2E-04	2E-04	1E-10	1E-10	7E-07	6E-07	0.000001
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	5E-09	4E-09	7E-07	6E-07	0.000001
Exposure Point Total										3E-12							0.00002
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.0000006
	PBDE # 99	2.3E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
Exposure Point Total										--							0.000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.0000006
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.0000006
Exposure Point Total										--							0.000001

TABLE F3-10.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	2.3E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	9E-08	0.0000002
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	2E-13	4E-13	7E-03	7E-03	7E-10	6E-10	1E-07	8E-08	0.0000002
Exposure Point Total										4E-13							0.000005
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-10	9E-11	8E-14	6E-14	1E-13	7E-03	7E-03	3E-10	2E-10	4E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.000006
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	1E-13	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.0000005
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000005
	PBDE # 99	1.7E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000007
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	4E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	8E-12	1E-07	8E-08	0.0000002
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
Exposure Point Total										--							0.0000004
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.9E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	3.5E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.0000003
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	1E-09	8E-10	7E-13	6E-13	1E-12	7E-03	7E-03	2E-09	2E-09	3E-07	3E-07	0.0000006
Exposure Point Total										1E-12							0.000007
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	7E-11	9E-07	7E-07	0.000002
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	6E-10	5E-10	8E-08	7E-08	0.0000001
Exposure Point Total										3E-13							0.000004

TABLE F3-10.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	6E-10	5E-10	8E-08	7E-08	0.0000001
Exposure Point Total										3E-13							0.000006
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	1E-13	1E-13	3E-13	7E-03	7E-03	5E-10	4E-10	7E-08	6E-08	0.0000001
Exposure Point Total										3E-13							0.000006
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.5E+00	ug/kg	--	--	1E-10	8E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	2.9E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000004
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	5E-10	4E-10	4E-13	3E-13	7E-13	7E-03	7E-03	1E-09	1E-09	2E-07	1E-07	0.0000003
Exposure Point Total										7E-13							0.00001
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	6E-11	8E-07	6E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	8.4E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	2E-04	2E-04	8E-11	6E-11	4E-07	3E-07	0.0000007
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-08	1E-08	1E-11	1E-11	2E-11	7E-03	7E-03	4E-08	3E-08	6E-06	5E-06	0.00001
Exposure Point Total										2E-11							0.00001
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.1E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	2.2E+00	ug/kg	--	--	9E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	2E-07	0.0000005
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	9E-10	8E-10	7E-13	5E-13	1E-12	7E-03	7E-03	2E-09	2E-09	3E-07	3E-07	0.0000006
Exposure Point Total										1E-12							0.000008
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000008
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000007
	PBDE # 153	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	1E-10	9E-11	5E-07	5E-07	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	3E-09	3E-09	5E-07	4E-07	0.0000009
Exposure Point Total										2E-12							0.00002

TABLE F3-10.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 99	2.2E+00	ug/kg	--	--	9E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000003
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	4E-10	4E-10	3E-13	3E-13	6E-13	7E-03	7E-03	1E-09	8E-10	1E-07	1E-07	0.0000003
Exposure Point Total										6E-13							0.000008
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000007
	PBDE # 99	5.6E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	5E-10	4E-10	5E-06	4E-06	0.000009
	PBDE # 153	1.1E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	1E-10	8E-11	5E-07	4E-07	0.0000009
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	3E-09	3E-09	2E-12	2E-12	5E-12	7E-03	7E-03	8E-09	7E-09	1E-06	1E-06	0.000002
Exposure Point Total										5E-12							0.00002
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	1.9E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.0000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-10	9E-11	8E-14	7E-14	1E-13	7E-03	7E-03	3E-10	2E-10	4E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.000004
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.0000006
	PBDE # 99	1.8E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000009
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000005
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	1E-12	1E-12	2E-12	7E-03	7E-03	4E-09	4E-09	6E-07	5E-07	0.000001
Exposure Point Total										2E-12							0.000009
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 99	7.9E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	8E-11	7E-11	5E-14	5E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	2E-08	0.00000005
Exposure Point Total										1E-13							0.000003

TABLE F3-10.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	2E-07	0.0000005
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	5E-09	4E-09	7E-07	6E-07	0.000001
Exposure Point Total										3E-12							0.00001
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
Exposure Point Total										--							0.000005
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
Exposure Point Total										--							0.000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.1E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
Exposure Point Total										--							0.000004
Study Area Wide[b]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.2E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	5.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	5E-09	5E-09	8E-07	7E-07	0.000001
Exposure Point Total										3E-12							0.00001

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-11.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	3.2E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.00000001
Exposure Point Total[c]										7E-15							0.0000001
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	1E-11	5E-08	1E-07	0.0000002
	PBDE # 99	6.3E-01	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.00000001
Exposure Point Total										7E-15							0.0000003
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	2E-12	8E-09	2E-08	0.00000002
Exposure Point Total										--							0.00000002
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	1.8E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	6E-09	1E-08	0.00000002
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	6E-11	5E-09	8E-09	0.00000001
Exposure Point Total										8E-15							0.0000006
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 99	1.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	4.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	2E-04	2E-04	3E-12	6E-12	2E-08	3E-08	0.00000005
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	5E-12	9E-12	4E-15	7E-15	1E-14	7E-03	7E-03	4E-11	7E-11	6E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000005
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	2.0E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	2.8E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	6E-12	1E-11	4E-15	8E-15	1E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000008
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	3E-12	1E-08	3E-08	0.00000004
	PBDE # 99	2.4E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.00000005
Exposure Point Total										--							0.0000001
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
Exposure Point Total										--							0.00000003

TABLE F3-11.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000003
	PBDE # 153	2.9E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	5E-12	9E-12	3E-15	6E-15	9E-15	7E-03	7E-03	4E-11	7E-11	5E-09	1E-08	0.00000001
Exposure Point Total										9E-15							0.0000006
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	2.8E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	6E-12	1E-11	4E-15	7E-15	1E-14	7E-03	7E-03	5E-11	8E-11	6E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000006
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	1.2E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	2E-12	8E-09	2E-08	0.00000002
Exposure Point Total										--							0.0000001
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.0E+00	ug/kg	--	--	4E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 99	5.8E+00	ug/kg	--	--	5E-12	1E-11	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.000001
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	4E-08	7E-08	0.0000001
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	4E-14	6E-14	7E-03	7E-03	2E-10	4E-10	3E-08	6E-08	0.0000001
Exposure Point Total										6E-14							0.000002
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	2.3E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.00000005
Exposure Point Total										--							0.0000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 153	2.3E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	8E-09	1E-08	0.00000002
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	7E-12	1E-11	5E-15	8E-15	1E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000006

TABLE F3-11.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	4.1E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	8E-09	0.00000001
Exposure Point Total										7E-15							0.0000005
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	4E-12	8E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	6E-11	5E-09	9E-09	0.00000001
Exposure Point Total										8E-15							0.0000002
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000001
	PBDE # 99	1.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
Exposure Point Total										--							0.0000001
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	1E-12	8E-09	1E-08	0.00000002
	PBDE # 99	1.3E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	9E-13	2E-12	9E-09	2E-08	0.00000003
Exposure Point Total										--							0.00000005
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 99	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000002
	PBDE # 153	4.5E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	6E-12	2E-08	3E-08	0.00000004
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	2E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.00000005
Exposure Point Total										3E-14							0.0000006
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	9.9E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	6E-12	1E-11	4E-15	7E-15	1E-14	7E-03	7E-03	4E-11	8E-11	6E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000004
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 99	1.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	3.6E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	2E-08	0.00000004
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	5E-11	4E-09	8E-09	0.00000001
Exposure Point Total										8E-15							0.0000005

TABLE F3-11.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	8.5E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 153	4.3E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	2E-08	3E-08	0.00000004
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	5E-12	9E-12	3E-15	6E-15	9E-15	7E-03	7E-03	4E-11	7E-11	5E-09	1E-08	0.00000001
Exposure Point Total										9E-15							0.0000004
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.9E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
	PBDE # 153	3.4E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	8E-12	1E-11	6E-15	1E-14	2E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.00000002
Exposure Point Total										2E-14							0.0000009
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 153	8.4E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	4E-10	7E-10	3E-13	5E-13	8E-13	7E-03	7E-03	3E-09	6E-09	4E-07	8E-07	0.000001
Exposure Point Total										8E-13							0.000002
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	1.9E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 153	4.2E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	1E-11	2E-11	9E-15	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	1E-08	3E-08	0.00000004
Exposure Point Total										3E-14							0.0000008
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	2.3E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	7.1E-01	ug/kg	--	--	6E-13	1E-12	--	--	--	2E-04	2E-04	5E-12	9E-12	2E-08	5E-08	0.0000001
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	2E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.0000001
Exposure Point Total										3E-14							0.0000009
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
	PBDE # 153	4.1E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	1E-11	2E-11	7E-15	1E-14	2E-14	7E-03	7E-03	8E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										2E-14							0.0000009

TABLE F3-11.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	4E-12	7E-12	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 99	5.6E+00	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.000001
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	8E-12	1E-11	4E-08	7E-08	0.0000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	8E-11	1E-10	6E-14	1E-13	2E-13	7E-03	7E-03	6E-10	1E-09	9E-08	2E-07	0.0000003
Exposure Point Total										2E-13							0.000002
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 153	1.9E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	7E-09	1E-08	0.00000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	4E-11	3E-09	5E-09	0.00000001
Exposure Point Total										5E-15							0.0000005
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	1.8E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	2.7E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	5.2E-01	ug/kg	--	--	5E-13	9E-13	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	3E-08	0.0000001
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	4E-11	8E-11	3E-14	5E-14	8E-14	7E-03	7E-03	3E-10	6E-10	5E-08	8E-08	0.0000001
Exposure Point Total										8E-14							0.000001
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	7.9E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	4E-15	7E-03	7E-03	1E-11	3E-11	2E-09	4E-09	0.00000001
Exposure Point Total										4E-15							0.0000004
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	3E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	3.7E+00	ug/kg	--	--	3E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000007
	PBDE # 153	6.3E-01	ug/kg	--	--	6E-13	1E-12	--	--	--	2E-04	2E-04	4E-12	8E-12	2E-08	4E-08	0.0000001
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	5E-11	9E-11	4E-14	7E-14	1E-13	7E-03	7E-03	4E-10	7E-10	6E-08	1E-07	0.0000002
Exposure Point Total										1E-13							0.000002
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.7E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	7.8E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	1E-11	5E-08	1E-07	0.0000002
Exposure Point Total										--							0.0000003

TABLE F3-11.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	3.0E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 99	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
Exposure Point Total										--							0.0000005
Study Area Wide[d]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.7E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	5.1E-01	ug/kg	--	--	5E-13	8E-13	--	--	--	2E-04	2E-04	4E-12	6E-12	2E-08	3E-08	0.0000001
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	2E-11	4E-11	1E-14	2E-14	4E-14	7E-03	7E-03	2E-10	3E-10	2E-08	4E-08	0.0000001
Exposure Point Total										4E-14							0.0000007

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-12.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.6E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	1E-10	9E-11	7E-14	6E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.000001
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-10	8E-11	7E-14	6E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.000002
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	7E-12	6E-12	7E-08	6E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 99	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 153	1.8E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	2E-04	2E-04	1E-11	9E-12	5E-08	5E-08	0.0000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	8E-14	7E-14	2E-13	7E-03	7E-03	3E-10	2E-10	4E-08	3E-08	0.0000001
Exposure Point Total										2E-13							0.000003
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.7E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	4.2E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000004
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	2.1E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	8E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.0000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	5E-10	4E-10	7E-08	6E-08	0.0000001
Exposure Point Total										3E-13							0.000005
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 99	2.4E-01	ug/kg	--	--	6E-12	5E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000005
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000002
Exposure Point Total										--							0.0000002

TABLE F3-12.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 99	1.3E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	8E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.0000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	1E-13	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000003
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
	PBDE # 99	1.6E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
	PBDE # 153	3.3E-01	ug/kg	--	--	9E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	8E-08	0.0000002
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	1E-13	1E-13	2E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000004
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000002
	PBDE # 99	1.2E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	7E-12	6E-12	7E-08	6E-08	0.0000001
Exposure Point Total										--							0.0000003
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	5.2E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	8.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	5E-10	4E-10	5E-06	4E-06	0.000009
	PBDE # 153	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	2E-04	2E-04	9E-11	8E-11	5E-07	4E-07	0.000001
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	3E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										2E-12							0.00002
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	2.3E-01	ug/kg	--	--	6E-12	5E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000003
Exposure Point Total										--							0.000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
Exposure Point Total										--							0.000001
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 153	2.3E-01	ug/kg	--	--	6E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	1E-11	7E-08	6E-08	0.0000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	1E-13	1E-13	2E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000003

TABLE F3-12.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	2.6E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	8E-08	7E-08	0.0000001
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	7E-11	6E-11	5E-14	4E-14	9E-14	7E-03	7E-03	2E-10	1E-10	2E-08	2E-08	0.00000004
Exposure Point Total										9E-14							0.000004
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000001
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	9E-11	8E-11	6E-14	5E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.0000003
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.7E-01	ug/kg	--	--	4E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
Exposure Point Total										--							0.0000005
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	1E-04	1E-04	7E-12	6E-12	7E-08	6E-08	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000001
Exposure Point Total										--							0.0000003
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.9E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	3.5E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	9E-08	0.0000002
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	6E-10	5E-10	5E-13	4E-13	8E-13	7E-03	7E-03	2E-09	1E-09	2E-07	2E-07	0.0000004
Exposure Point Total										8E-13							0.000005
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 99	9.9E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	8E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.0000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000002
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	9E-08	8E-08	0.0000002
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000004

TABLE F3-12.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	9E-08	8E-08	0.0000002
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	9E-14	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	4E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000004
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	2.9E+00	ug/kg	--	--	8E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	4.5E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	3E-10	3E-10	2E-13	2E-13	4E-13	7E-03	7E-03	8E-10	7E-10	1E-07	9E-08	0.0000002
Exposure Point Total										4E-13							0.000006
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 153	8.4E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	3E-07	2E-07	0.000000
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	1E-08	1E-08	8E-12	7E-12	1E-11	7E-03	7E-03	3E-08	2E-08	4E-06	3E-06	0.000007
Exposure Point Total										1E-11							0.000010
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.1E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000003
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	6E-10	5E-10	4E-13	4E-13	8E-13	7E-03	7E-03	1E-09	1E-09	2E-07	2E-07	0.0000004
Exposure Point Total										8E-13							0.000006
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.5E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	4.3E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	2E-04	2E-04	7E-11	6E-11	4E-07	3E-07	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-09	8E-10	7E-13	6E-13	1E-12	7E-03	7E-03	2E-09	2E-09	3E-07	3E-07	0.000001
Exposure Point Total										1E-12							0.00001
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	4.1E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	2E-13	4E-13	7E-03	7E-03	7E-10	6E-10	9E-08	8E-08	0.0000002
Exposure Point Total										4E-13							0.000005

TABLE F3-12.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000005
	PBDE # 99	5.6E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	1.1E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	2E-04	2E-04	7E-11	6E-11	3E-07	3E-07	0.000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	5E-09	5E-09	8E-07	7E-07	0.000001
Exposure Point Total										3E-12							0.00001
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 153	1.9E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	2E-04	2E-04	1E-11	1E-11	6E-08	5E-08	0.000000
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	8E-11	6E-11	5E-14	4E-14	1E-13	7E-03	7E-03	2E-10	1E-10	3E-08	2E-08	0.000000
Exposure Point Total										1E-13							0.000003
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	9E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	1.8E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
Exposure Point Total										--							0.000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	2.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	5.2E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.0000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	8E-13	7E-13	2E-12	7E-03	7E-03	3E-09	2E-09	4E-07	3E-07	0.000001
Exposure Point Total										2E-12							0.000006
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 99	7.9E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	5E-11	4E-11	4E-14	3E-14	7E-14	7E-03	7E-03	1E-10	1E-10	2E-08	1E-08	0.00000003
Exposure Point Total										7E-14							0.000002
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	8E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-10	8E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000004
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	3E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										2E-12							0.000009
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
Exposure Point Total										--							0.000003

TABLE F3-12.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low-frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000003
	PBDE # 99	3.0E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000003
Exposure Point Total										--							0.000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 99	1.1E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
Exposure Point Total										--							0.000003
Study Area Wide[b]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.2E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	2.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	5.3E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.0000003
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	4E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										2E-12							0.000007

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-13.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	3.2E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	3E-15	7E-03	7E-03	1E-11	2E-11	2E-09	3E-09	0.00000001
Exposure Point Total[c]										3E-15							0.0000001
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	6.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	3E-15	7E-03	7E-03	1E-11	2E-11	2E-09	3E-09	0.00000001
Exposure Point Total										3E-15							0.0000001
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	5E-14	1E-13	--	--	--	1E-04	1E-04	4E-13	8E-13	4E-09	8E-09	0.00000001
Exposure Point Total										--							0.00000001
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 153	1.8E-01	ug/kg	--	--	8E-14	1E-13	--	--	--	2E-04	2E-04	6E-13	1E-12	3E-09	6E-09	0.00000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	1E-15	3E-15	4E-15	7E-03	7E-03	2E-11	3E-11	2E-09	4E-09	0.00000001
Exposure Point Total										4E-15							0.0000003
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001
	PBDE # 99	1.0E+00	ug/kg	--	--	5E-13	8E-13	--	--	--	1E-04	1E-04	4E-12	6E-12	4E-08	6E-08	0.0000001
	PBDE # 153	4.9E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	9E-09	2E-08	0.00000002
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	4E-11	3E-09	5E-09	0.00000001
Exposure Point Total										5E-15							0.0000002
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	2.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	2.8E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	6E-15	7E-03	7E-03	2E-11	4E-11	3E-09	6E-09	0.00000001
Exposure Point Total										6E-15							0.0000004
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	9E-14	2E-13	--	--	--	1E-04	1E-04	7E-13	1E-12	7E-09	1E-08	0.00000002
	PBDE # 99	2.4E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	2E-12	8E-09	2E-08	0.00000002
Exposure Point Total										--							0.00000004
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	6E-14	1E-13	--	--	--	1E-04	1E-04	5E-13	9E-13	5E-09	9E-09	0.00000001
Exposure Point Total										--							0.00000001

TABLE F3-13.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	3E-11	3E-09	5E-09	0.00000001
Exposure Point Total										5E-15							0.0000003
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 99	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 153	2.8E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	4E-15	6E-15	7E-03	7E-03	2E-11	4E-11	3E-09	6E-09	0.00000001
Exposure Point Total										6E-15							0.0000003
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	6E-14	1E-13	--	--	--	1E-04	1E-04	5E-13	9E-13	5E-09	9E-09	0.00000001
	PBDE # 99	1.2E-01	ug/kg	--	--	5E-14	1E-13	--	--	--	1E-04	1E-04	4E-13	8E-13	4E-09	8E-09	0.00000001
Exposure Point Total										--							0.00000003
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.0E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	5.8E+00	ug/kg	--	--	3E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 153	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	3E-08	0.0000001
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	1E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.00000004
Exposure Point Total										3E-14							0.000001
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	2.3E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	1E-12	8E-09	1E-08	0.00000002
Exposure Point Total										--							0.0000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 153	2.3E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	8E-13	1E-12	4E-09	7E-09	0.00000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.00000001
Exposure Point Total										7E-15							0.0000003

TABLE F3-13.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.0E+00	ug/kg	--	--	5E-13	8E-13	--	--	--	1E-04	1E-04	4E-12	6E-12	4E-08	6E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	3E-12	7E-09	1E-08	0.00000002
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	4E-15	7E-03	7E-03	1E-11	3E-11	2E-09	4E-09	0.00000001
Exposure Point Total										4E-15							0.0000002
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	2E-15	3E-15	4E-15	7E-03	7E-03	2E-11	3E-11	2E-09	4E-09	0.00000001
Exposure Point Total										4E-15							0.0000001
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	1.7E-01	ug/kg	--	--	8E-14	1E-13	--	--	--	1E-04	1E-04	6E-13	1E-12	6E-09	1E-08	0.00000002
Exposure Point Total										--							0.00000004
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	5E-14	9E-14	--	--	--	1E-04	1E-04	4E-13	7E-13	4E-09	7E-09	0.00000001
	PBDE # 99	1.3E-01	ug/kg	--	--	6E-14	1E-13	--	--	--	1E-04	1E-04	5E-13	8E-13	5E-09	8E-09	0.00000001
Exposure Point Total										--							0.00000002
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 99	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	8E-09	1E-08	0.00000002
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	8E-12	1E-11	6E-15	1E-14	2E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.00000002
Exposure Point Total										2E-14							0.0000003
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	4E-11	3E-09	6E-09	0.00000001
Exposure Point Total										5E-15							0.0000002
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 99	1.0E+00	ug/kg	--	--	5E-13	8E-13	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001
	PBDE # 153	3.6E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	6E-09	1E-08	0.00000002
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	1E-15	2E-15	4E-15	7E-03	7E-03	2E-11	3E-11	2E-09	4E-09	0.00000001
Exposure Point Total										4E-15							0.0000002

TABLE F3-13.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
	PBDE # 99	8.5E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 153	4.3E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	8E-09	1E-08	0.00000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	3E-11	3E-09	5E-09	0.00000001
Exposure Point Total										5E-15							0.0000002
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.9E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	3.4E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	6E-09	1E-08	0.00000002
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	6E-11	4E-09	8E-09	0.00000001
Exposure Point Total										8E-15							0.0000004
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 153	8.4E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-10	4E-10	1E-13	3E-13	4E-13	7E-03	7E-03	2E-09	3E-09	2E-07	4E-07	0.0000006
Exposure Point Total										4E-13							0.0000009
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	1.9E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	3E-12	7E-09	1E-08	0.00000002
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	7E-12	1E-11	5E-15	8E-15	1E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000004
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	2.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	7.1E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	2E-04	2E-04	2E-12	5E-12	1E-08	2E-08	0.00000003
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	9E-12	2E-11	6E-15	1E-14	2E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										2E-14							0.0000004
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	3E-12	7E-09	1E-08	0.00000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	5E-12	9E-12	3E-15	6E-15	1E-14	7E-03	7E-03	4E-11	7E-11	6E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000005

TABLE F3-13.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	5.6E+00	ug/kg	--	--	3E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 153	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	3E-08	0.0000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	4E-11	7E-11	3E-14	5E-14	8E-14	7E-03	7E-03	3E-10	6E-10	5E-08	8E-08	0.0000001
Exposure Point Total										8E-14							0.000001
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 153	1.9E-01	ug/kg	--	--	9E-14	2E-13	--	--	--	2E-04	2E-04	7E-13	1E-12	3E-09	6E-09	0.00000001
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-12	2E-12	9E-16	2E-15	3E-15	7E-03	7E-03	1E-11	2E-11	1E-09	3E-09	0.000000004
Exposure Point Total										3E-15							0.0000003
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	1.8E-01	ug/kg	--	--	8E-14	1E-13	--	--	--	1E-04	1E-04	6E-13	1E-12	6E-09	1E-08	0.00000002
Exposure Point Total										--							0.0000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	9E-09	2E-08	0.00000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-11	4E-11	1E-14	3E-14	4E-14	7E-03	7E-03	2E-10	3E-10	2E-08	4E-08	0.0000001
Exposure Point Total										4E-14							0.0000005
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
	PBDE # 99	7.9E-01	ug/kg	--	--	4E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	9E-13	2E-12	6E-16	1E-15	2E-15	7E-03	7E-03	7E-12	1E-11	1E-09	2E-09	0.000000003
Exposure Point Total										2E-15							0.0000002
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	3.7E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 153	6.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	2E-10	4E-10	3E-08	5E-08	0.0000001
Exposure Point Total										5E-14							0.0000008
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.7E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
	PBDE # 99	7.8E-01	ug/kg	--	--	4E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
Exposure Point Total										--							0.0000002

TABLE F3-13.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
Exposure Point Total										--							0.0000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 99	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001
Exposure Point Total										--							0.0000002
Study Area Wide[d]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	1.7E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 153	5.1E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	9E-09	2E-08	0.00000003
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	1E-11	2E-11	7E-15	1E-14	2E-14	7E-03	7E-03	8E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										2E-14							0.0000004

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-14.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.6E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	4E-12	4E-07	4E-08	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	4E-12	4E-07	4E-08	0.0000004
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	2E-10	1E-11	1E-13	1E-14	1E-13	7E-03	7E-03	4E-10	4E-11	6E-08	6E-09	0.0000001
Exposure Point Total										1E-13							0.000001
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	1E-04	1E-04	8E-11	7E-12	8E-07	7E-08	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	1E-04	1E-04	7E-11	6E-12	7E-07	6E-08	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	1E-13	9E-15	1E-13	7E-03	7E-03	4E-10	4E-11	6E-08	5E-09	0.0000001
Exposure Point Total										1E-13							0.000002
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	5E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 99	1.4E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 153	1.8E-01	ug/kg	--	--	7E-12	6E-13	--	--	--	2E-04	2E-04	2E-11	2E-12	1E-07	9E-09	0.000000
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	1E-13	1E-14	1E-13	7E-03	7E-03	5E-10	4E-11	7E-08	6E-09	0.000000
Exposure Point Total										1E-13							0.000003
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.7E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-11	1E-12	--	--	--	2E-04	2E-04	4E-11	4E-12	2E-07	2E-08	0.0000002
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	2E-13	1E-14	2E-13	7E-03	7E-03	6E-10	6E-11	9E-08	8E-09	0.0000001
Exposure Point Total										2E-13							0.000004
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.1E+00	ug/kg	--	--	8E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	1E-08	0.0000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	3E-10	3E-11	2E-13	2E-14	2E-13	7E-03	7E-03	9E-10	8E-11	1E-07	1E-08	0.0000001
Exposure Point Total										2E-13							0.000005
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	8E-12	7E-13	--	--	--	1E-04	1E-04	2E-11	2E-12	2E-07	2E-08	0.0000002
	PBDE # 99	2.4E-01	ug/kg	--	--	9E-12	8E-13	--	--	--	1E-04	1E-04	3E-11	2E-12	3E-07	2E-08	0.0000003
Exposure Point Total										--							0.000001

TABLE F3-14.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002
Exposure Point Total										--							0.0000002
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 99	1.3E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	1E-08	0.0000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	1E-13	1E-14	2E-13	7E-03	7E-03	6E-10	5E-11	8E-08	7E-09	0.0000001
Exposure Point Total										2E-13							0.000003
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.6E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 153	3.3E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	4E-11	3E-12	2E-07	2E-08	0.0000002
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	3E-10	2E-11	2E-13	2E-14	2E-13	7E-03	7E-03	7E-10	7E-11	1E-07	1E-08	0.0000001
Exposure Point Total										2E-13							0.000004
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002
	PBDE # 99	1.2E-01	ug/kg	--	--	5E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000001
Exposure Point Total										--							0.0000003
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	5.2E+00	ug/kg	--	--	2E-10	2E-11	--	--	--	1E-04	1E-04	6E-10	5E-11	6E-06	5E-07	0.000006
	PBDE # 99	8.2E+00	ug/kg	--	--	3E-10	3E-11	--	--	--	1E-04	1E-04	9E-10	8E-11	9E-06	8E-07	0.00001
	PBDE # 153	1.5E+00	ug/kg	--	--	6E-11	5E-12	--	--	--	2E-04	2E-04	2E-10	1E-11	8E-07	7E-08	0.000001
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	2E-09	2E-10	1E-12	1E-13	2E-12	7E-03	7E-03	6E-09	5E-10	9E-07	8E-08	0.000001
Exposure Point Total										2E-12							0.00002
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	3E-12	4E-07	3E-08	0.0000004
	PBDE # 99	2.3E-01	ug/kg	--	--	9E-12	8E-13	--	--	--	1E-04	1E-04	2E-11	2E-12	2E-07	2E-08	0.0000003
Exposure Point Total										--							0.000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	4E-12	4E-07	4E-08	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	4E-12	4E-07	4E-08	0.0000004
Exposure Point Total										--							0.000001
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 153	2.3E-01	ug/kg	--	--	9E-12	8E-13	--	--	--	2E-04	2E-04	2E-11	2E-12	1E-07	1E-08	0.0000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	3E-10	3E-11	2E-13	2E-14	2E-13	7E-03	7E-03	8E-10	7E-11	1E-07	1E-08	0.0000001
Exposure Point Total										2E-13							0.000003

TABLE F3-14.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-11	9E-13	--	--	--	2E-04	2E-04	3E-11	3E-12	1E-07	1E-08	0.0000002
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	7E-14	7E-15	8E-14	7E-03	7E-03	3E-10	3E-11	4E-08	4E-09	0.00000005
Exposure Point Total										8E-14							0.000004
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	9E-14	9E-15	1E-13	7E-03	7E-03	4E-10	3E-11	5E-08	5E-09	0.0000001
Exposure Point Total										1E-13							0.0000004
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-11	9E-13	--	--	--	1E-04	1E-04	3E-11	3E-12	3E-07	3E-08	0.0000003
	PBDE # 99	1.7E-01	ug/kg	--	--	6E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	2E-12	2E-07	2E-08	0.0000002
Exposure Point Total										--							0.000001
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	4E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002
Exposure Point Total										--							0.0000003
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.9E+00	ug/kg	--	--	7E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 153	3.5E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	4E-11	3E-12	2E-07	2E-08	0.0000002
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	1E-09	9E-11	7E-13	6E-14	7E-13	7E-03	7E-03	3E-09	2E-10	4E-07	3E-08	0.0000004
Exposure Point Total										7E-13							0.000005
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-11	3E-12	--	--	--	1E-04	1E-04	1E-10	9E-12	1E-06	9E-08	0.000001
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-11	3E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	1E-08	0.0000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	2E-13	1E-14	2E-13	7E-03	7E-03	6E-10	6E-11	9E-08	9E-09	0.0000001
Exposure Point Total										2E-13							0.000003
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-12	--	--	--	1E-04	1E-04	2E-10	1E-11	2E-06	1E-07	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	2E-08	0.0000002
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	2E-13	2E-14	2E-13	7E-03	7E-03	7E-10	6E-11	9E-08	9E-09	0.0000001
Exposure Point Total										2E-13							0.000004

TABLE F3-14.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-12	--	--	--	1E-04	1E-04	2E-10	1E-11	2E-06	1E-07	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	2E-08	0.0000002
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	1E-13	1E-14	1E-13	7E-03	7E-03	5E-10	5E-11	8E-08	7E-09	0.0000001
Exposure Point Total										1E-13							0.000004
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.5E+00	ug/kg	--	--	1E-10	9E-12	--	--	--	1E-04	1E-04	3E-10	2E-11	3E-06	2E-07	0.000003
	PBDE # 99	2.9E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	5E-11	4E-12	2E-07	2E-08	0.0000003
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	5E-10	5E-11	3E-13	3E-14	4E-13	7E-03	7E-03	1E-09	1E-10	2E-07	2E-08	0.0000002
Exposure Point Total										4E-13							0.000007
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	1E-04	1E-04	9E-11	8E-12	9E-07	8E-08	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 153	8.4E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	2E-04	2E-04	9E-11	8E-12	4E-07	4E-08	0.0000005
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-08	2E-09	1E-11	1E-12	1E-11	7E-03	7E-03	5E-08	4E-09	7E-06	6E-07	0.000007
Exposure Point Total										1E-11							0.00001
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.1E+00	ug/kg	--	--	8E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-11	8E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000003
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	7E-11	6E-12	3E-07	3E-08	0.0000004
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	9E-10	8E-11	6E-13	6E-14	7E-13	7E-03	7E-03	3E-09	2E-10	4E-07	3E-08	0.0000004
Exposure Point Total										7E-13							0.000006
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-10	2E-11	--	--	--	1E-04	1E-04	5E-10	4E-11	5E-06	4E-07	0.000005
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-10	2E-11	--	--	--	1E-04	1E-04	5E-10	4E-11	5E-06	4E-07	0.000005
	PBDE # 153	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	2E-04	2E-04	1E-10	1E-11	6E-07	6E-08	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-09	1E-10	1E-12	9E-14	1E-12	7E-03	7E-03	4E-09	4E-10	6E-07	5E-08	0.000001
Exposure Point Total										1E-12							0.000012
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	8E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-11	8E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000003
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-11	1E-12	--	--	--	2E-04	2E-04	4E-11	4E-12	2E-07	2E-08	0.0000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	4E-10	4E-11	3E-13	3E-14	3E-13	7E-03	7E-03	1E-09	1E-10	2E-07	2E-08	0.0000002
Exposure Point Total										3E-13							0.000005

TABLE F3-14.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-10	1E-11	--	--	--	1E-04	1E-04	4E-10	4E-11	4E-06	4E-07	0.000005
	PBDE # 99	5.6E+00	ug/kg	--	--	2E-10	2E-11	--	--	--	1E-04	1E-04	6E-10	5E-11	6E-06	5E-07	0.000007
	PBDE # 153	1.1E+00	ug/kg	--	--	4E-11	4E-12	--	--	--	2E-04	2E-04	1E-10	1E-11	6E-07	5E-08	0.000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	3E-09	3E-10	2E-12	2E-13	3E-12	7E-03	7E-03	1E-08	9E-10	1E-06	1E-07	0.000001
Exposure Point Total										3E-12							0.00001
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 153	1.9E-01	ug/kg	--	--	7E-12	7E-13	--	--	--	2E-04	2E-04	2E-11	2E-12	1E-07	9E-09	0.0000001
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	8E-14	7E-15	8E-14	7E-03	7E-03	3E-10	3E-11	4E-08	4E-09	0.00000005
Exposure Point Total										8E-14							0.000003
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	3E-12	4E-07	3E-08	0.0000004
	PBDE # 99	1.8E-01	ug/kg	--	--	7E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	2E-12	2E-07	2E-08	0.0000002
Exposure Point Total										--							0.000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-10	9E-12	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	6E-11	5E-12	3E-07	3E-08	0.0000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-09	2E-10	1E-12	1E-13	1E-12	7E-03	7E-03	5E-09	5E-10	7E-07	6E-08	0.000001
Exposure Point Total										1E-12							0.000006
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-11	3E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 99	7.9E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	1E-04	1E-04	8E-11	8E-12	8E-07	8E-08	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	8E-11	7E-12	5E-14	5E-15	6E-14	7E-03	7E-03	2E-10	2E-11	3E-08	3E-09	0.00000003
Exposure Point Total										6E-14							0.000002
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	4E-10	4E-11	4E-06	4E-07	0.000004
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	7E-11	6E-12	3E-07	3E-08	0.0000004
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	2E-09	2E-10	2E-12	1E-13	2E-12	7E-03	7E-03	6E-09	6E-10	9E-07	8E-08	0.000001
Exposure Point Total										2E-12							0.000009
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.5E+00	ug/kg	--	--	6E-11	5E-12	--	--	--	1E-04	1E-04	2E-10	1E-11	2E-06	1E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
Exposure Point Total										--							0.000003

TABLE F3-14.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	3E-11	3E-12	3E-07	3E-08	0.0000004
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	3E-11	3E-12	3E-07	3E-08	0.0000003
Exposure Point Total										--							0.000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 99	1.1E+00	ug/kg	--	--	4E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
Exposure Point Total										--							0.000003
Study Area Wide[b]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.2E+00	ug/kg	--	--	8E-11	8E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000003
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 153	5.3E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	6E-11	5E-12	3E-07	3E-08	0.0000003
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-09	2E-10	2E-12	1E-13	2E-12	7E-03	7E-03	6E-09	6E-10	9E-07	8E-08	0.000001
Exposure Point Total										2E-12							0.000007

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-15.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
	PBDE # 99	3.2E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	5E-12	1E-12	3E-15	7E-16	4E-15	7E-03	7E-03	4E-11	7E-12	5E-09	1E-09	0.00000001
Exposure Point Total[c]										4E-15							0.00000008
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	1E-12	8E-08	1E-08	0.00000009
	PBDE # 99	6.3E-01	ug/kg	--	--	8E-13	2E-13	--	--	--	1E-04	1E-04	6E-12	1E-12	6E-08	1E-08	0.00000007
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	5E-12	9E-13	3E-15	7E-16	4E-15	7E-03	7E-03	4E-11	7E-12	5E-09	1E-09	0.00000001
Exposure Point Total										4E-15							0.0000002
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	2E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	2E-13	1E-08	2E-09	0.00000001
Exposure Point Total										--							0.00000001
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 153	1.8E-01	ug/kg	--	--	2E-13	5E-14	--	--	--	2E-04	2E-04	2E-12	4E-13	9E-09	2E-09	0.00000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	6E-12	1E-12	4E-15	8E-16	5E-15	7E-03	7E-03	4E-11	9E-12	6E-09	1E-09	0.00000001
Exposure Point Total										5E-15							0.0000004
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.0E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	4.9E-01	ug/kg	--	--	6E-13	1E-13	--	--	--	2E-04	2E-04	5E-12	9E-13	2E-08	5E-09	0.00000003
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	7E-12	1E-12	5E-15	1E-15	6E-15	7E-03	7E-03	6E-11	1E-11	8E-09	2E-09	0.00000001
Exposure Point Total										6E-15							0.0000003
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	2E-11	3E-12	2E-07	3E-08	0.0000002
	PBDE # 99	2.0E+00	ug/kg	--	--	3E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	6E-13	1E-08	3E-09	0.00000002
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	9E-12	2E-12	6E-15	1E-15	7E-15	7E-03	7E-03	7E-11	1E-11	1E-08	2E-09	0.00000001
Exposure Point Total										7E-15							0.0000005
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	3E-13	5E-14	--	--	--	1E-04	1E-04	2E-12	4E-13	2E-08	4E-09	0.00000002
	PBDE # 99	2.4E-01	ug/kg	--	--	3E-13	6E-14	--	--	--	1E-04	1E-04	2E-12	5E-13	2E-08	5E-09	0.00000003
Exposure Point Total										--							0.00000005

TABLE F3-15.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-13	4E-14	--	--	--	1E-04	1E-04	1E-12	3E-13	1E-08	3E-09	0.00000002
Exposure Point Total										--							0.00000002
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	6E-13	1E-08	3E-09	0.00000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	7E-12	1E-12	5E-15	9E-16	6E-15	7E-03	7E-03	5E-11	1E-11	8E-09	1E-09	0.00000001
Exposure Point Total										6E-15							0.0000003
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	5E-13	1E-08	3E-09	0.00000002
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	8E-12	2E-12	6E-15	1E-15	7E-15	7E-03	7E-03	6E-11	1E-11	9E-09	2E-09	0.00000001
Exposure Point Total										7E-15							0.0000003
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-13	4E-14	--	--	--	1E-04	1E-04	1E-12	3E-13	1E-08	3E-09	0.00000002
	PBDE # 99	1.2E-01	ug/kg	--	--	2E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	2E-13	1E-08	2E-09	0.00000001
Exposure Point Total										--							0.00000003
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.0E+00	ug/kg	--	--	5E-12	1E-12	--	--	--	1E-04	1E-04	4E-11	8E-12	4E-07	8E-08	0.0000005
	PBDE # 99	5.8E+00	ug/kg	--	--	7E-12	1E-12	--	--	--	1E-04	1E-04	6E-11	1E-11	6E-07	1E-07	0.0000007
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	2E-04	2E-04	1E-11	2E-12	5E-08	1E-08	0.00000006
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	4E-11	8E-12	3E-14	6E-15	3E-14	7E-03	7E-03	3E-10	6E-11	4E-08	9E-09	0.00000005
Exposure Point Total										3E-14							0.000001
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	4E-13	9E-14	--	--	--	1E-04	1E-04	3E-12	7E-13	3E-08	7E-09	0.00000004
	PBDE # 99	2.3E-01	ug/kg	--	--	3E-13	6E-14	--	--	--	1E-04	1E-04	2E-12	5E-13	2E-08	5E-09	0.00000003
Exposure Point Total										--							0.00000007
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
Exposure Point Total										--							0.00000009

TABLE F3-15.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	2.3E-01	ug/kg	--	--	3E-13	6E-14	--	--	--	2E-04	2E-04	2E-12	5E-13	1E-08	2E-09	0.00000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	9E-12	2E-12	7E-15	1E-15	8E-15	7E-03	7E-03	7E-11	1E-11	1E-08	2E-09	0.00000001
Exposure Point Total										8E-15							0.0000003
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.0E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	4.1E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000002
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	5E-12	1E-12	4E-15	7E-16	4E-15	7E-03	7E-03	4E-11	8E-12	6E-09	1E-09	0.00000001
Exposure Point Total										4E-15							0.0000003
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	6E-12	1E-12	4E-15	8E-16	5E-15	7E-03	7E-03	5E-11	9E-12	7E-09	1E-09	0.00000001
Exposure Point Total										5E-15							0.00000009
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	3E-13	7E-14	--	--	--	1E-04	1E-04	3E-12	5E-13	3E-08	5E-09	0.00000003
	PBDE # 99	1.7E-01	ug/kg	--	--	2E-13	4E-14	--	--	--	1E-04	1E-04	2E-12	3E-13	2E-08	3E-09	0.00000002
Exposure Point Total										--							0.00000005
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	1E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	2E-13	1E-08	2E-09	0.00000001
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	3E-13	1E-08	3E-09	0.00000002
Exposure Point Total										--							0.00000003
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	4.5E-01	ug/kg	--	--	6E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	9E-13	2E-08	4E-09	0.00000003
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	2E-11	4E-12	2E-14	3E-15	2E-14	7E-03	7E-03	2E-10	3E-11	2E-08	5E-09	0.00000003
Exposure Point Total										2E-14							0.0000003
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	9E-12	2E-12	9E-08	2E-08	0.0000001
	PBDE # 99	9.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	6E-13	1E-08	3E-09	0.00000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	8E-12	2E-12	5E-15	1E-15	7E-15	7E-03	7E-03	6E-11	1E-11	9E-09	2E-09	0.00000001
Exposure Point Total										7E-15							0.0000003

TABLE F3-15.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.0E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	3.6E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	2E-04	2E-04	4E-12	7E-13	2E-08	4E-09	0.00000002
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	5E-12	1E-12	4E-15	8E-16	5E-15	7E-03	7E-03	4E-11	8E-12	6E-09	1E-09	0.00000001
Exposure Point Total										5E-15							0.0000003
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	8.5E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.0000001
	PBDE # 153	4.3E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000003
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	7E-12	1E-12	5E-15	9E-16	6E-15	7E-03	7E-03	5E-11	1E-11	8E-09	1E-09	0.00000001
Exposure Point Total										6E-15							0.0000003
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.9E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000003
	PBDE # 153	3.4E-01	ug/kg	--	--	4E-13	9E-14	--	--	--	2E-04	2E-04	3E-12	7E-13	2E-08	3E-09	0.00000002
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	1E-11	2E-12	8E-15	2E-15	9E-15	7E-03	7E-03	9E-11	2E-11	1E-08	2E-09	0.00000002
Exposure Point Total										9E-15							0.0000005
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	8.4E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	2E-04	2E-04	8E-12	2E-12	4E-08	8E-09	0.00000005
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	6E-10	1E-10	4E-13	8E-14	5E-13	7E-03	7E-03	4E-09	9E-10	6E-07	1E-07	0.0000007
Exposure Point Total										5E-13							0.000001
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	1.9E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 153	4.2E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000002
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	2E-11	4E-12	1E-14	3E-15	2E-14	7E-03	7E-03	1E-10	3E-11	2E-08	4E-09	0.00000003
Exposure Point Total										2E-14							0.0000005
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	2E-11	3E-12	2E-07	3E-08	0.0000002
	PBDE # 99	2.3E+00	ug/kg	--	--	3E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000003
	PBDE # 153	7.1E-01	ug/kg	--	--	9E-13	2E-13	--	--	--	2E-04	2E-04	7E-12	1E-12	4E-08	7E-09	0.00000004
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	2E-11	5E-12	2E-14	3E-15	2E-14	7E-03	7E-03	2E-10	4E-11	3E-08	5E-09	0.00000003
Exposure Point Total										2E-14							0.0000005

TABLE F3-15.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	3E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000003
	PBDE # 153	4.1E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	1E-11	3E-12	1E-14	2E-15	1E-14	7E-03	7E-03	1E-10	2E-11	2E-08	3E-09	0.00000002
Exposure Point Total										1E-14							0.0000005
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	5E-12	1E-12	--	--	--	1E-04	1E-04	4E-11	8E-12	4E-07	8E-08	0.0000005
	PBDE # 99	5.6E+00	ug/kg	--	--	7E-12	1E-12	--	--	--	1E-04	1E-04	6E-11	1E-11	6E-07	1E-07	0.0000007
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	2E-04	2E-04	1E-11	2E-12	5E-08	1E-08	0.00000007
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	1E-10	2E-11	8E-14	2E-14	1E-13	7E-03	7E-03	9E-10	2E-10	1E-07	3E-08	0.0000002
Exposure Point Total										1E-13							0.000001
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	1.9E-01	ug/kg	--	--	2E-13	5E-14	--	--	--	2E-04	2E-04	2E-12	4E-13	9E-09	2E-09	0.00000001
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	4E-12	7E-13	3E-15	5E-16	3E-15	7E-03	7E-03	3E-11	6E-12	4E-09	8E-10	0.000000005
Exposure Point Total										3E-15							0.0000003
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
	PBDE # 99	1.8E-01	ug/kg	--	--	2E-13	5E-14	--	--	--	1E-04	1E-04	2E-12	4E-13	2E-08	4E-09	0.00000002
Exposure Point Total										--							0.00000006
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	2.7E+00	ug/kg	--	--	3E-12	7E-13	--	--	--	1E-04	1E-04	3E-11	5E-12	3E-07	5E-08	0.0000003
	PBDE # 153	5.2E-01	ug/kg	--	--	7E-13	1E-13	--	--	--	2E-04	2E-04	5E-12	1E-12	3E-08	5E-09	0.00000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	6E-11	1E-11	4E-14	8E-15	5E-14	7E-03	7E-03	5E-10	9E-11	7E-08	1E-08	0.00000008
Exposure Point Total										5E-14							0.0000006
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	7.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.00000009
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	3E-12	5E-13	2E-15	4E-16	2E-15	7E-03	7E-03	2E-11	4E-12	3E-09	6E-10	0.000000003
Exposure Point Total										2E-15							0.0000002

TABLE F3-15.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	4E-12	7E-13	--	--	--	1E-04	1E-04	3E-11	6E-12	3E-07	6E-08	0.0000003
	PBDE # 99	3.7E+00	ug/kg	--	--	5E-12	9E-13	--	--	--	1E-04	1E-04	4E-11	7E-12	4E-07	7E-08	0.0000004
	PBDE # 153	6.3E-01	ug/kg	--	--	8E-13	2E-13	--	--	--	2E-04	2E-04	6E-12	1E-12	3E-08	6E-09	0.00000004
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	7E-11	1E-11	5E-14	1E-14	6E-14	7E-03	7E-03	6E-10	1E-10	8E-08	2E-08	0.0000001
Exposure Point Total										6E-14							0.0000009
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.7E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	7.8E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.00000009
Exposure Point Total										--							0.0000002
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
	PBDE # 99	3.0E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
Exposure Point Total										--							0.00000007
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
Exposure Point Total										--							0.0000003
Study Area Wide[d]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.7E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	2E-11	3E-12	2E-07	3E-08	0.0000002
	PBDE # 153	5.1E-01	ug/kg	--	--	6E-13	1E-13	--	--	--	2E-04	2E-04	5E-12	1E-12	3E-08	5E-09	0.00000003
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	3E-11	5E-12	2E-14	4E-15	2E-14	7E-03	7E-03	2E-10	4E-11	3E-08	6E-09	0.00000004
Exposure Point Total										2E-14							0.0000004

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
ND = Not Detected in given exposure area.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-16.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.6E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.00000009
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.00000009
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	1E-14	2E-14	7E-03	7E-03	6E-11	4E-11	8E-09	6E-09	0.00000001
Exposure Point Total										2E-14							0.0000002
RM 1 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	7.6E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	7E-12	1E-07	7E-08	0.0000002
	PBDE # 99	6.3E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	6E-12	9E-08	6E-08	0.0000002
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	9E-15	2E-14	7E-03	7E-03	5E-11	4E-11	8E-09	5E-09	0.00000001
Exposure Point Total										2E-14							0.0000004
RM 1.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E-01	ug/kg	--	--	6E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
Exposure Point Total										--							0.00000003
RM 1.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	1.8E-01	ug/kg	--	--	9E-13	6E-13	--	--	--	2E-04	2E-04	3E-12	2E-12	1E-08	9E-09	0.00000002
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-11	2E-11	2E-14	1E-14	3E-14	7E-03	7E-03	7E-11	4E-11	9E-09	6E-09	0.00000002
Exposure Point Total										3E-14							0.0000007
RM 2 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.7E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	6E-12	4E-12	3E-08	2E-08	0.00000005
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	4E-14	7E-03	7E-03	9E-11	6E-11	1E-08	8E-09	0.00000002
Exposure Point Total										4E-14							0.0000009
RM 2 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	2.1E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.00000004
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	4E-11	3E-11	3E-14	2E-14	5E-14	7E-03	7E-03	1E-10	8E-11	2E-08	1E-08	0.00000003
Exposure Point Total										5E-14							0.000001
RM 2.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E-01	ug/kg	--	--	1E-12	7E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.00000005
	PBDE # 99	2.4E-01	ug/kg	--	--	1E-12	8E-13	--	--	--	1E-04	1E-04	4E-12	2E-12	4E-08	2E-08	0.00000006
Exposure Point Total										--							0.0000001

TABLE F3-16.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 2.5 MC	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
Exposure Point Total										--							0.00000003
RM 3 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.00000004
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	3E-14	7E-03	7E-03	8E-11	5E-11	1E-08	7E-09	0.00000002
Exposure Point Total										3E-14							0.0000007
RM 3 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.6E+00	ug/kg	--	--	8E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	1.6E+00	ug/kg	--	--	8E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 153	3.3E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	2E-08	2E-08	0.00000004
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	4E-11	2E-11	3E-14	2E-14	4E-14	7E-03	7E-03	1E-10	7E-11	1E-08	1E-08	0.00000002
Exposure Point Total										4E-14							0.0000008
RM 3.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
	PBDE # 99	1.2E-01	ug/kg	--	--	6E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
Exposure Point Total										--							0.00000006
RM 3.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	5.2E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	8E-11	5E-11	8E-07	5E-07	0.000001
	PBDE # 99	8.2E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
	PBDE # 153	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	1E-07	7E-08	0.0000002
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	8E-10	5E-10	1E-07	8E-08	0.0000002
Exposure Point Total										3E-13							0.000004
RM 4 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.5E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	3E-12	5E-08	3E-08	0.00000009
	PBDE # 99	2.3E-01	ug/kg	--	--	1E-12	8E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.00000006
Exposure Point Total										--							0.0000001
RM 5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.00000009
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.00000009
Exposure Point Total										--							0.0000002

TABLE F3-16.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	2.3E-01	ug/kg	--	--	1E-12	8E-13	--	--	--	2E-04	2E-04	3E-12	2E-12	2E-08	1E-08	0.00000003
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	4E-11	3E-11	3E-14	2E-14	5E-14	7E-03	7E-03	1E-10	7E-11	2E-08	1E-08	0.00000003
Exposure Point Total										5E-14							0.0000007
RM 5.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-12	9E-13	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.00000003
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-11	1E-11	1E-14	7E-15	2E-14	7E-03	7E-03	4E-11	3E-11	6E-09	4E-09	0.00000001
Exposure Point Total										2E-14							0.0000009
RM 6 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
	PBDE # 99	1.3E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	9E-15	2E-14	7E-03	7E-03	5E-11	3E-11	7E-09	5E-09	0.00000001
Exposure Point Total										2E-14							0.00000008
RM 6 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-12	9E-13	--	--	--	1E-04	1E-04	4E-12	3E-12	4E-08	3E-08	0.00000007
	PBDE # 99	1.7E-01	ug/kg	--	--	9E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 6.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.1E-01	ug/kg	--	--	6E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
	PBDE # 99	1.3E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
Exposure Point Total										--							0.00000006
RM 6.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.9E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	3.5E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	3E-08	2E-08	0.00000004
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	1E-10	9E-11	9E-14	6E-14	2E-13	7E-03	7E-03	4E-10	2E-10	5E-08	3E-08	0.00000009
Exposure Point Total										2E-13							0.000001
RM 7 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.5E-01	ug/kg	--	--	5E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
	PBDE # 99	9.9E-01	ug/kg	--	--	5E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.00000004
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	4E-14	7E-03	7E-03	9E-11	6E-11	1E-08	9E-09	0.00000002
Exposure Point Total										4E-14							0.0000005

TABLE F3-16.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000004
	PBDE # 153	3.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	2E-08	2E-08	0.00000004
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	2E-14	4E-14	7E-03	7E-03	9E-11	6E-11	1E-08	9E-09	0.00000002
Exposure Point Total										4E-14							0.0000008
RM 7.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.7E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000004
	PBDE # 153	3.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	2E-08	2E-08	0.00000004
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	3E-14	7E-03	7E-03	8E-11	5E-11	1E-08	7E-09	0.00000002
Exposure Point Total										3E-14							0.0000008
RM 7.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.5E+00	ug/kg	--	--	1E-11	9E-12	--	--	--	1E-04	1E-04	4E-11	2E-11	4E-07	2E-07	0.0000006
	PBDE # 99	2.9E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-12	2E-12	--	--	--	2E-04	2E-04	7E-12	4E-12	3E-08	2E-08	0.00000006
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	7E-11	5E-11	5E-14	3E-14	8E-14	7E-03	7E-03	2E-10	1E-10	3E-08	2E-08	0.00000005
Exposure Point Total										8E-14							0.000001
RM 8 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	8.3E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	8E-12	1E-07	8E-08	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	8.4E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	2E-04	2E-04	1E-11	8E-12	6E-08	4E-08	0.0000001
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	6E-09	4E-09	9E-07	6E-07	0.000002
Exposure Point Total										3E-12							0.000002
RM 8 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.1E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	6.2E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	9E-12	6E-12	5E-08	3E-08	0.00000008
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	1E-10	8E-11	9E-14	6E-14	1E-13	7E-03	7E-03	4E-10	2E-10	5E-08	3E-08	0.00000008
Exposure Point Total										1E-13							0.000001
RM 8 SIL	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	7E-11	4E-11	7E-07	4E-07	0.000001
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	4E-11	6E-07	4E-07	0.000001
	PBDE # 153	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	6E-08	0.0000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	5E-10	4E-10	8E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000002

TABLE F3-16.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.0E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	6E-12	4E-12	3E-08	2E-08	0.00000005
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	6E-11	4E-11	4E-14	3E-14	7E-14	7E-03	7E-03	2E-10	1E-10	2E-08	2E-08	0.00000004
Exposure Point Total										7E-14							0.000001
RM 8.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	6E-11	4E-11	6E-07	4E-07	0.000001
	PBDE # 99	5.6E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	8E-11	5E-11	8E-07	5E-07	0.000001
	PBDE # 153	1.1E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	8E-08	5E-08	0.0000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	5E-10	3E-10	3E-13	2E-13	6E-13	7E-03	7E-03	1E-09	9E-10	2E-07	1E-07	0.0000003
Exposure Point Total										6E-13							0.000003
RM 9 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.3E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	1.9E-01	ug/kg	--	--	1E-12	7E-13	--	--	--	2E-04	2E-04	3E-12	2E-12	1E-08	9E-09	0.00000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	7E-15	2E-14	7E-03	7E-03	4E-11	3E-11	6E-09	4E-09	0.00000001
Exposure Point Total										2E-14							0.0000006
RM 9 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.3E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	3E-12	5E-08	3E-08	0.00000008
	PBDE # 99	1.8E-01	ug/kg	--	--	9E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 9.5 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-11	9E-12	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 153	5.2E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	8E-12	5E-12	4E-08	3E-08	0.00000006
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	7E-10	5E-10	1E-07	6E-08	0.0000002
Exposure Point Total										3E-13							0.000001
RM 9.5 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	9.9E-01	ug/kg	--	--	5E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 99	7.9E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	8E-12	1E-07	8E-08	0.0000002
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	1E-11	7E-12	7E-15	5E-15	1E-14	7E-03	7E-03	3E-11	2E-11	4E-09	3E-09	0.00000001
Exposure Point Total										1E-14							0.0000004

TABLE F3-16.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 11 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.9E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 99	3.7E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.0000009
	PBDE # 153	6.3E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	9E-12	6E-12	5E-08	3E-08	0.00000008
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	8E-10	6E-10	1E-07	8E-08	0.0000002
Exposure Point Total										3E-13							0.000002
RM 11 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000004
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000007
RM 12 West	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	3.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	3E-12	5E-08	3E-08	0.00000008
	PBDE # 99	3.0E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	4E-12	3E-12	4E-08	3E-08	0.00000007
Exposure Point Total										--							0.0000001
RM 12 East	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.1E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000006
Study Area Wide[b]	**Polybrominated Diphenyl Ethers**																
	PBDE # 47	2.2E+00	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 153	5.3E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	8E-12	5E-12	4E-08	3E-08	0.00000006
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	1E-13	4E-13	7E-03	7E-03	9E-10	6E-10	1E-07	8E-08	0.0000002
Exposure Point Total										4E-13							0.000001

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used , which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
RfD = Reference dose.
RM = River mile.
ug/kg = micrograms per kilogram.

TABLE F3-17.
Calculation of Noncancer Hazards - Child, Fish Consumption, River-Mile Basis

Scenario Timeframe: Current/Future
Receptor Population: Consumer
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Hazard Quotient Calculations[b]				
						Consumption Rate: 20.5 g/day		Consumption Rate: 7 g/day	
			Value	Units	Oral RfD mg/kg-day	CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
F	RM 3	**Polybrominated Diphenyl Ethers**							
		PBDE #153	1.3E-01	ug/kg	2.0E-04	1.8E-07	0.001	6.1E-08	0.0003
	Exposure Point Total						0.001		0.0003
F	RM 4	**Polybrominated Diphenyl Ethers**							
		PBDE #047	6.0E+00	ug/kg	1.0E-04	8.2E-06	0.08	2.8E-06	0.03
		PBDE #153	5.0E-01	ug/kg	2.0E-04	6.8E-07	0.003	2.3E-07	0.001
	Exposure Point Total						0.09		0.03
F	RM 5	**Polybrominated Diphenyl Ethers**							
		PBDE #047	3.4E+00	ug/kg	1.0E-04	4.6E-06	0.05	1.6E-06	0.02
		PBDE #153	1.3E-01	ug/kg	2.0E-04	1.8E-07	0.001	6.1E-08	0.0003
	Exposure Point Total						0.05		0.02
F	RM 6	**Polybrominated Diphenyl Ethers**							
		PBDE #047	3.0E+00	ug/kg	1.0E-04	4.1E-06	0.04	1.4E-06	0.01
		PBDE #153	1.9E-01	ug/kg	2.0E-04	2.6E-07	0.001	8.9E-08	0.0004
	Exposure Point Total						0.04		0.01
F	RM 8	**Polybrominated Diphenyl Ethers**							
		PBDE #153	1.3E-01	ug/kg	2.0E-04	1.8E-07	0.001	6.1E-08	0.0003
	Exposure Point Total						0.001		0.0003
F	RM 9	**Polybrominated Diphenyl Ethers**							
		PBDE #153	9.0E-02	ug/kg	2.0E-04	1.2E-07	0.001	4.2E-08	0.0002
	Exposure Point Total						0.001		0.0002
F	RM 10	**Polybrominated Diphenyl Ethers**							
		PBDE #153	1.3E-01	ug/kg	2.0E-04	1.8E-07	0.001	6.1E-08	0.0003
	Exposure Point Total						0.001		0.0003
F	RM 11	**Polybrominated Diphenyl Ethers**							
		PBDE #047	3.4E+00	ug/kg	1.0E-04	4.6E-06	0.05	1.6E-06	0.02
		PBDE #153	4.4E-01	ug/kg	2.0E-04	6.0E-07	0.003	2.1E-07	0.001
	Exposure Point Total						0.05		0.02

Notes:

a Chemicals listed as COPCs are PBDE congeners having published toxicity values which were detected in at least once in smallmouth bass tissue in the Study Area.

b Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations:

CDI = Chronic Daily Intake.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
F = Fillet tissue.
g/day = grams per day.
mg/kg = milligrams per kilogram.
PBDE = Polybrominated Diphenyl Ether
RfD = Reference Dose.
ug/kg = micrograms per kilogram.

TABLE F3-18.
Calculation of Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult
Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
UD	RM 1 East	**Polybrominated Diphenyl Ethers**							
		PBDE # 47	7.9E+00	ug/kg	1.0E-04	2.0E-06	0.02	3.7E-07	0.004
		PBDE # 153	3.0E-01	ug/kg	2.0E-04	7.7E-08	0.0004	1.4E-08	0.0001
	Exposure Point Total						0.02		0.004
UD	RM 2 West	**Polybrominated Diphenyl Ethers**							
		PBDE # 47	7.9E+00	ug/kg	1.0E-04	2.0E-06	0.02	3.7E-07	0.004
		PBDE # 153	2.9E-01	ug/kg	2.0E-04	7.5E-08	0.0004	1.4E-08	0.0001
	Exposure Point Total						0.02		0.004
UD	RM 5 East	**Polybrominated Diphenyl Ethers**							
		PBDE # 47	1.0E+01	ug/kg	1.0E-04	2.6E-06	0.03	4.7E-07	0.005
		PBDE # 99	2.7E+00	ug/kg	1.0E-04	6.9E-07	0.01	1.3E-07	0.001
		PBDE # 153	3.4E-01	ug/kg	2.0E-04	8.7E-08	0.0004	1.6E-08	0.0001
	Exposure Point Total						0.03		0.006
UD	RM 10 West	**Polybrominated Diphenyl Ethers**							
		PBDE # 47	7.3E+00	ug/kg	1.0E-04	1.9E-06	0.02	3.4E-07	0.003
		PBDE # 99	2.0E+00	ug/kg	1.0E-04	5.1E-07	0.01	9.4E-08	0.001
		PBDE # 153	2.2E-01	ug/kg	2.0E-04	5.7E-08	0.0003	1.0E-08	0.0001
	Exposure Point Total						0.02		0.004
UD	RM 11 East	**Polybrominated Diphenyl Ethers**							
		PBDE # 47	9.6E+00	ug/kg	1.0E-04	2.5E-06	0.02	4.5E-07	0.005
		PBDE # 99	2.8E+00	ug/kg	1.0E-04	7.2E-07	0.01	1.3E-07	0.001
		PBDE # 153	3.7E-01	ug/kg	2.0E-04	9.5E-08	0.0005	1.7E-08	0.0001
	Exposure Point Total						0.03		0.006
UD	RM 12 East	**Polybrominated Diphenyl Ethers**							
		PBDE # 47	1.2E+01	ug/kg	1.0E-04	3.1E-06	0.03	5.7E-07	0.01
		PBDE # 99	3.7E+00	ug/kg	1.0E-04	9.5E-07	0.01	1.7E-07	0.002
		PBDE # 153	4.9E-01	ug/kg	2.0E-04	1.3E-07	0.001	2.3E-08	0.0001
	Exposure Point Total						0.04		0.01
UD	Study Area-wide	**Polybrominated Diphenyl Ethers**							
		PBDE # 47	1.0E+01	ug/kg	1.0E-04	2.6E-06	3.E-02	4.7E-07	5.E-03
		PBDE # 99	2.8E+00	ug/kg	1.0E-04	7.2E-07	7.E-03	1.3E-07	1.E-03
		PBDE # 153	3.7E-01	ug/kg	2.0E-04	9.5E-08	5.E-04	1.7E-08	9.E-05
	Exposure Point Total						0.03		0.006

Notes:

a Chemicals listed are PBDE congeners detected in clam tissue at least once within the study area (RM 1.9-11.8).

b Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations:

-- = Not applicable. PBDE congeners detected in clam tissue are not classified as known carcinogens.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
PBDE = Polybrominated Diphenyl Ethers
RfD = Reference Dose.
RM = River mile.
UD = Undepurated clam.
ug/kg = micrograms per kilogram.

TABLE F3-19.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001

TABLE F3-19.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.00007
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.0001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
Study Area Wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.
ND = Not Detected in given exposure area.

TABLE F3-20.
Calculation of Cancer Risks and Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000006
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000006
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.000004
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007

TABLE F3-20.
Calculation of Cancer Risks and Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.
ND = Not Detected in given exposure area.

TABLE F3-21.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.00003
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00004	0.002
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0009
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00003	0.001
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00003	0.001
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003

TABLE F3-21.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.00005
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0008
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-22.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000005	0.000002
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004

TABLE F3-22.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
		38	0.000001	0.00006

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-23.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.0001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0009
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0006
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0007
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002

TABLE F3-23.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-24.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.00001
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000002	0.0000009
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00000
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00001
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000005	0.000002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002

TABLE F3-24.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-25.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.00001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001

TABLE F3-25.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-26.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000001	0.0000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000004	0.000002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000001	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000004	0.000002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000002	0.000001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001

TABLE F3-26.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-27.
Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000006
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0007
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000007	0.0003
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000006	0.0002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001

TABLE F3-27.
Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000006	0.0002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000009	0.0003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000007	0.0003

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-28.
Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000001	0.0000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000002	0.0000006
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001

TABLE F3-28.
Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000006	0.00002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000009	0.00003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-29.
Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.00003
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000009	0.00004
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.00003
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000008	0.00003
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.00003
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000009	0.00004
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000008	0.00003
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000008	0.00003
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000006	0.00002

TABLE F3-29.
Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations[b]		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.00003
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000006
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000006	0.00002
Study Area-wide[b]	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00006

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
ug/kg = micrograms per kilogram.

TABLE F3-30.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Consuming Fish, River-Mile Basis

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: Fish Tissue
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	Noncancer Hazard Quotient Calculations[b]				
			IRAF	Consumption Rate: 48.9 g/day		Consumption Rate: 17.5 g/day	
				Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient	Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient
F	RM 3	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0005	0.02	0.0002	0.01
F	RM 4	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.04	2	0.02	0.6
F	RM 5	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.02	0.9	0.01	0.3
F	RM 6	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.02	0.8	0.01	0.3
F	RM 8	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0005	0.02	0.0002	0.01
F	RM 9	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0003	0.01	0.0001	0.004
F	RM 10	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0005	0.02	0.0002	0.01
F	RM 11	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.03	1	0.009	0.3

Notes:

a Chemicals listed are PBDE congeners detected in clam tissue at least once within the study area (RM 1.9-11.8).
b Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations:

F = Fillet tissue.
g/day = grams per day.
IRAF = Infant Risk Adjustment Factor

TABLE F3-31.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Clam Consumer

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: Tissue
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	Noncancer Hazard Calculations[b]				
			IRAF	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
				Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient	Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient
UD	RM 1 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.02	0.8	0.004	0.1
UD	RM 2 West	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.02	0.8	0.004	0.1
UD	RM 5 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.03	1	0.01	0.2
UD	RM 10 West	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.02	0.9	0.004	0.2
UD	RM 11 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.03	1	0.01	0.2
UD	RM 12 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.04	2	0.01	0.3
UD	Study Area-wide	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.03	1	0.01	0.2

Notes:

a Chemicals listed are PBDE congeners detected in clam tissue at least once within the study area (RM 1.9-11.8).

b Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations:

g/day = grams per day.
IRAF = Infant Risk Adjustment Factor
PBDE = Polybrominated Diphenyl Ethers
RM = River mile.
UD = Undepurated clam.

LOWER WILLAMETTE GROUP

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

ATTACHMENT F4: PROUCL SOFTWARE OUTPUT FROM THE CALCULATION OF 95% UCLS

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

In-Water Sediment

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	C:\LWG_200808\InWatSed_Input_RM1.0E.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenic

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.68	Minimum of Log Data	0.519
Maximum	6.36	Maximum of Log Data	1.85
Mean	4.084	Mean of log Data	1.319
Median	4.48	SD of log Data	0.5
SD	1.714		
Coefficient of Variation	0.42		
Skewness	-0.189		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Test Statistic	0.909
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.719	95% H-UCL	8.845
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.109
95% Adjusted-CLT UCL	5.276	97.5% Chebyshev (MVUE) UCL	9.832
95% Modified-t UCL	5.708	99% Chebyshev (MVUE) UCL	13.22
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.475	**Data appear Normal at 5% Significance Level**	
Theta Star	1.65		
nu star	24.75		
Approximate Chi Square Value (.05)	14.42	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	5.345

54					Adjusted Chi Square Value	11.13					95% Jackknife UCL	5.719
55											95% Standard Bootstrap UCL	5.21
56					Anderson-Darling Test Statistic	0.32					95% Bootstrap-t UCL	5.51
57					Anderson-Darling 5% Critical Value	0.68					95% Hall's Bootstrap UCL	5.277
58					Kolmogorov-Smirnov Test Statistic	0.242					95% Percentile Bootstrap UCL	5.24
59					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	5.048
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	7.426
61											97.5% Chebyshev(Mean, Sd) UCL	8.872
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	11.71
63					95% Approximate Gamma UCL	7.009						
64					95% Adjusted Gamma UCL	9.083						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	5.719
67												
68												
69	**Benzo(a)anthracene**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	6.6					Minimum of Log Data	1.887
76					Maximum	56					Maximum of Log Data	4.025
77					Mean	31.44					Mean of log Data	3.13
78					Median	36					SD of log Data	0.986
79					SD	22.51						
80					Coefficient of Variation	0.716						
81					Skewness	-0.198						
82												
83												
84	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
85												
86	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
87	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
88												
89												
90	**Warning: There are only 5 Values in this data**											
91	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
92	**the resulting calculations may not be reliable enough to draw conclusions**											
93												
94	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
95												
96	**Relevant UCL Statistics**											
97	**Normal Distribution Test**										**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.885					Shapiro Wilk Test Statistic	0.847
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100	**Data appear Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
101												
102	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	52.9					95% H-UCL	404.5
104	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	93.84
105					95% Adjusted-CLT UCL	47.04					97.5% Chebyshev (MVUE) UCL	120.2
106					95% Modified-t UCL	52.75					99% Chebyshev (MVUE) UCL	171.9

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.821	**Data appear Normal at 5% Significance Level**
Theta Star	38.29	
nu star	8.21	
Approximate Chi Square Value (.05)	2.857	**Nonparametric Statistics**
Adjusted Level of Significance	0.0086	95% CLT UCL 48
Adjusted Chi Square Value	1.668	95% Jackknife UCL 52.9
		95% Standard Bootstrap UCL 46.19
Anderson-Darling Test Statistic	0.474	95% Bootstrap-t UCL 50.03
Anderson-Darling 5% Critical Value	0.686	95% Hall's Bootstrap UCL 40.49
Kolmogorov-Smirnov Test Statistic	0.268	95% Percentile Bootstrap UCL 45.32
Kolmogorov-Smirnov 5% Critical Value	0.361	95% BCA Bootstrap UCL 45.2
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 75.32
		97.5% Chebyshev(Mean, Sd) UCL 94.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 131.6
95% Approximate Gamma UCL	90.34	
95% Adjusted Gamma UCL	154.7	
Potential UCL to Use		Use 95% Student's-t UCL 52.9

Benzo(a)pyrene

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	6.6	Minimum of Log Data	1.887
Maximum	84	Maximum of Log Data	4.431
Mean	46.38	Mean of log Data	3.366
Median	66	SD of log Data	1.251
SD	36.26		
Coefficient of Variation	0.782		
Skewness	-0.425		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.819	Shapiro Wilk Test Statistic	0.769
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762

160	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
161												
162	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
163					95% Student's-t UCL	80.95					95% H-UCL	2719
164	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	168
165					95% Adjusted-CLT UCL	69.76					97.5% Chebyshev (MVUE) UCL	218.5
166					95% Modified-t UCL	80.43					99% Chebyshev (MVUE) UCL	317.6
167												
168	**Gamma Distribution Test**						**Data Distribution**					
169					k star (bias corrected)	0.614	**Data appear Normal at 5% Significance Level**					
170					Theta Star	75.6						
171					nu star	6.135						
172					Approximate Chi Square Value (.05)	1.709	**Nonparametric Statistics**					
173					Adjusted Level of Significance	0.0086					95% CLT UCL	73.05
174					Adjusted Chi Square Value	0.88					95% Jackknife UCL	80.95
175											95% Standard Bootstrap UCL	70.65
176					Anderson-Darling Test Statistic	0.703					95% Bootstrap-t UCL	83.15
177					Anderson-Darling 5% Critical Value	0.689					95% Hall's Bootstrap UCL	60.04
178					Kolmogorov-Smirnov Test Statistic	0.361					95% Percentile Bootstrap UCL	70.2
179					Kolmogorov-Smirnov 5% Critical Value	0.363					95% BCA Bootstrap UCL	66.2
180	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	117.1
181											97.5% Chebyshev(Mean, Sd) UCL	147.6
182	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	207.7
183					95% Approximate Gamma UCL	166.5						
184					95% Adjusted Gamma UCL	323.2						
185												
186	**Potential UCL to Use**										Use 95% Student's-t UCL	80.95
187												
188												
189	**Benzo(b)fluoranthene**											
190												
191	**General Statistics**											
192					Number of Valid Observations	5					Number of Distinct Observations	5
193												
194	**Raw Statistics**						**Log-transformed Statistics**					
195					Minimum	10					Minimum of Log Data	2.303
196					Maximum	69					Maximum of Log Data	4.234
197					Mean	42					Mean of log Data	3.425
198					Median	59					SD of log Data	0.983
199					SD	29						
200					Coefficient of Variation	0.69						
201					Skewness	-0.531						
202												
203												
204	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
205												
206	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
207	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
208												
209												
210	**Warning: There are only 5 Values in this data**											
211	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
212	**the resulting calculations may not be reliable enough to draw conclusions**											

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218					Shapiro Wilk Test Statistic	0.782					Shapiro Wilk Test Statistic	0.745
219					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
220	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223					95% Student's-t UCL	69.65					95% H-UCL	535.3
224	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	125.6
225					95% Adjusted-CLT UCL	60.04					97.5% Chebyshev (MVUE) UCL	160.8
226					95% Modified-t UCL	69.13					99% Chebyshev (MVUE) UCL	229.9
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229					k star (bias corrected)	0.831	**Data appear Normal at 5% Significance Level**					
230					Theta Star	50.52						
231					nu star	8.314						
232					Approximate Chi Square Value (.05)	2.918	**Nonparametric Statistics**					
233					Adjusted Level of Significance	0.0086					95% CLT UCL	63.33
234					Adjusted Chi Square Value	1.712					95% Jackknife UCL	69.65
235											95% Standard Bootstrap UCL	61.15
236					Anderson-Darling Test Statistic	0.764					95% Bootstrap-t UCL	69.35
237					Anderson-Darling 5% Critical Value	0.685					95% Hall's Bootstrap UCL	51.79
238					Kolmogorov-Smirnov Test Statistic	0.365					95% Percentile Bootstrap UCL	62.2
239					Kolmogorov-Smirnov 5% Critical Value	0.361					95% BCA Bootstrap UCL	59.8
240	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	98.53
241											97.5% Chebyshev(Mean, Sd) UCL	123
242	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	171
243					95% Approximate Gamma UCL	119.7						
244					95% Adjusted Gamma UCL	204						
245												
246	**Potential UCL to Use**										Use 95% Student's-t UCL	69.65
247	**Recommended UCL exceeds the maximum observation**											
248												
249												
250	**Benzo(k)fluoranthene**											
251												
252	**General Statistics**											
253					Number of Valid Observations	5					Number of Distinct Observations	4
254												
255	**Raw Statistics**						**Log-transformed Statistics**					
256					Minimum	3.8					Minimum of Log Data	1.335
257					Maximum	51					Maximum of Log Data	3.932
258					Mean	26.52					Mean of log Data	2.755
259					Median	29					SD of log Data	1.313
260					SD	22.24						
261					Coefficient of Variation	0.839						
262					Skewness	-0.0931						
263												
264												
265	**Warning: There are only 4 Distinct Values in this data**											

266	There are insufficient Distinct Values to perform some GOF tests and bootstrap methods.											
267	Those methods will return a 'N/A' value on your output display!											
268												
269	It is necessary to have 4 or more Distinct Values to compute bootstrap methods.											
270	It is recommended to have 10-15 or more observations for accurate and meaningful bootstrap results.											
271												
272												
273	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
274												
275	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
276	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
277												
278	Relevant UCL Statistics											
279	Normal Distribution Test						Lognormal Distribution Test					
280				Shapiro Wilk Test Statistic	0.862					Shapiro Wilk Test Statistic	0.782	
281				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
282	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
283												
284	Assuming Normal Distribution						Assuming Lognormal Distribution					
285				95% Student's-t UCL	47.73					95% H-UCL	2304	
286	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	98.91	
287				95% Adjusted-CLT UCL	42.44					97.5% Chebyshev (MVUE) UCL	129	
288				95% Modified-t UCL	47.66					99% Chebyshev (MVUE) UCL	188.1	
289												
290	Gamma Distribution Test						Data Distribution					
291				k star (bias corrected)	0.571		Data appear Normal at 5% Significance Level					
292				Theta Star	46.48							
293				nu star	5.705							
294				Approximate Chi Square Value (.05)	1.491		Nonparametric Statistics					
295				Adjusted Level of Significance	0.0086					95% CLT UCL	42.88	
296				Adjusted Chi Square Value	0.741					95% Jackknife UCL	47.73	
297										95% Standard Bootstrap UCL	40.97	
298				Anderson-Darling Test Statistic	0.584					95% Bootstrap-t UCL	46.89	
299				Anderson-Darling 5% Critical Value	0.69					95% Hall's Bootstrap UCL	34.94	
300				Kolmogorov-Smirnov Test Statistic	0.283					95% Percentile Bootstrap UCL	41	
301				Kolmogorov-Smirnov 5% Critical Value	0.364					95% BCA Bootstrap UCL	40.36	
302	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	69.88	
303										97.5% Chebyshev(Mean, Sd) UCL	88.65	
304	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	125.5	
305				95% Approximate Gamma UCL	101.5							
306				95% Adjusted Gamma UCL	204.1							
307												
308	Potential UCL to Use									Use 95% Student's-t UCL	47.73	
309												
310												
311	Dibenzo(a,h)anthracene											
312												
313	General Statistics											
314				Number of Valid Observations	5					Number of Distinct Observations	5	
315												
316	Raw Statistics						Log-transformed Statistics					
317				Minimum	1.3					Minimum of Log Data	0.262	
318				Maximum	9.1					Maximum of Log Data	2.208	

319					Mean	5.5					Mean of log Data	1.413
320					Median	6.6					SD of log Data	0.941
321					SD	3.78						
322					Coefficient of Variation	0.687						
323					Skewness	-0.348						
324												
325												
326	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
327												
328	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
329	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
330												
331												
332	**Warning: There are only 5 Values in this data**											
333	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
334	**the resulting calculations may not be reliable enough to draw conclusions**											
335												
336	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
337												
338	**Relevant UCL Statistics**											
339	**Normal Distribution Test**						**Lognormal Distribution Test**					
340					Shapiro Wilk Test Statistic	0.833					Shapiro Wilk Test Statistic	0.807
341					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
342	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
343												
344	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
345					95% Student's-t UCL	9.103					95% H-UCL	56.98
346	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	15.89
347					95% Adjusted-CLT UCL	8					97.5% Chebyshev (MVUE) UCL	20.29
348					95% Modified-t UCL	9.06					99% Chebyshev (MVUE) UCL	28.91
349												
350	**Gamma Distribution Test**						**Data Distribution**					
351					k star (bias corrected)	0.878	**Data appear Normal at 5% Significance Level**					
352					Theta Star	6.266						
353					nu star	8.777						
354					Approximate Chi Square Value (.05)	3.193	**Nonparametric Statistics**					
355					Adjusted Level of Significance	0.0086					95% CLT UCL	8.28
356					Adjusted Chi Square Value	1.911					95% Jackknife UCL	9.103
357											95% Standard Bootstrap UCL	7.962
358					Anderson-Darling Test Statistic	0.581					95% Bootstrap-t UCL	8.435
359					Anderson-Darling 5% Critical Value	0.685					95% Hall's Bootstrap UCL	6.846
360					Kolmogorov-Smirnov Test Statistic	0.291					95% Percentile Bootstrap UCL	8.04
361					Kolmogorov-Smirnov 5% Critical Value	0.361					95% BCA Bootstrap UCL	7.54
362	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	12.87
363											97.5% Chebyshev(Mean, Sd) UCL	16.06
364	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	22.32
365					95% Approximate Gamma UCL	15.12						
366					95% Adjusted Gamma UCL	25.26						
367												
368	**Potential UCL to Use**										Use 95% Student's-t UCL	9.103
369	**Recommended UCL exceeds the maximum observation**											
370												
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	**Indeno(1,2,3-cd)pyrene**											
373												
374	**General Statistics**											
375	Number of Valid Observations					5	Number of Distinct Observations					5
376												
377	**Raw Statistics**						**Log-transformed Statistics**					
378	Minimum					6.2	Minimum of Log Data					1.825
379	Maximum					62	Maximum of Log Data					4.127
380	Mean					32.88	Mean of log Data					3.125
381	Median					43	SD of log Data					1.073
382	SD					24.59						
383	Coefficient of Variation					0.748						
384	Skewness					-0.183						
385												
386												
387	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
388												
389	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
390	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
391												
392												
393	**Warning: There are only 5 Values in this data**											
394	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
395	**the resulting calculations may not be reliable enough to draw conclusions**											
396												
397	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
398												
399	**Relevant UCL Statistics**											
400	**Normal Distribution Test**						**Lognormal Distribution Test**					
401	Shapiro Wilk Test Statistic					0.874	Shapiro Wilk Test Statistic					0.818
402	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
403	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
404												
405	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
406	95% Student's-t UCL					56.32	95% H-UCL					666.9
407	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					104.6
408	95% Adjusted-CLT UCL					50.01	97.5% Chebyshev (MVUE) UCL					134.7
409	95% Modified-t UCL					56.17	99% Chebyshev (MVUE) UCL					193.9
410												
411	**Gamma Distribution Test**						**Data Distribution**					
412	k star (bias corrected)					0.735	**Data appear Normal at 5% Significance Level**					
413	Theta Star					44.76						
414	nu star					7.346						
415	Approximate Chi Square Value (.05)					2.362	**Nonparametric Statistics**					
416	Adjusted Level of Significance					0.0086	95% CLT UCL					50.97
417	Adjusted Chi Square Value					1.319	95% Jackknife UCL					56.32
418							95% Standard Bootstrap UCL					48.93
419	Anderson-Darling Test Statistic					0.564	95% Bootstrap-t UCL					58.96
420	Anderson-Darling 5% Critical Value					0.686	95% Hall's Bootstrap UCL					43.96
421	Kolmogorov-Smirnov Test Statistic					0.33	95% Percentile Bootstrap UCL					48
422	Kolmogorov-Smirnov 5% Critical Value					0.362	95% BCA Bootstrap UCL					47.44
423	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					80.81
424							97.5% Chebyshev(Mean, Sd) UCL					101.5

425	**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL			142.3
426					95% Approximate Gamma UCL	102.2						
427					95% Adjusted Gamma UCL	183.1						
428												
429	**Potential UCL to Use**								Use 95% Student's-t UCL			56.32
430												
431												
432	**Lead**											
433												
434	**General Statistics**											
435					Number of Valid Observations	5			Number of Distinct Observations			5
436												
437	**Raw Statistics**						**Log-transformed Statistics**					
438					Minimum	3.74			Minimum of Log Data			1.319
439					Maximum	27.7			Maximum of Log Data			3.321
440					Mean	10.95			Mean of log Data			2.114
441					Median	6.14			SD of log Data			0.801
442					SD	9.894						
443					Coefficient of Variation	0.904						
444					Skewness	1.726						
445												
446												
447	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
448												
449	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
450	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
451												
452												
453	**Warning: There are only 5 Values in this data**											
454	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
455	**the resulting calculations may not be reliable enough to draw conclusions**											
456												
457	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
458												
459	**Relevant UCL Statistics**											
460	**Normal Distribution Test**						**Lognormal Distribution Test**					
461					Shapiro Wilk Test Statistic	0.793			Shapiro Wilk Test Statistic			0.926
462					Shapiro Wilk Critical Value	0.762			Shapiro Wilk Critical Value			0.762
463	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
464												
465	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
466					95% Student's-t UCL	20.38			95% H-UCL			58.08
467	**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL			26.72
468					95% Adjusted-CLT UCL	21.88			97.5% Chebyshev (MVUE) UCL			33.7
469					95% Modified-t UCL	20.95			99% Chebyshev (MVUE) UCL			47.4
470												
471	**Gamma Distribution Test**						**Data Distribution**					
472					k star (bias corrected)	0.91	**Data appear Normal at 5% Significance Level**					
473					Theta Star	12.03						
474					nu star	9.103						
475					Approximate Chi Square Value (.05)	3.389	**Nonparametric Statistics**					
476					Adjusted Level of Significance	0.0086			95% CLT UCL			18.23
477					Adjusted Chi Square Value	2.055			95% Jackknife UCL			20.38

478											95% Standard Bootstrap UCL	17.49
479					Anderson-Darling Test Statistic	0.401					95% Bootstrap-t UCL	62.31
480					Anderson-Darling 5% Critical Value	0.685					95% Hall's Bootstrap UCL	64.36
481					Kolmogorov-Smirnov Test Statistic	0.286					95% Percentile Bootstrap UCL	18.6
482					Kolmogorov-Smirnov 5% Critical Value	0.361					95% BCA Bootstrap UCL	20.05
483					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	30.24
484											97.5% Chebyshev(Mean, Sd) UCL	38.58
485					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	54.98
486					95% Approximate Gamma UCL	29.41						
487					95% Adjusted Gamma UCL	48.5						
488												
489					**Potential UCL to Use**						Use 95% Student's-t UCL	20.38
490												
491												
492	**Mercury**											
493												
494					**General Statistics**							
495					Number of Valid Observations	5					Number of Distinct Observations	5
496												
497					**Raw Statistics**						**Log-transformed Statistics**	
498					Minimum	0.019					Minimum of Log Data	-3.963
499					Maximum	7.11					Maximum of Log Data	1.962
500					Mean	1.446					Mean of log Data	-2.525
501					Median	0.021					SD of log Data	2.55
502					SD	3.167						
503					Coefficient of Variation	2.19						
504					Skewness	2.236						
505												
506												
507					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
508												
509					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
510					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
511												
512												
513					**Warning: There are only 5 Values in this data**							
514					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
515					**the resulting calculations may not be reliable enough to draw conclusions**							
516												
517					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
518												
519					**Relevant UCL Statistics**							
520					**Normal Distribution Test**						**Lognormal Distribution Test**	
521					Shapiro Wilk Test Statistic	0.556					Shapiro Wilk Test Statistic	0.676
522					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
523					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
524												
525					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
526					95% Student's-t UCL	4.465					95% H-UCL	8057767
527					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	2.666
528					95% Adjusted-CLT UCL	5.288					97.5% Chebyshev (MVUE) UCL	3.572
529					95% Modified-t UCL	4.701					99% Chebyshev (MVUE) UCL	5.353
530												

531	**Gamma Distribution Test**						**Data Distribution**					
532	k star (bias corrected)					0.232	**Data do not follow a Discernable Distribution (0.05)**					
533	Theta Star					6.237						
534	nu star					2.318						
535	Approximate Chi Square Value (.05)					0.203	**Nonparametric Statistics**					
536	Adjusted Level of Significance					0.0086	95% CLT UCL					3.775
537	Adjusted Chi Square Value					0.0833	95% Jackknife UCL					4.465
538							95% Standard Bootstrap UCL					3.603
539	Anderson-Darling Test Statistic					1.076	95% Bootstrap-t UCL					5050
540	Anderson-Darling 5% Critical Value					0.759	95% Hall's Bootstrap UCL					2019
541	Kolmogorov-Smirnov Test Statistic					0.447	95% Percentile Bootstrap UCL					2.879
542	Kolmogorov-Smirnov 5% Critical Value					0.385	95% BCA Bootstrap UCL					4.282
543	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					7.618
544							97.5% Chebyshev(Mean, Sd) UCL					10.29
545	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					15.54
546	95% Approximate Gamma UCL					16.52						
547	95% Adjusted Gamma UCL					40.24						
548												
549	**Potential UCL to Use**						Use 95% Hall's Bootstrap UCL					2019
550	**Recommended UCL exceeds the maximum observation**											
551	**In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL**											
552												
553												
554	**Total DDT**											
555												
556	**General Statistics**											
557	Number of Valid Observations					5	Number of Distinct Observations					5
558												
559	**Raw Statistics**						**Log-transformed Statistics**					
560	Minimum					0.179	Minimum of Log Data					-1.72
561	Maximum					5.6	Maximum of Log Data					1.723
562	Mean					1.792	Mean of log Data					-0.215
563	Median					0.68	SD of log Data					1.485
564	SD					2.294						
565	Coefficient of Variation					1.28						
566	Skewness					1.584						
567												
568												
569	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
570												
571	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
572	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
573												
574												
575	**Warning: There are only 5 Values in this data**											
576	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
577	**the resulting calculations may not be reliable enough to draw conclusions**											
578												
579	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
580												
581	**Relevant UCL Statistics**											
582	**Normal Distribution Test**						**Lognormal Distribution Test**					
583	Shapiro Wilk Test Statistic					0.799	Shapiro Wilk Test Statistic					0.923

584					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
585	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
586												
587	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
588					95% Student's-t UCL	3.979					95% H-UCL	455.8
589	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	6.361
590					95% Adjusted-CLT UCL	4.256					97.5% Chebyshev (MVUE) UCL	8.351
591					95% Modified-t UCL	4.1					99% Chebyshev (MVUE) UCL	12.26
592												
593	**Gamma Distribution Test**						**Data Distribution**					
594					k star (bias corrected)	0.433	**Data appear Normal at 5% Significance Level**					
595					Theta Star	4.134						
596					nu star	4.334						
597					Approximate Chi Square Value (.05)	0.858	**Nonparametric Statistics**					
598					Adjusted Level of Significance	0.0086					95% CLT UCL	3.479
599					Adjusted Chi Square Value	0.369					95% Jackknife UCL	3.979
600											95% Standard Bootstrap UCL	3.304
601					Anderson-Darling Test Statistic	0.338					95% Bootstrap-t UCL	13.84
602					Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	11.36
603					Kolmogorov-Smirnov Test Statistic	0.225					95% Percentile Bootstrap UCL	3.44
604					Kolmogorov-Smirnov 5% Critical Value	0.367					95% BCA Bootstrap UCL	3.852
605	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	6.263
606											97.5% Chebyshev(Mean, Sd) UCL	8.198
607	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	12
608					95% Approximate Gamma UCL	9.051						
609					95% Adjusted Gamma UCL	21.06						
610												
611	**Potential UCL to Use**										Use 95% Student's-t UCL	3.979
612												
613												
614	**Total Dioxin/Furan TEQ**											
615												
616	**General Statistics**											
617					Number of Valid Observations	5					Number of Distinct Observations	5
618												
619	**Raw Statistics**						**Log-transformed Statistics**					
620					Minimum	0.183					Minimum of Log Data	-1.696
621					Maximum	0.937					Maximum of Log Data	-0.0655
622					Mean	0.468					Mean of log Data	-0.908
623					Median	0.349					SD of log Data	0.61
624					SD	0.292						
625					Coefficient of Variation	0.623						
626					Skewness	1.267						
627												
628												
629	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
630												
631	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
632	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
633												
634												
635	**Warning: There are only 5 Values in this data**											
636	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											

	A	B	C	D	E	F	G	H	I	J	K	L
637	**the resulting calculations may not be reliable enough to draw conclusions**											
638												
639	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
640												
641	**Relevant UCL Statistics**											
642	**Normal Distribution Test**						**Lognormal Distribution Test**					
643	Shapiro Wilk Test Statistic					0.898	Shapiro Wilk Test Statistic					0.98
644	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
645	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
646												
647	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
648	95% Student's-t UCL					0.746	95% H-UCL					1.338
649	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					1.013
650	95% Adjusted-CLT UCL					0.762	97.5% Chebyshev (MVUE) UCL					1.25
651	95% Modified-t UCL					0.759	99% Chebyshev (MVUE) UCL					1.714
652												
653	**Gamma Distribution Test**						**Data Distribution**					
654	k star (bias corrected)					1.538	**Data appear Normal at 5% Significance Level**					
655	Theta Star					0.304						
656	nu star					15.38						
657	Approximate Chi Square Value (.05)					7.529	**Nonparametric Statistics**					
658	Adjusted Level of Significance					0.0086	95% CLT UCL					0.683
659	Adjusted Chi Square Value					5.303	95% Jackknife UCL					0.746
660							95% Standard Bootstrap UCL					0.663
661	Anderson-Darling Test Statistic					0.25	95% Bootstrap-t UCL					1.142
662	Anderson-Darling 5% Critical Value					0.682	95% Hall's Bootstrap UCL					2.21
663	Kolmogorov-Smirnov Test Statistic					0.235	95% Percentile Bootstrap UCL					0.668
664	Kolmogorov-Smirnov 5% Critical Value					0.359	95% BCA Bootstrap UCL					0.702
665	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					1.037
666							97.5% Chebyshev(Mean, Sd) UCL					1.283
667	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					1.767
668	95% Approximate Gamma UCL					0.957						
669	95% Adjusted Gamma UCL					1.358						
670												
671	**Potential UCL to Use**						Use 95% Student's-t UCL					0.746
672												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	C:\LWG_200808\InWatSed_Input_RM1.0W.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenic

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.85	Minimum of Log Data	0.615
Maximum	5.28	Maximum of Log Data	1.664
Mean	4.208	Mean of log Data	1.376
Median	4.68	SD of log Data	0.43
SD	1.354		
Coefficient of Variation	0.322		
Skewness	-1.94		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.765	Shapiro Wilk Test Statistic	0.694
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.499	95% H-UCL	7.816
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.805
95% Adjusted-CLT UCL	4.643	97.5% Chebyshev (MVUE) UCL	9.339
95% Modified-t UCL	5.411	99% Chebyshev (MVUE) UCL	12.35
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.472	**Data appear Normal at 5% Significance Level**	
Theta Star	1.212		
nu star	34.72		
Approximate Chi Square Value (.05)	22.24	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	5.204

54				Adjusted Chi Square Value	18.01				95% Jackknife UCL	5.499		
55									95% Standard Bootstrap UCL	5.088		
56				Anderson-Darling Test Statistic	0.852				95% Bootstrap-t UCL	5.042		
57				Anderson-Darling 5% Critical Value	0.679				95% Hall's Bootstrap UCL	4.735		
58				Kolmogorov-Smirnov Test Statistic	0.405				95% Percentile Bootstrap UCL	4.944		
59				Kolmogorov-Smirnov 5% Critical Value	0.358				95% BCA Bootstrap UCL	4.848		
60				**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	6.847		
61									97.5% Chebyshev(Mean, Sd) UCL	7.989		
62				**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	10.23		
63				95% Approximate Gamma UCL	6.569							
64				95% Adjusted Gamma UCL	8.114							
65												
66				**Potential UCL to Use**					Use 95% Student's-t UCL	5.499		
67				**Recommended UCL exceeds the maximum observation**								
68												
69												
70	**Benzo(a)anthracene**											
71												
72				**General Statistics**								
73				Number of Valid Observations	5				Number of Distinct Observations	4		
74												
75				**Raw Statistics**					**Log-transformed Statistics**			
76				Minimum	14				Minimum of Log Data	2.639		
77				Maximum	150				Maximum of Log Data	5.011		
78				Mean	50				Mean of log Data	3.543		
79				Median	28				SD of log Data	0.878		
80				SD	56.27							
81				Coefficient of Variation	1.125							
82				Skewness	2.161							
83												
84												
85				**Warning: There are only 4 Distinct Values in this data**								
86				**There are insufficient Distinct Values to perform some GOF tests and bootstrap methods.**								
87				**Those methods will return a 'N/A' value on your output display!**								
88												
89				**It is necessary to have 4 or more Distinct Values to compute bootstrap methods.**								
90				**It is recommended to have 10-15 or more observations for accurate and meaningful bootstrap results.**								
91												
92												
93				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
94												
95				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
96				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
97												
98				**Relevant UCL Statistics**								
99				**Normal Distribution Test**					**Lognormal Distribution Test**			
100				Shapiro Wilk Test Statistic	0.652				Shapiro Wilk Test Statistic	0.824		
101				Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762		
102				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
103												
104				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
105				95% Student's-t UCL	103.6				95% H-UCL	347.6		
106				**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	123.2		

107				95% Adjusted-CLT UCL	117.4				97.5% Chebyshev (MVUE) UCL	156.5		
108				95% Modified-t UCL	107.7				99% Chebyshev (MVUE) UCL	221.8		
109												
110				**Gamma Distribution Test**					**Data Distribution**			
111				k star (bias corrected)	0.733				**Data appear Lognormal at 5% Significance Level**			
112				Theta Star	68.18							
113				nu star	7.334							
114				Approximate Chi Square Value (.05)	2.355				**Nonparametric Statistics**			
115				Adjusted Level of Significance	0.0086				95% CLT UCL	91.39		
116				Adjusted Chi Square Value	1.314				95% Jackknife UCL	103.6		
117									95% Standard Bootstrap UCL	86.46		
118				Anderson-Darling Test Statistic	0.775				95% Bootstrap-t UCL	1139		
119				Anderson-Darling 5% Critical Value	0.686				95% Hall's Bootstrap UCL	480.2		
120				Kolmogorov-Smirnov Test Statistic	0.415				95% Percentile Bootstrap UCL	98.4		
121				Kolmogorov-Smirnov 5% Critical Value	0.362				95% BCA Bootstrap UCL	98.8		
122				**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	159.7		
123									97.5% Chebyshev(Mean, Sd) UCL	207.1		
124				**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	300.4		
125				95% Approximate Gamma UCL	155.7							
126				95% Adjusted Gamma UCL	279							
127												
128				**Potential UCL to Use**					Use 95% H-UCL	347.6		
129				**Recommended UCL exceeds the maximum observation**								
130												
131												
132	**Benzo(a)pyrene**											
133												
134				**General Statistics**								
135				Number of Valid Observations	5				Number of Distinct Observations	5		
136												
137				**Raw Statistics**					**Log-transformed Statistics**			
138				Minimum	21				Minimum of Log Data	3.045		
139				Maximum	240				Maximum of Log Data	5.481		
140				Mean	74.2				Mean of log Data	3.862		
141				Median	37				SD of log Data	0.942		
142				SD	93.01							
143				Coefficient of Variation	1.254							
144				Skewness	2.196							
145												
146												
147				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
148												
149				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
150				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
151												
152												
153				**Warning: There are only 5 Values in this data**								
154				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
155				**the resulting calculations may not be reliable enough to draw conclusions**								
156												
157				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
158												
159				**Relevant UCL Statistics**								

160	**Normal Distribution Test**						**Lognormal Distribution Test**					
161					Shapiro Wilk Test Statistic	0.635					Shapiro Wilk Test Statistic	0.807
162					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
163	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
164												
165	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
166					95% Student's-t UCL	162.9					95% H-UCL	664.2
167	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	184.3
168					95% Adjusted-CLT UCL	186.3					97.5% Chebyshev (MVUE) UCL	235.2
169					95% Modified-t UCL	169.7					99% Chebyshev (MVUE) UCL	335.3
170												
171	**Gamma Distribution Test**						**Data Distribution**					
172					k star (bias corrected)	0.639	**Data appear Lognormal at 5% Significance Level**					
173					Theta Star	116.2						
174					nu star	6.388						
175					Approximate Chi Square Value (.05)	1.841	**Nonparametric Statistics**					
176					Adjusted Level of Significance	0.0086					95% CLT UCL	142.6
177					Adjusted Chi Square Value	0.967					95% Jackknife UCL	162.9
178											95% Standard Bootstrap UCL	135.9
179					Anderson-Darling Test Statistic	0.796					95% Bootstrap-t UCL	818.4
180					Anderson-Darling 5% Critical Value	0.689					95% Hall's Bootstrap UCL	735.3
181					Kolmogorov-Smirnov Test Statistic	0.408					95% Percentile Bootstrap UCL	121.2
182					Kolmogorov-Smirnov 5% Critical Value	0.363					95% BCA Bootstrap UCL	158.6
183	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	255.5
184											97.5% Chebyshev(Mean, Sd) UCL	334
185	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	488.1
186					95% Approximate Gamma UCL	257.4						
187					95% Adjusted Gamma UCL	490.4						
188												
189	**Potential UCL to Use**										Use 95% H-UCL	664.2
190	**Recommended UCL exceeds the maximum observation**											
191												
192												
193	**Benzo(b)fluoranthene**											
194												
195	**General Statistics**											
196					Number of Valid Observations	5					Number of Distinct Observations	4
197												
198	**Raw Statistics**						**Log-transformed Statistics**					
199					Minimum	30					Minimum of Log Data	3.401
200					Maximum	230					Maximum of Log Data	5.438
201					Mean	73.8					Mean of log Data	3.923
202					Median	37					SD of log Data	0.851
203					SD	87.37						
204					Coefficient of Variation	1.184						
205					Skewness	2.23						
206												
207												
208	**Warning: There are only 4 Distinct Values in this data**											
209	**There are insufficient Distinct Values to perform some GOF tests and bootstrap methods.**											
210	**Those methods will return a 'N/A' value on your output display!**											
211												
212	**It is necessary to have 4 or more Distinct Values to compute bootstrap methods.**											

213	It is recommended to have 10-15 or more observations for accurate and meaningful bootstrap results.											
214												
215												
216	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
217												
218	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
219	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
220												
221	Relevant UCL Statistics											
222	Normal Distribution Test						Lognormal Distribution Test					
223				Shapiro Wilk Test Statistic	0.583					Shapiro Wilk Test Statistic	0.645	
224				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
225	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
226												
227	Assuming Normal Distribution						Assuming Lognormal Distribution					
228				95% Student's-t UCL	157.1					95% H-UCL	447.6	
229	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	174.2	
230				95% Adjusted-CLT UCL	179.7					97.5% Chebyshev (MVUE) UCL	220.7	
231				95% Modified-t UCL	163.6					99% Chebyshev (MVUE) UCL	312	
232												
233	Gamma Distribution Test						Data Distribution					
234				k star (bias corrected)	0.72		Data do not follow a Discernable Distribution (0.05)					
235				Theta Star	102.5							
236				nu star	7.201							
237				Approximate Chi Square Value (.05)	2.281		Nonparametric Statistics					
238				Adjusted Level of Significance	0.0086					95% CLT UCL	138.1	
239				Adjusted Chi Square Value	1.263					95% Jackknife UCL	157.1	
240										95% Standard Bootstrap UCL	131.9	
241				Anderson-Darling Test Statistic	1.142					95% Bootstrap-t UCL	3073	
242				Anderson-Darling 5% Critical Value	0.687					95% Hall's Bootstrap UCL	1633	
243				Kolmogorov-Smirnov Test Statistic	0.477					95% Percentile Bootstrap UCL	151.4	
244				Kolmogorov-Smirnov 5% Critical Value	0.362					95% BCA Bootstrap UCL	151.4	
245	Data not Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	244.1	
246										97.5% Chebyshev(Mean, Sd) UCL	317.8	
247	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	462.6	
248				95% Approximate Gamma UCL	232.9							
249				95% Adjusted Gamma UCL	420.7							
250												
251	Potential UCL to Use									Use 95% Chebyshev (Mean, Sd) UCL	244.1	
252	Recommended UCL exceeds the maximum observation											
253												
254												
255	Benzo(k)fluoranthene											
256												
257	General Statistics											
258				Number of Valid Observations	5					Number of Distinct Observations	5	
259												
260	Raw Statistics						Log-transformed Statistics					
261				Minimum	12					Minimum of Log Data	2.485	
262				Maximum	77					Maximum of Log Data	4.344	
263				Mean	30.2					Mean of log Data	3.156	
264				Median	22					SD of log Data	0.747	
265				SD	26.9							

Coefficient of Variation	0.891	
Skewness	1.943	

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.749	Shapiro Wilk Test Statistic	0.892
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	55.85	95% H-UCL	130.8
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	70.65
95% Adjusted-CLT UCL	61.16	97.5% Chebyshev (MVUE) UCL	88.62
95% Modified-t UCL	57.59	99% Chebyshev (MVUE) UCL	123.9
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.989	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	30.55		
nu star	9.885		
Approximate Chi Square Value (.05)	3.87	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	49.99
Adjusted Chi Square Value	2.413	95% Jackknife UCL	55.85
		95% Standard Bootstrap UCL	47.9
Anderson-Darling Test Statistic	0.471	95% Bootstrap-t UCL	101.1
Anderson-Darling 5% Critical Value	0.684	95% Hall's Bootstrap UCL	144.5
Kolmogorov-Smirnov Test Statistic	0.272	95% Percentile Bootstrap UCL	53
Kolmogorov-Smirnov 5% Critical Value	0.36	95% BCA Bootstrap UCL	54.2
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	82.64
		97.5% Chebyshev(Mean, Sd) UCL	105.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	149.9
95% Approximate Gamma UCL	77.14		
95% Adjusted Gamma UCL	123.7		
Potential UCL to Use		Use 95% Approximate Gamma UCL	77.14

Recommended UCL exceeds the maximum observation

Dibenzo(a,h)anthracene

General Statistics

319	Number of Valid Observations				5		Number of Distinct Observations					5
320												
321	**Raw Statistics**						**Log-transformed Statistics**					
322	Minimum				2		Minimum of Log Data					0.693
323	Maximum				32		Maximum of Log Data					3.466
324	Mean				9.42		Mean of log Data					1.71
325	Median				4.2		SD of log Data					1.044
326	SD				12.68							
327	Coefficient of Variation				1.346							
328	Skewness				2.189							
329												
330												
331	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
332												
333	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
334	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
335												
336												
337	**Warning: There are only 5 Values in this data**											
338	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
339	**the resulting calculations may not be reliable enough to draw conclusions**											
340												
341	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
342												
343	**Relevant UCL Statistics**											
344	**Normal Distribution Test**						**Lognormal Distribution Test**					
345	Shapiro Wilk Test Statistic				0.641		Shapiro Wilk Test Statistic					0.85
346	Shapiro Wilk Critical Value				0.762		Shapiro Wilk Critical Value					0.762
347	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
348												
349	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
350	95% Student's-t UCL				21.5		95% H-UCL					136
351	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					24.47
352	95% Adjusted-CLT UCL				24.67		97.5% Chebyshev (MVUE) UCL					31.45
353	95% Modified-t UCL				22.43		99% Chebyshev (MVUE) UCL					45.18
354												
355	**Gamma Distribution Test**						**Data Distribution**					
356	k star (bias corrected)				0.563		**Data appear Lognormal at 5% Significance Level**					
357	Theta Star				16.72							
358	nu star				5.632							
359	Approximate Chi Square Value (.05)				1.455		**Nonparametric Statistics**					
360	Adjusted Level of Significance				0.0086		95% CLT UCL					18.74
361	Adjusted Chi Square Value				0.718		95% Jackknife UCL					21.5
362							95% Standard Bootstrap UCL					17.72
363	Anderson-Darling Test Statistic				0.721		95% Bootstrap-t UCL					102.4
364	Anderson-Darling 5% Critical Value				0.691		95% Hall's Bootstrap UCL					95.95
365	Kolmogorov-Smirnov Test Statistic				0.388		95% Percentile Bootstrap UCL					20
366	Kolmogorov-Smirnov 5% Critical Value				0.364		95% BCA Bootstrap UCL					20.98
367	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					34.13
368							97.5% Chebyshev(Mean, Sd) UCL					44.82
369	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					65.82
370	95% Approximate Gamma UCL				36.47							
371	95% Adjusted Gamma UCL				73.85							

372												
373	**Potential UCL to Use**									Use 95% Chebyshev (MVUE) UCL		24.47
374												
375												
376	**Indeno(1,2,3-cd)pyrene**											
377												
378	**General Statistics**											
379	Number of Valid Observations					5				Number of Distinct Observations		5
380												
381	**Raw Statistics**									**Log-transformed Statistics**		
382	Minimum					16				Minimum of Log Data		2.773
383	Maximum					200				Maximum of Log Data		5.298
384	Mean					57.8				Mean of log Data		3.521
385	Median					26				SD of log Data		1.019
386	SD					79.64						
387	Coefficient of Variation					1.378						
388	Skewness					2.215						
389												
390												
391	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
392												
393	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
394	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
395												
396												
397	**Warning: There are only 5 Values in this data**											
398	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
399	**the resulting calculations may not be reliable enough to draw conclusions**											
400												
401	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
402												
403	**Relevant UCL Statistics**											
404	**Normal Distribution Test**									**Lognormal Distribution Test**		
405	Shapiro Wilk Test Statistic					0.61				Shapiro Wilk Test Statistic		0.756
406	Shapiro Wilk Critical Value					0.762				Shapiro Wilk Critical Value		0.762
407	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
408												
409	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
410	95% Student's-t UCL					133.7				95% H-UCL		722.7
411	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		145
412	95% Adjusted-CLT UCL					154.1				97.5% Chebyshev (MVUE) UCL		186.1
413	95% Modified-t UCL					139.6				99% Chebyshev (MVUE) UCL		266.8
414												
415	**Gamma Distribution Test**									**Data Distribution**		
416	k star (bias corrected)					0.561				**Data do not follow a Discernable Distribution (0.05)**		
417	Theta Star					103						
418	nu star					5.609						
419	Approximate Chi Square Value (.05)					1.443				**Nonparametric Statistics**		
420	Adjusted Level of Significance					0.0086				95% CLT UCL		116.4
421	Adjusted Chi Square Value					0.711				95% Jackknife UCL		133.7
422										95% Standard Bootstrap UCL		109.8
423	Anderson-Darling Test Statistic					0.899				95% Bootstrap-t UCL		805.6
424	Anderson-Darling 5% Critical Value					0.691				95% Hall's Bootstrap UCL		802.6

425					Kolmogorov-Smirnov Test Statistic	0.429				95% Percentile Bootstrap UCL		126.4
426					Kolmogorov-Smirnov 5% Critical Value	0.364				95% BCA Bootstrap UCL		130.8
427					**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL		213.1
428										97.5% Chebyshev(Mean, Sd) UCL		280.2
429					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL		412.2
430					95% Approximate Gamma UCL	224.6						
431					95% Adjusted Gamma UCL	455.8						
432												
433					**Potential UCL to Use**					Use 99% Chebyshev (Mean, Sd) UCL		412.2
434					**Recommended UCL exceeds the maximum observation**							
435												
436												
437	**Lead**											
438												
439					**General Statistics**							
440					Number of Valid Observations	5				Number of Distinct Observations		5
441												
442					**Raw Statistics**					**Log-transformed Statistics**		
443					Minimum	6.58				Minimum of Log Data		1.884
444					Maximum	16.2				Maximum of Log Data		2.785
445					Mean	13.54				Mean of log Data		2.557
446					Median	14.9				SD of log Data		0.378
447					SD	3.935						
448					Coefficient of Variation	0.291						
449					Skewness	-2.102						
450												
451												
452					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
453												
454					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
455					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
456												
457												
458					**Warning: There are only 5 Values in this data**							
459					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
460					**the resulting calculations may not be reliable enough to draw conclusions**							
461												
462					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
463												
464					**Relevant UCL Statistics**							
465					**Normal Distribution Test**					**Lognormal Distribution Test**		
466					Shapiro Wilk Test Statistic	0.7				Shapiro Wilk Test Statistic		0.653
467					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value		0.762
468					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
469												
470					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
471					95% Student's-t UCL	17.29				95% H-UCL		22.63
472					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL		23.67
473					95% Adjusted-CLT UCL	14.66				97.5% Chebyshev (MVUE) UCL		28
474					95% Modified-t UCL	17.01				99% Chebyshev (MVUE) UCL		36.52
475												
476					**Gamma Distribution Test**					**Data Distribution**		
477					k star (bias corrected)	4.349				**Data do not follow a Discernable Distribution (0.05)**		

478					Theta Star	3.113						
479					nu star	43.49						
480					Approximate Chi Square Value (.05)	29.37	**Nonparametric Statistics**					
481					Adjusted Level of Significance	0.0086					95% CLT UCL	16.43
482					Adjusted Chi Square Value	24.41					95% Jackknife UCL	17.29
483											95% Standard Bootstrap UCL	16.11
484					Anderson-Darling Test Statistic	0.982					95% Bootstrap-t UCL	16.08
485					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	14.97
486					Kolmogorov-Smirnov Test Statistic	0.437					95% Percentile Bootstrap UCL	15.56
487					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	15.36
488	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	21.21
489											97.5% Chebyshev(Mean, Sd) UCL	24.53
490	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	31.05
491					95% Approximate Gamma UCL	20.05						
492					95% Adjusted Gamma UCL	24.12						
493												
494	**Potential UCL to Use**										Use 95% Student's-t UCL	17.29
495											or 95% Modified-t UCL	17.01
496	**Recommended UCL exceeds the maximum observation**											
497												
498												
499	**Mercury**											
500												
501	**General Statistics**											
502					Number of Valid Observations	5					Number of Distinct Observations	5
503												
504	**Raw Statistics**						**Log-transformed Statistics**					
505					Minimum	0.0375					Minimum of Log Data	-3.283
506					Maximum	0.076					Maximum of Log Data	-2.577
507					Mean	0.0607					Mean of log Data	-2.832
508					Median	0.064					SD of log Data	0.284
509					SD	0.0155						
510					Coefficient of Variation	0.255						
511					Skewness	-0.872						
512												
513												
514	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
515												
516	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
517	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
518												
519												
520	**Warning: There are only 5 Values in this data**											
521	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
522	**the resulting calculations may not be reliable enough to draw conclusions**											
523												
524	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
525												
526	**Relevant UCL Statistics**											
527	**Normal Distribution Test**						**Lognormal Distribution Test**					
528					Shapiro Wilk Test Statistic	0.937					Shapiro Wilk Test Statistic	0.897
529					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
530	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

531												
532	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
533					95% Student's-t UCL	0.0754					95% H-UCL	0.0859
534	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.0945
535					95% Adjusted-CLT UCL	0.0692					97.5% Chebyshev (MVUE) UCL	0.109
536					95% Modified-t UCL	0.075					99% Chebyshev (MVUE) UCL	0.138
537												
538	**Gamma Distribution Test**						**Data Distribution**					
539					k star (bias corrected)	6.861	**Data appear Normal at 5% Significance Level**					
540					Theta Star	0.00885						
541					nu star	68.61						
542					Approximate Chi Square Value (.05)	50.54	**Nonparametric Statistics**					
543					Adjusted Level of Significance	0.0086					95% CLT UCL	0.0721
544					Adjusted Chi Square Value	43.84					95% Jackknife UCL	0.0754
545											95% Standard Bootstrap UCL	0.0706
546					Anderson-Darling Test Statistic	0.328					95% Bootstrap-t UCL	0.0718
547					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.0697
548					Kolmogorov-Smirnov Test Statistic	0.218					95% Percentile Bootstrap UCL	0.0708
549					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.0684
550	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0908
551											97.5% Chebyshev(Mean, Sd) UCL	0.104
552	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.129
553					95% Approximate Gamma UCL	0.0824						
554					95% Adjusted Gamma UCL	0.095						
555												
556	**Potential UCL to Use**										Use 95% Student's-t UCL	0.0754
557												
558												
559	**Naphthalene**											
560												
561	**General Statistics**											
562					Number of Valid Observations	5					Number of Distinct Observations	5
563												
564	**Raw Statistics**						**Log-transformed Statistics**					
565					Minimum	6.5					Minimum of Log Data	1.872
566					Maximum	31					Maximum of Log Data	3.434
567					Mean	13.16					Mean of log Data	2.397
568					Median	8.5					SD of log Data	0.621
569					SD	10.18						
570					Coefficient of Variation	0.773						
571					Skewness	2.025						
572												
573												
574	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
575												
576	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
577	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
578												
579												
580	**Warning: There are only 5 Values in this data**											
581	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
582	**the resulting calculations may not be reliable enough to draw conclusions**											
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
585												
586	**Relevant UCL Statistics**											
587	**Normal Distribution Test**						**Lognormal Distribution Test**					
588	Shapiro Wilk Test Statistic					0.722	Shapiro Wilk Test Statistic					0.846
589	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
590	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
591												
592	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
593	95% Student's-t UCL					22.86	95% H-UCL					37.86
594	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					28.02
595	95% Adjusted-CLT UCL					25.05	97.5% Chebyshev (MVUE) UCL					34.61
596	95% Modified-t UCL					23.55	99% Chebyshev (MVUE) UCL					47.56
597												
598	**Gamma Distribution Test**						**Data Distribution**					
599	k star (bias corrected)					1.306	**Data appear Gamma Distributed at 5% Significance Level**					
600	Theta Star					10.08						
601	nu star					13.06						
602	Approximate Chi Square Value (.05)					5.93	**Nonparametric Statistics**					
603	Adjusted Level of Significance					0.0086	95% CLT UCL					20.65
604	Adjusted Chi Square Value					4.013	95% Jackknife UCL					22.86
605							95% Standard Bootstrap UCL					20.06
606	Anderson-Darling Test Statistic					0.601	95% Bootstrap-t UCL					78.34
607	Anderson-Darling 5% Critical Value					0.683	95% Hall's Bootstrap UCL					68.06
608	Kolmogorov-Smirnov Test Statistic					0.29	95% Percentile Bootstrap UCL					21.6
609	Kolmogorov-Smirnov 5% Critical Value					0.359	95% BCA Bootstrap UCL					22.56
610	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					33
611							97.5% Chebyshev(Mean, Sd) UCL					41.59
612	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					58.45
613	95% Approximate Gamma UCL					28.97						
614	95% Adjusted Gamma UCL					42.82						
615												
616	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					28.97
617												
618												
619	**Total DDT**											
620												
621	**General Statistics**											
622	Number of Valid Observations					5	Number of Distinct Observations					5
623												
624	**Raw Statistics**						**Log-transformed Statistics**					
625	Minimum					0.605	Minimum of Log Data					-0.503
626	Maximum					5.885	Maximum of Log Data					1.772
627	Mean					2.488	Mean of log Data					0.548
628	Median					2.01	SD of log Data					0.995
629	SD					2.196						
630	Coefficient of Variation					0.882						
631	Skewness					1.055						
632												
633												
634	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
635												
636	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											

637	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
638												
639												
640	Warning: There are only 5 Values in this data											
641	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
642	the resulting calculations may not be reliable enough to draw conclusions											
643												
644	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
645												
646	Relevant UCL Statistics											
647	Normal Distribution Test						Lognormal Distribution Test					
648				Shapiro Wilk Test Statistic	0.889					Shapiro Wilk Test Statistic	0.91	
649				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
650	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
651												
652	Assuming Normal Distribution						Assuming Lognormal Distribution					
653				95% Student's-t UCL	4.581					95% H-UCL	32.29	
654	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	7.187	
655				95% Adjusted-CLT UCL	4.598					97.5% Chebyshev (MVUE) UCL	9.21	
656				95% Modified-t UCL	4.658					99% Chebyshev (MVUE) UCL	13.18	
657												
658	Gamma Distribution Test						Data Distribution					
659				k star (bias corrected)	0.742		Data appear Normal at 5% Significance Level					
660				Theta Star	3.354							
661				nu star	7.418							
662				Approximate Chi Square Value (.05)	2.403		Nonparametric Statistics					
663				Adjusted Level of Significance	0.0086					95% CLT UCL	4.103	
664				Adjusted Chi Square Value	1.347					95% Jackknife UCL	4.581	
665										95% Standard Bootstrap UCL	3.943	
666				Anderson-Darling Test Statistic	0.311					95% Bootstrap-t UCL	6.273	
667				Anderson-Darling 5% Critical Value	0.686					95% Hall's Bootstrap UCL	12.8	
668				Kolmogorov-Smirnov Test Statistic	0.253					95% Percentile Bootstrap UCL	4.065	
669				Kolmogorov-Smirnov 5% Critical Value	0.362					95% BCA Bootstrap UCL	4.068	
670	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	6.768	
671										97.5% Chebyshev(Mean, Sd) UCL	8.62	
672	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	12.26	
673				95% Approximate Gamma UCL	7.681							
674				95% Adjusted Gamma UCL	13.7							
675												
676	Potential UCL to Use									Use 95% Student's-t UCL	4.581	
677												
678												
679	Total Dioxin/Furan TEQ											
680												
681	General Statistics											
682				Number of Valid Observations	5					Number of Distinct Observations	5	
683												
684	Raw Statistics						Log-transformed Statistics					
685				Minimum	0.121					Minimum of Log Data	-2.113	
686				Maximum	2.669					Maximum of Log Data	0.982	
687				Mean	0.757					Mean of log Data	-1.029	
688				Median	0.218					SD of log Data	1.311	
689				SD	1.091							

	A	B	C	D	E	F	G	H	I	J	K	L
690					Coefficient of Variation	1.441						
691					Skewness	2.032						
692												
693												
694	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
695												
696	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
697	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
698												
699												
700	**Warning: There are only 5 Values in this data**											
701	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
702	**the resulting calculations may not be reliable enough to draw conclusions**											
703												
704	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
705												
706	**Relevant UCL Statistics**											
707	**Normal Distribution Test**						**Lognormal Distribution Test**					
708	Shapiro Wilk Test Statistic					0.696	Shapiro Wilk Test Statistic					0.872
709	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
710	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
711												
712	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
713	95% Student's-t UCL					1.797	95% H-UCL					51.66
714	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					2.243
715	95% Adjusted-CLT UCL					2.033	97.5% Chebyshev (MVUE) UCL					2.925
716	95% Modified-t UCL					1.871	99% Chebyshev (MVUE) UCL					4.265
717												
718	**Gamma Distribution Test**						**Data Distribution**					
719	k star (bias corrected)					0.45	**Data appear Gamma Distributed at 5% Significance Level**					
720	Theta Star					1.682						
721	nu star					4.501						
722	Approximate Chi Square Value (.05)					0.929	**Nonparametric Statistics**					
723	Adjusted Level of Significance					0.0086	95% CLT UCL					1.56
724	Adjusted Chi Square Value					0.407	95% Jackknife UCL					1.797
725							95% Standard Bootstrap UCL					1.482
726	Anderson-Darling Test Statistic					0.531	95% Bootstrap-t UCL					13.19
727	Anderson-Darling 5% Critical Value					0.697	95% Hall's Bootstrap UCL					5.862
728	Kolmogorov-Smirnov Test Statistic					0.297	95% Percentile Bootstrap UCL					1.65
729	Kolmogorov-Smirnov 5% Critical Value					0.366	95% BCA Bootstrap UCL					1.775
730	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					2.884
731							97.5% Chebyshev(Mean, Sd) UCL					3.804
732	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					5.611
733	95% Approximate Gamma UCL					3.668						
734	95% Adjusted Gamma UCL					8.364						
735												
736	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					3.668
737	**Recommended UCL exceeds the maximum observation**											
738												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	C:\LWG_200808\lnWatSed_Input_RM2.0E.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

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General Statistics

Number of Valid Data	19	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	12
Number of Missing Values	15	Percent Non-Detects	63.16%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.0206	Minimum Detected	-3.882
Maximum Detected	2.59	Maximum Detected	0.952
Mean of Detected	1	Mean of Detected	-0.898
SD of Detected	0.944	SD of Detected	1.898
Minimum Non-Detect	0.0308	Minimum Non-Detect	-3.48
Maximum Non-Detect	0.59	Maximum Non-Detect	-0.528
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	78.95%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Test Statistic	0.856
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.465	Mean	-1.659
SD	0.69	SD	1.423
95% DL/2 (t) UCL	0.74	95% H-Stat (DL/2) UCL	0.805
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.721	Mean in Log Scale	-2.529
SD	0.615	SD in Log Scale	1.715
95% MLE (t) UCL	1.966	Mean in Original Scale	0.389
95% MLE (Tiku) UCL	2.247	SD in Original Scale	0.726
		95% Percentile Bootstrap UCL	0.666
		95% BCA Bootstrap UCL	0.77

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56	k star (bias corrected)				0.482		**Data appear Normal at 5% Significance Level**					
57	Theta Star				2.076							
58	nu star				6.745							
59												
60	A-D Test Statistic				0.372		**Nonparametric Statistics**					
61	5% A-D Critical Value				0.741		Kaplan-Meier (KM) Method					
62	K-S Test Statistic				0.741		Mean					0.39
63	5% K-S Critical Value				0.324		SD					0.707
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.176
65							95% KM (t) UCL					0.695
66	**Assuming Gamma Distribution**						95% KM (z) UCL					0.679
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.675
68	Minimum				0.0206		95% KM (bootstrap t) UCL					0.843
69	Maximum				2.59		95% KM (BCA) UCL					1.121
70	Mean				1		95% KM (Percentile Bootstrap) UCL					0.859
71	Median				1.001		95% KM (Chebyshev) UCL					1.156
72	SD				0.545		97.5% KM (Chebyshev) UCL					1.488
73	k star				1.432		99% KM (Chebyshev) UCL					2.138
74	Theta star				0.699							
75	Nu star				54.42		**Potential UCLs to Use**					
76	AppChi2				38.47		95% KM (t) UCL					0.695
77	95% Gamma Approximate UCL				1.415		95% KM (Percentile Bootstrap) UCL					0.859
78	95% Adjusted Gamma UCL				1.459							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85	Number of Valid Observations				34		Number of Distinct Observations					30
86												
87	**Raw Statistics**						**Log-transformed Statistics**					
88	Minimum				2.7		Minimum of Log Data					0.993
89	Maximum				5.78		Maximum of Log Data					1.754
90	Mean				4.076		Mean of log Data					1.39
91	Median				3.915		SD of log Data					0.176
92	SD				0.713							
93	Coefficient of Variation				0.175							
94	Skewness				0.369							
95												
96	**Relevant UCL Statistics**											
97	**Normal Distribution Test**						**Lognormal Distribution Test**					
98	Shapiro Wilk Test Statistic				0.963		Shapiro Wilk Test Statistic					0.967
99	Shapiro Wilk Critical Value				0.933		Shapiro Wilk Critical Value					0.933
100	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
101												
102	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
103	95% Student's-t UCL				4.283		95% H-UCL					4.301
104	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					4.617
105	95% Adjusted-CLT UCL				4.286		97.5% Chebyshev (MVUE) UCL					4.851
106	95% Modified-t UCL				4.285		99% Chebyshev (MVUE) UCL					5.31

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	30.74	**Data appear Normal at 5% Significance Level**					
110					Theta Star	0.133						
111					nu star	2090						
112					Approximate Chi Square Value (.05)	1985	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0422					95% CLT UCL	4.278
114					Adjusted Chi Square Value	1980					95% Jackknife UCL	4.283
115											95% Standard Bootstrap UCL	4.278
116					Anderson-Darling Test Statistic	0.461					95% Bootstrap-t UCL	4.285
117					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	4.303
118					Kolmogorov-Smirnov Test Statistic	0.115					95% Percentile Bootstrap UCL	4.293
119					Kolmogorov-Smirnov 5% Critical Value	0.151					95% BCA Bootstrap UCL	4.298
120	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	4.61
121											97.5% Chebyshev(Mean, Sd) UCL	4.84
122	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	5.293
123					95% Approximate Gamma UCL	4.293						
124					95% Adjusted Gamma UCL	4.303						
125												
126	**Potential UCL to Use**										Use 95% Student's-t UCL	4.283
127												
128												
129	**Benzo(a)anthracene**											
130												
131	**General Statistics**											
132					Number of Valid Observations	34					Number of Distinct Observations	26
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	10					Minimum of Log Data	2.303
136					Maximum	200					Maximum of Log Data	5.298
137					Mean	57.72					Mean of log Data	3.689
138					Median	33.5					SD of log Data	0.851
139					SD	52.59						
140					Coefficient of Variation	0.911						
141					Skewness	1.245						
142												
143	**Relevant UCL Statistics**											
144	**Normal Distribution Test**						**Lognormal Distribution Test**					
145					Shapiro Wilk Test Statistic	0.783					Shapiro Wilk Test Statistic	0.918
146					Shapiro Wilk Critical Value	0.933					Shapiro Wilk Critical Value	0.933
147	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
148												
149	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
150					95% Student's-t UCL	72.98					95% H-UCL	80.11
151	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	97.12
152					95% Adjusted-CLT UCL	74.61					97.5% Chebyshev (MVUE) UCL	114.6
153					95% Modified-t UCL	73.3					99% Chebyshev (MVUE) UCL	149
154												
155	**Gamma Distribution Test**						**Data Distribution**					
156					k star (bias corrected)	1.397	**Data do not follow a Discernable Distribution (0.05)**					
157					Theta Star	41.32						
158					nu star	94.98						
159					Approximate Chi Square Value (.05)	73.51	**Nonparametric Statistics**					

160					Adjusted Level of Significance	0.0422					95% CLT UCL	72.56
161					Adjusted Chi Square Value	72.57					95% Jackknife UCL	72.98
162											95% Standard Bootstrap UCL	72.63
163					Anderson-Darling Test Statistic	1.685					95% Bootstrap-t UCL	75.81
164					Anderson-Darling 5% Critical Value	0.766					95% Hall's Bootstrap UCL	73.43
165					Kolmogorov-Smirnov Test Statistic	0.207					95% Percentile Bootstrap UCL	73.71
166					Kolmogorov-Smirnov 5% Critical Value	0.154					95% BCA Bootstrap UCL	75.46
167					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	97.03
168											97.5% Chebyshev(Mean, Sd) UCL	114
169					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	147.5
170					95% Approximate Gamma UCL	74.59						
171					95% Adjusted Gamma UCL	75.55						
172												
173					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	97.03
174												
175												
176	**Benzo(a)pyrene**											
177												
178					**General Statistics**							
179					Number of Valid Observations	34					Number of Distinct Observations	26
180												
181					**Raw Statistics**						**Log-transformed Statistics**	
182					Minimum	15					Minimum of Log Data	2.708
183					Maximum	410					Maximum of Log Data	6.016
184					Mean	86.26					Mean of log Data	4.052
185					Median	44					SD of log Data	0.88
186					SD	89.18						
187					Coefficient of Variation	1.034						
188					Skewness	2.011						
189												
190					**Relevant UCL Statistics**							
191					**Normal Distribution Test**						**Lognormal Distribution Test**	
192					Shapiro Wilk Test Statistic	0.745					Shapiro Wilk Test Statistic	0.934
193					Shapiro Wilk Critical Value	0.933					Shapiro Wilk Critical Value	0.933
194					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
195												
196					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
197					95% Student's-t UCL	112.1					95% H-UCL	119.8
198					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	145.2
199					95% Adjusted-CLT UCL	117.1					97.5% Chebyshev (MVUE) UCL	171.9
200					95% Modified-t UCL	113					99% Chebyshev (MVUE) UCL	224.4
201												
202					**Gamma Distribution Test**						**Data Distribution**	
203					k star (bias corrected)	1.274					**Data appear Lognormal at 5% Significance Level**	
204					Theta Star	67.74						
205					nu star	86.6						
206					Approximate Chi Square Value (.05)	66.15					**Nonparametric Statistics**	
207					Adjusted Level of Significance	0.0422					95% CLT UCL	111.4
208					Adjusted Chi Square Value	65.26					95% Jackknife UCL	112.1
209											95% Standard Bootstrap UCL	110.7
210					Anderson-Darling Test Statistic	1.469					95% Bootstrap-t UCL	122.8
211					Anderson-Darling 5% Critical Value	0.768					95% Hall's Bootstrap UCL	121.1
212					Kolmogorov-Smirnov Test Statistic	0.224					95% Percentile Bootstrap UCL	112.6

213				Kolmogorov-Smirnov 5% Critical Value	0.154					95% BCA Bootstrap UCL	116	
214				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	152.9	
215										97.5% Chebyshev(Mean, Sd) UCL	181.8	
216				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	238.4	
217				95% Approximate Gamma UCL	112.9							
218				95% Adjusted Gamma UCL	114.5							
219												
220				**Potential UCL to Use**						Use 95% H-UCL	119.8	
221												
222												
223	**Benzo(b)fluoranthene**											
224												
225				**General Statistics**								
226				Number of Valid Observations	34					Number of Distinct Observations	27	
227												
228				**Raw Statistics**						**Log-transformed Statistics**		
229				Minimum	16					Minimum of Log Data	2.773	
230				Maximum	420					Maximum of Log Data	6.04	
231				Mean	93.6					Mean of log Data	4.154	
232				Median	48.5					SD of log Data	0.873	
233				SD	90.67							
234				Coefficient of Variation	0.969							
235				Skewness	1.808							
236												
237				**Relevant UCL Statistics**								
238				**Normal Distribution Test**						**Lognormal Distribution Test**		
239				Shapiro Wilk Test Statistic	0.773					Shapiro Wilk Test Statistic	0.936	
240				Shapiro Wilk Critical Value	0.933					Shapiro Wilk Critical Value	0.933	
241				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
242												
243				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
244				95% Student's-t UCL	119.9					95% H-UCL	131.5	
245				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	159.3	
246				95% Adjusted-CLT UCL	124.3					97.5% Chebyshev (MVUE) UCL	188.5	
247				95% Modified-t UCL	120.7					99% Chebyshev (MVUE) UCL	245.9	
248												
249				**Gamma Distribution Test**						**Data Distribution**		
250				k star (bias corrected)	1.334					**Data appear Lognormal at 5% Significance Level**		
251				Theta Star	70.19							
252				nu star	90.69							
253				Approximate Chi Square Value (.05)	69.73					**Nonparametric Statistics**		
254				Adjusted Level of Significance	0.0422					95% CLT UCL	119.2	
255				Adjusted Chi Square Value	68.82					95% Jackknife UCL	119.9	
256										95% Standard Bootstrap UCL	118.9	
257				Anderson-Darling Test Statistic	1.36					95% Bootstrap-t UCL	125.3	
258				Anderson-Darling 5% Critical Value	0.767					95% Hall's Bootstrap UCL	129	
259				Kolmogorov-Smirnov Test Statistic	0.212					95% Percentile Bootstrap UCL	121.1	
260				Kolmogorov-Smirnov 5% Critical Value	0.154					95% BCA Bootstrap UCL	122.5	
261				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	161.4	
262										97.5% Chebyshev(Mean, Sd) UCL	190.7	
263				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	248.3	
264				95% Approximate Gamma UCL	121.7							
265				95% Adjusted Gamma UCL	123.3							

266												
267	**Potential UCL to Use**										Use 95% H-UCL	131.5
268												
269												
270	**Benzo(k)fluoranthene**											
271												
272	**General Statistics**											
273	Number of Valid Observations					34					Number of Distinct Observations	27
274												
275	**Raw Statistics**										**Log-transformed Statistics**	
276	Minimum					5.2					Minimum of Log Data	1.649
277	Maximum					180					Maximum of Log Data	5.193
278	Mean					41.32					Mean of log Data	3.239
279	Median					19.5					SD of log Data	0.938
280	SD					48.21						
281	Coefficient of Variation					1.167						
282	Skewness					1.962						
283												
284	**Relevant UCL Statistics**											
285	**Normal Distribution Test**										**Lognormal Distribution Test**	
286	Shapiro Wilk Test Statistic					0.68					Shapiro Wilk Test Statistic	0.92
287	Shapiro Wilk Critical Value					0.933					Shapiro Wilk Critical Value	0.933
288	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
289												
290	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
291	95% Student's-t UCL					55.32					95% H-UCL	57.89
292	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	69.97
293	95% Adjusted-CLT UCL					57.9					97.5% Chebyshev (MVUE) UCL	83.42
294	95% Modified-t UCL					55.78					99% Chebyshev (MVUE) UCL	109.8
295												
296	**Gamma Distribution Test**										**Data Distribution**	
297	k star (bias corrected)					1.09					**Data do not follow a Discernable Distribution (0.05)**	
298	Theta Star					37.9						
299	nu star					74.15						
300	Approximate Chi Square Value (.05)					55.32					**Nonparametric Statistics**	
301	Adjusted Level of Significance					0.0422					95% CLT UCL	54.92
302	Adjusted Chi Square Value					54.52					95% Jackknife UCL	55.32
303											95% Standard Bootstrap UCL	54.14
304	Anderson-Darling Test Statistic					1.893					95% Bootstrap-t UCL	60.9
305	Anderson-Darling 5% Critical Value					0.772					95% Hall's Bootstrap UCL	55.76
306	Kolmogorov-Smirnov Test Statistic					0.219					95% Percentile Bootstrap UCL	55.59
307	Kolmogorov-Smirnov 5% Critical Value					0.155					95% BCA Bootstrap UCL	58.66
308	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	77.36
309											97.5% Chebyshev(Mean, Sd) UCL	92.95
310	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	123.6
311	95% Approximate Gamma UCL					55.39						
312	95% Adjusted Gamma UCL					56.21						
313												
314	**Potential UCL to Use**										Use 95% Chebyshev (Mean, Sd) UCL	77.36
315												
316												
317	**Bis(2-ethylhexyl) phthalate**											
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319	**General Statistics**											
320					Number of Valid Data	34				Number of Detected Data		24
321					Number of Distinct Detected Data	21				Number of Non-Detect Data		10
322										Percent Non-Detects		29.41%
323												
324	**Raw Statistics**						**Log-transformed Statistics**					
325					Minimum Detected	27				Minimum Detected		3.296
326					Maximum Detected	270				Maximum Detected		5.598
327					Mean of Detected	125				Mean of Detected		4.706
328					SD of Detected	62.55				SD of Detected		0.524
329					Minimum Non-Detect	8				Minimum Non-Detect		2.079
330					Maximum Non-Detect	170				Maximum Non-Detect		5.136
331												
332	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		29
333	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
334	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		85.29%
335												
336	**UCL Statistics**											
337	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
338					Shapiro Wilk Test Statistic	0.924				Shapiro Wilk Test Statistic		0.966
339					5% Shapiro Wilk Critical Value	0.916				5% Shapiro Wilk Critical Value		0.916
340	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
341												
342	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
343					DL/2 Substitution Method					DL/2 Substitution Method		
344					Mean	98.79				Mean		4.296
345					SD	67.77				SD		0.899
346					95% DL/2 (t) UCL	118.5				95% H-Stat (DL/2) UCL		143.5
347												
348					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
349					Mean	231.2				Mean in Log Scale		4.444
350					SD	34.99				SD in Log Scale		0.62
351					95% MLE (t) UCL	241.4				Mean in Original Scale		102.1
352					95% MLE (Tiku) UCL	257.2				SD in Original Scale		63.86
353										95% Percentile Bootstrap UCL		119.9
354										95% BCA Bootstrap UCL		123.5
355												
356	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
357					k star (bias corrected)	3.733	**Data appear Normal at 5% Significance Level**					
358					Theta Star	33.49						
359					nu star	179.2						
360												
361					A-D Test Statistic	0.253	**Nonparametric Statistics**					
362					5% A-D Critical Value	0.748				Kaplan-Meier (KM) Method		
363					K-S Test Statistic	0.748				Mean		100.4
364					5% K-S Critical Value	0.179				SD		65.78
365	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		11.71
366										95% KM (t) UCL		120.2
367	**Assuming Gamma Distribution**									95% KM (z) UCL		119.7
368					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		118.5
369					Minimum	27				95% KM (bootstrap t) UCL		119.5
370					Maximum	270				95% KM (BCA) UCL		129.6
371					Mean	113.5				95% KM (Percentile Bootstrap) UCL		122.5

372					Median	98				95% KM (Chebyshev) UCL		151.4
373					SD	58.51				97.5% KM (Chebyshev) UCL		173.5
374					k star	3.772				99% KM (Chebyshev) UCL		216.9
375					Theta star	30.09						
376					Nu star	256.5				**Potential UCLs to Use**		
377					AppChi2	220.4				95% KM (t) UCL		120.2
378					95% Gamma Approximate UCL	132.1				95% KM (Percentile Bootstrap) UCL		122.5
379					95% Adjusted Gamma UCL	133.1						
380	**Note: DL/2 is not a recommended method.**											
381												
382												
383	**Dibenzo(a,h)anthracene**											
384												
385	**General Statistics**											
386					Number of Valid Observations	34				Number of Distinct Observations		29
387												
388	**Raw Statistics**						**Log-transformed Statistics**					
389					Minimum	2				Minimum of Log Data		0.693
390					Maximum	60				Maximum of Log Data		4.094
391					Mean	12.83				Mean of log Data		2.083
392					Median	5.8				SD of log Data		0.945
393					SD	14.32						
394					Coefficient of Variation	1.116						
395					Skewness	2.054						
396												
397	**Relevant UCL Statistics**											
398	**Normal Distribution Test**						**Lognormal Distribution Test**					
399					Shapiro Wilk Test Statistic	0.717				Shapiro Wilk Test Statistic		0.926
400					Shapiro Wilk Critical Value	0.933				Shapiro Wilk Critical Value		0.933
401	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
402												
403	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
404					95% Student's-t UCL	16.99				95% H-UCL		18.45
405	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		22.29
406					95% Adjusted-CLT UCL	17.79				97.5% Chebyshev (MVUE) UCL		26.6
407					95% Modified-t UCL	17.13				99% Chebyshev (MVUE) UCL		35.06
408												
409	**Gamma Distribution Test**						**Data Distribution**					
410					k star (bias corrected)	1.12	**Data do not follow a Discernable Distribution (0.05)**					
411					Theta Star	11.46						
412					nu star	76.13						
413					Approximate Chi Square Value (.05)	57.03	**Nonparametric Statistics**					
414					Adjusted Level of Significance	0.0422				95% CLT UCL		16.87
415					Adjusted Chi Square Value	56.22				95% Jackknife UCL		16.99
416										95% Standard Bootstrap UCL		16.77
417					Anderson-Darling Test Statistic	1.571				95% Bootstrap-t UCL		18.65
418					Anderson-Darling 5% Critical Value	0.772				95% Hall's Bootstrap UCL		18.97
419					Kolmogorov-Smirnov Test Statistic	0.221				95% Percentile Bootstrap UCL		17.22
420					Kolmogorov-Smirnov 5% Critical Value	0.155				95% BCA Bootstrap UCL		18.01
421	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		23.53
422										97.5% Chebyshev(Mean, Sd) UCL		28.16
423	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		37.26
424					95% Approximate Gamma UCL	17.13						

425				95% Adjusted Gamma UCL	17.38							
426												
427	**Potential UCL to Use**									Use 95% Chebyshev (Mean, Sd) UCL	23.53	
428												
429												
430	**Dieldrin**											
431												
432	**General Statistics**											
433				Number of Valid Data	32				Number of Detected Data	16		
434				Number of Distinct Detected Data	16				Number of Non-Detect Data	16		
435				Number of Missing Values	2				Percent Non-Detects	50.00%		
436												
437	**Raw Statistics**						**Log-transformed Statistics**					
438				Minimum Detected	0.0348				Minimum Detected	-3.358		
439				Maximum Detected	9.28				Maximum Detected	2.228		
440				Mean of Detected	1.002				Mean of Detected	-0.937		
441				SD of Detected	2.236				SD of Detected	1.245		
442				Minimum Non-Detect	0.037				Minimum Non-Detect	-3.297		
443				Maximum Non-Detect	1.1				Maximum Non-Detect	0.0953		
444												
445	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	30		
446	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	2		
447	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	93.75%		
448												
449	**UCL Statistics**											
450	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
451				Shapiro Wilk Test Statistic	0.407				Shapiro Wilk Test Statistic	0.948		
452				5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value	0.887		
453	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
454												
455	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
456				DL/2 Substitution Method					DL/2 Substitution Method			
457				Mean	0.595				Mean	-1.712		
458				SD	1.618				SD	1.478		
459				95% DL/2 (t) UCL	1.08				95% H-Stat (DL/2) UCL	0.886		
460												
461				Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method			
462	**MLE method failed to converge properly**								Mean in Log Scale	-1.949		
463									SD in Log Scale	1.439		
464									Mean in Original Scale	0.539		
465									SD in Original Scale	1.627		
466									95% Percentile Bootstrap UCL	1.098		
467									95% BCA Bootstrap UCL	1.427		
468												
469	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
470				k star (bias corrected)	0.57		**Data appear Lognormal at 5% Significance Level**					
471				Theta Star	1.759							
472				nu star	18.23							
473												
474				A-D Test Statistic	1.361		**Nonparametric Statistics**					
475				5% A-D Critical Value	0.783				Kaplan-Meier (KM) Method			
476				K-S Test Statistic	0.783				Mean	0.549		
477				5% K-S Critical Value	0.225				SD	1.601		

478	Data not Gamma Distributed at 5% Significance Level										SE of Mean	0.293
479											95% KM (t) UCL	1.045
480	Assuming Gamma Distribution										95% KM (z) UCL	1.031
481	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	1.018
482	Minimum	1E-09									95% KM (bootstrap t) UCL	2.595
483	Maximum	9.28									95% KM (BCA) UCL	1.248
484	Mean	1.02									95% KM (Percentile Bootstrap) UCL	1.127
485	Median	0.302									95% KM (Chebyshev) UCL	1.826
486	SD	2.028									97.5% KM (Chebyshev) UCL	2.379
487	k star	0.394									99% KM (Chebyshev) UCL	3.464
488	Theta star	2.591										
489	Nu star	25.2									Potential UCLs to Use	
490	AppChi2	14.77									95% KM (BCA) UCL	1.248
491	95% Gamma Approximate UCL	1.742										
492	95% Adjusted Gamma UCL	1.794										
493	Note: DL/2 is not a recommended method.											
494												
495												
496	Indeno(1,2,3-cd)pyrene											
497												
498	General Statistics											
499	Number of Valid Observations	34									Number of Distinct Observations	29
500												
501	Raw Statistics										Log-transformed Statistics	
502	Minimum	11									Minimum of Log Data	2.398
503	Maximum	400									Maximum of Log Data	5.991
504	Mean	75.24									Mean of log Data	3.881
505	Median	38.5									SD of log Data	0.914
506	SD	83.52										
507	Coefficient of Variation	1.11										
508	Skewness	2.329										
509												
510	Relevant UCL Statistics											
511	Normal Distribution Test										Lognormal Distribution Test	
512	Shapiro Wilk Test Statistic	0.715									Shapiro Wilk Test Statistic	0.95
513	Shapiro Wilk Critical Value	0.933									Shapiro Wilk Critical Value	0.933
514	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
515												
516	Assuming Normal Distribution										Assuming Lognormal Distribution	
517	95% Student's-t UCL	99.48									95% H-UCL	106.1
518	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	128.4
519	95% Adjusted-CLT UCL	104.9									97.5% Chebyshev (MVUE) UCL	152.7
520	95% Modified-t UCL	100.4									99% Chebyshev (MVUE) UCL	200.3
521												
522	Gamma Distribution Test										Data Distribution	
523	k star (bias corrected)	1.184									Data appear Lognormal at 5% Significance Level	
524	Theta Star	63.52										
525	nu star	80.55										
526	Approximate Chi Square Value (.05)	60.87									Nonparametric Statistics	
527	Adjusted Level of Significance	0.0422									95% CLT UCL	98.79
528	Adjusted Chi Square Value	60.02									95% Jackknife UCL	99.48
529											95% Standard Bootstrap UCL	97.68
530	Anderson-Darling Test Statistic	1.279									95% Bootstrap-t UCL	109.5

531				Anderson-Darling 5% Critical Value	0.77					95% Hall's Bootstrap UCL	114.6	
532				Kolmogorov-Smirnov Test Statistic	0.19					95% Percentile Bootstrap UCL	100.9	
533				Kolmogorov-Smirnov 5% Critical Value	0.154					95% BCA Bootstrap UCL	106.7	
534				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	137.7	
535										97.5% Chebyshev(Mean, Sd) UCL	164.7	
536				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	217.7	
537				95% Approximate Gamma UCL	99.56							
538				95% Adjusted Gamma UCL	101							
539												
540				**Potential UCL to Use**						Use 95% H-UCL	106.1	
541												
542												
543	**Lead**											
544												
545				**General Statistics**								
546				Number of Valid Observations	34					Number of Distinct Observations	27	
547												
548				**Raw Statistics**						**Log-transformed Statistics**		
549				Minimum	10					Minimum of Log Data	2.303	
550				Maximum	110					Maximum of Log Data	4.7	
551				Mean	25.89					Mean of log Data	3.016	
552				Median	16.2					SD of log Data	0.627	
553				SD	22.9							
554				Coefficient of Variation	0.884							
555				Skewness	2.345							
556												
557				**Relevant UCL Statistics**								
558				**Normal Distribution Test**						**Lognormal Distribution Test**		
559				Shapiro Wilk Test Statistic	0.656					Shapiro Wilk Test Statistic	0.816	
560				Shapiro Wilk Critical Value	0.933					Shapiro Wilk Critical Value	0.933	
561				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
562												
563				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
564				95% Student's-t UCL	32.54					95% H-UCL	30.98	
565				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	37.06	
566				95% Adjusted-CLT UCL	34.04					97.5% Chebyshev (MVUE) UCL	42.41	
567				95% Modified-t UCL	32.8					99% Chebyshev (MVUE) UCL	52.93	
568												
569				**Gamma Distribution Test**						**Data Distribution**		
570				k star (bias corrected)	2.078					**Data do not follow a Discernable Distribution (0.05)**		
571				Theta Star	12.46							
572				nu star	141.3							
573				Approximate Chi Square Value (.05)	114.8					**Nonparametric Statistics**		
574				Adjusted Level of Significance	0.0422					95% CLT UCL	32.35	
575				Adjusted Chi Square Value	113.6					95% Jackknife UCL	32.54	
576										95% Standard Bootstrap UCL	32.42	
577				Anderson-Darling Test Statistic	3.257					95% Bootstrap-t UCL	35.47	
578				Anderson-Darling 5% Critical Value	0.758					95% Hall's Bootstrap UCL	35.72	
579				Kolmogorov-Smirnov Test Statistic	0.285					95% Percentile Bootstrap UCL	32.81	
580				Kolmogorov-Smirnov 5% Critical Value	0.153					95% BCA Bootstrap UCL	33.81	
581				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	43.01	
582										97.5% Chebyshev(Mean, Sd) UCL	50.41	
583				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	64.96	

584				95% Approximate Gamma UCL	31.86							
585				95% Adjusted Gamma UCL	32.19							
586												
587	**Potential UCL to Use**									Use 95% Chebyshev (Mean, Sd) UCL	43.01	
588												
589												
590	**Mercury**											
591												
592	**General Statistics**											
593				Number of Valid Data	34					Number of Detected Data	32	
594				Number of Distinct Detected Data	26					Number of Non-Detect Data	2	
595										Percent Non-Detects	5.88%	
596												
597	**Raw Statistics**									**Log-transformed Statistics**		
598				Minimum Detected	0.02					Minimum Detected	-3.912	
599				Maximum Detected	0.152					Maximum Detected	-1.884	
600				Mean of Detected	0.0852					Mean of Detected	-2.511	
601				SD of Detected	0.0245					SD of Detected	0.343	
602				Minimum Non-Detect	0.045					Minimum Non-Detect	-3.101	
603				Maximum Non-Detect	0.09					Maximum Non-Detect	-2.408	
604												
605	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	22	
606	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	12	
607	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	64.71%	
608												
609	**UCL Statistics**											
610	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
611				Shapiro Wilk Test Statistic	0.954					Shapiro Wilk Test Statistic	0.838	
612				5% Shapiro Wilk Critical Value	0.93					5% Shapiro Wilk Critical Value	0.93	
613	**Data appear Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
614												
615	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
616				DL/2 Substitution Method						DL/2 Substitution Method		
617				Mean	0.0821					Mean	-2.566	
618				SD	0.0268					SD	0.409	
619				95% DL/2 (t) UCL	0.0899					95% H-Stat (DL/2) UCL	0.0931	
620												
621				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
622				Mean	0.0779					Mean in Log Scale	-2.536	
623				SD	0.0301					SD in Log Scale	0.352	
624				95% MLE (t) UCL	0.0866					Mean in Original Scale	0.0834	
625				95% MLE (Tiku) UCL	0.0914					SD in Original Scale	0.025	
626										95% Percentile Bootstrap UCL	0.09	
627										95% BCA Bootstrap UCL	0.0905	
628												
629	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
630				k star (bias corrected)	9.624					**Data appear Normal at 5% Significance Level**		
631				Theta Star	0.00885							
632				nu star	615.9							
633												
634				A-D Test Statistic	0.781					**Nonparametric Statistics**		
635				5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method		
636				K-S Test Statistic	0.747					Mean	0.0828	

637				5% K-S Critical Value	0.155					SD	0.0261
638	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean	0.00458
639										95% KM (t) UCL	0.0905
640	**Assuming Gamma Distribution**									95% KM (z) UCL	0.0903
641	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL	0.0904
642				Minimum	0.02					95% KM (bootstrap t) UCL	0.0905
643				Maximum	0.152					95% KM (BCA) UCL	0.0913
644				Mean	0.0835					95% KM (Percentile Bootstrap) UCL	0.0912
645				Median	0.08					95% KM (Chebyshev) UCL	0.103
646				SD	0.0254					97.5% KM (Chebyshev) UCL	0.111
647				k star	8.441					99% KM (Chebyshev) UCL	0.128
648				Theta star	0.00989						
649				Nu star	574					**Potential UCLs to Use**	
650				AppChi2	519.4					95% KM (t) UCL	0.0905
651				95% Gamma Approximate UCL	0.0922					95% KM (Percentile Bootstrap) UCL	0.0912
652				95% Adjusted Gamma UCL	0.0927						
653	**Note: DL/2 is not a recommended method.**										
654											
655											
656	**Naphthalene**										
657											
658						**General Statistics**					
659				Number of Valid Data	34					Number of Detected Data	24
660				Number of Distinct Detected Data	17					Number of Non-Detect Data	10
661										Percent Non-Detects	29.41%
662											
663				**Raw Statistics**						**Log-transformed Statistics**	
664				Minimum Detected	6.4					Minimum Detected	1.856
665				Maximum Detected	87					Maximum Detected	4.466
666				Mean of Detected	18.11					Mean of Detected	2.709
667				SD of Detected	16.25					SD of Detected	0.54
668				Minimum Non-Detect	0.62					Minimum Non-Detect	-0.478
669				Maximum Non-Detect	58					Maximum Non-Detect	4.06
670											
671	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	33
672	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	1
673	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	97.06%
674											
675						**UCL Statistics**					
676	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**	
677				Shapiro Wilk Test Statistic	0.546					Shapiro Wilk Test Statistic	0.867
678				5% Shapiro Wilk Critical Value	0.916					5% Shapiro Wilk Critical Value	0.916
679	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**	
680											
681	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**	
682				DL/2 Substitution Method						DL/2 Substitution Method	
683				Mean	14.47					Mean	2.268
684				SD	15.34					SD	1.004
685				95% DL/2 (t) UCL	18.93					95% H-Stat (DL/2) UCL	20.21
686											
687				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
688	**MLE method failed to converge properly**									Mean in Log Scale	2.395
689										SD in Log Scale	0.683

690											Mean in Original Scale	14.36
691											SD in Original Scale	14.83
692											95% Percentile Bootstrap UCL	18.97
693											95% BCA Bootstrap UCL	20.91
694												
695	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
696					k star (bias corrected)	2.5					**Data do not follow a Discernable Distribution (0.05)**	
697					Theta Star	7.243						
698					nu star	120						
699												
700					A-D Test Statistic	1.837					**Nonparametric Statistics**	
701					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
702					K-S Test Statistic	0.752					Mean	14.86
703					5% K-S Critical Value	0.179					SD	14.37
704	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	2.527
705											95% KM (t) UCL	19.13
706	**Assuming Gamma Distribution**										95% KM (z) UCL	19.01
707					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	18.71
708					Minimum	4.19					95% KM (bootstrap t) UCL	23.81
709					Maximum	87					95% KM (BCA) UCL	20.97
710					Mean	15.39					95% KM (Percentile Bootstrap) UCL	19.89
711					Median	12					95% KM (Chebyshev) UCL	25.87
712					SD	14.55					97.5% KM (Chebyshev) UCL	30.64
713					k star	2.251					99% KM (Chebyshev) UCL	40
714					Theta star	6.835						
715					Nu star	153.1					**Potential UCLs to Use**	
716					AppChi2	125.5					95% KM (BCA) UCL	20.97
717					95% Gamma Approximate UCL	18.77						
718					95% Adjusted Gamma UCL	18.96						
719	**Note: DL/2 is not a recommended method.**											
720												
721												
722	**Total Aroclors**											
723												
724	**General Statistics**											
725					Number of Valid Data	34					Number of Detected Data	33
726					Number of Distinct Detected Data	33					Number of Non-Detect Data	1
727											Percent Non-Detects	2.94%
728												
729	**Raw Statistics**										**Log-transformed Statistics**	
730					Minimum Detected	17.8					Minimum Detected	2.879
731					Maximum Detected	1947					Maximum Detected	7.574
732					Mean of Detected	445.3					Mean of Detected	4.806
733					SD of Detected	647.6					SD of Detected	1.706
734					Minimum Non-Detect	6.4					Minimum Non-Detect	1.856
735					Maximum Non-Detect	6.4					Maximum Non-Detect	1.856
736												
737												
738	**UCL Statistics**											
739	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
740					Shapiro Wilk Test Statistic	0.685					Shapiro Wilk Test Statistic	0.844
741					5% Shapiro Wilk Critical Value	0.931					5% Shapiro Wilk Critical Value	0.931
742	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	

743												
744	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
745	DL/2 Substitution Method						DL/2 Substitution Method					
746	Mean				432.3		Mean				4.699	
747	SD				642.2		SD				1.792	
748	95% DL/2 (t) UCL				618.7		95% H-Stat (DL/2) UCL				1400	
749												
750	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
751	Mean				420.9		Mean in Log Scale				4.685	
752	SD				646.1		SD in Log Scale				1.824	
753	95% MLE (t) UCL				608.4		Mean in Original Scale				432.2	
754	95% MLE (Tiku) UCL				592.8		SD in Original Scale				642.3	
755							95% Percentile Bootstrap UCL				621.4	
756							95% BCA Bootstrap UCL				646.8	
757												
758	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
759	k star (bias corrected)				0.468		**Data do not follow a Discernable Distribution (0.05)**					
760	Theta Star				951.3							
761	nu star				30.89							
762												
763	A-D Test Statistic				2.387		**Nonparametric Statistics**					
764	5% A-D Critical Value				0.813		Kaplan-Meier (KM) Method					
765	K-S Test Statistic				0.813		Mean				432.7	
766	5% K-S Critical Value				0.162		SD				632.4	
767	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean				110.1	
768							95% KM (t) UCL				619.1	
769	**Assuming Gamma Distribution**						95% KM (z) UCL				613.9	
770	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				619	
771	Minimum				1E-09		95% KM (bootstrap t) UCL				680.1	
772	Maximum				1947		95% KM (BCA) UCL				622.3	
773	Mean				432.2		95% KM (Percentile Bootstrap) UCL				628.5	
774	Median				63.1		95% KM (Chebyshev) UCL				912.8	
775	SD				642.3		97.5% KM (Chebyshev) UCL				1121	
776	k star				0.326		99% KM (Chebyshev) UCL				1529	
777	Theta star				1325							
778	Nu star				22.18		**Potential UCLs to Use**					
779	AppChi2				12.47		99% KM (Chebyshev) UCL				1529	
780	95% Gamma Approximate UCL				768.5							
781	95% Adjusted Gamma UCL				791.4							
782	**Note: DL/2 is not a recommended method.**											
783												
784												
785	**Total DDT**											
786												
787	**General Statistics**											
788	Number of Valid Data				33		Number of Detected Data				30	
789	Number of Distinct Detected Data				30		Number of Non-Detect Data				3	
790	Number of Missing Values				1		Percent Non-Detects				9.09%	
791												
792	**Raw Statistics**						**Log-transformed Statistics**					
793	Minimum Detected				0.19		Minimum Detected				-1.659	
794	Maximum Detected				8.33		Maximum Detected				2.12	
795	Mean of Detected				2.786		Mean of Detected				0.661	

796					SD of Detected	2.097					SD of Detected	1.003
797					Minimum Non-Detect	0.0903					Minimum Non-Detect	-2.405
798					Maximum Non-Detect	3					Maximum Non-Detect	1.099
799												
800	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	23
801	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	10
802	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	69.70%
803												
804	**UCL Statistics**											
805	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
806					Shapiro Wilk Test Statistic	0.9					Shapiro Wilk Test Statistic	0.903
807					5% Shapiro Wilk Critical Value	0.927					5% Shapiro Wilk Critical Value	0.927
808	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
809												
810	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
811					DL/2 Substitution Method						DL/2 Substitution Method	
812					Mean	2.592					Mean	0.492
813					SD	2.1					SD	1.185
814					95% DL/2 (t) UCL	3.211					95% H-Stat (DL/2) UCL	4.828
815												
816					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
817					Mean	1.293					Mean in Log Scale	0.524
818					SD	3.328					SD in Log Scale	1.076
819					95% MLE (t) UCL	2.274					Mean in Original Scale	2.584
820					95% MLE (Tiku) UCL	2.984					SD in Original Scale	2.103
821											95% Percentile Bootstrap UCL	3.211
822											95% BCA Bootstrap UCL	3.234
823												
824	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
825					k star (bias corrected)	1.391	**Data appear Gamma Distributed at 5% Significance Level**					
826					Theta Star	2.003						
827					nu star	83.45						
828												
829					A-D Test Statistic	0.441	**Nonparametric Statistics**					
830					5% A-D Critical Value	0.763					Kaplan-Meier (KM) Method	
831					K-S Test Statistic	0.763					Mean	2.591
832					5% K-S Critical Value	0.163					SD	2.074
833	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.368
834											95% KM (t) UCL	3.215
835	**Assuming Gamma Distribution**										95% KM (z) UCL	3.197
836					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.215
837					Minimum	1E-09					95% KM (bootstrap t) UCL	3.308
838					Maximum	8.33					95% KM (BCA) UCL	3.212
839					Mean	2.6					95% KM (Percentile Bootstrap) UCL	3.223
840					Median	2.21					95% KM (Chebyshev) UCL	4.198
841					SD	2.107					97.5% KM (Chebyshev) UCL	4.893
842					k star	0.555					99% KM (Chebyshev) UCL	6.258
843					Theta star	4.684						
844					Nu star	36.64	**Potential UCLs to Use**					
845					AppChi2	23.78					95% KM (Chebyshev) UCL	4.198
846					95% Gamma Approximate UCL	4.006						
847					95% Adjusted Gamma UCL	4.098						
848	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850												
851	**Total Dioxin/Furan TEQ**											
852												
853						**General Statistics**						
854					Number of Valid Data	8			Number of Detected Data	8		
855					Number of Distinct Detected Data	8			Number of Non-Detect Data	0		
856					Number of Missing Values	22			Percent Non-Detects	0.00%		
857												
858					**Raw Statistics**				**Log-transformed Statistics**			
859					Minimum Detected	0.07			Minimum Detected	-2.659		
860					Maximum Detected	5.569			Maximum Detected	1.717		
861					Mean of Detected	1.223			Mean of Detected	-0.608		
862					SD of Detected	1.812			SD of Detected	1.414		
863					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
864					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
865												
866												
867					**Warning: There are only 8 Detected Values in this data**							
868					**Note: It should be noted that even though bootstrap may be performed on this data set**							
869					**the resulting calculations may not be reliable enough tp draw conclusions**							
870												
871					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
872												
873												
874						**UCL Statistics**						
875					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
876					Shapiro Wilk Test Statistic	0.64			Shapiro Wilk Test Statistic	0.954		
877					5% Shapiro Wilk Critical Value	0.818			5% Shapiro Wilk Critical Value	0.818		
878					**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
879												
880					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
881					DL/2 Substitution Method				DL/2 Substitution Method			
882					Mean	1.223			Mean	-0.608		
883					SD	1.812			SD	1.414		
884					95% DL/2 (t) UCL	2.437			95% H-Stat (DL/2) UCL	16.44		
885												
886					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
887					**MLE method failed to converge properly**				Mean in Log Scale	N/A		
888									SD in Log Scale	N/A		
889									Mean in Original Scale	N/A		
890									SD in Original Scale	N/A		
891									95% Percentile Bootstrap UCL	N/A		
892									95% BCA Bootstrap UCL	N/A		
893												
894					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
895					k star (bias corrected)	0.546			**Data appear Gamma Distributed at 5% Significance Level**			
896					Theta Star	2.24						
897					nu star	8.739						
898												
899					A-D Test Statistic	0.396			**Nonparametric Statistics**			
900					5% A-D Critical Value	0.746			Kaplan-Meier (KM) Method			
901					K-S Test Statistic	0.746			Mean	1.223		

902				5% K-S Critical Value	0.304					SD	1.695
903	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.64
904										95% KM (t) UCL	2.437
905	**Assuming Gamma Distribution**									95% KM (z) UCL	2.277
906	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL	2.437
907				Minimum	0.07					95% KM (bootstrap t) UCL	4.77
908				Maximum	5.569					95% KM (BCA) UCL	2.465
909				Mean	1.223					95% KM (Percentile Bootstrap) UCL	2.407
910				Median	0.687					95% KM (Chebyshev) UCL	4.015
911				SD	1.812					97.5% KM (Chebyshev) UCL	5.223
912				k star	0.546					99% KM (Chebyshev) UCL	7.596
913				Theta star	2.24						
914				Nu star	8.739					**Potential UCLs to Use**	
915				AppChi2	3.17					95% KM (Chebyshev) UCL	4.015
916				95% Gamma Approximate UCL	3.373						
917				95% Adjusted Gamma UCL	4.485						
918	**Note: DL/2 is not a recommended method.**										
919											
920											
921	**Total Dioxin-like PCBs**										
922											
923	**General Statistics**										
924				Number of Valid Data	17					Number of Detected Data	17
925				Number of Distinct Detected Data	17					Number of Non-Detect Data	0
926				Number of Missing Values	13					Percent Non-Detects	0.00%
927											
928	**Raw Statistics**							**Log-transformed Statistics**			
929				Minimum Detected	668.2					Minimum Detected	6.505
930				Maximum Detected	361776					Maximum Detected	12.8
931				Mean of Detected	39785					Mean of Detected	8.546
932				SD of Detected	90207					SD of Detected	2.09
933				Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
934				Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
935											
936											
937	**UCL Statistics**										
938	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**			
939				Shapiro Wilk Test Statistic	0.502					Shapiro Wilk Test Statistic	0.853
940				5% Shapiro Wilk Critical Value	0.892					5% Shapiro Wilk Critical Value	0.892
941	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**			
942											
943	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**			
944				DL/2 Substitution Method						DL/2 Substitution Method	
945				Mean	39785					Mean	8.546
946				SD	90207					SD	2.09
947				95% DL/2 (t) UCL	77982					95% H-Stat (DL/2) UCL	492876
948											
949				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
950	**MLE method failed to converge properly**									Mean in Log Scale	N/A
951										SD in Log Scale	N/A
952										Mean in Original Scale	N/A
953										SD in Original Scale	N/A
954										95% Percentile Bootstrap UCL	N/A

955											95% BCA Bootstrap UCL	N/A
956												
957	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
958					k star (bias corrected)	0.312	**Data do not follow a Discernable Distribution (0.05)**					
959					Theta Star	127357						
960					nu star	10.62						
961												
962					A-D Test Statistic	1.562	**Nonparametric Statistics**					
963					5% A-D Critical Value	0.835	Kaplan-Meier (KM) Method					
964					K-S Test Statistic	0.835	Mean	39785				
965					5% K-S Critical Value	0.226	SD	87514				
966	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	21879				
967							95% KM (t) UCL	77982				
968	**Assuming Gamma Distribution**						95% KM (z) UCL	75772				
969	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	77982				
970					Minimum	668.2	95% KM (bootstrap t) UCL	176830				
971					Maximum	361776	95% KM (BCA) UCL	79168				
972					Mean	39785	95% KM (Percentile Bootstrap) UCL	78753				
973					Median	2607	95% KM (Chebyshev) UCL	135151				
974					SD	90207	97.5% KM (Chebyshev) UCL	176416				
975					k star	0.312	99% KM (Chebyshev) UCL	257473				
976					Theta star	127357						
977					Nu star	10.62	**Potential UCLs to Use**					
978					AppChi2	4.334	99% KM (Chebyshev) UCL	257473				
979					95% Gamma Approximate UCL	97508						
980					95% Adjusted Gamma UCL	107777						
981	**Note: DL/2 is not a recommended method.**											
982												
983												
984	**Total PCB TEQ**											
985												
986	**General Statistics**											
987					Number of Valid Data	17	Number of Detected Data	17				
988					Number of Distinct Detected Data	17	Number of Non-Detect Data	0				
989					Number of Missing Values	13	Percent Non-Detects	0.00%				
990												
991	**Raw Statistics**						**Log-transformed Statistics**					
992					Minimum Detected	0.266	Minimum Detected	-1.326				
993					Maximum Detected	117.8	Maximum Detected	4.769				
994					Mean of Detected	13.42	Mean of Detected	0.771				
995					SD of Detected	29.58	SD of Detected	1.917				
996					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
997					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
998												
999												
1000	**UCL Statistics**											
1001	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1002					Shapiro Wilk Test Statistic	0.514	Shapiro Wilk Test Statistic	0.865				
1003					5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892				
1004	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1005												
1006	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1007					DL/2 Substitution Method		DL/2 Substitution Method					

1008					Mean	13.42					Mean	0.771
1009					SD	29.58					SD	1.917
1010					95% DL/2 (t) UCL	25.94					95% H-Stat (DL/2) UCL	103.4
1011												
1012					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1013					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1014											SD in Log Scale	N/A
1015											Mean in Original Scale	N/A
1016											SD in Original Scale	N/A
1017											95% Percentile Bootstrap UCL	N/A
1018											95% BCA Bootstrap UCL	N/A
1019												
1020					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1021					k star (bias corrected)	0.34					**Data do not follow a Discernable Distribution (0.05)**	
1022					Theta Star	39.41						
1023					nu star	11.58						
1024												
1025					A-D Test Statistic	1.604					**Nonparametric Statistics**	
1026					5% A-D Critical Value	0.827					Kaplan-Meier (KM) Method	
1027					K-S Test Statistic	0.827					Mean	13.42
1028					5% K-S Critical Value	0.225					SD	28.69
1029					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	7.173
1030											95% KM (t) UCL	25.94
1031					**Assuming Gamma Distribution**						95% KM (z) UCL	25.22
1032					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	25.94
1033					Minimum	0.266					95% KM (bootstrap t) UCL	58.44
1034					Maximum	117.8					95% KM (BCA) UCL	26.46
1035					Mean	13.42					95% KM (Percentile Bootstrap) UCL	26.12
1036					Median	1.086					95% KM (Chebyshev) UCL	44.68
1037					SD	29.58					97.5% KM (Chebyshev) UCL	58.21
1038					k star	0.34					99% KM (Chebyshev) UCL	84.79
1039					Theta star	39.41						
1040					Nu star	11.58					**Potential UCLs to Use**	
1041					AppChi2	4.949					99% KM (Chebyshev) UCL	84.79
1042					95% Gamma Approximate UCL	31.38						
1043					95% Adjusted Gamma UCL	34.5						
1044	**Note: DL/2 is not a recommended method.**											
1045												
1046												
1047	**Total PCB_Congeners**											
1048												
1049						**General Statistics**							
1050					Number of Valid Data	17					Number of Detected Data	17
1051					Number of Distinct Detected Data	17					Number of Non-Detect Data	0
1052					Number of Missing Values	13					Percent Non-Detects	0.00%
1053												
1054					**Raw Statistics**						**Log-transformed Statistics**	
1055					Minimum Detected	11783					Minimum Detected	9.374
1056					Maximum Detected	9783357					Maximum Detected	16.1
1057					Mean of Detected	855138					Mean of Detected	11.34
1058					SD of Detected	2360714					SD of Detected	2.131
1059					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1060					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
1061												
1062												
1063	**UCL Statistics**											
1064	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1065	Shapiro Wilk Test Statistic					0.403	Shapiro Wilk Test Statistic					0.843
1066	5% Shapiro Wilk Critical Value					0.892	5% Shapiro Wilk Critical Value					0.892
1067	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1068												
1069	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1070	DL/2 Substitution Method						DL/2 Substitution Method					
1071	Mean					855138	Mean					11.34
1072	SD					2360714	SD					2.131
1073	95% DL/2 (t) UCL					1854756	95% H-Stat (DL/2) UCL					9594241
1074												
1075	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1076	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1077							SD in Log Scale					N/A
1078							Mean in Original Scale					N/A
1079							SD in Original Scale					N/A
1080							95% Percentile Bootstrap UCL					N/A
1081							95% BCA Bootstrap UCL					N/A
1082												
1083	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1084	k star (bias corrected)					0.284	**Data do not follow a Discernable Distribution (0.05)**					
1085	Theta Star					3006095						
1086	nu star					9.672						
1087												
1088	A-D Test Statistic					1.821	**Nonparametric Statistics**					
1089	5% A-D Critical Value					0.843	Kaplan-Meier (KM) Method					
1090	K-S Test Statistic					0.843	Mean					855138
1091	5% K-S Critical Value					0.227	SD					2290229
1092	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					572557
1093							95% KM (t) UCL					1854756
1094	**Assuming Gamma Distribution**						95% KM (z) UCL					1796911
1095	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1854756
1096	Minimum					11783	95% KM (bootstrap t) UCL					6834068
1097	Maximum					9783357	95% KM (BCA) UCL					1987727
1098	Mean					855138	95% KM (Percentile Bootstrap) UCL					1932552
1099	Median					42818	95% KM (Chebyshev) UCL					3350857
1100	SD					2360714	97.5% KM (Chebyshev) UCL					4430757
1101	k star					0.284	99% KM (Chebyshev) UCL					6552011
1102	Theta star					3006095						
1103	Nu star					9.672	**Potential UCLs to Use**					
1104	AppChi2					3.738	99% KM (Chebyshev) UCL					6552011
1105	95% Gamma Approximate UCL					2212775						
1106	95% Adjusted Gamma UCL					2461714						
1107	**Note: DL/2 is not a recommended method.**											
1108												
1109												
1110	**Total PCBs, Adjusted**											
1111												
1112	**General Statistics**											
1113	Number of Valid Data					17	Number of Detected Data					17

	A	B	C	D	E	F	G	H	I	J	K	L
1114					Number of Distinct Detected Data	17					Number of Non-Detect Data	0
1115					Number of Missing Values	13					Percent Non-Detects	0.00%
1116												
1117				**Raw Statistics**						**Log-transformed Statistics**		
1118					Minimum Detected	11115					Minimum Detected	9.316
1119					Maximum Detected	9421581					Maximum Detected	16.06
1120					Mean of Detected	815353					Mean of Detected	11.28
1121					SD of Detected	2271994					SD of Detected	2.133
1122					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1123					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1124												
1125												
1126						**UCL Statistics**							
1127				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1128					Shapiro Wilk Test Statistic	0.399					Shapiro Wilk Test Statistic	0.842
1129					5% Shapiro Wilk Critical Value	0.892					5% Shapiro Wilk Critical Value	0.892
1130				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1131												
1132				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1133					DL/2 Substitution Method						DL/2 Substitution Method	
1134					Mean	815353					Mean	11.28
1135					SD	2271994					SD	2.133
1136					95% DL/2 (t) UCL	1777404					95% H-Stat (DL/2) UCL	9076100
1137												
1138					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1139				**MLE method failed to converge properly**							Mean in Log Scale	N/A
1140											SD in Log Scale	N/A
1141											Mean in Original Scale	N/A
1142											SD in Original Scale	N/A
1143											95% Percentile Bootstrap UCL	N/A
1144											95% BCA Bootstrap UCL	N/A
1145												
1146				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1147					k star (bias corrected)	0.283				**Data do not follow a Discernable Distribution (0.05)**		
1148					Theta Star	2881021						
1149					nu star	9.622						
1150												
1151					A-D Test Statistic	1.838				**Nonparametric Statistics**		
1152					5% A-D Critical Value	0.843					Kaplan-Meier (KM) Method	
1153					K-S Test Statistic	0.843					Mean	815353
1154					5% K-S Critical Value	0.227					SD	2204158
1155				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	551040
1156											95% KM (t) UCL	1777404
1157				**Assuming Gamma Distribution**							95% KM (z) UCL	1721733
1158					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1777404
1159					Minimum	11115					95% KM (bootstrap t) UCL	6393725
1160					Maximum	9421581					95% KM (BCA) UCL	1958507
1161					Mean	815353					95% KM (Percentile Bootstrap) UCL	1837285
1162					Median	40211					95% KM (Chebyshev) UCL	3217279
1163					SD	2271994					97.5% KM (Chebyshev) UCL	4256594
1164					k star	0.283					99% KM (Chebyshev) UCL	6298128
1165					Theta star	2881021						
1166					Nu star	9.622				**Potential UCLs to Use**		

1167					AppChi2	3.707					99% KM (Chebyshev) UCL	6298128
1168					95% Gamma Approximate UCL	2116367						
1169					95% Adjusted Gamma UCL	2355331						
1170	**Note: DL/2 is not a recommended method.**											
1171												
1172												
1173	**Total TEQ**											
1174												
1175	**General Statistics**											
1176					Number of Valid Data	5					Number of Detected Data	5
1177					Number of Distinct Detected Data	5					Number of Non-Detect Data	0
1178					Number of Missing Values	25					Percent Non-Detects	0.00%
1179												
1180	**Raw Statistics**						**Log-transformed Statistics**					
1181					Minimum Detected	0.563					Minimum Detected	-0.574
1182					Maximum Detected	24.45					Maximum Detected	3.197
1183					Mean of Detected	8.761					Mean of Detected	1.153
1184					SD of Detected	10.8					SD of Detected	1.777
1185					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1186					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1187												
1188												
1189	**Warning: There are only 5 Detected Values in this data**											
1190	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1191	**the resulting calculations may not be reliable enough tp draw conclusions**											
1192												
1193	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1194												
1195												
1196	**UCL Statistics**											
1197	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1198					Shapiro Wilk Test Statistic	0.816					Shapiro Wilk Test Statistic	0.862
1199					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
1200	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1201												
1202	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1203					DL/2 Substitution Method						DL/2 Substitution Method	
1204					Mean	8.761					Mean	1.153
1205					SD	10.8					SD	1.777
1206					95% DL/2 (t) UCL	19.06					95% H-Stat (DL/2) UCL	26100
1207												
1208					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1209	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1210											SD in Log Scale	N/A
1211											Mean in Original Scale	N/A
1212											SD in Original Scale	N/A
1213											95% Percentile Bootstrap UCL	N/A
1214											95% BCA Bootstrap UCL	N/A
1215												
1216	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1217					k star (bias corrected)	0.376	**Data appear Normal at 5% Significance Level**					
1218					Theta Star	23.3						
1219					nu star	3.76						

1220												
1221					A-D Test Statistic	0.446	**Nonparametric Statistics**					
1222					5% A-D Critical Value	0.706				Kaplan-Meier (KM) Method		
1223					K-S Test Statistic	0.706				Mean		8.761
1224					5% K-S Critical Value	0.37				SD		9.661
1225				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		4.83
1226										95% KM (t) UCL		19.06
1227				**Assuming Gamma Distribution**						95% KM (z) UCL		16.71
1228					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		19.06
1229					Minimum	0.563				95% KM (bootstrap t) UCL		83.11
1230					Maximum	24.45				95% KM (BCA) UCL		16.16
1231					Mean	8.761				95% KM (Percentile Bootstrap) UCL		16.16
1232					Median	2.539				95% KM (Chebyshev) UCL		29.82
1233					SD	10.8				97.5% KM (Chebyshev) UCL		38.93
1234					k star	0.376				99% KM (Chebyshev) UCL		56.82
1235					Theta star	23.3						
1236					Nu star	3.76	**Potential UCLs to Use**					
1237					AppChi2	0.629				95% KM (t) UCL		19.06
1238					95% Gamma Approximate UCL	52.36				95% KM (Percentile Bootstrap) UCL		16.16
1239					95% Adjusted Gamma UCL	131						
1240	**Note: DL/2 is not a recommended method.**											
1241												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	C:\LWG_200808\InWatSed_Input_RM2.0W.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenic

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.71	Minimum of Log Data	0.997
Maximum	4.33	Maximum of Log Data	1.466
Mean	3.425	Mean of log Data	1.216
Median	3.43	SD of log Data	0.183
SD	0.626		
Coefficient of Variation	0.183		
Skewness	0.262		

Warning: There are only 8 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.907	Shapiro Wilk Test Statistic	0.905
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.845	95% H-UCL	3.92
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.391
95% Adjusted-CLT UCL	3.811	97.5% Chebyshev (MVUE) UCL	4.809
95% Modified-t UCL	3.848	99% Chebyshev (MVUE) UCL	5.631
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	21.56	**Data appear Normal at 5% Significance Level**	
Theta Star	0.159		
nu star	345		
Approximate Chi Square Value (.05)	303	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0195	95% CLT UCL	3.789
Adjusted Chi Square Value	293	95% Jackknife UCL	3.845
		95% Standard Bootstrap UCL	3.763
Anderson-Darling Test Statistic	0.388	95% Bootstrap-t UCL	3.908
Anderson-Darling 5% Critical Value	0.716	95% Hall's Bootstrap UCL	3.819
Kolmogorov-Smirnov Test Statistic	0.232	95% Percentile Bootstrap UCL	3.756
Kolmogorov-Smirnov 5% Critical Value	0.294	95% BCA Bootstrap UCL	3.774

54	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		4.39
55										97.5% Chebyshev(Mean, Sd) UCL		4.808
56	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		5.628
57					95% Approximate Gamma UCL	3.9						
58					95% Adjusted Gamma UCL	4.033						
59												
60	Potential UCL to Use									Use 95% Student's-t UCL		3.845
61												
62												
63	Benzo(a)anthracene											
64												
65	General Statistics											
66					Number of Valid Observations	8				Number of Distinct Observations		7
67												
68	Raw Statistics									Log-transformed Statistics		
69					Minimum	5.6				Minimum of Log Data		1.723
70					Maximum	90				Maximum of Log Data		4.5
71					Mean	30.64				Mean of log Data		3.161
72					Median	26.25				SD of log Data		0.787
73					SD	25.64						
74					Coefficient of Variation	0.837						
75					Skewness	2.118						
76												
77												
78	Warning: There are only 8 Values in this data											
79	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
80	the resulting calculations may not be reliable enough to draw conclusions											
81												
82	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
83												
84	Relevant UCL Statistics											
85	Normal Distribution Test									Lognormal Distribution Test		
86					Shapiro Wilk Test Statistic	0.756				Shapiro Wilk Test Statistic		0.94
87					Shapiro Wilk Critical Value	0.818				Shapiro Wilk Critical Value		0.818
88	Data not Normal at 5% Significance Level									Data appear Lognormal at 5% Significance Level		
89												
90	Assuming Normal Distribution									Assuming Lognormal Distribution		
91					95% Student's-t UCL	47.81				95% H-UCL		76.81
92	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL		68.67
93					95% Adjusted-CLT UCL	52.81				97.5% Chebyshev (MVUE) UCL		85.09
94					95% Modified-t UCL	48.95				99% Chebyshev (MVUE) UCL		117.3
95												
96	Gamma Distribution Test									Data Distribution		
97					k star (bias corrected)	1.374				Data appear Gamma Distributed at 5% Significance Level		
98					Theta Star	22.3						
99					nu star	21.98						
100					Approximate Chi Square Value (.05)	12.33				Nonparametric Statistics		
101					Adjusted Level of Significance	0.0195				95% CLT UCL		45.55
102					Adjusted Chi Square Value	10.54				95% Jackknife UCL		47.81
103										95% Standard Bootstrap UCL		44.47
104					Anderson-Darling Test Statistic	0.41				95% Bootstrap-t UCL		63.96
105					Anderson-Darling 5% Critical Value	0.724				95% Hall's Bootstrap UCL		111.5
106					Kolmogorov-Smirnov Test Statistic	0.259				95% Percentile Bootstrap UCL		46.45

107					Kolmogorov-Smirnov 5% Critical Value	0.297				95% BCA Bootstrap UCL		50.75
108					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL		70.16
109										97.5% Chebyshev(Mean, Sd) UCL		87.26
110					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL		120.8
111					95% Approximate Gamma UCL	54.64						
112					95% Adjusted Gamma UCL	63.88						
113												
114					**Potential UCL to Use**					Use 95% Approximate Gamma UCL		54.64
115												
116												
117	**Benzo(a)pyrene**											
118												
119					**General Statistics**							
120					Number of Valid Observations	8				Number of Distinct Observations		8
121												
122					**Raw Statistics**					**Log-transformed Statistics**		
123					Minimum	12				Minimum of Log Data		2.485
124					Maximum	170				Maximum of Log Data		5.136
125					Mean	55.25				Mean of log Data		3.751
126					Median	43.5				SD of log Data		0.755
127					SD	48.79						
128					Coefficient of Variation	0.883						
129					Skewness	2.282						
130												
131												
132					**Warning: There are only 8 Values in this data**							
133					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
134					**the resulting calculations may not be reliable enough to draw conclusions**							
135												
136					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
137												
138					**Relevant UCL Statistics**							
139					**Normal Distribution Test**					**Lognormal Distribution Test**		
140					Shapiro Wilk Test Statistic	0.722				Shapiro Wilk Test Statistic		0.95
141					Shapiro Wilk Critical Value	0.818				Shapiro Wilk Critical Value		0.818
142					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
143												
144					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
145					95% Student's-t UCL	87.93				95% H-UCL		127.8
146					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL		118.6
147					95% Adjusted-CLT UCL	98.49				97.5% Chebyshev (MVUE) UCL		146.4
148					95% Modified-t UCL	90.25				99% Chebyshev (MVUE) UCL		201
149												
150					**Gamma Distribution Test**					**Data Distribution**		
151					k star (bias corrected)	1.377				**Data appear Gamma Distributed at 5% Significance Level**		
152					Theta Star	40.12						
153					nu star	22.04						
154					Approximate Chi Square Value (.05)	12.37				**Nonparametric Statistics**		
155					Adjusted Level of Significance	0.0195				95% CLT UCL		83.62
156					Adjusted Chi Square Value	10.58				95% Jackknife UCL		87.93
157										95% Standard Bootstrap UCL		81.51
158					Anderson-Darling Test Statistic	0.45				95% Bootstrap-t UCL		129.1
159					Anderson-Darling 5% Critical Value	0.724				95% Hall's Bootstrap UCL		205.1

160				Kolmogorov-Smirnov Test Statistic	0.251					95% Percentile Bootstrap UCL	85.19	
161				Kolmogorov-Smirnov 5% Critical Value	0.297					95% BCA Bootstrap UCL	99.25	
162				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	130.4	
163										97.5% Chebyshev(Mean, Sd) UCL	163	
164				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	226.9	
165				95% Approximate Gamma UCL	98.46							
166				95% Adjusted Gamma UCL	115.1							
167												
168				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	98.46	
169												
170												
171	**Benzo(b)fluoranthene**											
172												
173				**General Statistics**								
174				Number of Valid Observations	8					Number of Distinct Observations	8	
175												
176				**Raw Statistics**						**Log-transformed Statistics**		
177				Minimum	11					Minimum of Log Data	2.398	
178				Maximum	160					Maximum of Log Data	5.075	
179				Mean	56.06					Mean of log Data	3.785	
180				Median	48.5					SD of log Data	0.757	
181				SD	44.98							
182				Coefficient of Variation	0.802							
183				Skewness	2.093							
184												
185												
186				**Warning: There are only 8 Values in this data**								
187				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
188				**the resulting calculations may not be reliable enough to draw conclusions**								
189												
190				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
191												
192				**Relevant UCL Statistics**								
193				**Normal Distribution Test**						**Lognormal Distribution Test**		
194				Shapiro Wilk Test Statistic	0.761					Shapiro Wilk Test Statistic	0.938	
195				Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818	
196				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
197												
198				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
199				95% Student's-t UCL	86.19					95% H-UCL	132.8	
200				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	123	
201				95% Adjusted-CLT UCL	94.8					97.5% Chebyshev (MVUE) UCL	151.8	
202				95% Modified-t UCL	88.16					99% Chebyshev (MVUE) UCL	208.6	
203												
204				**Gamma Distribution Test**						**Data Distribution**		
205				k star (bias corrected)	1.472					**Data appear Gamma Distributed at 5% Significance Level**		
206				Theta Star	38.09							
207				nu star	23.55							
208				Approximate Chi Square Value (.05)	13.51					**Nonparametric Statistics**		
209				Adjusted Level of Significance	0.0195					95% CLT UCL	82.22	
210				Adjusted Chi Square Value	11.63					95% Jackknife UCL	86.19	
211										95% Standard Bootstrap UCL	79.89	
212				Anderson-Darling Test Statistic	0.418					95% Bootstrap-t UCL	114.3	

213				Anderson-Darling 5% Critical Value	0.723					95% Hall's Bootstrap UCL	199.1
214				Kolmogorov-Smirnov Test Statistic	0.266					95% Percentile Bootstrap UCL	85.31
215				Kolmogorov-Smirnov 5% Critical Value	0.297					95% BCA Bootstrap UCL	91.94
216				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	125.4
217										97.5% Chebyshev(Mean, Sd) UCL	155.4
218				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	214.3
219				95% Approximate Gamma UCL	97.75						
220				95% Adjusted Gamma UCL	113.5						
221											
222				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	97.75
223											
224											
225	**Benzo(k)fluoranthene**										
226											
227				**General Statistics**							
228				Number of Valid Observations	8					Number of Distinct Observations	8
229											
230				**Raw Statistics**						**Log-transformed Statistics**	
231				Minimum	3.3					Minimum of Log Data	1.194
232				Maximum	53					Maximum of Log Data	3.97
233				Mean	17.79					Mean of log Data	2.607
234				Median	15					SD of log Data	0.8
235				SD	15.21						
236				Coefficient of Variation	0.855						
237				Skewness	2.119						
238											
239											
240				**Warning: There are only 8 Values in this data**							
241				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
242				**the resulting calculations may not be reliable enough to draw conclusions**							
243											
244				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
245											
246				**Relevant UCL Statistics**							
247				**Normal Distribution Test**						**Lognormal Distribution Test**	
248				Shapiro Wilk Test Statistic	0.759					Shapiro Wilk Test Statistic	0.954
249				Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818
250				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
251											
252				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
253				95% Student's-t UCL	27.98					95% H-UCL	45.58
254				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	40.13
255				95% Adjusted-CLT UCL	30.94					97.5% Chebyshev (MVUE) UCL	49.8
256				95% Modified-t UCL	28.65					99% Chebyshev (MVUE) UCL	68.79
257											
258				**Gamma Distribution Test**						**Data Distribution**	
259				k star (bias corrected)	1.328					**Data appear Gamma Distributed at 5% Significance Level**	
260				Theta Star	13.4						
261				nu star	21.24						
262				Approximate Chi Square Value (.05)	11.77					**Nonparametric Statistics**	
263				Adjusted Level of Significance	0.0195					95% CLT UCL	26.64
264				Adjusted Chi Square Value	10.04					95% Jackknife UCL	27.98
265										95% Standard Bootstrap UCL	26.13

266				Anderson-Darling Test Statistic	0.37					95% Bootstrap-t UCL	38.18	
267				Anderson-Darling 5% Critical Value	0.724					95% Hall's Bootstrap UCL	65.45	
268				Kolmogorov-Smirnov Test Statistic	0.245					95% Percentile Bootstrap UCL	27.16	
269				Kolmogorov-Smirnov 5% Critical Value	0.297					95% BCA Bootstrap UCL	30.41	
270				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	41.23	
271										97.5% Chebyshev(Mean, Sd) UCL	51.38	
272				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	71.31	
273				95% Approximate Gamma UCL	32.1							
274				95% Adjusted Gamma UCL	37.65							
275												
276				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	32.1	
277												
278												
279	**Bis(2-ethylhexyl) phthalate**											
280												
281				**General Statistics**								
282				Number of Valid Data	8					Number of Detected Data	5	
283				Number of Distinct Detected Data	4					Number of Non-Detect Data	3	
284										Percent Non-Detects	37.50%	
285												
286				**Raw Statistics**						**Log-transformed Statistics**		
287				Minimum Detected	13					Minimum Detected	2.565	
288				Maximum Detected	68					Maximum Detected	4.22	
289				Mean of Detected	40					Mean of Detected	3.452	
290				SD of Detected	26.18					SD of Detected	0.826	
291				Minimum Non-Detect	32					Minimum Non-Detect	3.466	
292				Maximum Non-Detect	62					Maximum Non-Detect	4.127	
293												
294	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	6	
295	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	2	
296	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	75.00%	
297												
298	**Warning: There are only 4 Distinct Detected Values in this data**											
299	**Note: It should be noted that even though bootstrap may be performed on this data set**											
300	**the resulting calculations may not be reliable enough tp draw conclusions**											
301												
302	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
303												
304												
305				**UCL Statistics**								
306				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
307				Shapiro Wilk Test Statistic	0.854					Shapiro Wilk Test Statistic	0.799	
308				5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762	
309				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
310												
311				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
312				DL/2 Substitution Method						DL/2 Substitution Method		
313				Mean	33.06					Mean	3.291	
314				SD	22.43					SD	0.69	
315				95% DL/2 (t) UCL	48.08					95% H-Stat (DL/2) UCL	92.41	
316												
317				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
318				**MLE method failed to converge properly**						Mean in Log Scale	3.191	

319											SD in Log Scale	0.723
320											Mean in Original Scale	30.91
321											SD in Original Scale	23.45
322											95% Percentile Bootstrap UCL	44.96
323											95% BCA Bootstrap UCL	45.19
324												
325	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
326					k star (bias corrected)	1.039	**Data appear Normal at 5% Significance Level**					
327					Theta Star	38.49						
328					nu star	10.39						
329												
330					A-D Test Statistic	0.56	**Nonparametric Statistics**					
331					5% A-D Critical Value	0.684					Kaplan-Meier (KM) Method	
332					K-S Test Statistic	0.684					Mean	30.65
333					5% K-S Critical Value	0.36					SD	22.6
334	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	9.134
335											95% KM (t) UCL	47.95
336	**Assuming Gamma Distribution**										95% KM (z) UCL	45.67
337					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	47.38
338					Minimum	13					95% KM (bootstrap t) UCL	47.42
339					Maximum	68					95% KM (BCA) UCL	54.5
340					Mean	38.5					95% KM (Percentile Bootstrap) UCL	52.25
341					Median	36.99					95% KM (Chebyshev) UCL	70.46
342					SD	19.98					97.5% KM (Chebyshev) UCL	87.69
343					k star	2.261					99% KM (Chebyshev) UCL	121.5
344					Theta star	17.03						
345					Nu star	36.17	**Potential UCLs to Use**					
346					AppChi2	23.41					95% KM (t) UCL	47.95
347					95% Gamma Approximate UCL	59.5					95% KM (Percentile Bootstrap) UCL	52.25
348					95% Adjusted Gamma UCL	66.81						
349	**Note: DL/2 is not a recommended method.**											
350												
351												
352	**Dibenzo(a,h)anthracene**											
353												
354	**General Statistics**											
355					Number of Valid Observations	8					Number of Distinct Observations	8
356												
357	**Raw Statistics**						**Log-transformed Statistics**					
358					Minimum	1.1					Minimum of Log Data	0.0953
359					Maximum	16					Maximum of Log Data	2.773
360					Mean	6.069					Mean of log Data	1.582
361					Median	5.5					SD of log Data	0.753
362					SD	4.394						
363					Coefficient of Variation	0.724						
364					Skewness	1.866						
365												
366												
367	**Warning: There are only 8 Values in this data**											
368	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
369	**the resulting calculations may not be reliable enough to draw conclusions**											
370												
371	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

Relevant UCL Statistics		
Normal Distribution Test		**Lognormal Distribution Test**
Shapiro Wilk Test Statistic	0.799	Shapiro Wilk Test Statistic 0.91
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value 0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**
Assuming Normal Distribution		**Assuming Lognormal Distribution**
95% Student's-t UCL	9.012	95% H-UCL 14.52
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL 13.5
95% Adjusted-CLT UCL	9.719	97.5% Chebyshev (MVUE) UCL 16.67
95% Modified-t UCL	9.183	99% Chebyshev (MVUE) UCL 22.88
Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.59	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	3.818	
nu star	25.43	
Approximate Chi Square Value (.05)	14.94	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 8.624
Adjusted Chi Square Value	12.95	95% Jackknife UCL 9.012
		95% Standard Bootstrap UCL 8.434
Anderson-Darling Test Statistic	0.434	95% Bootstrap-t UCL 11.05
Anderson-Darling 5% Critical Value	0.723	95% Hall's Bootstrap UCL 21.02
Kolmogorov-Smirnov Test Statistic	0.258	95% Percentile Bootstrap UCL 8.769
Kolmogorov-Smirnov 5% Critical Value	0.297	95% BCA Bootstrap UCL 9.425
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 12.84
		97.5% Chebyshev(Mean, Sd) UCL 15.77
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 21.52
95% Approximate Gamma UCL	10.33	
95% Adjusted Gamma UCL	11.91	
Potential UCL to Use		Use 95% Approximate Gamma UCL 10.33

Indeno(1,2,3-cd)pyrene

General Statistics			
Number of Valid Observations	8	Number of Distinct Observations	8
Raw Statistics		**Log-transformed Statistics**	
Minimum	8.1	Minimum of Log Data	2.092
Maximum	130	Maximum of Log Data	4.868
Mean	45.83	Mean of log Data	3.569
Median	38	SD of log Data	0.791
SD	36.91		
Coefficient of Variation	0.805		
Skewness	1.989		

Warning: There are only 8 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

	A	B	C	D	E	F	G	H	I	J	K	L
425	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
426												
427	**Relevant UCL Statistics**											
428	**Normal Distribution Test**						**Lognormal Distribution Test**					
429	Shapiro Wilk Test Statistic					0.794	Shapiro Wilk Test Statistic					0.953
430	Shapiro Wilk Critical Value					0.818	Shapiro Wilk Critical Value					0.818
431	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
432												
433	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
434	95% Student's-t UCL					70.55	95% H-UCL					116.5
435	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					103.7
436	95% Adjusted-CLT UCL					77.09	97.5% Chebyshev (MVUE) UCL					128.6
437	95% Modified-t UCL					72.08	99% Chebyshev (MVUE) UCL					177.4
438												
439	**Gamma Distribution Test**						**Data Distribution**					
440	k star (bias corrected)					1.401	**Data appear Gamma Distributed at 5% Significance Level**					
441	Theta Star					32.71						
442	nu star					22.42						
443	Approximate Chi Square Value (.05)					12.65	**Nonparametric Statistics**					
444	Adjusted Level of Significance					0.0195	95% CLT UCL					67.29
445	Adjusted Chi Square Value					10.84	95% Jackknife UCL					70.55
446							95% Standard Bootstrap UCL					66.03
447	Anderson-Darling Test Statistic					0.317	95% Bootstrap-t UCL					94.85
448	Anderson-Darling 5% Critical Value					0.724	95% Hall's Bootstrap UCL					167.1
449	Kolmogorov-Smirnov Test Statistic					0.193	95% Percentile Bootstrap UCL					67.45
450	Kolmogorov-Smirnov 5% Critical Value					0.297	95% BCA Bootstrap UCL					76.5
451	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					102.7
452							97.5% Chebyshev(Mean, Sd) UCL					127.3
453	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					175.7
454	95% Approximate Gamma UCL					81.2						
455	95% Adjusted Gamma UCL					94.74						
456												
457	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					81.2
458												
459												
460	**Lead**											
461												
462	**General Statistics**											
463	Number of Valid Observations					8	Number of Distinct Observations					8
464												
465	**Raw Statistics**						**Log-transformed Statistics**					
466	Minimum					6.97	Minimum of Log Data					1.942
467	Maximum					15.3	Maximum of Log Data					2.728
468	Mean					11.49	Mean of log Data					2.398
469	Median					13	SD of log Data					0.326
470	SD					3.39						
471	Coefficient of Variation					0.295						
472	Skewness					-0.514						
473												
474												
475	**Warning: There are only 8 Values in this data**											
476	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
477	**the resulting calculations may not be reliable enough to draw conclusions**											

478												
479	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
480												
481	**Relevant UCL Statistics**											
482	**Normal Distribution Test**						**Lognormal Distribution Test**					
483					Shapiro Wilk Test Statistic	0.847					Shapiro Wilk Test Statistic	0.82
484					Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818
485	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
486												
487	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
488					95% Student's-t UCL	13.76					95% H-UCL	15.02
489	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	17.35
490					95% Adjusted-CLT UCL	13.23					97.5% Chebyshev (MVUE) UCL	19.87
491					95% Modified-t UCL	13.73					99% Chebyshev (MVUE) UCL	24.82
492												
493	**Gamma Distribution Test**						**Data Distribution**					
494					k star (bias corrected)	7.343	**Data appear Normal at 5% Significance Level**					
495					Theta Star	1.565						
496					nu star	117.5						
497					Approximate Chi Square Value (.05)	93.47	**Nonparametric Statistics**					
498					Adjusted Level of Significance	0.0195					95% CLT UCL	13.46
499					Adjusted Chi Square Value	88.05					95% Jackknife UCL	13.76
500											95% Standard Bootstrap UCL	13.32
501					Anderson-Darling Test Statistic	0.73					95% Bootstrap-t UCL	13.46
502					Anderson-Darling 5% Critical Value	0.715					95% Hall's Bootstrap UCL	12.93
503					Kolmogorov-Smirnov Test Statistic	0.316					95% Percentile Bootstrap UCL	13.35
504					Kolmogorov-Smirnov 5% Critical Value	0.294					95% BCA Bootstrap UCL	13.16
505	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	16.72
506											97.5% Chebyshev(Mean, Sd) UCL	18.98
507	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	23.42
508					95% Approximate Gamma UCL	14.45						
509					95% Adjusted Gamma UCL	15.34						
510												
511	**Potential UCL to Use**										Use 95% Student's-t UCL	13.76
512												
513												
514	**Mercury**											
515												
516	**General Statistics**											
517					Number of Valid Observations	8					Number of Distinct Observations	8
518												
519	**Raw Statistics**						**Log-transformed Statistics**					
520					Minimum	0.03					Minimum of Log Data	-3.507
521					Maximum	0.087					Maximum of Log Data	-2.442
522					Mean	0.0623					Mean of log Data	-2.847
523					Median	0.0665					SD of log Data	0.422
524					SD	0.0233						
525					Coefficient of Variation	0.374						
526					Skewness	-0.305						
527												
528												
529	**Warning: There are only 8 Values in this data**											
530	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											

531	the resulting calculations may not be reliable enough to draw conclusions											
532												
533	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
534												
535	Relevant UCL Statistics											
536	Normal Distribution Test							Lognormal Distribution Test				
537				Shapiro Wilk Test Statistic	0.873					Shapiro Wilk Test Statistic	0.864	
538				Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818	
539	Data appear Normal at 5% Significance Level							Data appear Lognormal at 5% Significance Level				
540												
541	Assuming Normal Distribution							Assuming Lognormal Distribution				
542				95% Student's-t UCL	0.0779					95% H-UCL	0.0904	
543	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	0.104	
544				95% Adjusted-CLT UCL	0.0749					97.5% Chebyshev (MVUE) UCL	0.121	
545				95% Modified-t UCL	0.0778					99% Chebyshev (MVUE) UCL	0.156	
546												
547	Gamma Distribution Test							Data Distribution				
548				k star (bias corrected)	4.536			Data appear Normal at 5% Significance Level				
549				Theta Star	0.0137							
550				nu star	72.58							
551				Approximate Chi Square Value (.05)	53.96			Nonparametric Statistics				
552				Adjusted Level of Significance	0.0195					95% CLT UCL	0.0759	
553				Adjusted Chi Square Value	49.93					95% Jackknife UCL	0.0779	
554										95% Standard Bootstrap UCL	0.075	
555				Anderson-Darling Test Statistic	0.539					95% Bootstrap-t UCL	0.0768	
556				Anderson-Darling 5% Critical Value	0.717					95% Hall's Bootstrap UCL	0.0729	
557				Kolmogorov-Smirnov Test Statistic	0.219					95% Percentile Bootstrap UCL	0.0748	
558				Kolmogorov-Smirnov 5% Critical Value	0.295					95% BCA Bootstrap UCL	0.0733	
559	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	0.0982	
560										97.5% Chebyshev(Mean, Sd) UCL	0.114	
561	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	0.144	
562				95% Approximate Gamma UCL	0.0838							
563				95% Adjusted Gamma UCL	0.0906							
564												
565	Potential UCL to Use									Use 95% Student's-t UCL	0.0779	
566												
567												
568	Naphthalene											
569												
570	General Statistics											
571				Number of Valid Data	8					Number of Detected Data	6	
572				Number of Distinct Detected Data	5					Number of Non-Detect Data	2	
573										Percent Non-Detects	25.00%	
574												
575	Raw Statistics							Log-transformed Statistics				
576				Minimum Detected	5.2					Minimum Detected	1.649	
577				Maximum Detected	12					Maximum Detected	2.485	
578				Mean of Detected	8.817					Mean of Detected	2.124	
579				SD of Detected	2.992					SD of Detected	0.364	
580				Minimum Non-Detect	2.9					Minimum Non-Detect	1.065	
581				Maximum Non-Detect	6					Maximum Non-Detect	1.792	
582												
583	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	4	

584	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
585	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		50.00%
586												
587	**Warning: There are only 6 Detected Values in this data**											
588	**Note: It should be noted that even though bootstrap may be performed on this data set**											
589	**the resulting calculations may not be reliable enough tp draw conclusions**											
590												
591	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
592												
593												
594	**UCL Statistics**											
595	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
596	Shapiro Wilk Test Statistic					0.886				Shapiro Wilk Test Statistic		0.881
597	5% Shapiro Wilk Critical Value					0.788				5% Shapiro Wilk Critical Value		0.788
598	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
599												
600	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
601	DL/2 Substitution Method									DL/2 Substitution Method		
602	Mean					7.169				Mean		1.777
603	SD					3.984				SD		0.739
604	95% DL/2 (t) UCL					9.838				95% H-Stat (DL/2) UCL		9.009
605												
606	Maximum Likelihood Estimate(MLE) Method									Log ROS Method		
607	Mean					10.51				Mean in Log Scale		1.95
608	SD					1.629				SD in Log Scale		0.455
609	95% MLE (t) UCL					11.6				Mean in Original Scale		7.673
610	95% MLE (Tiku) UCL					12.05				SD in Original Scale		3.322
611										95% Percentile Bootstrap UCL		9.587
612										95% BCA Bootstrap UCL		9.587
613												
614	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
615	k star (bias corrected)					4.932				**Data appear Normal at 5% Significance Level**		
616	Theta Star					1.788						
617	nu star					59.18						
618												
619	A-D Test Statistic					0.397				**Nonparametric Statistics**		
620	5% A-D Critical Value					0.698				Kaplan-Meier (KM) Method		
621	K-S Test Statistic					0.698				Mean		7.933
622	5% K-S Critical Value					0.333				SD		2.818
623	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		1.092
624										95% KM (t) UCL		10
625	**Assuming Gamma Distribution**									95% KM (z) UCL		9.73
626	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		9.934
627	Minimum					4.839				95% KM (bootstrap t) UCL		10.06
628	Maximum					12				95% KM (BCA) UCL		10.05
629	Mean					8.186				95% KM (Percentile Bootstrap) UCL		10.01
630	Median					7.924				95% KM (Chebyshev) UCL		12.69
631	SD					2.892				97.5% KM (Chebyshev) UCL		14.75
632	k star					5.719				99% KM (Chebyshev) UCL		18.8
633	Theta star					1.431						
634	Nu star					91.51				**Potential UCLs to Use**		
635	AppChi2					70.45				95% KM (t) UCL		10
636	95% Gamma Approximate UCL					10.63				95% KM (Percentile Bootstrap) UCL		10.01

637					95% Adjusted Gamma UCL	11.39						
638	**Note: DL/2 is not a recommended method.**											
639												
640												
641	**Total Aroclors**											
642												
643						**General Statistics**							
644						Number of Valid Data	8				Number of Detected Data	6
645						Number of Distinct Detected Data	6				Number of Non-Detect Data	2
646											Percent Non-Detects	25.00%
647												
648						**Raw Statistics**					**Log-transformed Statistics**	
649						Minimum Detected	13.65				Minimum Detected	2.614
650						Maximum Detected	22.7				Maximum Detected	3.122
651						Mean of Detected	16.88				Mean of Detected	2.81
652						SD of Detected	3.389				SD of Detected	0.19
653						Minimum Non-Detect	2.8				Minimum Non-Detect	1.03
654						Maximum Non-Detect	3.1				Maximum Non-Detect	1.131
655												
656	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	2
657	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
658	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	25.00%
659												
660						**Warning: There are only 6 Detected Values in this data**							
661						**Note: It should be noted that even though bootstrap may be performed on this data set**						
662						**the resulting calculations may not be reliable enough tp draw conclusions**						
663												
664						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
665												
666												
667						**UCL Statistics**							
668						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
669						Shapiro Wilk Test Statistic	0.899				Shapiro Wilk Test Statistic	0.928
670						5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value	0.788
671						**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
672												
673						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
674						DL/2 Substitution Method					DL/2 Substitution Method	
675						Mean	13.03				Mean	2.205
676						SD	7.684				SD	1.133
677						95% DL/2 (t) UCL	18.17				95% H-Stat (DL/2) UCL	27.4
678												
679						Maximum Likelihood Estimate(MLE) Method					Log ROS Method	
680						Mean	12.36				Mean in Log Scale	2.689
681						SD	8.475				SD in Log Scale	0.276
682						95% MLE (t) UCL	18.04				Mean in Original Scale	15.22
683						95% MLE (Tiku) UCL	18.55				SD in Original Scale	4.2
684											95% Percentile Bootstrap UCL	17.51
685											95% BCA Bootstrap UCL	17.81
686												
687						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
688						k star (bias corrected)	16.19				**Data appear Normal at 5% Significance Level**	
689						Theta Star	1.043					

690					nu star	194.2						
691												
692					A-D Test Statistic	0.324	**Nonparametric Statistics**					
693					5% A-D Critical Value	0.697					Kaplan-Meier (KM) Method	
694					K-S Test Statistic	0.697					Mean	16.07
695					5% K-S Critical Value	0.332					SD	3.022
696	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.17
697											95% KM (t) UCL	18.29
698	**Assuming Gamma Distribution**										95% KM (z) UCL	18
699					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	18.18
700					Minimum	13.35					95% KM (bootstrap t) UCL	20.87
701					Maximum	22.7					95% KM (BCA) UCL	18.43
702					Mean	16					95% KM (Percentile Bootstrap) UCL	18.07
703					Median	14.73					95% KM (Chebyshev) UCL	21.17
704					SD	3.296					97.5% KM (Chebyshev) UCL	23.38
705					k star	18.94					99% KM (Chebyshev) UCL	27.71
706					Theta star	0.844						
707					Nu star	303.1	**Potential UCLs to Use**					
708					AppChi2	263.8					95% KM (t) UCL	18.29
709					95% Gamma Approximate UCL	18.38					95% KM (Percentile Bootstrap) UCL	18.07
710					95% Adjusted Gamma UCL	19.05						
711	**Note: DL/2 is not a recommended method.**											
712												
713												
714	**Total DDT**											
715												
716	**General Statistics**											
717					Number of Valid Observations	8					Number of Distinct Observations	8
718												
719	**Raw Statistics**						**Log-transformed Statistics**					
720					Minimum	0.113					Minimum of Log Data	-2.18
721					Maximum	4.282					Maximum of Log Data	1.454
722					Mean	1.372					Mean of log Data	-0.234
723					Median	0.692					SD of log Data	1.172
724					SD	1.51						
725					Coefficient of Variation	1.101						
726					Skewness	1.435						
727												
728												
729	**Warning: There are only 8 Values in this data**											
730	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
731	**the resulting calculations may not be reliable enough to draw conclusions**											
732												
733	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
734												
735	**Relevant UCL Statistics**											
736	**Normal Distribution Test**						**Lognormal Distribution Test**					
737					Shapiro Wilk Test Statistic	0.78					Shapiro Wilk Test Statistic	0.966
738					Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818
739	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
740												
741	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
742					95% Student's-t UCL	2.383					95% H-UCL	8.701

	A	B	C	D	E	F	G	H	I	J	K	L
743	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					3.96
744	95% Adjusted-CLT UCL					2.539	97.5% Chebyshev (MVUE) UCL					5.071
745	95% Modified-t UCL					2.428	99% Chebyshev (MVUE) UCL					7.253
746												
747	**Gamma Distribution Test**						**Data Distribution**					
748	k star (bias corrected)					0.736	**Data appear Gamma Distributed at 5% Significance Level**					
749	Theta Star					1.863						
750	nu star					11.78						
751	Approximate Chi Square Value (.05)					5.082	**Nonparametric Statistics**					
752	Adjusted Level of Significance					0.0195	95% CLT UCL					2.25
753	Adjusted Chi Square Value					4.027	95% Jackknife UCL					2.383
754							95% Standard Bootstrap UCL					2.203
755	Anderson-Darling Test Statistic					0.357	95% Bootstrap-t UCL					5.042
756	Anderson-Darling 5% Critical Value					0.735	95% Hall's Bootstrap UCL					8.083
757	Kolmogorov-Smirnov Test Statistic					0.225	95% Percentile Bootstrap UCL					2.281
758	Kolmogorov-Smirnov 5% Critical Value					0.301	95% BCA Bootstrap UCL					2.413
759	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					3.699
760							97.5% Chebyshev(Mean, Sd) UCL					4.706
761	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					6.683
762	95% Approximate Gamma UCL					3.179						
763	95% Adjusted Gamma UCL					4.012						
764												
765	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					3.179
766												

General UCL Statistics for Data Sets with Non-Detects		
User Selected Options		
From File	C:\LWG_200808\lnWatSed_Input_RM2.5E.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

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General Statistics

Number of Valid Data	17	Number of Detected Data	9
Number of Distinct Detected Data	8	Number of Non-Detect Data	8
Number of Missing Values	2	Percent Non-Detects	47.06%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.239	Minimum Detected	-1.431
Maximum Detected	1.28	Maximum Detected	0.247
Mean of Detected	0.876	Mean of Detected	-0.226
SD of Detected	0.331	SD of Detected	0.517
Minimum Non-Detect	0.0327	Minimum Non-Detect	-3.42
Maximum Non-Detect	0.43	Maximum Non-Detect	-0.844
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	52.94%

Warning: There are only 9 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.944	Shapiro Wilk Test Statistic	0.82
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.505	Mean	-1.441
SD	0.47	SD	1.526
95% DL/2 (t) UCL	0.704	95% H-Stat (DL/2) UCL	1.274
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.439	Mean in Log Scale	-0.781
SD	0.569	SD in Log Scale	0.709
95% MLE (t) UCL	0.68	Mean in Original Scale	0.579
95% MLE (Tiku) UCL	0.744	SD in Original Scale	0.4
		95% Percentile Bootstrap UCL	0.738
		95% BCA Bootstrap UCL	0.744

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56				k star (bias corrected)	3.727		**Data appear Normal at 5% Significance Level**					
57				Theta Star	0.235							
58				nu star	67.09							
59												
60				A-D Test Statistic	0.493		**Nonparametric Statistics**					
61				5% A-D Critical Value	0.723					Kaplan-Meier (KM) Method		
62				K-S Test Statistic	0.723					Mean	0.576	
63				5% K-S Critical Value	0.28					SD	0.391	
64	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.1	
65										95% KM (t) UCL	0.752	
66	**Assuming Gamma Distribution**									95% KM (z) UCL	0.742	
67				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.779	
68				Minimum	0.239					95% KM (bootstrap t) UCL	0.747	
69				Maximum	1.28					95% KM (BCA) UCL	0.945	
70				Mean	0.856					95% KM (Percentile Bootstrap) UCL	0.889	
71				Median	0.876					95% KM (Chebyshev) UCL	1.014	
72				SD	0.237					97.5% KM (Chebyshev) UCL	1.204	
73				k star	8.306					99% KM (Chebyshev) UCL	1.576	
74				Theta star	0.103							
75				Nu star	282.4		**Potential UCLs to Use**					
76				AppChi2	244.5					95% KM (t) UCL	0.752	
77				95% Gamma Approximate UCL	0.989					95% KM (Percentile Bootstrap) UCL	0.889	
78				95% Adjusted Gamma UCL	1.004							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85				Number of Valid Observations	19					Number of Distinct Observations	19	
86												
87	**Raw Statistics**						**Log-transformed Statistics**					
88				Minimum	2.7					Minimum of Log Data	0.993	
89				Maximum	10.1					Maximum of Log Data	2.313	
90				Mean	4.216					Mean of log Data	1.399	
91				Median	3.9					SD of log Data	0.263	
92				SD	1.528							
93				Coefficient of Variation	0.362							
94				Skewness	3.457							
95												
96	**Relevant UCL Statistics**											
97	**Normal Distribution Test**						**Lognormal Distribution Test**					
98				Shapiro Wilk Test Statistic	0.585					Shapiro Wilk Test Statistic	0.769	
99				Shapiro Wilk Critical Value	0.901					Shapiro Wilk Critical Value	0.901	
100	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
101												
102	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
103				95% Student's-t UCL	4.824					95% H-UCL	4.695	
104	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	5.299	
105				95% Adjusted-CLT UCL	5.089					97.5% Chebyshev (MVUE) UCL	5.782	
106				95% Modified-t UCL	4.87					99% Chebyshev (MVUE) UCL	6.728	

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	10.68	**Data do not follow a Discernable Distribution (0.05)**					
110					Theta Star	0.395						
111					nu star	406						
112					Approximate Chi Square Value (.05)	360.3	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0369					95% CLT UCL	4.792
114					Adjusted Chi Square Value	356.5					95% Jackknife UCL	4.824
115											95% Standard Bootstrap UCL	4.794
116					Anderson-Darling Test Statistic	1.774					95% Bootstrap-t UCL	5.656
117					Anderson-Darling 5% Critical Value	0.741					95% Hall's Bootstrap UCL	7.235
118					Kolmogorov-Smirnov Test Statistic	0.224					95% Percentile Bootstrap UCL	4.867
119					Kolmogorov-Smirnov 5% Critical Value	0.198					95% BCA Bootstrap UCL	5.225
120	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	5.744
121											97.5% Chebyshev(Mean, Sd) UCL	6.405
122	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	7.703
123					95% Approximate Gamma UCL	4.751						
124					95% Adjusted Gamma UCL	4.801						
125												
126	**Potential UCL to Use**										Use 95% Student's-t UCL	4.824
127											or 95% Modified-t UCL	4.87
128												
129												
130	**Benzo(a)anthracene**											
131												
132	**General Statistics**											
133					Number of Valid Observations	19					Number of Distinct Observations	16
134												
135	**Raw Statistics**						**Log-transformed Statistics**					
136					Minimum	13					Minimum of Log Data	2.565
137					Maximum	10000					Maximum of Log Data	9.21
138					Mean	583.9					Mean of log Data	4.056
139					Median	44					SD of log Data	1.449
140					SD	2281						
141					Coefficient of Variation	3.907						
142					Skewness	4.353						
143												
144	**Relevant UCL Statistics**											
145	**Normal Distribution Test**						**Lognormal Distribution Test**					
146					Shapiro Wilk Test Statistic	0.262					Shapiro Wilk Test Statistic	0.695
147					Shapiro Wilk Critical Value	0.901					Shapiro Wilk Critical Value	0.901
148	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
149												
150	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
151					95% Student's-t UCL	1491					95% H-UCL	509.2
152	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	404.5
153					95% Adjusted-CLT UCL	2003					97.5% Chebyshev (MVUE) UCL	515
154					95% Modified-t UCL	1578					99% Chebyshev (MVUE) UCL	732
155												
156	**Gamma Distribution Test**						**Data Distribution**					
157					k star (bias corrected)	0.286	**Data do not follow a Discernable Distribution (0.05)**					
158					Theta Star	2039						
159					nu star	10.88						

160	Approximate Chi Square Value (.05)				4.499	**Nonparametric Statistics**						
161	Adjusted Level of Significance				0.0369	95% CLT UCL						1445
162	Adjusted Chi Square Value				4.145	95% Jackknife UCL						1491
163						95% Standard Bootstrap UCL						1433
164	Anderson-Darling Test Statistic				4.631	95% Bootstrap-t UCL						32933
165	Anderson-Darling 5% Critical Value				0.844	95% Hall's Bootstrap UCL						23982
166	Kolmogorov-Smirnov Test Statistic				0.414	95% Percentile Bootstrap UCL						1627
167	Kolmogorov-Smirnov 5% Critical Value				0.215	95% BCA Bootstrap UCL						2180
168	**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL						2865
169						97.5% Chebyshev(Mean, Sd) UCL						3852
170	**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL						5791
171	95% Approximate Gamma UCL				1412							
172	95% Adjusted Gamma UCL				1533							
173												
174	**Potential UCL to Use**					Use 99% Chebyshev (Mean, Sd) UCL						5791
175												
176												
177	**Benzo(a)pyrene**											
178												
179	**General Statistics**											
180	Number of Valid Observations				19	Number of Distinct Observations						18
181												
182	**Raw Statistics**					**Log-transformed Statistics**						
183	Minimum				19	Minimum of Log Data						2.944
184	Maximum				7800	Maximum of Log Data						8.962
185	Mean				478.9	Mean of log Data						4.298
186	Median				51	SD of log Data						1.293
187	SD				1774							
188	Coefficient of Variation				3.704							
189	Skewness				4.349							
190												
191	**Relevant UCL Statistics**											
192	**Normal Distribution Test**					**Lognormal Distribution Test**						
193	Shapiro Wilk Test Statistic				0.267	Shapiro Wilk Test Statistic						0.683
194	Shapiro Wilk Critical Value				0.901	Shapiro Wilk Critical Value						0.901
195	**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**						
196												
197	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
198	95% Student's-t UCL				1185	95% H-UCL						430.1
199	**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL						394.4
200	95% Adjusted-CLT UCL				1582	97.5% Chebyshev (MVUE) UCL						496.9
201	95% Modified-t UCL				1252	99% Chebyshev (MVUE) UCL						698
202												
203	**Gamma Distribution Test**					**Data Distribution**						
204	k star (bias corrected)				0.336	**Data do not follow a Discernable Distribution (0.05)**						
205	Theta Star				1424							
206	nu star				12.78							
207	Approximate Chi Square Value (.05)				5.742	**Nonparametric Statistics**						
208	Adjusted Level of Significance				0.0369	95% CLT UCL						1148
209	Adjusted Chi Square Value				5.334	95% Jackknife UCL						1185
210						95% Standard Bootstrap UCL						1124
211	Anderson-Darling Test Statistic				4.577	95% Bootstrap-t UCL						21475
212	Anderson-Darling 5% Critical Value				0.831	95% Hall's Bootstrap UCL						12769

213				Kolmogorov-Smirnov Test Statistic	0.425					95% Percentile Bootstrap UCL	1286	
214				Kolmogorov-Smirnov 5% Critical Value	0.214					95% BCA Bootstrap UCL	1708	
215				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2253	
216										97.5% Chebyshev(Mean, Sd) UCL	3021	
217				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	4528	
218				95% Approximate Gamma UCL	1065							
219				95% Adjusted Gamma UCL	1147							
220												
221				**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	4528	
222												
223												
224	**Benzo(b)fluoranthene**											
225												
226				**General Statistics**								
227				Number of Valid Observations	19					Number of Distinct Observations	15	
228												
229				**Raw Statistics**						**Log-transformed Statistics**		
230				Minimum	19					Minimum of Log Data	2.944	
231				Maximum	6700					Maximum of Log Data	8.81	
232				Mean	440.5					Mean of log Data	4.489	
233				Median	67					SD of log Data	1.259	
234				SD	1518							
235				Coefficient of Variation	3.447							
236				Skewness	4.337							
237												
238				**Relevant UCL Statistics**								
239				**Normal Distribution Test**						**Lognormal Distribution Test**		
240				Shapiro Wilk Test Statistic	0.281					Shapiro Wilk Test Statistic	0.752	
241				Shapiro Wilk Critical Value	0.901					Shapiro Wilk Critical Value	0.901	
242				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
243												
244				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
245				95% Student's-t UCL	1044					95% H-UCL	478.6	
246				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	451	
247				95% Adjusted-CLT UCL	1384					97.5% Chebyshev (MVUE) UCL	566.7	
248				95% Modified-t UCL	1102					99% Chebyshev (MVUE) UCL	793.8	
249												
250				**Gamma Distribution Test**						**Data Distribution**		
251				k star (bias corrected)	0.38					**Data do not follow a Discernable Distribution (0.05)**		
252				Theta Star	1158							
253				nu star	14.45							
254				Approximate Chi Square Value (.05)	6.881					**Nonparametric Statistics**		
255				Adjusted Level of Significance	0.0369					95% CLT UCL	1013	
256				Adjusted Chi Square Value	6.428					95% Jackknife UCL	1044	
257										95% Standard Bootstrap UCL	1003	
258				Anderson-Darling Test Statistic	3.944					95% Bootstrap-t UCL	9325	
259				Anderson-Darling 5% Critical Value	0.821					95% Hall's Bootstrap UCL	7273	
260				Kolmogorov-Smirnov Test Statistic	0.359					95% Percentile Bootstrap UCL	1138	
261				Kolmogorov-Smirnov 5% Critical Value	0.212					95% BCA Bootstrap UCL	1490	
262				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1959	
263										97.5% Chebyshev(Mean, Sd) UCL	2616	
264				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3906	
265				95% Approximate Gamma UCL	925							

266					95% Adjusted Gamma UCL	990.2						
267												
268					**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	3906
269												
270												
271	**Benzo(k)fluoranthene**											
272												
273					**General Statistics**							
274					Number of Valid Observations	19					Number of Distinct Observations	14
275												
276					**Raw Statistics**						**Log-transformed Statistics**	
277					Minimum	6.1					Minimum of Log Data	1.808
278					Maximum	2100					Maximum of Log Data	7.65
279					Mean	140.3					Mean of log Data	3.408
280					Median	21					SD of log Data	1.233
281					SD	475.5						
282					Coefficient of Variation	3.388						
283					Skewness	4.332						
284												
285					**Relevant UCL Statistics**							
286					**Normal Distribution Test**						**Lognormal Distribution Test**	
287					Shapiro Wilk Test Statistic	0.284					Shapiro Wilk Test Statistic	0.73
288					Shapiro Wilk Critical Value	0.901					Shapiro Wilk Critical Value	0.901
289					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
290												
291					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
292					95% Student's-t UCL	329.5					95% H-UCL	152.8
293					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	146.8
294					95% Adjusted-CLT UCL	435.6					97.5% Chebyshev (MVUE) UCL	184.1
295					95% Modified-t UCL	347.5					99% Chebyshev (MVUE) UCL	257.3
296												
297					**Gamma Distribution Test**						**Data Distribution**	
298					k star (bias corrected)	0.393					**Data do not follow a Discernable Distribution (0.05)**	
299					Theta Star	357.5						
300					nu star	14.92						
301					Approximate Chi Square Value (.05)	7.203					**Nonparametric Statistics**	
302					Adjusted Level of Significance	0.0369					95% CLT UCL	319.7
303					Adjusted Chi Square Value	6.738					95% Jackknife UCL	329.5
304											95% Standard Bootstrap UCL	314.9
305					Anderson-Darling Test Statistic	4.038					95% Bootstrap-t UCL	2672
306					Anderson-Darling 5% Critical Value	0.818					95% Hall's Bootstrap UCL	2252
307					Kolmogorov-Smirnov Test Statistic	0.377					95% Percentile Bootstrap UCL	357.9
308					Kolmogorov-Smirnov 5% Critical Value	0.212					95% BCA Bootstrap UCL	476.7
309					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	615.8
310											97.5% Chebyshev(Mean, Sd) UCL	821.5
311					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1226
312					95% Approximate Gamma UCL	290.6						
313					95% Adjusted Gamma UCL	310.6						
314												
315					**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	1226
316												
317												
318	**Bis(2-ethylhexyl) phthalate**											

319												
320	**General Statistics**											
321					Number of Valid Data	19				Number of Detected Data		11
322					Number of Distinct Detected Data	11				Number of Non-Detect Data		8
323										Percent Non-Detects		42.11%
324												
325	**Raw Statistics**							**Log-transformed Statistics**				
326					Minimum Detected	38				Minimum Detected		3.638
327					Maximum Detected	210				Maximum Detected		5.347
328					Mean of Detected	110.5				Mean of Detected		4.607
329					SD of Detected	50.22				SD of Detected		0.475
330					Minimum Non-Detect	7				Minimum Non-Detect		1.946
331					Maximum Non-Detect	150				Maximum Non-Detect		5.011
332												
333	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		17
334	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
335	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		89.47%
336												
337	**UCL Statistics**											
338	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
339					Shapiro Wilk Test Statistic	0.945				Shapiro Wilk Test Statistic		0.973
340					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
341	**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
342												
343	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
344					DL/2 Substitution Method					DL/2 Substitution Method		
345					Mean	77.95				Mean		3.963
346					SD	56.49				SD		1.111
347					95% DL/2 (t) UCL	100.4				95% H-Stat (DL/2) UCL		164.1
348												
349					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
350	**MLE method failed to converge properly**									Mean in Log Scale		4.259
351										SD in Log Scale		0.571
352										Mean in Original Scale		82.9
353										SD in Original Scale		50.53
354										95% Percentile Bootstrap UCL		101.6
355										95% BCA Bootstrap UCL		105.8
356												
357	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
358					k star (bias corrected)	3.922		**Data appear Normal at 5% Significance Level**				
359					Theta Star	28.16						
360					nu star	86.29						
361												
362					A-D Test Statistic	0.176		**Nonparametric Statistics**				
363					5% A-D Critical Value	0.731				Kaplan-Meier (KM) Method		
364					K-S Test Statistic	0.731				Mean		84.53
365					5% K-S Critical Value	0.256				SD		49.4
366	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		12.28
367										95% KM (t) UCL		105.8
368	**Assuming Gamma Distribution**									95% KM (z) UCL		104.7
369					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		105.1
370					Minimum	38				95% KM (bootstrap t) UCL		107.4
371					Maximum	210				95% KM (BCA) UCL		115.4

372				Mean	104.9				95% KM (Percentile Bootstrap) UCL			111.5
373				Median	100				95% KM (Chebyshev) UCL			138.1
374				SD	41.17				97.5% KM (Chebyshev) UCL			161.2
375				k star	6.117				99% KM (Chebyshev) UCL			206.7
376				Theta star	17.15							
377				Nu star	232.5				**Potential UCLs to Use**			
378				AppChi2	198.2				95% KM (t) UCL			105.8
379				95% Gamma Approximate UCL	123.1				95% KM (Percentile Bootstrap) UCL			111.5
380				95% Adjusted Gamma UCL	124.8							
381	**Note: DL/2 is not a recommended method.**											
382												
383												
384	**Dibenzo(a,h)anthracene**											
385												
386				**General Statistics**								
387				Number of Valid Observations	19				Number of Distinct Observations			16
388												
389				**Raw Statistics**					**Log-transformed Statistics**			
390				Minimum	3.2				Minimum of Log Data			1.163
391				Maximum	770				Maximum of Log Data			6.646
392				Mean	48.97				Mean of log Data			2.259
393				Median	6.3				SD of log Data			1.192
394				SD	174.7							
395				Coefficient of Variation	3.568							
396				Skewness	4.349							
397												
398				**Relevant UCL Statistics**								
399				**Normal Distribution Test**					**Lognormal Distribution Test**			
400				Shapiro Wilk Test Statistic	0.269				Shapiro Wilk Test Statistic			0.645
401				Shapiro Wilk Critical Value	0.901				Shapiro Wilk Critical Value			0.901
402				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
403												
404				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
405				95% Student's-t UCL	118.5				95% H-UCL			43.9
406				**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL			43.44
407				95% Adjusted-CLT UCL	157.6				97.5% Chebyshev (MVUE) UCL			54.28
408				95% Modified-t UCL	125.1				99% Chebyshev (MVUE) UCL			75.59
409												
410				**Gamma Distribution Test**					**Data Distribution**			
411				k star (bias corrected)	0.374				**Data do not follow a Discernable Distribution (0.05)**			
412				Theta Star	130.9							
413				nu star	14.22							
414				Approximate Chi Square Value (.05)	6.721				**Nonparametric Statistics**			
415				Adjusted Level of Significance	0.0369				95% CLT UCL			114.9
416				Adjusted Chi Square Value	6.274				95% Jackknife UCL			118.5
417									95% Standard Bootstrap UCL			112.2
418				Anderson-Darling Test Statistic	4.67				95% Bootstrap-t UCL			2119
419				Anderson-Darling 5% Critical Value	0.822				95% Hall's Bootstrap UCL			1173
420				Kolmogorov-Smirnov Test Statistic	0.395				95% Percentile Bootstrap UCL			128.3
421				Kolmogorov-Smirnov 5% Critical Value	0.212				95% BCA Bootstrap UCL			169.5
422				**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL			223.7
423									97.5% Chebyshev(Mean, Sd) UCL			299.3
424				**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL			447.8

425				95% Approximate Gamma UCL	103.6							
426				95% Adjusted Gamma UCL	111							
427												
428	**Potential UCL to Use**									Use 99% Chebyshev (Mean, Sd) UCL	447.8	
429												
430												
431	**Dieldrin**											
432												
433	**General Statistics**											
434				Number of Valid Data	17				Number of Detected Data	6		
435				Number of Distinct Detected Data	6				Number of Non-Detect Data	11		
436				Number of Missing Values	1				Percent Non-Detects	64.71%		
437												
438	**Raw Statistics**								**Log-transformed Statistics**			
439				Minimum Detected	0.262				Minimum Detected	-1.339		
440				Maximum Detected	0.53				Maximum Detected	-0.635		
441				Mean of Detected	0.357				Mean of Detected	-1.055		
442				SD of Detected	0.0939				SD of Detected	0.242		
443				Minimum Non-Detect	0.03				Minimum Non-Detect	-3.507		
444				Maximum Non-Detect	0.46				Maximum Non-Detect	-0.777		
445												
446	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	16		
447	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	1		
448	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	94.12%		
449												
450	**Warning: There are only 6 Detected Values in this data**											
451	**Note: It should be noted that even though bootstrap may be performed on this data set**											
452	**the resulting calculations may not be reliable enough tp draw conclusions**											
453												
454	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
455												
456												
457	**UCL Statistics**											
458	**Normal Distribution Test with Detected Values Only**								**Lognormal Distribution Test with Detected Values Only**			
459				Shapiro Wilk Test Statistic	0.876				Shapiro Wilk Test Statistic	0.936		
460				5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value	0.788		
461	**Data appear Normal at 5% Significance Level**								**Data appear Lognormal at 5% Significance Level**			
462												
463	**Assuming Normal Distribution**								**Assuming Lognormal Distribution**			
464				DL/2 Substitution Method					DL/2 Substitution Method			
465				Mean	0.165				Mean	-2.434		
466				SD	0.164				SD	1.247		
467				95% DL/2 (t) UCL	0.235				95% H-Stat (DL/2) UCL	0.308		
468												
469				Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method			
470	**MLE method failed to converge properly**								Mean in Log Scale	-1.485		
471									SD in Log Scale	0.357		
472									Mean in Original Scale	0.242		
473									SD in Original Scale	0.103		
474									95% Percentile Bootstrap UCL	0.284		
475									95% BCA Bootstrap UCL	0.292		
476												
477	**Gamma Distribution Test with Detected Values Only**								**Data Distribution Test with Detected Values Only**			

478					k star (bias corrected)	9.919	**Data appear Normal at 5% Significance Level**					
479					Theta Star	0.036						
480					nu star	119						
481												
482					A-D Test Statistic	0.349	**Nonparametric Statistics**					
483					5% A-D Critical Value	0.697				Kaplan-Meier (KM) Method		
484					K-S Test Statistic	0.697				Mean		0.297
485					5% K-S Critical Value	0.332				SD		0.0685
486	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0184
487										95% KM (t) UCL		0.329
488	**Assuming Gamma Distribution**									95% KM (z) UCL		0.327
489				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.33
490					Minimum	1E-09				95% KM (bootstrap t) UCL		0.343
491					Maximum	0.53				95% KM (BCA) UCL		0.368
492					Mean	0.126				95% KM (Percentile Bootstrap) UCL		0.354
493					Median	1E-09				95% KM (Chebyshev) UCL		0.377
494					SD	0.184				97.5% KM (Chebyshev) UCL		0.412
495					k star	0.0986				99% KM (Chebyshev) UCL		0.48
496					Theta star	1.28						
497					Nu star	3.351	**Potential UCLs to Use**					
498					AppChi2	0.484				95% KM (t) UCL		0.329
499					95% Gamma Approximate UCL	0.874				95% KM (Percentile Bootstrap) UCL		0.354
500					95% Adjusted Gamma UCL	1.086						
501	**Note: DL/2 is not a recommended method.**											
502												
503												
504	**Indeno(1,2,3-cd)pyrene**											
505												
506	**General Statistics**											
507					Number of Valid Observations	19				Number of Distinct Observations		17
508												
509	**Raw Statistics**						**Log-transformed Statistics**					
510					Minimum	14				Minimum of Log Data		2.639
511					Maximum	4400				Maximum of Log Data		8.389
512					Mean	284.9				Mean of log Data		4.047
513					Median	40				SD of log Data		1.216
514					SD	997.7						
515					Coefficient of Variation	3.501						
516					Skewness	4.341						
517												
518	**Relevant UCL Statistics**											
519	**Normal Distribution Test**						**Lognormal Distribution Test**					
520					Shapiro Wilk Test Statistic	0.275				Shapiro Wilk Test Statistic		0.701
521					Shapiro Wilk Critical Value	0.901				Shapiro Wilk Critical Value		0.901
522	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
523												
524	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
525					95% Student's-t UCL	681.9				95% H-UCL		278.1
526	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		270.5
527					95% Adjusted-CLT UCL	905				97.5% Chebyshev (MVUE) UCL		338.7
528					95% Modified-t UCL	719.9				99% Chebyshev (MVUE) UCL		472.7
529												
530	**Gamma Distribution Test**						**Data Distribution**					

531				k star (bias corrected)	0.379		**Data do not follow a Discernable Distribution (0.05)**					
532				Theta Star	751.5							
533				nu star	14.41							
534				Approximate Chi Square Value (.05)	6.852		**Nonparametric Statistics**					
535				Adjusted Level of Significance	0.0369						95% CLT UCL	661.5
536				Adjusted Chi Square Value	6.4						95% Jackknife UCL	681.9
537											95% Standard Bootstrap UCL	642.4
538				Anderson-Darling Test Statistic	4.346						95% Bootstrap-t UCL	11532
539				Anderson-Darling 5% Critical Value	0.821						95% Hall's Bootstrap UCL	4821
540				Kolmogorov-Smirnov Test Statistic	0.392						95% Percentile Bootstrap UCL	741.8
541				Kolmogorov-Smirnov 5% Critical Value	0.212						95% BCA Bootstrap UCL	985.1
542				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	1283
543											97.5% Chebyshev(Mean, Sd) UCL	1714
544				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	2562
545				95% Approximate Gamma UCL	599.2							
546				95% Adjusted Gamma UCL	641.5							
547												
548				**Potential UCL to Use**			Use 99% Chebyshev (Mean, Sd) UCL					2562
549												
550												
551	**Lead**											
552												
553				**General Statistics**								
554				Number of Valid Observations	19		Number of Distinct Observations					17
555												
556				**Raw Statistics**			**Log-transformed Statistics**					
557				Minimum	2.2		Minimum of Log Data					0.788
558				Maximum	34		Maximum of Log Data					3.526
559				Mean	14.3		Mean of log Data					2.56
560				Median	14.3		SD of log Data					0.521
561				SD	6.049							
562				Coefficient of Variation	0.423							
563				Skewness	1.549							
564												
565				**Relevant UCL Statistics**								
566				**Normal Distribution Test**			**Lognormal Distribution Test**					
567				Shapiro Wilk Test Statistic	0.813		Shapiro Wilk Test Statistic					0.76
568				Shapiro Wilk Critical Value	0.901		Shapiro Wilk Critical Value					0.901
569				**Data not Normal at 5% Significance Level**			**Data not Lognormal at 5% Significance Level**					
570												
571				**Assuming Normal Distribution**			**Assuming Lognormal Distribution**					
572				95% Student's-t UCL	16.7		95% H-UCL					19
573				**95% UCLs (Adjusted for Skewness)**			95% Chebyshev (MVUE) UCL					22.64
574				95% Adjusted-CLT UCL	17.11		97.5% Chebyshev (MVUE) UCL					26.08
575				95% Modified-t UCL	16.79		99% Chebyshev (MVUE) UCL					32.84
576												
577				**Gamma Distribution Test**			**Data Distribution**					
578				k star (bias corrected)	4.368		**Data do not follow a Discernable Distribution (0.05)**					
579				Theta Star	3.273							
580				nu star	166							
581				Approximate Chi Square Value (.05)	137.2		**Nonparametric Statistics**					
582				Adjusted Level of Significance	0.0369						95% CLT UCL	16.58
583				Adjusted Chi Square Value	134.9						95% Jackknife UCL	16.7

584											95% Standard Bootstrap UCL	16.52
585					Anderson-Darling Test Statistic	1.283					95% Bootstrap-t UCL	17.24
586					Anderson-Darling 5% Critical Value	0.742					95% Hall's Bootstrap UCL	22.56
587					Kolmogorov-Smirnov Test Statistic	0.211					95% Percentile Bootstrap UCL	16.57
588					Kolmogorov-Smirnov 5% Critical Value	0.199					95% BCA Bootstrap UCL	17.37
589					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	20.35
590											97.5% Chebyshev(Mean, Sd) UCL	22.96
591					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	28.1
592					95% Approximate Gamma UCL	17.3						
593					95% Adjusted Gamma UCL	17.59						
594												
595					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	20.35
596												
597												
598	**Mercury**											
599												
600					**General Statistics**							
601					Number of Valid Observations	19					Number of Distinct Observations	15
602												
603					**Raw Statistics**						**Log-transformed Statistics**	
604					Minimum	0.007					Minimum of Log Data	-4.962
605					Maximum	0.249					Maximum of Log Data	-1.39
606					Mean	0.0675					Mean of log Data	-2.933
607					Median	0.066					SD of log Data	0.761
608					SD	0.0509						
609					Coefficient of Variation	0.754						
610					Skewness	2.577						
611												
612					**Relevant UCL Statistics**							
613					**Normal Distribution Test**						**Lognormal Distribution Test**	
614					Shapiro Wilk Test Statistic	0.734					Shapiro Wilk Test Statistic	0.909
615					Shapiro Wilk Critical Value	0.901					Shapiro Wilk Critical Value	0.901
616					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
617												
618					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
619					95% Student's-t UCL	0.0878					95% H-UCL	0.107
620					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.127
621					95% Adjusted-CLT UCL	0.0941					97.5% Chebyshev (MVUE) UCL	0.151
622					95% Modified-t UCL	0.0889					99% Chebyshev (MVUE) UCL	0.2
623												
624					**Gamma Distribution Test**						**Data Distribution**	
625					k star (bias corrected)	1.931					**Data appear Gamma Distributed at 5% Significance Level**	
626					Theta Star	0.035						
627					nu star	73.37						
628					Approximate Chi Square Value (.05)	54.65					**Nonparametric Statistics**	
629					Adjusted Level of Significance	0.0369					95% CLT UCL	0.0867
630					Adjusted Chi Square Value	53.23					95% Jackknife UCL	0.0878
631											95% Standard Bootstrap UCL	0.0861
632					Anderson-Darling Test Statistic	0.65					95% Bootstrap-t UCL	0.0986
633					Anderson-Darling 5% Critical Value	0.751					95% Hall's Bootstrap UCL	0.177
634					Kolmogorov-Smirnov Test Statistic	0.166					95% Percentile Bootstrap UCL	0.0874
635					Kolmogorov-Smirnov 5% Critical Value	0.201					95% BCA Bootstrap UCL	0.0965
636					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.118

637											97.5% Chebyshev(Mean, Sd) UCL	0.14
638	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.184
639					95% Approximate Gamma UCL	0.0907						
640					95% Adjusted Gamma UCL	0.0931						
641												
642	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	0.0907
643												
644												
645	**Naphthalene**											
646												
647	**General Statistics**											
648					Number of Valid Data	19					Number of Detected Data	12
649					Number of Distinct Detected Data	11					Number of Non-Detect Data	7
650											Percent Non-Detects	36.84%
651												
652	**Raw Statistics**										**Log-transformed Statistics**	
653					Minimum Detected	3.2					Minimum Detected	1.163
654					Maximum Detected	690					Maximum Detected	6.537
655					Mean of Detected	77.81					Mean of Detected	3.076
656					SD of Detected	193.7					SD of Detected	1.385
657					Minimum Non-Detect	3.3					Minimum Non-Detect	1.194
658					Maximum Non-Detect	13					Maximum Non-Detect	2.565
659												
660	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
661	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	8
662	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	57.89%
663												
664	**UCL Statistics**											
665	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
666					Shapiro Wilk Test Statistic	0.405					Shapiro Wilk Test Statistic	0.896
667					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
668	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
669												
670	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
671					DL/2 Substitution Method						DL/2 Substitution Method	
672					Mean	50.83					Mean	2.476
673					SD	155.7					SD	1.378
674					95% DL/2 (t) UCL	112.8					95% H-Stat (DL/2) UCL	74.86
675												
676					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
677	**MLE yields a negative mean**										Mean in Log Scale	2.284
678											SD in Log Scale	1.533
679											Mean in Original Scale	50.12
680											SD in Original Scale	155.9
681											95% Percentile Bootstrap UCL	122.2
682											95% BCA Bootstrap UCL	160.3
683												
684	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
685					k star (bias corrected)	0.429					**Data appear Lognormal at 5% Significance Level**	
686					Theta Star	181.5						
687					nu star	10.29						
688												
689					A-D Test Statistic	1.576					**Nonparametric Statistics**	

690				5% A-D Critical Value	0.785					Kaplan-Meier (KM) Method		
691				K-S Test Statistic	0.785					Mean		50.54
692				5% K-S Critical Value	0.259					SD		151.7
693				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		36.34
694										95% KM (t) UCL		113.6
695				**Assuming Gamma Distribution**						95% KM (z) UCL		110.3
696				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		112.3
697				Minimum	1E-09					95% KM (bootstrap t) UCL		719.9
698				Maximum	690					95% KM (BCA) UCL		125.9
699				Mean	52.4					95% KM (Percentile Bootstrap) UCL		119.7
700				Median	15					95% KM (Chebyshev) UCL		208.9
701				SD	155.5					97.5% KM (Chebyshev) UCL		277.5
702				k star	0.13					99% KM (Chebyshev) UCL		412.1
703				Theta star	403.6							
704				Nu star	4.933					**Potential UCLs to Use**		
705				AppChi2	1.121					97.5% KM (Chebyshev) UCL		277.5
706				95% Gamma Approximate UCL	230.5							
707				95% Adjusted Gamma UCL	265.5							
708	**Note: DL/2 is not a recommended method.**											
709												
710												
711	**Total Aroclors**											
712												
713				**General Statistics**								
714				Number of Valid Data	19					Number of Detected Data		17
715				Number of Distinct Detected Data	17					Number of Non-Detect Data		2
716										Percent Non-Detects		10.53%
717												
718				**Raw Statistics**						**Log-transformed Statistics**		
719				Minimum Detected	16.35					Minimum Detected		2.794
720				Maximum Detected	167.7					Maximum Detected		5.122
721				Mean of Detected	62.24					Mean of Detected		3.832
722				SD of Detected	50.61					SD of Detected		0.794
723				Minimum Non-Detect	1.3					Minimum Non-Detect		0.262
724				Maximum Non-Detect	4.8					Maximum Non-Detect		1.569
725												
726	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		2
727	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		17
728	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		10.53%
729												
730				**UCL Statistics**								
731				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
732				Shapiro Wilk Test Statistic	0.823					Shapiro Wilk Test Statistic		0.918
733				5% Shapiro Wilk Critical Value	0.892					5% Shapiro Wilk Critical Value		0.892
734				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
735												
736				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
737				DL/2 Substitution Method						DL/2 Substitution Method		
738				Mean	55.85					Mean		3.452
739				SD	51.41					SD		1.379
740				95% DL/2 (t) UCL	76.3					95% H-Stat (DL/2) UCL		146.7
741												
742				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		

743					Mean	53.07					Mean in Log Scale	3.637
744					SD	54.2					SD in Log Scale	0.949
745					95% MLE (t) UCL	74.63					Mean in Original Scale	56.45
746					95% MLE (Tiku) UCL	74.19					SD in Original Scale	50.77
747											95% Percentile Bootstrap UCL	76.28
748											95% BCA Bootstrap UCL	77.82
749												
750	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
751					k star (bias corrected)	1.538	**Data appear Gamma Distributed at 5% Significance Level**					
752					Theta Star	40.47						
753					nu star	52.29						
754												
755					A-D Test Statistic	0.653	**Nonparametric Statistics**					
756					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
757					K-S Test Statistic	0.752					Mean	57.41
758					5% K-S Critical Value	0.212					SD	48.53
759	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	11.48
760											95% KM (t) UCL	77.31
761	**Assuming Gamma Distribution**										95% KM (z) UCL	76.29
762					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	77.09
763					Minimum	1E-09					95% KM (bootstrap t) UCL	83.48
764					Maximum	167.7					95% KM (BCA) UCL	77.44
765					Mean	55.69					95% KM (Percentile Bootstrap) UCL	75.75
766					Median	33.65					95% KM (Chebyshev) UCL	107.4
767					SD	51.59					97.5% KM (Chebyshev) UCL	129.1
768					k star	0.25					99% KM (Chebyshev) UCL	171.6
769					Theta star	222.7						
770					Nu star	9.503	**Potential UCLs to Use**					
771					AppChi2	3.634					95% KM (BCA) UCL	77.44
772					95% Gamma Approximate UCL	145.6						
773					95% Adjusted Gamma UCL	159.3						
774	**Note: DL/2 is not a recommended method.**											
775												
776												
777	**Total DDT**											
778												
779							**General Statistics**					
780					Number of Valid Data	18					Number of Detected Data	15
781					Number of Distinct Detected Data	15					Number of Non-Detect Data	3
782					Number of Missing Values	1					Percent Non-Detects	16.67%
783												
784					**Raw Statistics**						**Log-transformed Statistics**	
785					Minimum Detected	0.171					Minimum Detected	-1.763
786					Maximum Detected	26.03					Maximum Detected	3.259
787					Mean of Detected	2.813					Mean of Detected	0.138
788					SD of Detected	6.464					SD of Detected	1.129
789					Minimum Non-Detect	0.18					Minimum Non-Detect	-1.715
790					Maximum Non-Detect	0.81					Maximum Non-Detect	-0.211
791												
792	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
793	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	10
794	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	44.44%
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	**UCL Statistics**											
797	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
798	Shapiro Wilk Test Statistic					0.383	Shapiro Wilk Test Statistic					0.902
799	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881
800	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
801												
802	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
803	DL/2 Substitution Method						DL/2 Substitution Method					
804	Mean					2.381	Mean					-0.168
805	SD					5.95	SD					1.27
806	95% DL/2 (t) UCL					4.82	95% H-Stat (DL/2) UCL					3.408
807												
808	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
809	**MLE yields a negative mean**						Mean in Log Scale					-0.159
810							SD in Log Scale					1.24
811							Mean in Original Scale					2.378
812							SD in Original Scale					5.951
813							95% Percentile Bootstrap UCL					5.13
814							95% BCA Bootstrap UCL					6.682
815												
816	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
817	k star (bias corrected)					0.587	**Data appear Lognormal at 5% Significance Level**					
818	Theta Star					4.795						
819	nu star					17.6						
820												
821	A-D Test Statistic					1.764	**Nonparametric Statistics**					
822	5% A-D Critical Value					0.78	Kaplan-Meier (KM) Method					
823	K-S Test Statistic					0.78	Mean					2.384
824	5% K-S Critical Value					0.231	SD					5.781
825	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1.411
826							95% KM (t) UCL					4.838
827	**Assuming Gamma Distribution**						95% KM (z) UCL					4.704
828	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.804
829	Minimum					1E-09	95% KM (bootstrap t) UCL					18.65
830	Maximum					26.03	95% KM (BCA) UCL					5.223
831	Mean					2.344	95% KM (Percentile Bootstrap) UCL					5.149
832	Median					0.885	95% KM (Chebyshev) UCL					8.532
833	SD					5.964	97.5% KM (Chebyshev) UCL					11.19
834	k star					0.186	99% KM (Chebyshev) UCL					16.42
835	Theta star					12.6						
836	Nu star					6.694	**Potential UCLs to Use**					
837	AppChi2					2.004	97.5% KM (Chebyshev) UCL					11.19
838	95% Gamma Approximate UCL					7.828						
839	95% Adjusted Gamma UCL					8.876						
840	**Note: DL/2 is not a recommended method.**											
841												
842												
843	**Total Dioxin-like PCBs**											
844												
845	**General Statistics**											
846	Number of Valid Data					7	Number of Detected Data					7
847	Number of Distinct Detected Data					7	Number of Non-Detect Data					0
848	Number of Missing Values					9	Percent Non-Detects					0.00%

Raw Statistics		
Minimum Detected	771.2	
Maximum Detected	11584	
Mean of Detected	3392	
SD of Detected	3822	
Minimum Non-Detect	N/A	
Maximum Non-Detect	N/A	

Log-transformed Statistics	
Minimum Detected	6.648
Maximum Detected	9.357
Mean of Detected	7.724
SD of Detected	0.908
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.705
5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level	
Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	3392
SD	3822
95% DL/2 (t) UCL	6199
Maximum Likelihood Estimate(MLE) Method	N/A
MLE method failed to converge properly	

Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.921
5% Shapiro Wilk Critical Value	0.803
Data appear Lognormal at 5% Significance Level	
Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	7.724
SD	0.908
95% H-Stat (DL/2) UCL	12252
Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.882
Theta Star	3844
nu star	12.35
A-D Test Statistic	0.563
5% A-D Critical Value	0.723
K-S Test Statistic	0.723
5% K-S Critical Value	0.318
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	771.2
Maximum	11584
Mean	3392

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	3392
SD	3539
SE of Mean	1445
95% KM (t) UCL	6199
95% KM (z) UCL	5768
95% KM (jackknife) UCL	6199
95% KM (bootstrap t) UCL	16456
95% KM (BCA) UCL	5859
95% KM (Percentile Bootstrap) UCL	5830

902					Median	1513				95% KM (Chebyshev) UCL		9689
903					SD	3822				97.5% KM (Chebyshev) UCL		12414
904					k star	0.882				99% KM (Chebyshev) UCL		17766
905					Theta star	3844						
906					Nu star	12.35				**Potential UCLs to Use**		
907					AppChi2	5.46				95% KM (Chebyshev) UCL		9689
908					95% Gamma Approximate UCL	7673						
909					95% Adjusted Gamma UCL	10071						
910	**Note: DL/2 is not a recommended method.**											
911												
912												
913	**Total PCB TEQ**											
914												
915					**General Statistics**							
916					Number of Valid Data	7				Number of Detected Data		7
917					Number of Distinct Detected Data	7				Number of Non-Detect Data		0
918					Number of Missing Values	9				Percent Non-Detects		0.00%
919												
920					**Raw Statistics**					**Log-transformed Statistics**		
921					Minimum Detected	0.448				Minimum Detected		-0.804
922					Maximum Detected	3.843				Maximum Detected		1.346
923					Mean of Detected	1.333				Mean of Detected		0.0207
924					SD of Detected	1.203				SD of Detected		0.739
925					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
926					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
927												
928												
929					**Warning: There are only 7 Detected Values in this data**							
930					**Note: It should be noted that even though bootstrap may be performed on this data set**							
931					**the resulting calculations may not be reliable enough tp draw conclusions**							
932												
933					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
934												
935												
936					**UCL Statistics**							
937					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
938					Shapiro Wilk Test Statistic	0.747				Shapiro Wilk Test Statistic		0.911
939					5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value		0.803
940					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
941												
942					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
943					DL/2 Substitution Method					DL/2 Substitution Method		
944					Mean	1.333				Mean		0.0207
945					SD	1.203				SD		0.739
946					95% DL/2 (t) UCL	2.216				95% H-Stat (DL/2) UCL		3.319
947												
948					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
949					**MLE method failed to converge properly**					Mean in Log Scale		N/A
950										SD in Log Scale		N/A
951										Mean in Original Scale		N/A
952										SD in Original Scale		N/A
953										95% Percentile Bootstrap UCL		N/A
954										95% BCA Bootstrap UCL		N/A

955												
956	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
957					k star (bias corrected)	1.253	**Data appear Gamma Distributed at 5% Significance Level**					
958					Theta Star	1.064						
959					nu star	17.54						
960												
961					A-D Test Statistic	0.54	**Nonparametric Statistics**					
962					5% A-D Critical Value	0.715				Kaplan-Meier (KM) Method		
963					K-S Test Statistic	0.715				Mean		1.333
964					5% K-S Critical Value	0.315				SD		1.114
965	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.455
966										95% KM (t) UCL		2.216
967	**Assuming Gamma Distribution**									95% KM (z) UCL		2.081
968					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		2.216
969					Minimum	0.448				95% KM (bootstrap t) UCL		4.916
970					Maximum	3.843				95% KM (BCA) UCL		2.118
971					Mean	1.333				95% KM (Percentile Bootstrap) UCL		2.07
972					Median	0.752				95% KM (Chebyshev) UCL		3.314
973					SD	1.203				97.5% KM (Chebyshev) UCL		4.172
974					k star	1.253				99% KM (Chebyshev) UCL		5.856
975					Theta star	1.064						
976					Nu star	17.54	**Potential UCLs to Use**					
977					AppChi2	9.062				95% KM (Chebyshev) UCL		3.314
978					95% Gamma Approximate UCL	2.58						
979					95% Adjusted Gamma UCL	3.204						
980	**Note: DL/2 is not a recommended method.**											
981												
982												
983	**Total PCB_Congeners**											
984												
985	**General Statistics**											
986					Number of Valid Data	7				Number of Detected Data		7
987					Number of Distinct Detected Data	7				Number of Non-Detect Data		0
988					Number of Missing Values	9				Percent Non-Detects		0.00%
989												
990	**Raw Statistics**						**Log-transformed Statistics**					
991					Minimum Detected	12814				Minimum Detected		9.458
992					Maximum Detected	201308				Maximum Detected		12.21
993					Mean of Detected	66050				Mean of Detected		10.64
994					SD of Detected	69914				SD of Detected		1.015
995					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
996					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
997												
998												
999	**Warning: There are only 7 Detected Values in this data**											
1000	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1001	**the resulting calculations may not be reliable enough tp draw conclusions**											
1002												
1003	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1004												
1005												
1006	**UCL Statistics**											
1007	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

1008					Shapiro Wilk Test Statistic	0.788					Shapiro Wilk Test Statistic	0.913
1009					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
1010					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1011												
1012					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1013					DL/2 Substitution Method						DL/2 Substitution Method	
1014					Mean	66050					Mean	10.64
1015					SD	69914					SD	1.015
1016					95% DL/2 (t) UCL	117398					95% H-Stat (DL/2) UCL	330287
1017												
1018					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1019					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1020											SD in Log Scale	N/A
1021											Mean in Original Scale	N/A
1022											SD in Original Scale	N/A
1023											95% Percentile Bootstrap UCL	N/A
1024											95% BCA Bootstrap UCL	N/A
1025												
1026					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1027					k star (bias corrected)	0.803					**Data appear Gamma Distributed at 5% Significance Level**	
1028					Theta Star	82256						
1029					nu star	11.24						
1030												
1031					A-D Test Statistic	0.498					**Nonparametric Statistics**	
1032					5% A-D Critical Value	0.725					Kaplan-Meier (KM) Method	
1033					K-S Test Statistic	0.725					Mean	66050
1034					5% K-S Critical Value	0.318					SD	64727
1035					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	26425
1036											95% KM (t) UCL	117398
1037					**Assuming Gamma Distribution**						95% KM (z) UCL	109515
1038					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	117398
1039					Minimum	12814					95% KM (bootstrap t) UCL	183048
1040					Maximum	201308					95% KM (BCA) UCL	108809
1041					Mean	66050					95% KM (Percentile Bootstrap) UCL	106873
1042					Median	24540					95% KM (Chebyshev) UCL	181233
1043					SD	69914					97.5% KM (Chebyshev) UCL	231073
1044					k star	0.803					99% KM (Chebyshev) UCL	328974
1045					Theta star	82256						
1046					Nu star	11.24					**Potential UCLs to Use**	
1047					AppChi2	4.732					95% KM (Chebyshev) UCL	181233
1048					95% Gamma Approximate UCL	156917						
1049					95% Adjusted Gamma UCL	209628						
1050	**Note: DL/2 is not a recommended method.**											
1051												
1052												
1053	**Total PCBs, Adjusted**											
1054												
1055						**General Statistics**							
1056					Number of Valid Data	7					Number of Detected Data	7
1057					Number of Distinct Detected Data	7					Number of Non-Detect Data	0
1058					Number of Missing Values	9					Percent Non-Detects	0.00%
1059												
1060					**Raw Statistics**						**Log-transformed Statistics**	

1061					Minimum Detected	12043					Minimum Detected	9.396
1062					Maximum Detected	189724					Maximum Detected	12.15
1063					Mean of Detected	62658					Mean of Detected	10.59
1064					SD of Detected	66190					SD of Detected	1.022
1065					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1066					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1067												
1068												
1069					**Warning: There are only 7 Detected Values in this data**							
1070					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1071					**the resulting calculations may not be reliable enough tp draw conclusions**							
1072												
1073					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1074												
1075												
1076					**UCL Statistics**							
1077					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1078					Shapiro Wilk Test Statistic	0.791					Shapiro Wilk Test Statistic	0.911
1079					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
1080					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1081												
1082					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1083					DL/2 Substitution Method						DL/2 Substitution Method	
1084					Mean	62658					Mean	10.59
1085					SD	66190					SD	1.022
1086					95% DL/2 (t) UCL	111272					95% H-Stat (DL/2) UCL	320063
1087												
1088					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1089					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1090											SD in Log Scale	N/A
1091											Mean in Original Scale	N/A
1092											SD in Original Scale	N/A
1093											95% Percentile Bootstrap UCL	N/A
1094											95% BCA Bootstrap UCL	N/A
1095												
1096					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1097					k star (bias corrected)	0.797					**Data appear Gamma Distributed at 5% Significance Level**	
1098					Theta Star	78572						
1099					nu star	11.16						
1100												
1101					A-D Test Statistic	0.501					**Nonparametric Statistics**	
1102					5% A-D Critical Value	0.725					Kaplan-Meier (KM) Method	
1103					K-S Test Statistic	0.725					Mean	62658
1104					5% K-S Critical Value	0.318					SD	61280
1105					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	25017
1106											95% KM (t) UCL	111272
1107					**Assuming Gamma Distribution**						95% KM (z) UCL	103808
1108					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	111272
1109					Minimum	12043					95% KM (bootstrap t) UCL	218123
1110					Maximum	189724					95% KM (BCA) UCL	101474
1111					Mean	62658					95% KM (Percentile Bootstrap) UCL	102841
1112					Median	23045					95% KM (Chebyshev) UCL	171707
1113					SD	66190					97.5% KM (Chebyshev) UCL	218892

	A	B	C	D	E	F	G	H	I	J	K	L
1114					k star	0.797				99% KM (Chebyshev) UCL		311579
1115					Theta star	78572						
1116					Nu star	11.16	**Potential UCLs to Use**					
1117					AppChi2	4.682				95% KM (Chebyshev) UCL		171707
1118				95% Gamma Approximate UCL		149412						
1119				95% Adjusted Gamma UCL		199871						
1120	**Note: DL/2 is not a recommended method.**											
1121												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		C:\LWG_200808\InWatSed_Input_RM2.5W.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Arsenic											
10												
11				General Statistics								
12				Number of Valid Observations	10				Number of Distinct Observations	10		
13												
14				Raw Statistics					Log-transformed Statistics			
15				Minimum	2.32				Minimum of Log Data	0.842		
16				Maximum	6.5				Maximum of Log Data	1.872		
17				Mean	4.016				Mean of log Data	1.353		
18				Median	4.03				SD of log Data	0.288		
19				SD	1.165							
20				Coefficient of Variation	0.29							
21				Skewness	0.818							
22												
23				Relevant UCL Statistics								
24				Normal Distribution Test					Lognormal Distribution Test			
25				Shapiro Wilk Test Statistic	0.955				Shapiro Wilk Test Statistic	0.987		
26				Shapiro Wilk Critical Value	0.842				Shapiro Wilk Critical Value	0.842		
27				Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
28												
29				Assuming Normal Distribution					Assuming Lognormal Distribution			
30				95% Student's-t UCL	4.692				95% H-UCL	4.869		
31				95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL	5.619		
32				95% Adjusted-CLT UCL	4.724				97.5% Chebyshev (MVUE) UCL	6.312		
33				95% Modified-t UCL	4.708				99% Chebyshev (MVUE) UCL	7.674		
34												
35				Gamma Distribution Test					Data Distribution			
36				k star (bias corrected)	9.626				Data appear Normal at 5% Significance Level			
37				Theta Star	0.417							
38				nu star	192.5							
39				Approximate Chi Square Value (.05)	161.4				Nonparametric Statistics			
40				Adjusted Level of Significance	0.0267				95% CLT UCL	4.622		
41				Adjusted Chi Square Value	156.5				95% Jackknife UCL	4.692		
42									95% Standard Bootstrap UCL	4.578		
43				Anderson-Darling Test Statistic	0.174				95% Bootstrap-t UCL	4.861		
44				Anderson-Darling 5% Critical Value	0.725				95% Hall's Bootstrap UCL	5.07		
45				Kolmogorov-Smirnov Test Statistic	0.12				95% Percentile Bootstrap UCL	4.581		
46				Kolmogorov-Smirnov 5% Critical Value	0.266				95% BCA Bootstrap UCL	4.709		
47				Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL	5.623		
48									97.5% Chebyshev(Mean, Sd) UCL	6.318		
49				Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL	7.683		
50				95% Approximate Gamma UCL	4.79							
51				95% Adjusted Gamma UCL	4.941							
52												
53				Potential UCL to Use					Use 95% Student's-t UCL	4.692		

54												
55												
56	**Benzo(a)anthracene**											
57												
58						**General Statistics**							
59					Number of Valid Observations	10			Number of Distinct Observations	10		
60												
61					**Raw Statistics**				**Log-transformed Statistics**			
62					Minimum	11			Minimum of Log Data	2.398		
63					Maximum	550			Maximum of Log Data	6.31		
64					Mean	205.1			Mean of log Data	4.838		
65					Median	180			SD of log Data	1.223		
66					SD	174.9						
67					Coefficient of Variation	0.853						
68					Skewness	0.94						
69												
70						**Relevant UCL Statistics**							
71					**Normal Distribution Test**				**Lognormal Distribution Test**			
72					Shapiro Wilk Test Statistic	0.917			Shapiro Wilk Test Statistic	0.931		
73					Shapiro Wilk Critical Value	0.842			Shapiro Wilk Critical Value	0.842		
74					**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
75												
76					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
77					95% Student's-t UCL	306.5			95% H-UCL	1146		
78					**95% UCLs (Adjusted for Skewness)**				95% Chebyshev (MVUE) UCL	663.2		
79					95% Adjusted-CLT UCL	313.6			97.5% Chebyshev (MVUE) UCL	846.9		
80					95% Modified-t UCL	309.2			99% Chebyshev (MVUE) UCL	1208		
81												
82					**Gamma Distribution Test**				**Data Distribution**			
83					k star (bias corrected)	0.884			**Data appear Normal at 5% Significance Level**			
84					Theta Star	231.9						
85					nu star	17.69						
86					Approximate Chi Square Value (.05)	9.165			**Nonparametric Statistics**			
87					Adjusted Level of Significance	0.0267			95% CLT UCL	296.1		
88					Adjusted Chi Square Value	8.12			95% Jackknife UCL	306.5		
89									95% Standard Bootstrap UCL	290.7		
90					Anderson-Darling Test Statistic	0.17			95% Bootstrap-t UCL	361.2		
91					Anderson-Darling 5% Critical Value	0.745			95% Hall's Bootstrap UCL	373.5		
92					Kolmogorov-Smirnov Test Statistic	0.148			95% Percentile Bootstrap UCL	297		
93					Kolmogorov-Smirnov 5% Critical Value	0.273			95% BCA Bootstrap UCL	309		
94					**Data appear Gamma Distributed at 5% Significance Level**				95% Chebyshev(Mean, Sd) UCL	446.2		
95									97.5% Chebyshev(Mean, Sd) UCL	550.5		
96					**Assuming Gamma Distribution**				99% Chebyshev(Mean, Sd) UCL	755.4		
97					95% Approximate Gamma UCL	395.8						
98					95% Adjusted Gamma UCL	446.7						
99												
100					**Potential UCL to Use**				Use 95% Student's-t UCL	306.5		
101												
102												
103	**Benzo(a)pyrene**											
104												
105						**General Statistics**							
106					Number of Valid Observations	10			Number of Distinct Observations	10		

Raw Statistics		**Log-transformed Statistics**
Minimum	18	Minimum of Log Data	2.89
Maximum	970	Maximum of Log Data	6.877
Mean	369.3	Mean of log Data	5.428
Median	380	SD of log Data	1.234
SD	306		
Coefficient of Variation	0.829		
Skewness	0.816		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**
Shapiro Wilk Test Statistic	0.916	Shapiro Wilk Test Statistic	0.914
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	546.7	95% H-UCL	2144
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1216
95% Adjusted-CLT UCL	555.1	97.5% Chebyshev (MVUE) UCL	1554
95% Modified-t UCL	550.9	99% Chebyshev (MVUE) UCL	2218
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.887	**Data appear Normal at 5% Significance Level**	
Theta Star	416.4		
nu star	17.74		
Approximate Chi Square Value (.05)	9.201	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0267	95% CLT UCL	528.5
Adjusted Chi Square Value	8.153	95% Jackknife UCL	546.7
		95% Standard Bootstrap UCL	517.4
Anderson-Darling Test Statistic	0.28	95% Bootstrap-t UCL	601
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL	647.3
Kolmogorov-Smirnov Test Statistic	0.201	95% Percentile Bootstrap UCL	530.4
Kolmogorov-Smirnov 5% Critical Value	0.273	95% BCA Bootstrap UCL	535
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	791.1
		97.5% Chebyshev(Mean, Sd) UCL	973.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1332
95% Approximate Gamma UCL	711.9		
95% Adjusted Gamma UCL	803.4		
Potential UCL to Use		Use 95% Student's-t UCL	546.7

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9
Raw Statistics		**Log-transformed Statistics**	
Minimum	17	Minimum of Log Data	2.833
Maximum	600	Maximum of Log Data	6.397
Mean	275.2	Mean of log Data	5.214
Median	260	SD of log Data	1.126

160					SD	206.7						
161					Coefficient of Variation	0.751						
162					Skewness	0.545						
163												
164												
165					**Relevant UCL Statistics**							
166	**Normal Distribution Test**						**Lognormal Distribution Test**					
167					Shapiro Wilk Test Statistic	0.921					Shapiro Wilk Test Statistic	0.903
168					Shapiro Wilk Critical Value	0.842					Shapiro Wilk Critical Value	0.842
169	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
170												
171	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
172					95% Student's-t UCL	395					95% H-UCL	1224
173	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	833.7
174					95% Adjusted-CLT UCL	394.7					97.5% Chebyshev (MVUE) UCL	1058
175					95% Modified-t UCL	396.9					99% Chebyshev (MVUE) UCL	1497
176												
177	**Gamma Distribution Test**						**Data Distribution**					
178					k star (bias corrected)	1.033	**Data appear Normal at 5% Significance Level**					
179					Theta Star	266.4						
180					nu star	20.66						
181					Approximate Chi Square Value (.05)	11.34	**Nonparametric Statistics**					
182					Adjusted Level of Significance	0.0267					95% CLT UCL	382.7
183					Adjusted Chi Square Value	10.16					95% Jackknife UCL	395
184											95% Standard Bootstrap UCL	380.7
185					Anderson-Darling Test Statistic	0.238					95% Bootstrap-t UCL	411.7
186					Anderson-Darling 5% Critical Value	0.741					95% Hall's Bootstrap UCL	430.1
187					Kolmogorov-Smirnov Test Statistic	0.136					95% Percentile Bootstrap UCL	382.7
188					Kolmogorov-Smirnov 5% Critical Value	0.272					95% BCA Bootstrap UCL	382.5
189	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	560.1
190											97.5% Chebyshev(Mean, Sd) UCL	683.3
191	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	925.4
192					95% Approximate Gamma UCL	501.4						
193					95% Adjusted Gamma UCL	559.6						
194												
195	**Potential UCL to Use**										Use 95% Student's-t UCL	395
196												
197												
198	**Benzo(k)fluoranthene**											
199												
200					**General Statistics**							
201					Number of Valid Observations	10					Number of Distinct Observations	10
202												
203	**Raw Statistics**						**Log-transformed Statistics**					
204					Minimum	6.2					Minimum of Log Data	1.825
205					Maximum	430					Maximum of Log Data	6.064
206					Mean	124.7					Mean of log Data	4.258
207					Median	103					SD of log Data	1.282
208					SD	126.8						
209					Coefficient of Variation	1.017						
210					Skewness	1.698						
211												
212					**Relevant UCL Statistics**							

213	**Normal Distribution Test**						**Lognormal Distribution Test**					
214					Shapiro Wilk Test Statistic	0.832					Shapiro Wilk Test Statistic	0.957
215					Shapiro Wilk Critical Value	0.842					Shapiro Wilk Critical Value	0.842
216	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
217												
218	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
219					95% Student's-t UCL	198.2					95% H-UCL	783.9
220	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	406.5
221					95% Adjusted-CLT UCL	213.7					97.5% Chebyshev (MVUE) UCL	521.1
222					95% Modified-t UCL	201.8					99% Chebyshev (MVUE) UCL	746.1
223												
224	**Gamma Distribution Test**						**Data Distribution**					
225					k star (bias corrected)	0.777	**Data appear Gamma Distributed at 5% Significance Level**					
226					Theta Star	160.5						
227					nu star	15.54						
228					Approximate Chi Square Value (.05)	7.641	**Nonparametric Statistics**					
229					Adjusted Level of Significance	0.0267					95% CLT UCL	190.7
230					Adjusted Chi Square Value	6.7					95% Jackknife UCL	198.2
231											95% Standard Bootstrap UCL	186.5
232					Anderson-Darling Test Statistic	0.17					95% Bootstrap-t UCL	246.3
233					Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	470.3
234					Kolmogorov-Smirnov Test Statistic	0.135					95% Percentile Bootstrap UCL	195.8
235					Kolmogorov-Smirnov 5% Critical Value	0.274					95% BCA Bootstrap UCL	212.8
236	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	299.5
237											97.5% Chebyshev(Mean, Sd) UCL	375.1
238	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	523.6
239					95% Approximate Gamma UCL	253.7						
240					95% Adjusted Gamma UCL	289.3						
241												
242	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	253.7
243												
244												
245	**Dibenzo(a,h)anthracene**											
246												
247	**General Statistics**											
248					Number of Valid Observations	10					Number of Distinct Observations	10
249												
250	**Raw Statistics**						**Log-transformed Statistics**					
251					Minimum	2					Minimum of Log Data	0.693
252					Maximum	130					Maximum of Log Data	4.868
253					Mean	40.88					Mean of log Data	3.172
254					Median	35.5					SD of log Data	1.256
255					SD	39.44						
256					Coefficient of Variation	0.965						
257					Skewness	1.422						
258												
259	**Relevant UCL Statistics**											
260	**Normal Distribution Test**						**Lognormal Distribution Test**					
261					Shapiro Wilk Test Statistic	0.864					Shapiro Wilk Test Statistic	0.953
262					Shapiro Wilk Critical Value	0.842					Shapiro Wilk Critical Value	0.842
263	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
264												
265	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

266				95% Student's-t UCL	63.74					95% H-UCL	241.8
267	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	131.7
268				95% Adjusted-CLT UCL	67.39					97.5% Chebyshev (MVUE) UCL	168.6
269				95% Modified-t UCL	64.68					99% Chebyshev (MVUE) UCL	241
270											
271	**Gamma Distribution Test**						**Data Distribution**				
272				k star (bias corrected)	0.811		**Data appear Normal at 5% Significance Level**				
273				Theta Star	50.41						
274				nu star	16.22						
275				Approximate Chi Square Value (.05)	8.118		**Nonparametric Statistics**				
276				Adjusted Level of Significance	0.0267					95% CLT UCL	61.39
277				Adjusted Chi Square Value	7.143					95% Jackknife UCL	63.74
278										95% Standard Bootstrap UCL	60
279				Anderson-Darling Test Statistic	0.173					95% Bootstrap-t UCL	76.4
280				Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	175.7
281				Kolmogorov-Smirnov Test Statistic	0.147					95% Percentile Bootstrap UCL	62.36
282				Kolmogorov-Smirnov 5% Critical Value	0.273					95% BCA Bootstrap UCL	65.2
283	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	95.24
284										97.5% Chebyshev(Mean, Sd) UCL	118.8
285	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	165
286				95% Approximate Gamma UCL	81.68						
287				95% Adjusted Gamma UCL	92.82						
288											
289	**Potential UCL to Use**									Use 95% Student's-t UCL	63.74
290											
291											
292	**Dieldrin**										
293											
294	**General Statistics**										
295				Number of Valid Data	9					Number of Detected Data	6
296				Number of Distinct Detected Data	6					Number of Non-Detect Data	3
297										Percent Non-Detects	33.33%
298											
299	**Raw Statistics**						**Log-transformed Statistics**				
300				Minimum Detected	0.043					Minimum Detected	-3.147
301				Maximum Detected	0.352					Maximum Detected	-1.044
302				Mean of Detected	0.191					Mean of Detected	-1.89
303				SD of Detected	0.122					SD of Detected	0.821
304				Minimum Non-Detect	0.0528					Minimum Non-Detect	-2.941
305				Maximum Non-Detect	0.0653					Maximum Non-Detect	-2.729
306											
307	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	4
308	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	5
309	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	44.44%
310											
311	**Warning: There are only 6 Detected Values in this data**										
312	**Note: It should be noted that even though bootstrap may be performed on this data set**										
313	**the resulting calculations may not be reliable enough tp draw conclusions**										
314											
315	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**										
316											
317											
318	**UCL Statistics**										

	A	B	C	D	E	F	G	H	I	J	K	L
319	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
320	Shapiro Wilk Test Statistic					0.937	Shapiro Wilk Test Statistic					0.911
321	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
322	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
323												
324	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
325	DL/2 Substitution Method						DL/2 Substitution Method					
326	Mean					0.137	Mean					-2.447
327	SD					0.126	SD					1.059
328	95% DL/2 (t) UCL					0.215	95% H-Stat (DL/2) UCL					0.431
329												
330	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
331	Mean					0.0958	Mean in Log Scale					-2.32
332	SD					0.17	SD in Log Scale					0.915
333	95% MLE (t) UCL					0.201	Mean in Original Scale					0.141
334	95% MLE (Tiku) UCL					0.219	SD in Original Scale					0.122
335							95% Percentile Bootstrap UCL					0.209
336							95% BCA Bootstrap UCL					0.215
337												
338	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
339	k star (bias corrected)					1.253	**Data appear Normal at 5% Significance Level**					
340	Theta Star					0.152						
341	nu star					15.04						
342												
343	A-D Test Statistic					0.307	**Nonparametric Statistics**					
344	5% A-D Critical Value					0.703	Kaplan-Meier (KM) Method					
345	K-S Test Statistic					0.703	Mean					0.142
346	5% K-S Critical Value					0.335	SD					0.115
347	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0419
348							95% KM (t) UCL					0.22
349	**Assuming Gamma Distribution**						95% KM (z) UCL					0.211
350	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.215
351	Minimum					0.043	95% KM (bootstrap t) UCL					0.228
352	Maximum					0.352	95% KM (BCA) UCL					0.24
353	Mean					0.168	95% KM (Percentile Bootstrap) UCL					0.229
354	Median					0.122	95% KM (Chebyshev) UCL					0.324
355	SD					0.103	97.5% KM (Chebyshev) UCL					0.403
356	k star					2.057	99% KM (Chebyshev) UCL					0.558
357	Theta star					0.0817						
358	Nu star					37.02	**Potential UCLs to Use**					
359	AppChi2					24.1	95% KM (t) UCL					0.22
360	95% Gamma Approximate UCL					0.258	95% KM (Percentile Bootstrap) UCL					0.229
361	95% Adjusted Gamma UCL					0.284						
362	**Note: DL/2 is not a recommended method.**											
363												
364												
365	**Indeno(1,2,3-cd)pyrene**											
366												
367	**General Statistics**											
368	Number of Valid Observations					10	Number of Distinct Observations					9
369												
370	**Raw Statistics**						**Log-transformed Statistics**					
371	Minimum					14	Minimum of Log Data					2.639

372				Maximum	900					Maximum of Log Data	6.802	
373				Mean	309.6					Mean of log Data	5.23	
374				Median	300					SD of log Data	1.249	
375				SD	275.7							
376				Coefficient of Variation	0.891							
377				Skewness	1.172							
378												
379												
380	**Relevant UCL Statistics**											
381	**Normal Distribution Test**						**Lognormal Distribution Test**					
382				Shapiro Wilk Test Statistic	0.889					Shapiro Wilk Test Statistic	0.928	
383				Shapiro Wilk Critical Value	0.842					Shapiro Wilk Critical Value	0.842	
384	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
385												
386	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
387				95% Student's-t UCL	469.4					95% H-UCL	1853	
388	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	1021	
389				95% Adjusted-CLT UCL	487.6					97.5% Chebyshev (MVUE) UCL	1307	
390				95% Modified-t UCL	474.8					99% Chebyshev (MVUE) UCL	1867	
391												
392	**Gamma Distribution Test**						**Data Distribution**					
393				k star (bias corrected)	0.855		**Data appear Normal at 5% Significance Level**					
394				Theta Star	362.2							
395				nu star	17.1							
396				Approximate Chi Square Value (.05)	8.742		**Nonparametric Statistics**					
397				Adjusted Level of Significance	0.0267					95% CLT UCL	453	
398				Adjusted Chi Square Value	7.725					95% Jackknife UCL	469.4	
399										95% Standard Bootstrap UCL	444.7	
400				Anderson-Darling Test Statistic	0.227					95% Bootstrap-t UCL	542	
401				Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	787.8	
402				Kolmogorov-Smirnov Test Statistic	0.199					95% Percentile Bootstrap UCL	454.4	
403				Kolmogorov-Smirnov 5% Critical Value	0.273					95% BCA Bootstrap UCL	475.1	
404	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	689.7	
405										97.5% Chebyshev(Mean, Sd) UCL	854.1	
406	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	1177	
407				95% Approximate Gamma UCL	605.5							
408				95% Adjusted Gamma UCL	685.2							
409												
410	**Potential UCL to Use**									Use 95% Student's-t UCL	469.4	
411												
412												
413	**Lead**											
414												
415	**General Statistics**											
416				Number of Valid Observations	10					Number of Distinct Observations	10	
417												
418	**Raw Statistics**						**Log-transformed Statistics**					
419				Minimum	4.98					Minimum of Log Data	1.605	
420				Maximum	30.2					Maximum of Log Data	3.408	
421				Mean	12.64					Mean of log Data	2.372	
422				Median	9.33					SD of log Data	0.592	
423				SD	8.085							
424				Coefficient of Variation	0.64							

425					Skewness	1.277						
426												
427	**Relevant UCL Statistics**											
428	**Normal Distribution Test**						**Lognormal Distribution Test**					
429					Shapiro Wilk Test Statistic	0.857					Shapiro Wilk Test Statistic	0.94
430					Shapiro Wilk Critical Value	0.842					Shapiro Wilk Critical Value	0.842
431	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
432												
433	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
434					95% Student's-t UCL	17.33					95% H-UCL	20.34
435	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	23
436					95% Adjusted-CLT UCL	17.95					97.5% Chebyshev (MVUE) UCL	27.53
437					95% Modified-t UCL	17.5					99% Chebyshev (MVUE) UCL	36.43
438												
439	**Gamma Distribution Test**						**Data Distribution**					
440					k star (bias corrected)	2.298	**Data appear Normal at 5% Significance Level**					
441					Theta Star	5.501						
442					nu star	45.97						
443					Approximate Chi Square Value (.05)	31.41	**Nonparametric Statistics**					
444					Adjusted Level of Significance	0.0267					95% CLT UCL	16.85
445					Adjusted Chi Square Value	29.34					95% Jackknife UCL	17.33
446											95% Standard Bootstrap UCL	16.72
447					Anderson-Darling Test Statistic	0.41					95% Bootstrap-t UCL	19.91
448					Anderson-Darling 5% Critical Value	0.732					95% Hall's Bootstrap UCL	18.96
449					Kolmogorov-Smirnov Test Statistic	0.223					95% Percentile Bootstrap UCL	16.82
450					Kolmogorov-Smirnov 5% Critical Value	0.268					95% BCA Bootstrap UCL	17.34
451	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	23.79
452											97.5% Chebyshev(Mean, Sd) UCL	28.61
453	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	38.08
454					95% Approximate Gamma UCL	18.5						
455					95% Adjusted Gamma UCL	19.81						
456												
457	**Potential UCL to Use**										Use 95% Student's-t UCL	17.33
458												
459												
460	**Mercury**											
461												
462	**General Statistics**											
463					Number of Valid Observations	10					Number of Distinct Observations	8
464												
465	**Raw Statistics**						**Log-transformed Statistics**					
466					Minimum	0.019					Minimum of Log Data	-3.963
467					Maximum	0.14					Maximum of Log Data	-1.966
468					Mean	0.0551					Mean of log Data	-3.182
469					Median	0.0365					SD of log Data	0.777
470					SD	0.0456						
471					Coefficient of Variation	0.828						
472					Skewness	1.233						
473												
474												
475	**Relevant UCL Statistics**											
476	**Normal Distribution Test**						**Lognormal Distribution Test**					
477					Shapiro Wilk Test Statistic	0.785					Shapiro Wilk Test Statistic	0.865

478					Shapiro Wilk Critical Value	0.842					Shapiro Wilk Critical Value	0.842
479	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
480												
481	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
482					95% Student's-t UCL	0.0816					95% H-UCL	0.112
483	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.114
484					95% Adjusted-CLT UCL	0.0849					97.5% Chebyshev (MVUE) UCL	0.14
485					95% Modified-t UCL	0.0825					99% Chebyshev (MVUE) UCL	0.191
486												
487	**Gamma Distribution Test**						**Data Distribution**					
488					k star (bias corrected)	1.405	**Data appear Gamma Distributed at 5% Significance Level**					
489					Theta Star	0.0392						
490					nu star	28.11						
491					Approximate Chi Square Value (.05)	17.01	**Nonparametric Statistics**					
492					Adjusted Level of Significance	0.0267					95% CLT UCL	0.0788
493					Adjusted Chi Square Value	15.53					95% Jackknife UCL	0.0816
494											95% Standard Bootstrap UCL	0.0782
495					Anderson-Darling Test Statistic	0.654					95% Bootstrap-t UCL	0.106
496					Anderson-Darling 5% Critical Value	0.736					95% Hall's Bootstrap UCL	0.107
497					Kolmogorov-Smirnov Test Statistic	0.227					95% Percentile Bootstrap UCL	0.0787
498					Kolmogorov-Smirnov 5% Critical Value	0.27					95% BCA Bootstrap UCL	0.0838
499	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.118
500											97.5% Chebyshev(Mean, Sd) UCL	0.145
501	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.199
502					95% Approximate Gamma UCL	0.091						
503					95% Adjusted Gamma UCL	0.0997						
504												
505	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	0.091
506												
507												
508	**Naphthalene**											
509												
510	**General Statistics**											
511					Number of Valid Data	10					Number of Detected Data	7
512					Number of Distinct Detected Data	6					Number of Non-Detect Data	3
513											Percent Non-Detects	30.00%
514												
515	**Raw Statistics**						**Log-transformed Statistics**					
516					Minimum Detected	8.8					Minimum Detected	2.175
517					Maximum Detected	160					Maximum Detected	5.075
518					Mean of Detected	56.54					Mean of Detected	3.472
519					SD of Detected	64.58					SD of Detected	1.124
520					Minimum Non-Detect	2.9					Minimum Non-Detect	1.065
521					Maximum Non-Detect	9.9					Maximum Non-Detect	2.293
522												
523	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	4
524	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
525	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	40.00%
526												
527	**Warning: There are only 7 Detected Values in this data**											
528	**Note: It should be noted that even though bootstrap may be performed on this data set**											
529	**the resulting calculations may not be reliable enough tp draw conclusions**											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
532												
533												
534	UCL Statistics											
535	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
536	Shapiro Wilk Test Statistic					0.718	Shapiro Wilk Test Statistic					0.857
537	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
538	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
539												
540	Assuming Normal Distribution						Assuming Lognormal Distribution					
541	DL/2 Substitution Method						DL/2 Substitution Method					
542	Mean					40.61	Mean					2.764
543	SD					58.65	SD					1.496
544	95% DL/2 (t) UCL					74.61	95% H-Stat (DL/2) UCL					338.4
545												
546	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
547	Mean					18.71	Mean in Log Scale					2.706
548	SD					78.91	SD in Log Scale					1.542
549	95% MLE (t) UCL					64.46	Mean in Original Scale					40.35
550	95% MLE (Tiku) UCL					70.08	SD in Original Scale					58.82
551							95% Percentile Bootstrap UCL					72.21
552							95% BCA Bootstrap UCL					81.43
553												
554	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
555	k star (bias corrected)					0.68	Data Follow Appr. Gamma Distribution at 5% Significance Level					
556	Theta Star					83.21						
557	nu star					9.513						
558												
559	A-D Test Statistic					0.756	Nonparametric Statistics					
560	5% A-D Critical Value					0.727	Kaplan-Meier (KM) Method					
561	K-S Test Statistic					0.727	Mean					42.22
562	5% K-S Critical Value					0.319	SD					54.6
563	Data follow Appr. Gamma Distribution at 5% Significance Level						SE of Mean					18.65
564							95% KM (t) UCL					76.41
565	Assuming Gamma Distribution						95% KM (z) UCL					72.9
566	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					74.33
567	Minimum					1E-09	95% KM (bootstrap t) UCL					234.4
568	Maximum					160	95% KM (BCA) UCL					75.9
569	Mean					40.75	95% KM (Percentile Bootstrap) UCL					72.5
570	Median					17	95% KM (Chebyshev) UCL					123.5
571	SD					58.63	97.5% KM (Chebyshev) UCL					158.7
572	k star					0.171	99% KM (Chebyshev) UCL					227.8
573	Theta star					238.7						
574	Nu star					3.415	Potential UCLs to Use					
575	AppChi2					0.505	95% KM (BCA) UCL					75.9
576	95% Gamma Approximate UCL					275.4						
577	95% Adjusted Gamma UCL					395.2						
578	Note: DL/2 is not a recommended method.											
579												
580												
581	Total Aroclors											
582												
583	General Statistics											

584					Number of Valid Data	10				Number of Detected Data		5
585					Number of Distinct Detected Data	5				Number of Non-Detect Data		5
586										Percent Non-Detects		50.00%
587												
588	**Raw Statistics**						**Log-transformed Statistics**					
589					Minimum Detected	7.25				Minimum Detected		1.981
590					Maximum Detected	46.5				Maximum Detected		3.839
591					Mean of Detected	20.14				Mean of Detected		2.783
592					SD of Detected	15.73				SD of Detected		0.729
593					Minimum Non-Detect	2.3				Minimum Non-Detect		0.833
594					Maximum Non-Detect	3.1				Maximum Non-Detect		1.131
595												
596	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		5
597	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
598	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		50.00%
599												
600	**Warning: There are only 5 Detected Values in this data**											
601	**Note: It should be noted that even though bootstrap may be performed on this data set**											
602	**the resulting calculations may not be reliable enough tp draw conclusions**											
603												
604	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
605												
606												
607	**UCL Statistics**											
608	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
609					Shapiro Wilk Test Statistic	0.843				Shapiro Wilk Test Statistic		0.963
610					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
611	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
612												
613	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
614					DL/2 Substitution Method					DL/2 Substitution Method		
615					Mean	10.7				Mean		1.5
616					SD	14.46				SD		1.439
617					95% DL/2 (t) UCL	19.08				95% H-Stat (DL/2) UCL		33.12
618												
619					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
620					Mean	2.654				Mean in Log Scale		1.659
621					SD	22.27				SD in Log Scale		1.31
622					95% MLE (t) UCL	15.57				Mean in Original Scale		10.99
623					95% MLE (Tiku) UCL	18.57				SD in Original Scale		14.26
624										95% Percentile Bootstrap UCL		18.46
625										95% BCA Bootstrap UCL		21.15
626												
627	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
628					k star (bias corrected)	1.102	**Data appear Normal at 5% Significance Level**					
629					Theta Star	18.27						
630					nu star	11.02						
631												
632					A-D Test Statistic	0.284	**Nonparametric Statistics**					
633					5% A-D Critical Value	0.684				Kaplan-Meier (KM) Method		
634					K-S Test Statistic	0.684				Mean		13.7
635					5% K-S Critical Value	0.36				SD		11.86
636	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		4.192

637											95% KM (t) UCL	21.38
638	**Assuming Gamma Distribution**										95% KM (z) UCL	20.59
639	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	20.47
640	Minimum	7.25									95% KM (bootstrap t) UCL	27.44
641	Maximum	46.5									95% KM (BCA) UCL	26.42
642	Mean	20.14									95% KM (Percentile Bootstrap) UCL	22.71
643	Median	19.28									95% KM (Chebyshev) UCL	31.97
644	SD	10.55									97.5% KM (Chebyshev) UCL	39.88
645	k star	3.313									99% KM (Chebyshev) UCL	55.41
646	Theta star	6.081										
647	Nu star	66.25									**Potential UCLs to Use**	
648	AppChi2	48.52									95% KM (t) UCL	21.38
649	95% Gamma Approximate UCL	27.51									95% KM (Percentile Bootstrap) UCL	22.71
650	95% Adjusted Gamma UCL	29.08										
651	**Note: DL/2 is not a recommended method.**											
652												
653												
654	**Total DDT**											
655												
656	**General Statistics**											
657	Number of Valid Observations	10									Number of Distinct Observations	10
658												
659	**Raw Statistics**										**Log-transformed Statistics**	
660	Minimum	0.363									Minimum of Log Data	-1.013
661	Maximum	5.3									Maximum of Log Data	1.668
662	Mean	1.448									Mean of log Data	-0.0624
663	Median	0.617									SD of log Data	0.905
664	SD	1.645										
665	Coefficient of Variation	1.136										
666	Skewness	1.891										
667												
668	**Relevant UCL Statistics**											
669	**Normal Distribution Test**										**Lognormal Distribution Test**	
670	Shapiro Wilk Test Statistic	0.691									Shapiro Wilk Test Statistic	0.862
671	Shapiro Wilk Critical Value	0.842									Shapiro Wilk Critical Value	0.842
672	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
673												
674	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
675	95% Student's-t UCL	2.402									95% H-UCL	3.403
676	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	3.089
677	95% Adjusted-CLT UCL	2.636									97.5% Chebyshev (MVUE) UCL	3.845
678	95% Modified-t UCL	2.454									99% Chebyshev (MVUE) UCL	5.33
679												
680	**Gamma Distribution Test**										**Data Distribution**	
681	k star (bias corrected)	0.974									**Data appear Lognormal at 5% Significance Level**	
682	Theta Star	1.486										
683	nu star	19.49										
684	Approximate Chi Square Value (.05)	10.48									**Nonparametric Statistics**	
685	Adjusted Level of Significance	0.0267									95% CLT UCL	2.304
686	Adjusted Chi Square Value	9.348									95% Jackknife UCL	2.402
687											95% Standard Bootstrap UCL	2.239
688	Anderson-Darling Test Statistic	0.942									95% Bootstrap-t UCL	5.056
689	Anderson-Darling 5% Critical Value	0.743									95% Hall's Bootstrap UCL	6.321

	A	B	C	D	E	F	G	H	I	J	K	L
690	Kolmogorov-Smirnov Test Statistic					0.3	95% Percentile Bootstrap UCL					2.308
691	Kolmogorov-Smirnov 5% Critical Value					0.272	95% BCA Bootstrap UCL					2.512
692	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					3.716
693							97.5% Chebyshev(Mean, Sd) UCL					4.697
694	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					6.624
695	95% Approximate Gamma UCL					2.694						
696	95% Adjusted Gamma UCL					3.019						
697												
698	**Potential UCL to Use**						Use 95% H-UCL					3.403
699												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	C:\LWG_200808\InWatSed_Input_RM2.5MC.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenic

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		**Log-transformed Statistics**	
Minimum	3.22	Minimum of Log Data	1.169
Maximum	5.19	Maximum of Log Data	1.647
Mean	4.26	Mean of log Data	1.437
Median	4.39	SD of log Data	0.168
SD	0.689		
Coefficient of Variation	0.162		
Skewness	-0.345		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.954	Shapiro Wilk Test Statistic	0.937
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.766	95% H-UCL	4.88
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.442
95% Adjusted-CLT UCL	4.652	97.5% Chebyshev (MVUE) UCL	5.953
95% Modified-t UCL	4.761	99% Chebyshev (MVUE) UCL	6.956
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	24.42	**Data appear Normal at 5% Significance Level**	
Theta Star	0.174		
nu star	341.9		
Approximate Chi Square Value (.05)	300.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0158	95% CLT UCL	4.689

54					Adjusted Chi Square Value	288.2					95% Jackknife UCL	4.766
55											95% Standard Bootstrap UCL	4.654
56					Anderson-Darling Test Statistic	0.307					95% Bootstrap-t UCL	4.727
57					Anderson-Darling 5% Critical Value	0.707					95% Hall's Bootstrap UCL	4.66
58					Kolmogorov-Smirnov Test Statistic	0.216					95% Percentile Bootstrap UCL	4.656
59					Kolmogorov-Smirnov 5% Critical Value	0.311					95% BCA Bootstrap UCL	4.649
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	5.396
61											97.5% Chebyshev(Mean, Sd) UCL	5.887
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	6.852
63					95% Approximate Gamma UCL	4.854						
64					95% Adjusted Gamma UCL	5.055						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	4.766
67												
68												
69	**Benzo(a)anthracene**											
70												
71					**General Statistics**							
72					Number of Valid Observations	7					Number of Distinct Observations	7
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	87					Minimum of Log Data	4.466
76					Maximum	420					Maximum of Log Data	6.04
77					Mean	212.4					Mean of log Data	5.211
78					Median	180					SD of log Data	0.582
79					SD	127.7						
80					Coefficient of Variation	0.601						
81					Skewness	0.972						
82												
83												
84					**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 7 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.861					Shapiro Wilk Test Statistic	0.941
99					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	306.2					95% H-UCL	405.9
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	415.2
105					95% Adjusted-CLT UCL	310.8					97.5% Chebyshev (MVUE) UCL	503.4
106					95% Modified-t UCL	309.2					99% Chebyshev (MVUE) UCL	676.6

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	2.116	**Data appear Normal at 5% Significance Level**					
110					Theta Star	100.4						
111					nu star	29.63						
112					Approximate Chi Square Value (.05)	18.2	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0158					95% CLT UCL	291.8
114					Adjusted Chi Square Value	15.56					95% Jackknife UCL	306.2
115											95% Standard Bootstrap UCL	284.4
116					Anderson-Darling Test Statistic	0.355					95% Bootstrap-t UCL	428.6
117					Anderson-Darling 5% Critical Value	0.711					95% Hall's Bootstrap UCL	934.7
118					Kolmogorov-Smirnov Test Statistic	0.225					95% Percentile Bootstrap UCL	290
119					Kolmogorov-Smirnov 5% Critical Value	0.313					95% BCA Bootstrap UCL	297.1
120	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	422.9
121											97.5% Chebyshev(Mean, Sd) UCL	513.9
122	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	692.8
123					95% Approximate Gamma UCL	345.8						
124					95% Adjusted Gamma UCL	404.5						
125												
126	**Potential UCL to Use**										Use 95% Student's-t UCL	306.2
127												
128												
129	**Benzo(a)pyrene**											
130												
131	**General Statistics**											
132					Number of Valid Observations	7					Number of Distinct Observations	7
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	140					Minimum of Log Data	4.942
136					Maximum	690					Maximum of Log Data	6.537
137					Mean	341.4					Mean of log Data	5.695
138					Median	260					SD of log Data	0.56
139					SD	200.3						
140					Coefficient of Variation	0.587						
141					Skewness	1.082						
142												
143												
144	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
145												
146	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
147	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
148												
149												
150	**Warning: There are only 7 Values in this data**											
151	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
152	**the resulting calculations may not be reliable enough to draw conclusions**											
153												
154	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
155												
156	**Relevant UCL Statistics**											
157	**Normal Distribution Test**						**Lognormal Distribution Test**					
158					Shapiro Wilk Test Statistic	0.879					Shapiro Wilk Test Statistic	0.961
159					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803

Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**
Assuming Normal Distribution		**Assuming Lognormal Distribution**
95% Student's-t UCL	488.5	95% H-UCL 629
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL 654.7
95% Adjusted-CLT UCL	499	97.5% Chebyshev (MVUE) UCL 791.1
95% Modified-t UCL	493.7	99% Chebyshev (MVUE) UCL 1059
Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.256	**Data appear Normal at 5% Significance Level**
Theta Star	151.3	
nu star	31.59	
Approximate Chi Square Value (.05)	19.75	**Nonparametric Statistics**
Adjusted Level of Significance	0.0158	95% CLT UCL 465.9
Adjusted Chi Square Value	16.98	95% Jackknife UCL 488.5
		95% Standard Bootstrap UCL 456.7
Anderson-Darling Test Statistic	0.307	95% Bootstrap-t UCL 696.1
Anderson-Darling 5% Critical Value	0.71	95% Hall's Bootstrap UCL 1318
Kolmogorov-Smirnov Test Statistic	0.201	95% Percentile Bootstrap UCL 467.1
Kolmogorov-Smirnov 5% Critical Value	0.313	95% BCA Bootstrap UCL 477.1
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 671.4
		97.5% Chebyshev(Mean, Sd) UCL 814.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1095
95% Approximate Gamma UCL	546.2	
95% Adjusted Gamma UCL	635.2	
Potential UCL to Use		Use 95% Student's-t UCL 488.5

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		**Log-transformed Statistics**	
Minimum	130	Minimum of Log Data	4.868
Maximum	640	Maximum of Log Data	6.461
Mean	312.9	Mean of log Data	5.613
Median	230	SD of log Data	0.548
SD	182		
Coefficient of Variation	0.582		
Skewness	1.179		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218					Shapiro Wilk Test Statistic	0.868					Shapiro Wilk Test Statistic	0.952
219					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803
220	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223					95% Student's-t UCL	446.5					95% H-UCL	564
224	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	592.8
225					95% Adjusted-CLT UCL	458.8					97.5% Chebyshev (MVUE) UCL	714.8
226					95% Modified-t UCL	451.6					99% Chebyshev (MVUE) UCL	954.4
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229					k star (bias corrected)	2.336	**Data appear Normal at 5% Significance Level**					
230					Theta Star	133.9						
231					nu star	32.71						
232					Approximate Chi Square Value (.05)	20.63	**Nonparametric Statistics**					
233					Adjusted Level of Significance	0.0158					95% CLT UCL	426
234					Adjusted Chi Square Value	17.8					95% Jackknife UCL	446.5
235											95% Standard Bootstrap UCL	419.3
236					Anderson-Darling Test Statistic	0.355					95% Bootstrap-t UCL	652.8
237					Anderson-Darling 5% Critical Value	0.71					95% Hall's Bootstrap UCL	1187
238					Kolmogorov-Smirnov Test Statistic	0.229					95% Percentile Bootstrap UCL	420
239					Kolmogorov-Smirnov 5% Critical Value	0.313					95% BCA Bootstrap UCL	437.1
240	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	612.7
241											97.5% Chebyshev(Mean, Sd) UCL	742.4
242	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	997.3
243					95% Approximate Gamma UCL	495.9						
244					95% Adjusted Gamma UCL	574.9						
245												
246	**Potential UCL to Use**										Use 95% Student's-t UCL	446.5
247												
248												
249	**Benzo(k)fluoranthene**											
250												
251	**General Statistics**											
252					Number of Valid Observations	7					Number of Distinct Observations	7
253												
254	**Raw Statistics**						**Log-transformed Statistics**					
255					Minimum	42					Minimum of Log Data	3.738
256					Maximum	210					Maximum of Log Data	5.347
257					Mean	100.1					Mean of log Data	4.47
258					Median	73					SD of log Data	0.552
259					SD	59.49						
260					Coefficient of Variation	0.594						
261					Skewness	1.265						
262												
263												
264	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
265												

266	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
267	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
268												
269												
270	Warning: There are only 7 Values in this data											
271	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
272	the resulting calculations may not be reliable enough to draw conclusions											
273												
274	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
275												
276	Relevant UCL Statistics											
277	Normal Distribution Test						Lognormal Distribution Test					
278	Shapiro Wilk Test Statistic				0.866		Shapiro Wilk Test Statistic				0.957	
279	Shapiro Wilk Critical Value				0.803		Shapiro Wilk Critical Value				0.803	
280	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
281												
282	Assuming Normal Distribution						Assuming Lognormal Distribution					
283	95% Student's-t UCL				143.8		95% H-UCL				181.7	
284	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				190.3	
285	95% Adjusted-CLT UCL				148.6		97.5% Chebyshev (MVUE) UCL				229.6	
286	95% Modified-t UCL				145.6		99% Chebyshev (MVUE) UCL				306.9	
287												
288	Gamma Distribution Test						Data Distribution					
289	k star (bias corrected)				2.283		Data appear Normal at 5% Significance Level					
290	Theta Star				43.87							
291	nu star				31.96							
292	Approximate Chi Square Value (.05)				20.04		Nonparametric Statistics					
293	Adjusted Level of Significance				0.0158		95% CLT UCL				137.1	
294	Adjusted Chi Square Value				17.25		95% Jackknife UCL				143.8	
295							95% Standard Bootstrap UCL				134.7	
296	Anderson-Darling Test Statistic				0.339		95% Bootstrap-t UCL				210.4	
297	Anderson-Darling 5% Critical Value				0.71		95% Hall's Bootstrap UCL				368	
298	Kolmogorov-Smirnov Test Statistic				0.231		95% Percentile Bootstrap UCL				136.1	
299	Kolmogorov-Smirnov 5% Critical Value				0.313		95% BCA Bootstrap UCL				143.7	
300	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				198.2	
301							97.5% Chebyshev(Mean, Sd) UCL				240.6	
302	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL				323.9	
303	95% Approximate Gamma UCL				159.7							
304	95% Adjusted Gamma UCL				185.5							
305												
306	Potential UCL to Use						Use 95% Student's-t UCL				143.8	
307												
308												
309	Bis(2-ethylhexyl) phthalate											
310												
311	General Statistics											
312	Number of Valid Data				7		Number of Detected Data				6	
313	Number of Distinct Detected Data				5		Number of Non-Detect Data				1	
314							Percent Non-Detects				14.29%	
315												
316	Raw Statistics						Log-transformed Statistics					
317	Minimum Detected				14		Minimum Detected				2.639	
318	Maximum Detected				140		Maximum Detected				4.942	

319				Mean of Detected	66.67					Mean of Detected	3.955	
320				SD of Detected	45.1					SD of Detected	0.835	
321				Minimum Non-Detect	7					Minimum Non-Detect	1.946	
322				Maximum Non-Detect	7					Maximum Non-Detect	1.946	
323												
324												
325				Warning: There are only 6 Detected Values in this data								
326				Note: It should be noted that even though bootstrap may be performed on this data set								
327				the resulting calculations may not be reliable enough tp draw conclusions								
328												
329				It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.								
330												
331												
332				UCL Statistics								
333				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
334				Shapiro Wilk Test Statistic	0.946					Shapiro Wilk Test Statistic	0.941	
335				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788	
336				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
337												
338				Assuming Normal Distribution						Assuming Lognormal Distribution		
339				DL/2 Substitution Method						DL/2 Substitution Method		
340				Mean	57.64					Mean	3.569	
341				SD	47.59					SD	1.274	
342				95% DL/2 (t) UCL	92.6					95% H-Stat (DL/2) UCL	343.8	
343												
344				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
345				Mean	54.39					Mean in Log Scale	3.661	
346				SD	49.27					SD in Log Scale	1.088	
347				95% MLE (t) UCL	90.58					Mean in Original Scale	58.1	
348				95% MLE (Tiku) UCL	90.85					SD in Original Scale	47	
349										95% Percentile Bootstrap UCL	86.71	
350										95% BCA Bootstrap UCL	91.57	
351												
352				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
353				k star (bias corrected)	1.207					Data appear Normal at 5% Significance Level		
354				Theta Star	55.24							
355				nu star	14.48							
356												
357				A-D Test Statistic	0.246					Nonparametric Statistics		
358				5% A-D Critical Value	0.704					Kaplan-Meier (KM) Method		
359				K-S Test Statistic	0.704					Mean	59.14	
360				5% K-S Critical Value	0.336					SD	42.34	
361				Data appear Gamma Distributed at 5% Significance Level						SE of Mean	17.53	
362										95% KM (t) UCL	93.21	
363				Assuming Gamma Distribution						95% KM (z) UCL	87.98	
364				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	92.6	
365				Minimum	2.096					95% KM (bootstrap t) UCL	99.5	
366				Maximum	140					95% KM (BCA) UCL	90.71	
367				Mean	57.44					95% KM (Percentile Bootstrap) UCL	89.57	
368				Median	56					95% KM (Chebyshev) UCL	135.6	
369				SD	47.86					97.5% KM (Chebyshev) UCL	168.6	
370				k star	0.687					99% KM (Chebyshev) UCL	233.6	
371				Theta star	83.66							

372					Nu star	9.613	**Potential UCLs to Use**					
373					AppChi2	3.701					95% KM (t) UCL	93.21
374					95% Gamma Approximate UCL	149.2					95% KM (Percentile Bootstrap) UCL	89.57
375					95% Adjusted Gamma UCL	205.9						
376	**Note: DL/2 is not a recommended method.**											
377												
378												
379	**Dibenzo(a,h)anthracene**											
380												
381	**General Statistics**											
382					Number of Valid Observations	7					Number of Distinct Observations	7
383												
384	**Raw Statistics**						**Log-transformed Statistics**					
385					Minimum	12					Minimum of Log Data	2.485
386					Maximum	60					Maximum of Log Data	4.094
387					Mean	33.57					Mean of log Data	3.379
388					Median	26					SD of log Data	0.571
389					SD	18.55						
390					Coefficient of Variation	0.552						
391					Skewness	0.726						
392												
393												
394	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
395												
396	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
397	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
398												
399												
400	**Warning: There are only 7 Values in this data**											
401	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
402	**the resulting calculations may not be reliable enough to draw conclusions**											
403												
404	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
405												
406	**Relevant UCL Statistics**											
407	**Normal Distribution Test**						**Lognormal Distribution Test**					
408					Shapiro Wilk Test Statistic	0.87					Shapiro Wilk Test Statistic	0.935
409					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803
410	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
411												
412	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
413					95% Student's-t UCL	47.19					95% H-UCL	63.4
414	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	65.46
415					95% Adjusted-CLT UCL	47.16					97.5% Chebyshev (MVUE) UCL	79.23
416					95% Modified-t UCL	47.51					99% Chebyshev (MVUE) UCL	106.3
417												
418	**Gamma Distribution Test**						**Data Distribution**					
419					k star (bias corrected)	2.302	**Data appear Normal at 5% Significance Level**					
420					Theta Star	14.58						
421					nu star	32.23						
422					Approximate Chi Square Value (.05)	20.26	**Nonparametric Statistics**					
423					Adjusted Level of Significance	0.0158					95% CLT UCL	45.1
424					Adjusted Chi Square Value	17.45					95% Jackknife UCL	47.19

425											95% Standard Bootstrap UCL	44.15
426					Anderson-Darling Test Statistic	0.358					95% Bootstrap-t UCL	61.48
427					Anderson-Darling 5% Critical Value	0.71					95% Hall's Bootstrap UCL	75.04
428					Kolmogorov-Smirnov Test Statistic	0.196					95% Percentile Bootstrap UCL	44.71
429					Kolmogorov-Smirnov 5% Critical Value	0.313					95% BCA Bootstrap UCL	45.29
430					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	64.13
431											97.5% Chebyshev(Mean, Sd) UCL	77.35
432					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	103.3
433					95% Approximate Gamma UCL	53.42						
434					95% Adjusted Gamma UCL	62.01						
435												
436					**Potential UCL to Use**						Use 95% Student's-t UCL	47.19
437												
438												
439	**Indeno(1,2,3-cd)pyrene**											
440												
441					**General Statistics**							
442					Number of Valid Observations	7					Number of Distinct Observations	7
443												
444					**Raw Statistics**						**Log-transformed Statistics**	
445					Minimum	98					Minimum of Log Data	4.585
446					Maximum	540					Maximum of Log Data	6.292
447					Mean	261.1					Mean of log Data	5.415
448					Median	190					SD of log Data	0.589
449					SD	158.4						
450					Coefficient of Variation	0.607						
451					Skewness	1.079						
452												
453												
454					**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
455												
456					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
457					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
458												
459												
460					**Warning: There are only 7 Values in this data**							
461					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
462					**the resulting calculations may not be reliable enough to draw conclusions**							
463												
464					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
465												
466					**Relevant UCL Statistics**							
467					**Normal Distribution Test**						**Lognormal Distribution Test**	
468					Shapiro Wilk Test Statistic	0.887					Shapiro Wilk Test Statistic	0.969
469					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803
470					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
471												
472					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
473					95% Student's-t UCL	377.5					95% H-UCL	505.3
474					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	513.8
475					95% Adjusted-CLT UCL	385.7					97.5% Chebyshev (MVUE) UCL	623.7
476					95% Modified-t UCL	381.5					99% Chebyshev (MVUE) UCL	839.4
477												

478	**Gamma Distribution Test**						**Data Distribution**					
479	k star (bias corrected)					2.088	**Data appear Normal at 5% Significance Level**					
480	Theta Star					125.1						
481	nu star					29.23						
482	Approximate Chi Square Value (.05)					17.88	**Nonparametric Statistics**					
483	Adjusted Level of Significance					0.0158	95% CLT UCL					359.6
484	Adjusted Chi Square Value					15.27	95% Jackknife UCL					377.5
485							95% Standard Bootstrap UCL					352.1
486	Anderson-Darling Test Statistic					0.282	95% Bootstrap-t UCL					512.2
487	Anderson-Darling 5% Critical Value					0.711	95% Hall's Bootstrap UCL					974.7
488	Kolmogorov-Smirnov Test Statistic					0.22	95% Percentile Bootstrap UCL					360
489	Kolmogorov-Smirnov 5% Critical Value					0.313	95% BCA Bootstrap UCL					371.4
490	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					522.1
491							97.5% Chebyshev(Mean, Sd) UCL					635
492	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					856.8
493	95% Approximate Gamma UCL					426.7						
494	95% Adjusted Gamma UCL					499.8						
495												
496	**Potential UCL to Use**						Use 95% Student's-t UCL					377.5
497												
498												
499	**Lead**											
500												
501	**General Statistics**											
502	Number of Valid Observations					7	Number of Distinct Observations					6
503												
504	**Raw Statistics**						**Log-transformed Statistics**					
505	Minimum					5.8	Minimum of Log Data					1.758
506	Maximum					21.5	Maximum of Log Data					3.068
507	Mean					12.77	Mean of log Data					2.464
508	Median					13	SD of log Data					0.449
509	SD					5.485						
510	Coefficient of Variation					0.43						
511	Skewness					0.508						
512												
513												
514	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
515												
516	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
517	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
518												
519												
520	**Warning: There are only 7 Values in this data**											
521	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
522	**the resulting calculations may not be reliable enough to draw conclusions**											
523												
524	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
525												
526	**Relevant UCL Statistics**											
527	**Normal Distribution Test**						**Lognormal Distribution Test**					
528	Shapiro Wilk Test Statistic					0.957	Shapiro Wilk Test Statistic					0.974
529	Shapiro Wilk Critical Value					0.803	Shapiro Wilk Critical Value					0.803
530	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

531												
532	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
533					95% Student's-t UCL	16.8					95% H-UCL	20.04
534	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	22.32
535					95% Adjusted-CLT UCL	16.61					97.5% Chebyshev (MVUE) UCL	26.44
536					95% Modified-t UCL	16.87					99% Chebyshev (MVUE) UCL	34.53
537												
538	**Gamma Distribution Test**						**Data Distribution**					
539					k star (bias corrected)	3.621	**Data appear Normal at 5% Significance Level**					
540					Theta Star	3.527						
541					nu star	50.7						
542					Approximate Chi Square Value (.05)	35.35	**Nonparametric Statistics**					
543					Adjusted Level of Significance	0.0158					95% CLT UCL	16.18
544					Adjusted Chi Square Value	31.52					95% Jackknife UCL	16.8
545											95% Standard Bootstrap UCL	15.89
546					Anderson-Darling Test Statistic	0.196					95% Bootstrap-t UCL	17.86
547					Anderson-Darling 5% Critical Value	0.71					95% Hall's Bootstrap UCL	19.45
548					Kolmogorov-Smirnov Test Statistic	0.143					95% Percentile Bootstrap UCL	16.23
549					Kolmogorov-Smirnov 5% Critical Value	0.313					95% BCA Bootstrap UCL	16.56
550	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	21.81
551											97.5% Chebyshev(Mean, Sd) UCL	25.72
552	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	33.4
553					95% Approximate Gamma UCL	18.32						
554					95% Adjusted Gamma UCL	20.54						
555												
556	**Potential UCL to Use**										Use 95% Student's-t UCL	16.8
557												
558												
559	**Mercury**											
560												
561	**General Statistics**											
562					Number of Valid Observations	7					Number of Distinct Observations	7
563												
564	**Raw Statistics**						**Log-transformed Statistics**					
565					Minimum	0.011					Minimum of Log Data	-4.51
566					Maximum	0.179					Maximum of Log Data	-1.72
567					Mean	0.0785					Mean of log Data	-2.91
568					Median	0.052					SD of log Data	0.977
569					SD	0.0683						
570					Coefficient of Variation	0.869						
571					Skewness	0.987						
572												
573												
574	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
575												
576	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
577	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
578												
579												
580	**Warning: There are only 7 Values in this data**											
581	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
582	**the resulting calculations may not be reliable enough to draw conclusions**											
583												

584	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
585												
586	**Relevant UCL Statistics**											
587	**Normal Distribution Test**						**Lognormal Distribution Test**					
588					Shapiro Wilk Test Statistic	0.809					Shapiro Wilk Test Statistic	0.939
589					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803
590	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
591												
592	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
593					95% Student's-t UCL	0.129					95% H-UCL	0.373
594	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.21
595					95% Adjusted-CLT UCL	0.131					97.5% Chebyshev (MVUE) UCL	0.267
596					95% Modified-t UCL	0.13					99% Chebyshev (MVUE) UCL	0.377
597												
598	**Gamma Distribution Test**						**Data Distribution**					
599					k star (bias corrected)	0.96	**Data appear Normal at 5% Significance Level**					
600					Theta Star	0.0817						
601					nu star	13.45						
602					Approximate Chi Square Value (.05)	6.194	**Nonparametric Statistics**					
603					Adjusted Level of Significance	0.0158					95% CLT UCL	0.121
604					Adjusted Chi Square Value	4.79					95% Jackknife UCL	0.129
605											95% Standard Bootstrap UCL	0.118
606					Anderson-Darling Test Statistic	0.364					95% Bootstrap-t UCL	0.23
607					Anderson-Darling 5% Critical Value	0.721					95% Hall's Bootstrap UCL	0.529
608					Kolmogorov-Smirnov Test Statistic	0.215					95% Percentile Bootstrap UCL	0.119
609					Kolmogorov-Smirnov 5% Critical Value	0.317					95% BCA Bootstrap UCL	0.122
610	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.191
611											97.5% Chebyshev(Mean, Sd) UCL	0.24
612	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.335
613					95% Approximate Gamma UCL	0.17						
614					95% Adjusted Gamma UCL	0.22						
615												
616	**Potential UCL to Use**										Use 95% Student's-t UCL	0.129
617												
618												
619	**Naphthalene**											
620												
621	**General Statistics**											
622					Number of Valid Observations	7					Number of Distinct Observations	7
623												
624	**Raw Statistics**						**Log-transformed Statistics**					
625					Minimum	5.1					Minimum of Log Data	1.629
626					Maximum	140					Maximum of Log Data	4.942
627					Mean	58.73					Mean of log Data	3.577
628					Median	32					SD of log Data	1.185
629					SD	55.16						
630					Coefficient of Variation	0.939						
631					Skewness	0.847						
632												
633												
634	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
635												
636	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											

	A	B	C	D	E	F	G	H	I	J	K	L
637	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
638												
639												
640	Warning: There are only 7 Values in this data											
641	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
642	the resulting calculations may not be reliable enough to draw conclusions											
643												
644	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
645												
646	Relevant UCL Statistics											
647	Normal Distribution Test						Lognormal Distribution Test					
648					Shapiro Wilk Test Statistic	0.842				Shapiro Wilk Test Statistic	0.949	
649					Shapiro Wilk Critical Value	0.803				Shapiro Wilk Critical Value	0.803	
650	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
651												
652	Assuming Normal Distribution						Assuming Lognormal Distribution					
653					95% Student's-t UCL	99.24				95% H-UCL	559.9	
654	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	185.1	
655					95% Adjusted-CLT UCL	100.2				97.5% Chebyshev (MVUE) UCL	238	
656					95% Modified-t UCL	100.4				99% Chebyshev (MVUE) UCL	341.9	
657												
658	Gamma Distribution Test						Data Distribution					
659					k star (bias corrected)	0.75	Data appear Normal at 5% Significance Level					
660					Theta Star	78.29						
661					nu star	10.5						
662					Approximate Chi Square Value (.05)	4.258	Nonparametric Statistics					
663					Adjusted Level of Significance	0.0158				95% CLT UCL	93.02	
664					Adjusted Chi Square Value	3.144				95% Jackknife UCL	99.24	
665										95% Standard Bootstrap UCL	91.31	
666					Anderson-Darling Test Statistic	0.265				95% Bootstrap-t UCL	150.2	
667					Anderson-Darling 5% Critical Value	0.726				95% Hall's Bootstrap UCL	126.7	
668					Kolmogorov-Smirnov Test Statistic	0.184				95% Percentile Bootstrap UCL	90.86	
669					Kolmogorov-Smirnov 5% Critical Value	0.319				95% BCA Bootstrap UCL	94.43	
670	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	149.6	
671										97.5% Chebyshev(Mean, Sd) UCL	188.9	
672	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	266.2	
673					95% Approximate Gamma UCL	144.9						
674					95% Adjusted Gamma UCL	196.2						
675												
676	Potential UCL to Use									Use 95% Student's-t UCL	99.24	
677												
678												
679	Total Aroclors											
680												
681	General Statistics											
682					Number of Valid Data	7				Number of Detected Data	6	
683					Number of Distinct Detected Data	6				Number of Non-Detect Data	1	
684										Percent Non-Detects	14.29%	
685												
686	Raw Statistics						Log-transformed Statistics					
687					Minimum Detected	14.15				Minimum Detected	2.65	
688					Maximum Detected	59.25				Maximum Detected	4.082	
689					Mean of Detected	29.47				Mean of Detected	3.287	

	A	B	C	D	E	F	G	H	I	J	K	L
690					SD of Detected	15.47					SD of Detected	0.464
691					Minimum Non-Detect	1.3					Minimum Non-Detect	0.262
692					Maximum Non-Detect	1.3					Maximum Non-Detect	0.262
693												
694												
695					**Warning: There are only 6 Detected Values in this data**							
696					**Note: It should be noted that even though bootstrap may be performed on this data set**							
697					**the resulting calculations may not be reliable enough tp draw conclusions**							
698												
699					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
700												
701												
702					**UCL Statistics**							
703					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
704					Shapiro Wilk Test Statistic	0.8				Shapiro Wilk Test Statistic		0.92
705					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
706					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
707												
708					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
709					DL/2 Substitution Method					DL/2 Substitution Method		
710					Mean	25.35				Mean		2.756
711					SD	17.84				SD		1.468
712					95% DL/2 (t) UCL	38.45				95% H-Stat (DL/2) UCL		276.5
713												
714					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
715					Mean	24.15				Mean in Log Scale		3.127
716					SD	18.69				SD in Log Scale		0.6
717					95% MLE (t) UCL	37.88				Mean in Original Scale		26.5
718					95% MLE (Tiku) UCL	38.3				SD in Original Scale		16.16
719										95% Percentile Bootstrap UCL		36.49
720										95% BCA Bootstrap UCL		38.95
721												
722					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
723					k star (bias corrected)	2.795				**Data appear Normal at 5% Significance Level**		
724					Theta Star	10.54						
725					nu star	33.54						
726												
727					A-D Test Statistic	0.475				**Nonparametric Statistics**		
728					5% A-D Critical Value	0.698				Kaplan-Meier (KM) Method		
729					K-S Test Statistic	0.698				Mean		27.28
730					5% K-S Critical Value	0.333				SD		14.13
731					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		5.852
732										95% KM (t) UCL		38.65
733					**Assuming Gamma Distribution**					95% KM (z) UCL		36.9
734					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		38.37
735					Minimum	9.165				95% KM (bootstrap t) UCL		47.5
736					Maximum	59.25				95% KM (BCA) UCL		39.92
737					Mean	26.57				95% KM (Percentile Bootstrap) UCL		36.95
738					Median	25.4				95% KM (Chebyshev) UCL		52.79
739					SD	16.08				97.5% KM (Chebyshev) UCL		63.83
740					k star	2.149				99% KM (Chebyshev) UCL		85.51
741					Theta star	12.36						
742					Nu star	30.08				**Potential UCLs to Use**		

743					AppChi2	18.56					95% KM (t) UCL	38.65
744					95% Gamma Approximate UCL	43.07					95% KM (Percentile Bootstrap) UCL	36.95
745					95% Adjusted Gamma UCL	50.31						
746	**Note: DL/2 is not a recommended method.**											
747												
748												
749	**Total DDT**											
750												
751	**General Statistics**											
752					Number of Valid Data	7					Number of Detected Data	6
753					Number of Distinct Detected Data	6					Number of Non-Detect Data	1
754											Percent Non-Detects	14.29%
755												
756	**Raw Statistics**						**Log-transformed Statistics**					
757					Minimum Detected	0.86					Minimum Detected	-0.151
758					Maximum Detected	13.1					Maximum Detected	2.573
759					Mean of Detected	4.352					Mean of Detected	1.133
760					SD of Detected	4.399					SD of Detected	0.88
761					Minimum Non-Detect	0.18					Minimum Non-Detect	-1.715
762					Maximum Non-Detect	0.18					Maximum Non-Detect	-1.715
763												
764												
765	**Warning: There are only 6 Detected Values in this data**											
766	**Note: It should be noted that even though bootstrap may be performed on this data set**											
767	**the resulting calculations may not be reliable enough tp draw conclusions**											
768												
769	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
770												
771												
772	**UCL Statistics**											
773	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
774					Shapiro Wilk Test Statistic	0.712					Shapiro Wilk Test Statistic	0.934
775					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
776	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
777												
778	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
779					DL/2 Substitution Method						DL/2 Substitution Method	
780					Mean	3.743					Mean	0.627
781					SD	4.327					SD	1.561
782					95% DL/2 (t) UCL	6.921					95% H-Stat (DL/2) UCL	59.08
783												
784					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
785					Mean	3.379					Mean in Log Scale	0.828
786					SD	4.493					SD in Log Scale	1.138
787					95% MLE (t) UCL	6.678					Mean in Original Scale	3.783
788					95% MLE (Tiku) UCL	6.621					SD in Original Scale	4.289
789											95% Percentile Bootstrap UCL	6.763
790											95% BCA Bootstrap UCL	7.299
791												
792	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
793					k star (bias corrected)	0.925	**Data appear Gamma Distributed at 5% Significance Level**					
794					Theta Star	4.704						
795					nu star	11.1						

	A	B	C	D	E	F	G	H	I	J	K	L
796												
797					A-D Test Statistic	0.491	**Nonparametric Statistics**					
798					5% A-D Critical Value	0.707	Kaplan-Meier (KM) Method					
799					K-S Test Statistic	0.707	Mean					3.853
800					5% K-S Critical Value	0.337	SD					3.914
801	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.62
802							95% KM (t) UCL					7.002
803	**Assuming Gamma Distribution**						95% KM (z) UCL					6.518
804	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.901
805					Minimum	1E-09	95% KM (bootstrap t) UCL					12.16
806					Maximum	13.1	95% KM (BCA) UCL					7.199
807					Mean	3.73	95% KM (Percentile Bootstrap) UCL					6.711
808					Median	2.98	95% KM (Chebyshev) UCL					10.92
809					SD	4.34	97.5% KM (Chebyshev) UCL					13.97
810					k star	0.221	99% KM (Chebyshev) UCL					19.98
811					Theta star	16.91						
812					Nu star	3.089	**Potential UCLs to Use**					
813					AppChi2	0.399	95% KM (Chebyshev) UCL					10.92
814					95% Gamma Approximate UCL	28.86						
815					95% Adjusted Gamma UCL	55.93						
816	**Note: DL/2 is not a recommended method.**											
817												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM3.0E.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

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General Statistics

Number of Valid Data	18	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	11
Number of Missing Values	4	Percent Non-Detects	61.11%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.00333	Minimum Detected	-5.705
Maximum Detected	1.31	Maximum Detected	0.27
Mean of Detected	0.564	Mean of Detected	-1.29
SD of Detected	0.419	SD of Detected	2.018
Minimum Non-Detect	0.0315	Minimum Non-Detect	-3.458
Maximum Non-Detect	0.94	Maximum Non-Detect	-0.0619
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	94.44%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Test Statistic	0.704
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.286	Mean	-2.153
SD	0.352	SD	1.609
95% DL/2 (t) UCL	0.431	95% H-Stat (DL/2) UCL	0.708
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.199
		SD in Log Scale	2.056
		Mean in Original Scale	0.229
		SD in Original Scale	0.371
		95% Percentile Bootstrap UCL	0.373
		95% BCA Bootstrap UCL	0.402

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56					k star (bias corrected)	0.566	**Data appear Normal at 5% Significance Level**					
57					Theta Star	0.996						
58					nu star	7.927						
59												
60					A-D Test Statistic	0.626	**Nonparametric Statistics**					
61					5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method					
62					K-S Test Statistic	0.734	Mean					0.232
63					5% K-S Critical Value	0.322	SD					0.367
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0949
65							95% KM (t) UCL					0.397
66	**Assuming Gamma Distribution**						95% KM (z) UCL					0.388
67				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL					0.398
68					Minimum	1E-09	95% KM (bootstrap t) UCL					0.408
69					Maximum	1.31	95% KM (BCA) UCL					0.675
70					Mean	0.473	95% KM (Percentile Bootstrap) UCL					0.565
71					Median	0.44	95% KM (Chebyshev) UCL					0.645
72					SD	0.393	97.5% KM (Chebyshev) UCL					0.824
73					k star	0.265	99% KM (Chebyshev) UCL					1.176
74					Theta star	1.787						
75					Nu star	9.534	**Potential UCLs to Use**					
76					AppChi2	3.653	95% KM (t) UCL					0.397
77					95% Gamma Approximate UCL	1.236	95% KM (Percentile Bootstrap) UCL					0.565
78					95% Adjusted Gamma UCL	1.363						
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84							**General Statistics**					
85					Number of Valid Data	24	Number of Detected Data					22
86					Number of Distinct Detected Data	21	Number of Non-Detect Data					2
87							Percent Non-Detects					8.33%
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90					Minimum Detected	2.78	Minimum Detected					1.022
91					Maximum Detected	9.72	Maximum Detected					2.274
92					Mean of Detected	4.269	Mean of Detected					1.414
93					SD of Detected	1.423	SD of Detected					0.261
94					Minimum Non-Detect	5	Minimum Non-Detect					1.609
95					Maximum Non-Detect	5	Maximum Non-Detect					1.609
96												
97												
98							**UCL Statistics**					
99	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
100					Shapiro Wilk Test Statistic	0.694	Shapiro Wilk Test Statistic					0.859
101					5% Shapiro Wilk Critical Value	0.911	5% Shapiro Wilk Critical Value					0.911
102	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
103												
104	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
105					DL/2 Substitution Method		DL/2 Substitution Method					
106					Mean	4.121	Mean					1.372

107					SD	1.448					SD	0.286
108					95% DL/2 (t) UCL	4.628					95% H-Stat (DL/2) UCL	4.27
109												
110					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
111					Mean	1.765					Mean in Log Scale	1.408
112					SD	3.249					SD in Log Scale	0.252
113					95% MLE (t) UCL	2.902					Mean in Original Scale	4.235
114					95% MLE (Tiku) UCL	4.981					SD in Original Scale	1.368
115											95% Percentile Bootstrap UCL	4.729
116											95% BCA Bootstrap UCL	4.908
117												
118					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
119					k star (bias corrected)	11.63					**Data do not follow a Discernable Distribution (0.05)**	
120					Theta Star	0.367						
121					nu star	511.9						
122												
123					A-D Test Statistic	1.232					**Nonparametric Statistics**	
124					5% A-D Critical Value	0.742					Kaplan-Meier (KM) Method	
125					K-S Test Statistic	0.742					Mean	4.228
126					5% K-S Critical Value	0.185					SD	1.345
127					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.283
128											95% KM (t) UCL	4.713
129					**Assuming Gamma Distribution**						95% KM (z) UCL	4.693
130					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.712
131					Minimum	2.78					95% KM (bootstrap t) UCL	5.086
132					Maximum	9.72					95% KM (BCA) UCL	4.752
133					Mean	4.27					95% KM (Percentile Bootstrap) UCL	4.724
134					Median	3.935					95% KM (Chebyshev) UCL	5.46
135					SD	1.365					97.5% KM (Chebyshev) UCL	5.993
136					k star	12.69					99% KM (Chebyshev) UCL	7.041
137					Theta star	0.337						
138					Nu star	609					**Potential UCLs to Use**	
139					AppChi2	552.8					95% KM (Chebyshev) UCL	5.46
140					95% Gamma Approximate UCL	4.705						
141					95% Adjusted Gamma UCL	4.737						
142	**Note: DL/2 is not a recommended method.**											
143												
144												
145	**Benzo(a)anthracene**											
146												
147											**General Statistics**	
148					Number of Valid Data	24					Number of Detected Data	23
149					Number of Distinct Detected Data	22					Number of Non-Detect Data	1
150											Percent Non-Detects	4.17%
151												
152					**Raw Statistics**						**Log-transformed Statistics**	
153					Minimum Detected	2					Minimum Detected	0.693
154					Maximum Detected	370					Maximum Detected	5.914
155					Mean of Detected	80.09					Mean of Detected	3.979
156					SD of Detected	76.2					SD of Detected	1.07
157					Minimum Non-Detect	20					Minimum Non-Detect	2.996
158					Maximum Non-Detect	20					Maximum Non-Detect	2.996
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	**UCL Statistics**											
162	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
163					Shapiro Wilk Test Statistic	0.711				Shapiro Wilk Test Statistic		0.886
164					5% Shapiro Wilk Critical Value	0.914				5% Shapiro Wilk Critical Value		0.914
165	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
166												
167	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
168					DL/2 Substitution Method					DL/2 Substitution Method		
169					Mean	77.17				Mean		3.909
170					SD	75.89				SD		1.101
171					95% DL/2 (t) UCL	103.7				95% H-Stat (DL/2) UCL		153.4
172												
173					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
174					Mean	67.61				Mean in Log Scale		3.918
175					SD	86.75				SD in Log Scale		1.088
176					95% MLE (t) UCL	97.95				Mean in Original Scale		77.27
177					95% MLE (Tiku) UCL	98.12				SD in Original Scale		75.79
178										95% Percentile Bootstrap UCL		103.5
179										95% BCA Bootstrap UCL		112.6
180												
181	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
182					k star (bias corrected)	1.228	**Data appear Gamma Distributed at 5% Significance Level**					
183					Theta Star	65.22						
184					nu star	56.48						
185												
186					A-D Test Statistic	0.638	**Nonparametric Statistics**					
187					5% A-D Critical Value	0.762				Kaplan-Meier (KM) Method		
188					K-S Test Statistic	0.762				Mean		77.24
189					5% K-S Critical Value	0.185				SD		74.24
190	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		15.5
191										95% KM (t) UCL		103.8
192	**Assuming Gamma Distribution**									95% KM (z) UCL		102.7
193					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		103.8
194					Minimum	1E-09				95% KM (bootstrap t) UCL		121.9
195					Maximum	370				95% KM (BCA) UCL		106.2
196					Mean	76.75				95% KM (Percentile Bootstrap) UCL		103.2
197					Median	72.5				95% KM (Chebyshev) UCL		144.8
198					SD	76.3				97.5% KM (Chebyshev) UCL		174
199					k star	0.432				99% KM (Chebyshev) UCL		231.4
200					Theta star	177.6						
201					Nu star	20.75	**Potential UCLs to Use**					
202					AppChi2	11.4				95% KM (Chebyshev) UCL		144.8
203					95% Gamma Approximate UCL	139.6						
204					95% Adjusted Gamma UCL	145.9						
205	**Note: DL/2 is not a recommended method.**											
206												
207												
208	**Benzo(a)pyrene**											
209												
210	**General Statistics**											
211					Number of Valid Data	24				Number of Detected Data		23
212					Number of Distinct Detected Data	18				Number of Non-Detect Data		1

213											Percent Non-Detects	4.17%
214												
215	**Raw Statistics**						**Log-transformed Statistics**					
216					Minimum Detected	1.7					Minimum Detected	0.531
217					Maximum Detected	270					Maximum Detected	5.598
218					Mean of Detected	87.01					Mean of Detected	4.153
219					SD of Detected	56.52					SD of Detected	1.041
220					Minimum Non-Detect	20					Minimum Non-Detect	2.996
221					Maximum Non-Detect	20					Maximum Non-Detect	2.996
222												
223												
224	**UCL Statistics**											
225	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
226					Shapiro Wilk Test Statistic	0.896					Shapiro Wilk Test Statistic	0.795
227					5% Shapiro Wilk Critical Value	0.914					5% Shapiro Wilk Critical Value	0.914
228	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
229												
230	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
231					DL/2 Substitution Method						DL/2 Substitution Method	
232					Mean	83.8					Mean	4.076
233					SD	57.46					SD	1.086
234					95% DL/2 (t) UCL	103.9					95% H-Stat (DL/2) UCL	173.9
235												
236					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
237					Mean	81.31					Mean in Log Scale	4.083
238					SD	60.6					SD in Log Scale	1.073
239					95% MLE (t) UCL	102.5					Mean in Original Scale	83.89
240					95% MLE (Tiku) UCL	102.6					SD in Original Scale	57.35
241											95% Percentile Bootstrap UCL	103.7
242											95% BCA Bootstrap UCL	105
243												
244	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
245					k star (bias corrected)	1.545	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
246					Theta Star	56.31						
247					nu star	71.08						
248												
249					A-D Test Statistic	0.825	**Nonparametric Statistics**					
250					5% A-D Critical Value	0.757					Kaplan-Meier (KM) Method	
251					K-S Test Statistic	0.757					Mean	83.69
252					5% K-S Critical Value	0.184					SD	56.41
253	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	11.78
254											95% KM (t) UCL	103.9
255	**Assuming Gamma Distribution**										95% KM (z) UCL	103.1
256					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	103.9
257					Minimum	1.7					95% KM (bootstrap t) UCL	108
258					Maximum	270					95% KM (BCA) UCL	105.2
259					Mean	83.46					95% KM (Percentile Bootstrap) UCL	103.3
260					Median	87.5					95% KM (Chebyshev) UCL	135
261					SD	57.94					97.5% KM (Chebyshev) UCL	157.2
262					k star	1.199					99% KM (Chebyshev) UCL	200.9
263					Theta star	69.59						
264					Nu star	57.57	**Potential UCLs to Use**					
265					AppChi2	41.13					95% KM (Chebyshev) UCL	135

	A	B	C	D	E	F	G	H	I	J	K	L
266					95% Gamma Approximate UCL	116.8						
267					95% Adjusted Gamma UCL	119.7						
268	**Note: DL/2 is not a recommended method.**											
269												
270												
271	**Benzo(b)fluoranthene**											
272												
273					**General Statistics**							
274					Number of Valid Data	24			Number of Detected Data	23		
275					Number of Distinct Detected Data	18			Number of Non-Detect Data	1		
276									Percent Non-Detects	4.17%		
277												
278					**Raw Statistics**				**Log-transformed Statistics**			
279					Minimum Detected	2.3			Minimum Detected	0.833		
280					Maximum Detected	310			Maximum Detected	5.737		
281					Mean of Detected	103.1			Mean of Detected	4.344		
282					SD of Detected	64.51			SD of Detected	1.002		
283					Minimum Non-Detect	20			Minimum Non-Detect	2.996		
284					Maximum Non-Detect	20			Maximum Non-Detect	2.996		
285												
286												
287					**UCL Statistics**							
288					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
289					Shapiro Wilk Test Statistic	0.898			Shapiro Wilk Test Statistic	0.787		
290					5% Shapiro Wilk Critical Value	0.914			5% Shapiro Wilk Critical Value	0.914		
291					**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**			
292												
293					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
294					DL/2 Substitution Method				DL/2 Substitution Method			
295					Mean	99.2			Mean	4.259		
296					SD	65.89			SD	1.065		
297					95% DL/2 (t) UCL	122.3			95% H-Stat (DL/2) UCL	199.4		
298												
299					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
300					Mean	96.12			Mean in Log Scale	4.277		
301					SD	69.96			SD in Log Scale	1.033		
302					95% MLE (t) UCL	120.6			Mean in Original Scale	99.44		
303					95% MLE (Tiku) UCL	120.8			SD in Original Scale	65.57		
304									95% Percentile Bootstrap UCL	122.3		
305									95% BCA Bootstrap UCL	124.6		
306												
307					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
308					k star (bias corrected)	1.648			**Data Follow Appr. Gamma Distribution at 5% Significance Level**			
309					Theta Star	62.54						
310					nu star	75.81						
311												
312					A-D Test Statistic	0.865			**Nonparametric Statistics**			
313					5% A-D Critical Value	0.756			Kaplan-Meier (KM) Method			
314					K-S Test Statistic	0.756			Mean	99.14		
315					5% K-S Critical Value	0.184			SD	64.59		
316					**Data follow Appr. Gamma Distribution at 5% Significance Level**				SE of Mean	13.49		
317									95% KM (t) UCL	122.3		
318					**Assuming Gamma Distribution**				95% KM (z) UCL	121.3		

319	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					122.3
320	Minimum				2.3		95% KM (bootstrap t) UCL					126.4
321	Maximum				310		95% KM (BCA) UCL					123.2
322	Mean				98.97		95% KM (Percentile Bootstrap) UCL					121.9
323	Median				105		95% KM (Chebyshev) UCL					157.9
324	SD				66.22		97.5% KM (Chebyshev) UCL					183.4
325	k star				1.341		99% KM (Chebyshev) UCL					233.3
326	Theta star				73.81							
327	Nu star				64.36		**Potential UCLs to Use**					
328	AppChi2				46.91		95% KM (Chebyshev) UCL					157.9
329	95% Gamma Approximate UCL				135.8							
330	95% Adjusted Gamma UCL				138.9							
331	**Note: DL/2 is not a recommended method.**											
332												
333												
334	**Benzo(k)fluoranthene**											
335												
336	**General Statistics**											
337	Number of Valid Data				24		Number of Detected Data					23
338	Number of Distinct Detected Data				22		Number of Non-Detect Data					1
339							Percent Non-Detects					4.17%
340												
341	**Raw Statistics**						**Log-transformed Statistics**					
342	Minimum Detected				0.77		Minimum Detected					-0.261
343	Maximum Detected				250		Maximum Detected					5.521
344	Mean of Detected				62.46		Mean of Detected					3.623
345	SD of Detected				57.39		SD of Detected					1.273
346	Minimum Non-Detect				20		Minimum Non-Detect					2.996
347	Maximum Non-Detect				20		Maximum Non-Detect					2.996
348												
349												
350	**UCL Statistics**											
351	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
352	Shapiro Wilk Test Statistic				0.845		Shapiro Wilk Test Statistic					0.903
353	5% Shapiro Wilk Critical Value				0.914		5% Shapiro Wilk Critical Value					0.914
354	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
355												
356	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
357	DL/2 Substitution Method						DL/2 Substitution Method					
358	Mean				60.27		Mean					3.568
359	SD				57.14		SD					1.274
360	95% DL/2 (t) UCL				80.26		95% H-Stat (DL/2) UCL					156.6
361												
362	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
363	Mean				52.26		Mean in Log Scale					3.557
364	SD				66.6		SD in Log Scale					1.286
365	95% MLE (t) UCL				75.55		Mean in Original Scale					60.17
366	95% MLE (Tiku) UCL				76.18		SD in Original Scale					57.23
367							95% Percentile Bootstrap UCL					80.91
368							95% BCA Bootstrap UCL					83.66
369												
370	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
371	k star (bias corrected)				0.998		**Data appear Gamma Distributed at 5% Significance Level**					

372					Theta Star	62.58						
373					nu star	45.91						
374												
375					A-D Test Statistic	0.165	**Nonparametric Statistics**					
376					5% A-D Critical Value	0.767	Kaplan-Meier (KM) Method					
377					K-S Test Statistic	0.767	Mean	60.23				
378					5% K-S Critical Value	0.186	SD	55.99				
379	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	11.69				
380							95% KM (t) UCL	80.26				
381	**Assuming Gamma Distribution**						95% KM (z) UCL	79.45				
382					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	80.24				
383					Minimum	1E-09	95% KM (bootstrap t) UCL	88.19				
384					Maximum	250	95% KM (BCA) UCL	77.89				
385					Mean	59.86	95% KM (Percentile Bootstrap) UCL	81.23				
386					Median	47.5	95% KM (Chebyshev) UCL	111.2				
387					SD	57.55	97.5% KM (Chebyshev) UCL	133.2				
388					k star	0.41	99% KM (Chebyshev) UCL	176.5				
389					Theta star	145.8						
390					Nu star	19.7	**Potential UCLs to Use**					
391					AppChi2	10.63	95% KM (Chebyshev) UCL	111.2				
392					95% Gamma Approximate UCL	110.9						
393					95% Adjusted Gamma UCL	116						
394	**Note: DL/2 is not a recommended method.**											
395												
396												
397	**Bis(2-ethylhexyl) phthalate**											
398												
399	**General Statistics**											
400					Number of Valid Data	24	Number of Detected Data	13				
401					Number of Distinct Detected Data	13	Number of Non-Detect Data	11				
402							Percent Non-Detects	45.83%				
403												
404	**Raw Statistics**						**Log-transformed Statistics**					
405					Minimum Detected	7	Minimum Detected	1.946				
406					Maximum Detected	320	Maximum Detected	5.768				
407					Mean of Detected	95.12	Mean of Detected	4.212				
408					SD of Detected	82.41	SD of Detected	0.946				
409					Minimum Non-Detect	5.9	Minimum Non-Detect	1.775				
410					Maximum Non-Detect	110	Maximum Non-Detect	4.7				
411												
412	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	21				
413	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	3				
414	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	87.50%				
415												
416	**UCL Statistics**											
417	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
418					Shapiro Wilk Test Statistic	0.814	Shapiro Wilk Test Statistic	0.945				
419					5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866				
420	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
421												
422	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
423					DL/2 Substitution Method		DL/2 Substitution Method					
424					Mean	64.54	Mean	3.686				

425					SD	69.49					SD	1.086
426					95% DL/2 (t) UCL	88.85					95% H-Stat (DL/2) UCL	90.13
427												
428					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
429					Mean	236.4					Mean in Log Scale	3.56
430					SD	79.3					SD in Log Scale	1.042
431					95% MLE (t) UCL	264.1					Mean in Original Scale	59.66
432					95% MLE (Tiku) UCL	313					SD in Original Scale	71.52
433											95% Percentile Bootstrap UCL	84.25
434											95% BCA Bootstrap UCL	91.29
435												
436	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
437					k star (bias corrected)	1.286					**Data appear Gamma Distributed at 5% Significance Level**	
438					Theta Star	73.94						
439					nu star	33.45						
440												
441					A-D Test Statistic	0.249					**Nonparametric Statistics**	
442					5% A-D Critical Value	0.749					Kaplan-Meier (KM) Method	
443					K-S Test Statistic	0.749					Mean	61.63
444					5% K-S Critical Value	0.241					SD	70.5
445	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	15.38
446											95% KM (t) UCL	87.98
447	**Assuming Gamma Distribution**										95% KM (z) UCL	86.92
448					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	85.75
449					Minimum	4.182					95% KM (bootstrap t) UCL	95.89
450					Maximum	320					95% KM (BCA) UCL	98.08
451					Mean	88.08					95% KM (Percentile Bootstrap) UCL	91.72
452					Median	80.05					95% KM (Chebyshev) UCL	128.7
453					SD	65.56					97.5% KM (Chebyshev) UCL	157.7
454					k star	1.592					99% KM (Chebyshev) UCL	214.6
455					Theta star	55.33						
456					Nu star	76.41					**Potential UCLs to Use**	
457					AppChi2	57.27					95% KM (t) UCL	87.98
458					95% Gamma Approximate UCL	117.5						
459					95% Adjusted Gamma UCL	119.9						
460	**Note: DL/2 is not a recommended method.**											
461												
462												
463	**Dibenzo(a,h)anthracene**											
464												
465											**General Statistics**	
466					Number of Valid Data	24					Number of Detected Data	21
467					Number of Distinct Detected Data	21					Number of Non-Detect Data	3
468											Percent Non-Detects	12.50%
469												
470	**Raw Statistics**										**Log-transformed Statistics**	
471					Minimum Detected	0.56					Minimum Detected	-0.58
472					Maximum Detected	30					Maximum Detected	3.401
473					Mean of Detected	14.31					Mean of Detected	2.335
474					SD of Detected	8.664					SD of Detected	1.026
475					Minimum Non-Detect	19					Minimum Non-Detect	2.944
476					Maximum Non-Detect	20					Maximum Non-Detect	2.996
477												

478	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
479	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
480	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	75.00%
481												
482	**UCL Statistics**											
483	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
484	Shapiro Wilk Test Statistic				0.967		Shapiro Wilk Test Statistic					0.84
485	5% Shapiro Wilk Critical Value				0.908		5% Shapiro Wilk Critical Value					0.908
486	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
487												
488	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
489	DL/2 Substitution Method						DL/2 Substitution Method					
490	Mean				13.73		Mean					2.326
491	SD				8.231		SD					0.957
492	95% DL/2 (t) UCL				16.61		95% H-Stat (DL/2) UCL					25.15
493												
494	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
495	Mean				15.1		Mean in Log Scale					2.28
496	SD				7.341		SD in Log Scale					0.973
497	95% MLE (t) UCL				17.67		Mean in Original Scale					13.38
498	95% MLE (Tiku) UCL				20.24		SD in Original Scale					8.483
499							95% Percentile Bootstrap UCL					16.17
500							95% BCA Bootstrap UCL					16.32
501												
502	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
503	k star (bias corrected)				1.473		**Data appear Normal at 5% Significance Level**					
504	Theta Star				9.715							
505	nu star				61.85							
506												
507	A-D Test Statistic				0.723		**Nonparametric Statistics**					
508	5% A-D Critical Value				0.757		Kaplan-Meier (KM) Method					
509	K-S Test Statistic				0.757		Mean					13.74
510	5% K-S Critical Value				0.192		SD					8.317
511	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.805
512							95% KM (t) UCL					16.84
513	**Assuming Gamma Distribution**						95% KM (z) UCL					16.71
514	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					16.84
515	Minimum				0.56		95% KM (bootstrap t) UCL					16.8
516	Maximum				30		95% KM (BCA) UCL					16.79
517	Mean				14.07		95% KM (Percentile Bootstrap) UCL					16.71
518	Median				14.75		95% KM (Chebyshev) UCL					21.61
519	SD				8.183		97.5% KM (Chebyshev) UCL					25.01
520	k star				1.664		99% KM (Chebyshev) UCL					31.7
521	Theta star				8.456							
522	Nu star				79.85		**Potential UCLs to Use**					
523	AppChi2				60.26		95% KM (t) UCL					16.84
524	95% Gamma Approximate UCL				18.64		95% KM (Percentile Bootstrap) UCL					16.71
525	95% Adjusted Gamma UCL				19.02							
526	**Note: DL/2 is not a recommended method.**											
527												
528												
529	**Indeno(1,2,3-cd)pyrene**											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**General Statistics**											
532	Number of Valid Data					24	Number of Detected Data					23
533	Number of Distinct Detected Data					22	Number of Non-Detect Data					1
534							Percent Non-Detects					4.17%
535												
536	**Raw Statistics**						**Log-transformed Statistics**					
537	Minimum Detected					1.3	Minimum Detected					0.262
538	Maximum Detected					170	Maximum Detected					5.136
539	Mean of Detected					69.97	Mean of Detected					3.933
540	SD of Detected					43.86	SD of Detected					1.046
541	Minimum Non-Detect					20	Minimum Non-Detect					2.996
542	Maximum Non-Detect					20	Maximum Non-Detect					2.996
543												
544												
545	**UCL Statistics**											
546	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
547	Shapiro Wilk Test Statistic					0.953	Shapiro Wilk Test Statistic					0.805
548	5% Shapiro Wilk Critical Value					0.914	5% Shapiro Wilk Critical Value					0.914
549	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
550												
551	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
552	DL/2 Substitution Method						DL/2 Substitution Method					
553	Mean					67.47	Mean					3.865
554	SD					44.61	SD					1.076
555	95% DL/2 (t) UCL					83.08	95% H-Stat (DL/2) UCL					139.5
556												
557	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
558	Mean					64.74	Mean in Log Scale					3.87
559	SD					48.28	SD in Log Scale					1.068
560	95% MLE (t) UCL					81.63	Mean in Original Scale					67.53
561	95% MLE (Tiku) UCL					81.94	SD in Original Scale					44.54
562							95% Percentile Bootstrap UCL					82.42
563							95% BCA Bootstrap UCL					83.35
564												
565	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
566	k star (bias corrected)					1.537	**Data appear Normal at 5% Significance Level**					
567	Theta Star					45.53						
568	nu star					70.69						
569												
570	A-D Test Statistic					0.552	**Nonparametric Statistics**					
571	5% A-D Critical Value					0.758	Kaplan-Meier (KM) Method					
572	K-S Test Statistic					0.758	Mean					67.49
573	5% K-S Critical Value					0.184	SD					43.67
574	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					9.122
575							95% KM (t) UCL					83.12
576	**Assuming Gamma Distribution**						95% KM (z) UCL					82.49
577	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					83.12
578	Minimum					1.3	95% KM (bootstrap t) UCL					84.85
579	Maximum					170	95% KM (BCA) UCL					82.89
580	Mean					67.27	95% KM (Percentile Bootstrap) UCL					82.21
581	Median					71	95% KM (Chebyshev) UCL					107.3
582	SD					44.89	97.5% KM (Chebyshev) UCL					124.5
583	k star					1.333	99% KM (Chebyshev) UCL					158.3

584					Theta star	50.47						
585					Nu star	63.98			**Potential UCLs to Use**			
586					AppChi2	46.58					95% KM (t) UCL	83.12
587				95% Gamma Approximate UCL		92.4					95% KM (Percentile Bootstrap) UCL	82.21
588				95% Adjusted Gamma UCL		94.52						
589	**Note: DL/2 is not a recommended method.**											
590												
591												
592	**Lead**											
593												
594						**General Statistics**						
595					Number of Valid Observations	24					Number of Distinct Observations	19
596												
597				**Raw Statistics**					**Log-transformed Statistics**			
598					Minimum	5					Minimum of Log Data	1.609
599					Maximum	16.4					Maximum of Log Data	2.797
600					Mean	12.27					Mean of log Data	2.458
601					Median	13.2					SD of log Data	0.342
602					SD	3.45						
603					Coefficient of Variation	0.281						
604					Skewness	-0.828						
605												
606						**Relevant UCL Statistics**						
607				**Normal Distribution Test**					**Lognormal Distribution Test**			
608					Shapiro Wilk Test Statistic	0.891					Shapiro Wilk Test Statistic	0.831
609					Shapiro Wilk Critical Value	0.916					Shapiro Wilk Critical Value	0.916
610				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
611												
612				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
613					95% Student's-t UCL	13.48					95% H-UCL	14.13
614				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	16.18
615					95% Adjusted-CLT UCL	13.3					97.5% Chebyshev (MVUE) UCL	17.84
616					95% Modified-t UCL	13.46					99% Chebyshev (MVUE) UCL	21.1
617												
618				**Gamma Distribution Test**					**Data Distribution**			
619					k star (bias corrected)	9.121			**Data do not follow a Discernable Distribution (0.05)**			
620					Theta Star	1.345						
621					nu star	437.8						
622					Approximate Chi Square Value (.05)	390.3			**Nonparametric Statistics**			
623					Adjusted Level of Significance	0.0392					95% CLT UCL	13.43
624					Adjusted Chi Square Value	387.2					95% Jackknife UCL	13.48
625											95% Standard Bootstrap UCL	13.4
626					Anderson-Darling Test Statistic	1.375					95% Bootstrap-t UCL	13.39
627					Anderson-Darling 5% Critical Value	0.744					95% Hall's Bootstrap UCL	13.3
628					Kolmogorov-Smirnov Test Statistic	0.209					95% Percentile Bootstrap UCL	13.4
629					Kolmogorov-Smirnov 5% Critical Value	0.178					95% BCA Bootstrap UCL	13.33
630				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	15.34
631											97.5% Chebyshev(Mean, Sd) UCL	16.67
632				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	19.28
633					95% Approximate Gamma UCL	13.76						
634					95% Adjusted Gamma UCL	13.87						
635												
636				**Potential UCL to Use**							Use 95% Student's-t UCL	13.48

637											or 95% Modified-t UCL	13.46
638												
639												
640	**Mercury**											
641												
642						**General Statistics**							
643					Number of Valid Data	24					Number of Detected Data	18
644					Number of Distinct Detected Data	17					Number of Non-Detect Data	6
645											Percent Non-Detects	25.00%
646												
647					**Raw Statistics**						**Log-transformed Statistics**	
648					Minimum Detected	0.012					Minimum Detected	-4.423
649					Maximum Detected	0.252					Maximum Detected	-1.378
650					Mean of Detected	0.0648					Mean of Detected	-2.985
651					SD of Detected	0.0529					SD of Detected	0.741
652					Minimum Non-Detect	0.01					Minimum Non-Detect	-4.605
653					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
654												
655	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	23
656	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
657	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	95.83%
658												
659						**UCL Statistics**							
660					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
661					Shapiro Wilk Test Statistic	0.697					Shapiro Wilk Test Statistic	0.923
662					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
663					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
664												
665					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
666					DL/2 Substitution Method						DL/2 Substitution Method	
667					Mean	0.0561					Mean	-3.162
668					SD	0.0485					SD	0.805
669					95% DL/2 (t) UCL	0.0731					95% H-Stat (DL/2) UCL	0.0742
670												
671					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
672					**MLE method failed to converge properly**						Mean in Log Scale	-3.171
673											SD in Log Scale	0.762
674											Mean in Original Scale	0.0553
675											SD in Original Scale	0.0488
676											95% Percentile Bootstrap UCL	0.0724
677											95% BCA Bootstrap UCL	0.0796
678												
679					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
680					k star (bias corrected)	1.838					**Data appear Gamma Distributed at 5% Significance Level**	
681					Theta Star	0.0353						
682					nu star	66.16						
683												
684					A-D Test Statistic	0.662					**Nonparametric Statistics**	
685					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
686					K-S Test Statistic	0.752					Mean	0.0565
687					5% K-S Critical Value	0.206					SD	0.0479
688					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0103
689											95% KM (t) UCL	0.0741

690	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0734
691	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.0739
692	Minimum				1E-09					95% KM (bootstrap t) UCL		0.0819
693	Maximum				0.252					95% KM (BCA) UCL		0.0769
694	Mean				0.0611					95% KM (Percentile Bootstrap) UCL		0.0746
695	Median				0.0578					95% KM (Chebyshev) UCL		0.101
696	SD				0.0482					97.5% KM (Chebyshev) UCL		0.121
697	k star				0.614					99% KM (Chebyshev) UCL		0.159
698	Theta star				0.0995							
699	Nu star				29.46					**Potential UCLs to Use**		
700	AppChi2				18.07					95% KM (Percentile Bootstrap) UCL		0.0746
701	95% Gamma Approximate UCL				0.0996							
702	95% Adjusted Gamma UCL				0.103							
703	**Note: DL/2 is not a recommended method.**											
704												
705												
706	**Naphthalene**											
707												
708	**General Statistics**											
709	Number of Valid Data				22					Number of Detected Data		12
710	Number of Distinct Detected Data				10					Number of Non-Detect Data		10
711	Number of Missing Values				2					Percent Non-Detects		45.45%
712												
713	**Raw Statistics**									**Log-transformed Statistics**		
714	Minimum Detected				8.7					Minimum Detected		2.163
715	Maximum Detected				29					Maximum Detected		3.367
716	Mean of Detected				18.31					Mean of Detected		2.826
717	SD of Detected				7.072					SD of Detected		0.439
718	Minimum Non-Detect				0.47					Minimum Non-Detect		-0.755
719	Maximum Non-Detect				20					Maximum Non-Detect		2.996
720												
721	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
722	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		7
723	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		68.18%
724												
725	**UCL Statistics**											
726	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
727	Shapiro Wilk Test Statistic				0.897					Shapiro Wilk Test Statistic		0.863
728	5% Shapiro Wilk Critical Value				0.859					5% Shapiro Wilk Critical Value		0.859
729	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
730												
731	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
732	DL/2 Substitution Method									DL/2 Substitution Method		
733	Mean				12.64					Mean		2.09
734	SD				8.62					SD		1.275
735	95% DL/2 (t) UCL				15.81					95% H-Stat (DL/2) UCL		24.09
736												
737	Maximum Likelihood Estimate(MLE) Method									Log ROS Method		
738	Mean				17.52					Mean in Log Scale		2.441
739	SD				5.392					SD in Log Scale		0.564
740	95% MLE (t) UCL				19.5					Mean in Original Scale		13.39
741	95% MLE (Tiku) UCL				20.79					SD in Original Scale		7.659
742										95% Percentile Bootstrap UCL		16.09

743											95% BCA Bootstrap UCL	16.26
744												
745	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
746					k star (bias corrected)	4.805					**Data appear Normal at 5% Significance Level**	
747					Theta Star	3.81						
748					nu star	115.3						
749												
750					A-D Test Statistic	0.734					**Nonparametric Statistics**	
751					5% A-D Critical Value	0.732					Kaplan-Meier (KM) Method	
752					K-S Test Statistic	0.732					Mean	14.19
753					5% K-S Critical Value	0.246					SD	6.802
754	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	1.535
755											95% KM (t) UCL	16.84
756	**Assuming Gamma Distribution**										95% KM (z) UCL	16.72
757					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	16.77
758					Minimum	8.7					95% KM (bootstrap t) UCL	17.02
759					Maximum	29					95% KM (BCA) UCL	17.26
760					Mean	17.82					95% KM (Percentile Bootstrap) UCL	17.16
761					Median	17.98					95% KM (Chebyshev) UCL	20.88
762					SD	5.497					97.5% KM (Chebyshev) UCL	23.78
763					k star	8.744					99% KM (Chebyshev) UCL	29.47
764					Theta star	2.038						
765					Nu star	384.7					**Potential UCLs to Use**	
766					AppChi2	340.3					95% KM (t) UCL	16.84
767					95% Gamma Approximate UCL	20.15					95% KM (Percentile Bootstrap) UCL	17.16
768					95% Adjusted Gamma UCL	20.34						
769	**Note: DL/2 is not a recommended method.**											
770												
771												
772	**Total Aroclors**											
773												
774						**General Statistics**						
775					Number of Valid Data	20					Number of Detected Data	17
776					Number of Distinct Detected Data	17					Number of Non-Detect Data	3
777											Percent Non-Detects	15.00%
778												
779	**Raw Statistics**										**Log-transformed Statistics**	
780					Minimum Detected	8.88					Minimum Detected	2.184
781					Maximum Detected	34.45					Maximum Detected	3.54
782					Mean of Detected	21.98					Mean of Detected	3.045
783					SD of Detected	6.242					SD of Detected	0.326
784					Minimum Non-Detect	1.7					Minimum Non-Detect	0.531
785					Maximum Non-Detect	7.9					Maximum Non-Detect	2.067
786												
787	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	3
788	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	17
789	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	15.00%
790												
791						**UCL Statistics**						
792	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
793					Shapiro Wilk Test Statistic	0.987					Shapiro Wilk Test Statistic	0.925
794					5% Shapiro Wilk Critical Value	0.892					5% Shapiro Wilk Critical Value	0.892
795	**Data appear Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	

796												
797	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
798	DL/2 Substitution Method						DL/2 Substitution Method					
799	Mean					19	Mean					2.671
800	SD					9.276	SD					0.994
801	95% DL/2 (t) UCL					22.59	95% H-Stat (DL/2) UCL					30.42
802												
803	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
804	Mean					19.26	Mean in Log Scale					2.941
805	SD					8.659	SD in Log Scale					0.393
806	95% MLE (t) UCL					22.61	Mean in Original Scale					20.25
807	95% MLE (Tiku) UCL					22.75	SD in Original Scale					7.113
808							95% Percentile Bootstrap UCL					22.8
809							95% BCA Bootstrap UCL					22.72
810												
811	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
812	k star (bias corrected)					9.352	**Data appear Normal at 5% Significance Level**					
813	Theta Star					2.35						
814	nu star					318						
815												
816	A-D Test Statistic					0.328	**Nonparametric Statistics**					
817	5% A-D Critical Value					0.739	Kaplan-Meier (KM) Method					
818	K-S Test Statistic					0.739	Mean					20.01
819	5% K-S Critical Value					0.209	SD					7.284
820	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.679
821							95% KM (t) UCL					22.92
822	**Assuming Gamma Distribution**						95% KM (z) UCL					22.78
823	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					22.82
824	Minimum					8.88	95% KM (bootstrap t) UCL					22.79
825	Maximum					34.45	95% KM (BCA) UCL					23.52
826	Mean					20.43	95% KM (Percentile Bootstrap) UCL					23.11
827	Median					20.63	95% KM (Chebyshev) UCL					27.33
828	SD					6.868	97.5% KM (Chebyshev) UCL					30.5
829	k star					7.216	99% KM (Chebyshev) UCL					36.72
830	Theta star					2.831						
831	Nu star					288.6	**Potential UCLs to Use**					
832	AppChi2					250.3	95% KM (t) UCL					22.92
833	95% Gamma Approximate UCL					23.56	95% KM (Percentile Bootstrap) UCL					23.11
834	95% Adjusted Gamma UCL					23.83						
835	**Note: DL/2 is not a recommended method.**											
836												
837												
838	**Total DDT**											
839												
840	**General Statistics**											
841	Number of Valid Data					20	Number of Detected Data					15
842	Number of Distinct Detected Data					15	Number of Non-Detect Data					5
843	Number of Missing Values					2	Percent Non-Detects					25.00%
844												
845	**Raw Statistics**						**Log-transformed Statistics**					
846	Minimum Detected					0.077	Minimum Detected					-2.564
847	Maximum Detected					9.9	Maximum Detected					2.293
848	Mean of Detected					2.028	Mean of Detected					0.117

849					SD of Detected	2.461					SD of Detected	1.201
850					Minimum Non-Detect	0.0455					Minimum Non-Detect	-3.09
851					Maximum Non-Detect	1.7					Maximum Non-Detect	0.531
852												
853	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
854	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
855	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	70.00%
856												
857	**UCL Statistics**											
858	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
859					Shapiro Wilk Test Statistic	0.692					Shapiro Wilk Test Statistic	0.96
860					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
861	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
862												
863	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
864					DL/2 Substitution Method						DL/2 Substitution Method	
865					Mean	1.581					Mean	-0.485
866					SD	2.262					SD	1.633
867					95% DL/2 (t) UCL	2.456					95% H-Stat (DL/2) UCL	6.668
868												
869					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
870					Mean	4.888					Mean in Log Scale	-0.413
871					SD	2.615					SD in Log Scale	1.431
872					95% MLE (t) UCL	5.899					Mean in Original Scale	1.562
873					95% MLE (Tiku) UCL	6.649					SD in Original Scale	2.269
874											95% Percentile Bootstrap UCL	2.448
875											95% BCA Bootstrap UCL	2.721
876												
877	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
878					k star (bias corrected)	0.829	**Data appear Gamma Distributed at 5% Significance Level**					
879					Theta Star	2.445						
880					nu star	24.88						
881												
882					A-D Test Statistic	0.404	**Nonparametric Statistics**					
883					5% A-D Critical Value	0.764					Kaplan-Meier (KM) Method	
884					K-S Test Statistic	0.764					Mean	1.568
885					5% K-S Critical Value	0.228					SD	2.211
886	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.512
887											95% KM (t) UCL	2.454
888	**Assuming Gamma Distribution**										95% KM (z) UCL	2.411
889					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.41
890					Minimum	1E-09					95% KM (bootstrap t) UCL	3.189
891					Maximum	9.9					95% KM (BCA) UCL	2.537
892					Mean	1.632					95% KM (Percentile Bootstrap) UCL	2.46
893					Median	0.816					95% KM (Chebyshev) UCL	3.801
894					SD	2.251					97.5% KM (Chebyshev) UCL	4.767
895					k star	0.21					99% KM (Chebyshev) UCL	6.665
896					Theta star	7.763						
897					Nu star	8.408	**Potential UCLs to Use**					
898					AppChi2	2.973					95% KM (Chebyshev) UCL	3.801
899					95% Gamma Approximate UCL	4.614						
900					95% Adjusted Gamma UCL	5.038						
901	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
902												
903												
904	**Total Dioxin/Furan TEQ**											
905												
906						**General Statistics**						
907					Number of Valid Data	6			Number of Detected Data			6
908					Number of Distinct Detected Data	6			Number of Non-Detect Data			0
909					Number of Missing Values	11			Percent Non-Detects			0.00%
910												
911					**Raw Statistics**				**Log-transformed Statistics**			
912					Minimum Detected	0.189			Minimum Detected			-1.663
913					Maximum Detected	7.453			Maximum Detected			2.009
914					Mean of Detected	2.851			Mean of Detected			0.388
915					SD of Detected	3.058			SD of Detected			1.389
916					Minimum Non-Detect	N/A			Minimum Non-Detect			N/A
917					Maximum Non-Detect	N/A			Maximum Non-Detect			N/A
918												
919												
920					**Warning: There are only 6 Detected Values in this data**							
921					**Note: It should be noted that even though bootstrap may be performed on this data set**							
922					**the resulting calculations may not be reliable enough tp draw conclusions**							
923												
924					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
925												
926												
927						**UCL Statistics**						
928					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
929					Shapiro Wilk Test Statistic	0.826			Shapiro Wilk Test Statistic			0.941
930					5% Shapiro Wilk Critical Value	0.788			5% Shapiro Wilk Critical Value			0.788
931					**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
932												
933					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
934					DL/2 Substitution Method				DL/2 Substitution Method			
935					Mean	2.851			Mean			0.388
936					SD	3.058			SD			1.389
937					95% DL/2 (t) UCL	5.366			95% H-Stat (DL/2) UCL			116.4
938												
939					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
940					**MLE method failed to converge properly**				Mean in Log Scale			N/A
941									SD in Log Scale			N/A
942									Mean in Original Scale			N/A
943									SD in Original Scale			N/A
944									95% Percentile Bootstrap UCL			N/A
945									95% BCA Bootstrap UCL			N/A
946												
947					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
948					k star (bias corrected)	0.555			**Data appear Normal at 5% Significance Level**			
949					Theta Star	5.136						
950					nu star	6.66						
951												
952					A-D Test Statistic	0.329			**Nonparametric Statistics**			
953					5% A-D Critical Value	0.718			Kaplan-Meier (KM) Method			
954					K-S Test Statistic	0.718			Mean			2.851

	A	B	C	D	E	F	G	H	I	J	K	L
955					5% K-S Critical Value	0.342					SD	2.791
956	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.248
957											95% KM (t) UCL	5.366
958	**Assuming Gamma Distribution**										95% KM (z) UCL	4.904
959					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5.366
960					Minimum	0.189					95% KM (bootstrap t) UCL	10.08
961					Maximum	7.453					95% KM (BCA) UCL	4.868
962					Mean	2.851					95% KM (Percentile Bootstrap) UCL	4.855
963					Median	1.401					95% KM (Chebyshev) UCL	8.292
964					SD	3.058					97.5% KM (Chebyshev) UCL	10.65
965					k star	0.555					99% KM (Chebyshev) UCL	15.27
966					Theta star	5.136						
967					Nu star	6.66				**Potential UCLs to Use**		
968					AppChi2	1.986					95% KM (t) UCL	5.366
969					95% Gamma Approximate UCL	9.56					95% KM (Percentile Bootstrap) UCL	4.855
970					95% Adjusted Gamma UCL	15.86						
971	**Note: DL/2 is not a recommended method.**											
972												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM3.0W.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Aldrin

General Statistics

Number of Valid Data	10	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	4
Number of Missing Values	3	Percent Non-Detects	40.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.067	Minimum Detected	-2.703
Maximum Detected	1.09	Maximum Detected	0.0862
Mean of Detected	0.434	Mean of Detected	-1.177
SD of Detected	0.363	SD of Detected	0.982
Minimum Non-Detect	0.0324	Minimum Non-Detect	-3.43
Maximum Non-Detect	0.98	Maximum Non-Detect	-0.0202
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	90.00%

Warning: There are only 6 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.893	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.352	Mean	-1.511
SD	0.312	SD	1.204
95% DL/2 (t) UCL	0.533	95% H-Stat (DL/2) UCL	2.226
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.669
		SD in Log Scale	1.039
		Mean in Original Scale	0.302
		SD in Original Scale	0.321
		95% Percentile Bootstrap UCL	0.484
		95% BCA Bootstrap UCL	0.515

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56				k star (bias corrected)	0.915		**Data appear Normal at 5% Significance Level**					
57				Theta Star	0.475							
58				nu star	10.97							
59												
60				A-D Test Statistic	0.206		**Nonparametric Statistics**					
61				5% A-D Critical Value	0.707					Kaplan-Meier (KM) Method		
62				K-S Test Statistic	0.707					Mean	0.319	
63				5% K-S Critical Value	0.337					SD	0.304	
64	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.109	
65										95% KM (t) UCL	0.52	
66	**Assuming Gamma Distribution**									95% KM (z) UCL	0.499	
67				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.511	
68				Minimum	0.0308					95% KM (bootstrap t) UCL	0.571	
69				Maximum	1.09					95% KM (BCA) UCL	0.579	
70				Mean	0.381					95% KM (Percentile Bootstrap) UCL	0.531	
71				Median	0.385					95% KM (Chebyshev) UCL	0.796	
72				SD	0.304					97.5% KM (Chebyshev) UCL	1.002	
73				k star	1.081					99% KM (Chebyshev) UCL	1.407	
74				Theta star	0.352							
75				Nu star	21.62		**Potential UCLs to Use**					
76				AppChi2	12.06					95% KM (t) UCL	0.52	
77				95% Gamma Approximate UCL	0.683					95% KM (Percentile Bootstrap) UCL	0.531	
78				95% Adjusted Gamma UCL	0.76							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85				Number of Valid Observations	15					Number of Distinct Observations	14	
86												
87	**Raw Statistics**						**Log-transformed Statistics**					
88				Minimum	2.41					Minimum of Log Data	0.88	
89				Maximum	6					Maximum of Log Data	1.792	
90				Mean	3.662					Mean of log Data	1.271	
91				Median	3.69					SD of log Data	0.236	
92				SD	0.92							
93				Coefficient of Variation	0.251							
94				Skewness	1.19							
95												
96	**Relevant UCL Statistics**											
97	**Normal Distribution Test**						**Lognormal Distribution Test**					
98				Shapiro Wilk Test Statistic	0.908					Shapiro Wilk Test Statistic	0.965	
99				Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881	
100	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
101												
102	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
103				95% Student's-t UCL	4.081					95% H-UCL	4.116	
104	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	4.639	
105				95% Adjusted-CLT UCL	4.131					97.5% Chebyshev (MVUE) UCL	5.064	
106				95% Modified-t UCL	4.093					99% Chebyshev (MVUE) UCL	5.897	

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	15	**Data appear Normal at 5% Significance Level**					
110					Theta Star	0.244						
111					nu star	450						
112					Approximate Chi Square Value (.05)	401.9	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0324				95% CLT UCL	4.053	
114					Adjusted Chi Square Value	396.3				95% Jackknife UCL	4.081	
115										95% Standard Bootstrap UCL	4.044	
116					Anderson-Darling Test Statistic	0.327				95% Bootstrap-t UCL	4.2	
117					Anderson-Darling 5% Critical Value	0.735				95% Hall's Bootstrap UCL	4.465	
118					Kolmogorov-Smirnov Test Statistic	0.184				95% Percentile Bootstrap UCL	4.031	
119					Kolmogorov-Smirnov 5% Critical Value	0.221				95% BCA Bootstrap UCL	4.073	
120	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	4.698	
121										97.5% Chebyshev(Mean, Sd) UCL	5.146	
122	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	6.027	
123					95% Approximate Gamma UCL	4.101						
124					95% Adjusted Gamma UCL	4.159						
125												
126	**Potential UCL to Use**									Use 95% Student's-t UCL	4.081	
127												
128												
129	**Benzo(a)anthracene**											
130												
131	**General Statistics**											
132					Number of Valid Observations	15				Number of Distinct Observations	15	
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	31				Minimum of Log Data	3.434	
136					Maximum	940				Maximum of Log Data	6.846	
137					Mean	290.2				Mean of log Data	5.212	
138					Median	160				SD of log Data	1.011	
139					SD	289.4						
140					Coefficient of Variation	0.997						
141					Skewness	1.363						
142												
143	**Relevant UCL Statistics**											
144	**Normal Distribution Test**						**Lognormal Distribution Test**					
145					Shapiro Wilk Test Statistic	0.803				Shapiro Wilk Test Statistic	0.969	
146					Shapiro Wilk Critical Value	0.881				Shapiro Wilk Critical Value	0.881	
147	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
148												
149	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
150					95% Student's-t UCL	421.8				95% H-UCL	645.7	
151	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	655.3	
152					95% Adjusted-CLT UCL	441.2				97.5% Chebyshev (MVUE) UCL	812.6	
153					95% Modified-t UCL	426.2				99% Chebyshev (MVUE) UCL	1122	
154												
155	**Gamma Distribution Test**						**Data Distribution**					
156					k star (bias corrected)	1.029	**Data appear Gamma Distributed at 5% Significance Level**					
157					Theta Star	282						
158					nu star	30.87						
159					Approximate Chi Square Value (.05)	19.18	**Nonparametric Statistics**					

160				Adjusted Level of Significance	0.0324					95% CLT UCL	413.1	
161				Adjusted Chi Square Value	18.05					95% Jackknife UCL	421.8	
162										95% Standard Bootstrap UCL	406.6	
163				Anderson-Darling Test Statistic	0.431					95% Bootstrap-t UCL	476.8	
164				Anderson-Darling 5% Critical Value	0.759					95% Hall's Bootstrap UCL	457.8	
165				Kolmogorov-Smirnov Test Statistic	0.191					95% Percentile Bootstrap UCL	410.7	
166				Kolmogorov-Smirnov 5% Critical Value	0.227					95% BCA Bootstrap UCL	427.2	
167				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	615.9	
168										97.5% Chebyshev(Mean, Sd) UCL	756.8	
169				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1034	
170				95% Approximate Gamma UCL	467.1							
171				95% Adjusted Gamma UCL	496.3							
172												
173				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	467.1	
174												
175												
176	**Benzo(a)pyrene**											
177												
178				**General Statistics**								
179				Number of Valid Observations	15					Number of Distinct Observations	13	
180												
181				**Raw Statistics**						**Log-transformed Statistics**		
182				Minimum	71					Minimum of Log Data	4.263	
183				Maximum	1200					Maximum of Log Data	7.09	
184				Mean	461.9					Mean of log Data	5.771	
185				Median	300					SD of log Data	0.907	
186				SD	397.2							
187				Coefficient of Variation	0.86							
188				Skewness	0.968							
189												
190				**Relevant UCL Statistics**								
191				**Normal Distribution Test**						**Lognormal Distribution Test**		
192				Shapiro Wilk Test Statistic	0.819					Shapiro Wilk Test Statistic	0.942	
193				Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881	
194				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
195												
196				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
197				95% Student's-t UCL	642.6					95% H-UCL	908.2	
198				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	981.4	
199				95% Adjusted-CLT UCL	658					97.5% Chebyshev (MVUE) UCL	1204	
200				95% Modified-t UCL	646.8					99% Chebyshev (MVUE) UCL	1641	
201												
202				**Gamma Distribution Test**						**Data Distribution**		
203				k star (bias corrected)	1.258					**Data appear Gamma Distributed at 5% Significance Level**		
204				Theta Star	367.2							
205				nu star	37.74							
206				Approximate Chi Square Value (.05)	24.67					**Nonparametric Statistics**		
207				Adjusted Level of Significance	0.0324					95% CLT UCL	630.6	
208				Adjusted Chi Square Value	23.38					95% Jackknife UCL	642.6	
209										95% Standard Bootstrap UCL	624	
210				Anderson-Darling Test Statistic	0.538					95% Bootstrap-t UCL	679.9	
211				Anderson-Darling 5% Critical Value	0.754					95% Hall's Bootstrap UCL	616.5	
212				Kolmogorov-Smirnov Test Statistic	0.186					95% Percentile Bootstrap UCL	630.7	

213				Kolmogorov-Smirnov 5% Critical Value	0.225					95% BCA Bootstrap UCL	648.1
214				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	909
215										97.5% Chebyshev(Mean, Sd) UCL	1102
216				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1482
217				95% Approximate Gamma UCL	706.6						
218				95% Adjusted Gamma UCL	745.7						
219											
220				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	706.6
221											
222											
223	**Benzo(b)fluoranthene**										
224											
225				**General Statistics**							
226				Number of Valid Observations	15					Number of Distinct Observations	15
227											
228				**Raw Statistics**						**Log-transformed Statistics**	
229				Minimum	58					Minimum of Log Data	4.06
230				Maximum	1100					Maximum of Log Data	7.003
231				Mean	395.2					Mean of log Data	5.617
232				Median	230					SD of log Data	0.898
233				SD	346.2						
234				Coefficient of Variation	0.876						
235				Skewness	1.125						
236											
237				**Relevant UCL Statistics**							
238				**Normal Distribution Test**						**Lognormal Distribution Test**	
239				Shapiro Wilk Test Statistic	0.821					Shapiro Wilk Test Statistic	0.958
240				Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
241				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
242											
243				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
244				95% Student's-t UCL	552.7					95% H-UCL	765.7
245				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	831
246				95% Adjusted-CLT UCL	570					97.5% Chebyshev (MVUE) UCL	1019
247				95% Modified-t UCL	557					99% Chebyshev (MVUE) UCL	1387
248											
249				**Gamma Distribution Test**						**Data Distribution**	
250				k star (bias corrected)	1.265					**Data appear Gamma Distributed at 5% Significance Level**	
251				Theta Star	312.4						
252				nu star	37.95						
253				Approximate Chi Square Value (.05)	24.84					**Nonparametric Statistics**	
254				Adjusted Level of Significance	0.0324					95% CLT UCL	542.2
255				Adjusted Chi Square Value	23.54					95% Jackknife UCL	552.7
256										95% Standard Bootstrap UCL	538.7
257				Anderson-Darling Test Statistic	0.464					95% Bootstrap-t UCL	585.1
258				Anderson-Darling 5% Critical Value	0.753					95% Hall's Bootstrap UCL	539.2
259				Kolmogorov-Smirnov Test Statistic	0.163					95% Percentile Bootstrap UCL	544
260				Kolmogorov-Smirnov 5% Critical Value	0.225					95% BCA Bootstrap UCL	557.3
261				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	784.9
262										97.5% Chebyshev(Mean, Sd) UCL	953.5
263				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1285
264				95% Approximate Gamma UCL	603.7						
265				95% Adjusted Gamma UCL	637.1						

266												
267	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		603.7
268												
269												
270	**Benzo(k)fluoranthene**											
271												
272	**General Statistics**											
273	Number of Valid Observations					15				Number of Distinct Observations		15
274												
275	**Raw Statistics**									**Log-transformed Statistics**		
276	Minimum					19				Minimum of Log Data		2.944
277	Maximum					760				Maximum of Log Data		6.633
278	Mean					230.8				Mean of log Data		4.84
279	Median					140				SD of log Data		1.18
280	SD					249.5						
281	Coefficient of Variation					1.081						
282	Skewness					1.17						
283												
284	**Relevant UCL Statistics**											
285	**Normal Distribution Test**									**Lognormal Distribution Test**		
286	Shapiro Wilk Test Statistic					0.782				Shapiro Wilk Test Statistic		0.941
287	Shapiro Wilk Critical Value					0.881				Shapiro Wilk Critical Value		0.881
288	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
289												
290	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
291	95% Student's-t UCL					344.3				95% H-UCL		661.5
292	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		585.9
293	95% Adjusted-CLT UCL					357.5				97.5% Chebyshev (MVUE) UCL		737.1
294	95% Modified-t UCL					347.5				99% Chebyshev (MVUE) UCL		1034
295												
296	**Gamma Distribution Test**									**Data Distribution**		
297	k star (bias corrected)					0.815				**Data appear Gamma Distributed at 5% Significance Level**		
298	Theta Star					283						
299	nu star					24.46						
300	Approximate Chi Square Value (.05)					14.2				**Nonparametric Statistics**		
301	Adjusted Level of Significance					0.0324				95% CLT UCL		336.8
302	Adjusted Chi Square Value					13.25				95% Jackknife UCL		344.3
303										95% Standard Bootstrap UCL		333.8
304	Anderson-Darling Test Statistic					0.607				95% Bootstrap-t UCL		385.7
305	Anderson-Darling 5% Critical Value					0.765				95% Hall's Bootstrap UCL		329.8
306	Kolmogorov-Smirnov Test Statistic					0.16				95% Percentile Bootstrap UCL		336.1
307	Kolmogorov-Smirnov 5% Critical Value					0.228				95% BCA Bootstrap UCL		355
308	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		511.6
309										97.5% Chebyshev(Mean, Sd) UCL		633.1
310	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		871.7
311	95% Approximate Gamma UCL					397.6						
312	95% Adjusted Gamma UCL					426.3						
313												
314	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		397.6
315												
316												
317	**Bis(2-ethylhexyl) phthalate**											
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319	**General Statistics**											
320					Number of Valid Data	15				Number of Detected Data		6
321					Number of Distinct Detected Data	6				Number of Non-Detect Data		9
322										Percent Non-Detects		60.00%
323												
324	**Raw Statistics**						**Log-transformed Statistics**					
325					Minimum Detected	23				Minimum Detected		3.135
326					Maximum Detected	150				Maximum Detected		5.011
327					Mean of Detected	61.5				Mean of Detected		3.907
328					SD of Detected	46.85				SD of Detected		0.701
329					Minimum Non-Detect	3.9				Minimum Non-Detect		1.361
330					Maximum Non-Detect	130				Maximum Non-Detect		4.868
331												
332	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		14
333	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
334	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.33%
335												
336	**Warning: There are only 6 Detected Values in this data**											
337	**Note: It should be noted that even though bootstrap may be performed on this data set**											
338	**the resulting calculations may not be reliable enough tp draw conclusions**											
339												
340	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
341												
342												
343	**UCL Statistics**											
344	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
345					Shapiro Wilk Test Statistic	0.817				Shapiro Wilk Test Statistic		0.93
346					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
347	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
348												
349	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
350					DL/2 Substitution Method					DL/2 Substitution Method		
351					Mean	40.21				Mean		3.094
352					SD	38.42				SD		1.347
353					95% DL/2 (t) UCL	57.68				95% H-Stat (DL/2) UCL		164.6
354												
355					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
356	**MLE method failed to converge properly**									Mean in Log Scale		3.118
357										SD in Log Scale		0.828
358										Mean in Original Scale		33.03
359										SD in Original Scale		37.09
360										95% Percentile Bootstrap UCL		50
361										95% BCA Bootstrap UCL		60.91
362												
363	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
364					k star (bias corrected)	1.365	**Data appear Normal at 5% Significance Level**					
365					Theta Star	45.06						
366					nu star	16.38						
367												
368					A-D Test Statistic	0.34	**Nonparametric Statistics**					
369					5% A-D Critical Value	0.703				Kaplan-Meier (KM) Method		
370					K-S Test Statistic	0.703				Mean		40.57
371					5% K-S Critical Value	0.335				SD		33.01

372	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	9.639
373											95% KM (t) UCL	57.55
374	**Assuming Gamma Distribution**										95% KM (z) UCL	56.43
375	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	56.4
376	Minimum	23									95% KM (bootstrap t) UCL	68.86
377	Maximum	150									95% KM (BCA) UCL	64.97
378	Mean	62.01									95% KM (Percentile Bootstrap) UCL	64.13
379	Median	58									95% KM (Chebyshev) UCL	82.59
380	SD	34.47									97.5% KM (Chebyshev) UCL	100.8
381	k star	3.086									99% KM (Chebyshev) UCL	136.5
382	Theta star	20.09										
383	Nu star	92.59									**Potential UCLs to Use**	
384	AppChi2	71.4									95% KM (t) UCL	57.55
385	95% Gamma Approximate UCL	80.41									95% KM (Percentile Bootstrap) UCL	64.13
386	95% Adjusted Gamma UCL	83.08										
387	**Note: DL/2 is not a recommended method.**											
388												
389												
390	**Dibenzo(a,h)anthracene**											
391												
392	**General Statistics**											
393	Number of Valid Observations	15									Number of Distinct Observations	15
394												
395	**Raw Statistics**										**Log-transformed Statistics**	
396	Minimum	6.7									Minimum of Log Data	1.902
397	Maximum	150									Maximum of Log Data	5.011
398	Mean	52.65									Mean of log Data	3.574
399	Median	32									SD of log Data	0.945
400	SD	46.67										
401	Coefficient of Variation	0.887										
402	Skewness	1.114										
403												
404	**Relevant UCL Statistics**											
405	**Normal Distribution Test**										**Lognormal Distribution Test**	
406	Shapiro Wilk Test Statistic	0.844									Shapiro Wilk Test Statistic	0.967
407	Shapiro Wilk Critical Value	0.881									Shapiro Wilk Critical Value	0.881
408	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
409												
410	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
411	95% Student's-t UCL	73.87									95% H-UCL	109.2
412	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	115.5
413	95% Adjusted-CLT UCL	76.17									97.5% Chebyshev (MVUE) UCL	142.3
414	95% Modified-t UCL	74.45									99% Chebyshev (MVUE) UCL	194.9
415												
416	**Gamma Distribution Test**										**Data Distribution**	
417	k star (bias corrected)	1.187									**Data appear Gamma Distributed at 5% Significance Level**	
418	Theta Star	44.34										
419	nu star	35.62										
420	Approximate Chi Square Value (.05)	22.96									**Nonparametric Statistics**	
421	Adjusted Level of Significance	0.0324									95% CLT UCL	72.47
422	Adjusted Chi Square Value	21.72									95% Jackknife UCL	73.87
423											95% Standard Bootstrap UCL	71.57
424	Anderson-Darling Test Statistic	0.351									95% Bootstrap-t UCL	80.07

425				Anderson-Darling 5% Critical Value	0.755					95% Hall's Bootstrap UCL	77.94	
426				Kolmogorov-Smirnov Test Statistic	0.155					95% Percentile Bootstrap UCL	73.27	
427				Kolmogorov-Smirnov 5% Critical Value	0.226					95% BCA Bootstrap UCL	77.03	
428				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	105.2	
429										97.5% Chebyshev(Mean, Sd) UCL	127.9	
430				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	172.6	
431				95% Approximate Gamma UCL	81.67							
432				95% Adjusted Gamma UCL	86.35							
433												
434				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	81.67	
435												
436												
437	**Indeno(1,2,3-cd)pyrene**											
438												
439				**General Statistics**								
440				Number of Valid Observations	15					Number of Distinct Observations	13	
441												
442				**Raw Statistics**						**Log-transformed Statistics**		
443				Minimum	59					Minimum of Log Data	4.078	
444				Maximum	1100					Maximum of Log Data	7.003	
445				Mean	327.7					Mean of log Data	5.507	
446				Median	250					SD of log Data	0.791	
447				SD	270.4							
448				Coefficient of Variation	0.825							
449				Skewness	1.804							
450												
451				**Relevant UCL Statistics**								
452				**Normal Distribution Test**						**Lognormal Distribution Test**		
453				Shapiro Wilk Test Statistic	0.82					Shapiro Wilk Test Statistic	0.983	
454				Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881	
455				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
456												
457				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
458				95% Student's-t UCL	450.6					95% H-UCL	563	
459				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	639.6	
460				95% Adjusted-CLT UCL	477.2					97.5% Chebyshev (MVUE) UCL	774.4	
461				95% Modified-t UCL	456					99% Chebyshev (MVUE) UCL	1039	
462												
463				**Gamma Distribution Test**						**Data Distribution**		
464				k star (bias corrected)	1.57					**Data appear Gamma Distributed at 5% Significance Level**		
465				Theta Star	208.7							
466				nu star	47.1							
467				Approximate Chi Square Value (.05)	32.35					**Nonparametric Statistics**		
468				Adjusted Level of Significance	0.0324					95% CLT UCL	442.5	
469				Adjusted Chi Square Value	30.85					95% Jackknife UCL	450.6	
470										95% Standard Bootstrap UCL	441.1	
471				Anderson-Darling Test Statistic	0.265					95% Bootstrap-t UCL	512.2	
472				Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	595.8	
473				Kolmogorov-Smirnov Test Statistic	0.153					95% Percentile Bootstrap UCL	447.3	
474				Kolmogorov-Smirnov 5% Critical Value	0.225					95% BCA Bootstrap UCL	482.7	
475				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	631.9	
476										97.5% Chebyshev(Mean, Sd) UCL	763.6	
477				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1022	

	A	B	C	D	E	F	G	H	I	J	K	L
478					95% Approximate Gamma UCL	477.1						
479					95% Adjusted Gamma UCL	500.3						
480												
481					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	477.1
482												
483												
484	**Lead**											
485												
486						**General Statistics**							
487						Number of Valid Observations	15					Number of Distinct Observations	14
488												
489						**Raw Statistics**						**Log-transformed Statistics**	
490						Minimum	5.85					Minimum of Log Data	1.766
491						Maximum	19.3					Maximum of Log Data	2.96
492						Mean	12.43					Mean of log Data	2.473
493						Median	13.5					SD of log Data	0.334
494						SD	3.682						
495						Coefficient of Variation	0.296						
496						Skewness	-0.211						
497													
498						**Relevant UCL Statistics**							
499						**Normal Distribution Test**						**Lognormal Distribution Test**	
500						Shapiro Wilk Test Statistic	0.971					Shapiro Wilk Test Statistic	0.922
501						Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
502						**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
503													
504						**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
505						95% Student's-t UCL	14.11					95% H-UCL	14.87
506						**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	17.25
507						95% Adjusted-CLT UCL	13.94					97.5% Chebyshev (MVUE) UCL	19.31
508						95% Modified-t UCL	14.1					99% Chebyshev (MVUE) UCL	23.36
509													
510						**Gamma Distribution Test**						**Data Distribution**	
511						k star (bias corrected)	8.568					**Data appear Normal at 5% Significance Level**	
512						Theta Star	1.451						
513						nu star	257						
514						Approximate Chi Square Value (.05)	220.9					**Nonparametric Statistics**	
515						Adjusted Level of Significance	0.0324					95% CLT UCL	14
516						Adjusted Chi Square Value	216.8					95% Jackknife UCL	14.11
517												95% Standard Bootstrap UCL	13.96
518						Anderson-Darling Test Statistic	0.408					95% Bootstrap-t UCL	14.03
519						Anderson-Darling 5% Critical Value	0.737					95% Hall's Bootstrap UCL	13.94
520						Kolmogorov-Smirnov Test Statistic	0.179					95% Percentile Bootstrap UCL	13.85
521						Kolmogorov-Smirnov 5% Critical Value	0.221					95% BCA Bootstrap UCL	13.9
522						**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	16.58
523												97.5% Chebyshev(Mean, Sd) UCL	18.37
524						**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	21.89
525						95% Approximate Gamma UCL	14.46						
526						95% Adjusted Gamma UCL	14.74						
527													
528						**Potential UCL to Use**						Use 95% Student's-t UCL	14.11
529													
530													

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Mercury**											
532												
533						**General Statistics**							
534						Number of Valid Data	14				Number of Detected Data	12
535						Number of Distinct Detected Data	11				Number of Non-Detect Data	2
536						Number of Missing Values	1				Percent Non-Detects	14.29%
537												
538				**Raw Statistics**						**Log-transformed Statistics**		
539						Minimum Detected	0.024				Minimum Detected	-3.73
540						Maximum Detected	0.192				Maximum Detected	-1.65
541						Mean of Detected	0.0881				Mean of Detected	-2.615
542						SD of Detected	0.0554				SD of Detected	0.65
543						Minimum Non-Detect	0.028				Minimum Non-Detect	-3.576
544						Maximum Non-Detect	0.09				Maximum Non-Detect	-2.408
545												
546	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
547	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
548	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	71.43%
549												
550						**UCL Statistics**							
551				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
552						Shapiro Wilk Test Statistic	0.887				Shapiro Wilk Test Statistic	0.963
553						5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value	0.859
554				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
555												
556				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
557						DL/2 Substitution Method					DL/2 Substitution Method	
558						Mean	0.0797				Mean	-2.768
559						SD	0.0556				SD	0.749
560						95% DL/2 (t) UCL	0.106				95% H-Stat (DL/2) UCL	0.123
561												
562						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
563				**MLE method failed to converge properly**							Mean in Log Scale	-2.726
564											SD in Log Scale	0.678
565											Mean in Original Scale	0.0807
566											SD in Original Scale	0.0546
567											95% Percentile Bootstrap UCL	0.105
568											95% BCA Bootstrap UCL	0.108
569												
570				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
571						k star (bias corrected)	2.192			**Data appear Normal at 5% Significance Level**		
572						Theta Star	0.0402					
573						nu star	52.6					
574												
575						A-D Test Statistic	0.292			**Nonparametric Statistics**		
576						5% A-D Critical Value	0.739				Kaplan-Meier (KM) Method	
577						K-S Test Statistic	0.739				Mean	0.0809
578						5% K-S Critical Value	0.248				SD	0.0527
579				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.0148
580											95% KM (t) UCL	0.107
581				**Assuming Gamma Distribution**							95% KM (z) UCL	0.105
582						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	0.107
583						Minimum	0.0116				95% KM (bootstrap t) UCL	0.114

584					Maximum	0.192				95% KM (BCA) UCL		0.109
585					Mean	0.0821				95% KM (Percentile Bootstrap) UCL		0.104
586					Median	0.07				95% KM (Chebyshev) UCL		0.145
587					SD	0.0549				97.5% KM (Chebyshev) UCL		0.173
588					k star	1.805				99% KM (Chebyshev) UCL		0.228
589					Theta star	0.0455						
590					Nu star	50.55				**Potential UCLs to Use**		
591					AppChi2	35.22				95% KM (t) UCL		0.107
592					95% Gamma Approximate UCL	0.118				95% KM (Percentile Bootstrap) UCL		0.104
593					95% Adjusted Gamma UCL	0.124						
594	**Note: DL/2 is not a recommended method.**											
595												
596												
597	**Naphthalene**											
598												
599						**General Statistics**						
600					Number of Valid Data	15				Number of Detected Data		14
601					Number of Distinct Detected Data	12				Number of Non-Detect Data		1
602										Percent Non-Detects		6.67%
603												
604					**Raw Statistics**					**Log-transformed Statistics**		
605					Minimum Detected	12				Minimum Detected		2.485
606					Maximum Detected	360				Maximum Detected		5.886
607					Mean of Detected	105.2				Mean of Detected		4.04
608					SD of Detected	111.4				SD of Detected		1.207
609					Minimum Non-Detect	4.4				Minimum Non-Detect		1.482
610					Maximum Non-Detect	4.4				Maximum Non-Detect		1.482
611												
612												
613						**UCL Statistics**						
614					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
615					Shapiro Wilk Test Statistic	0.817				Shapiro Wilk Test Statistic		0.9
616					5% Shapiro Wilk Critical Value	0.874				5% Shapiro Wilk Critical Value		0.874
617					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
618												
619					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
620					DL/2 Substitution Method					DL/2 Substitution Method		
621					Mean	98.35				Mean		3.823
622					SD	110.6				SD		1.435
623					95% DL/2 (t) UCL	148.7				95% H-Stat (DL/2) UCL		439.4
624												
625					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
626					Mean	94.24				Mean in Log Scale		3.845
627					SD	112.4				SD in Log Scale		1.387
628					95% MLE (t) UCL	145.4				Mean in Original Scale		98.4
629					95% MLE (Tiku) UCL	142.8				SD in Original Scale		110.6
630										95% Percentile Bootstrap UCL		147.7
631										95% BCA Bootstrap UCL		153.5
632												
633					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
634					k star (bias corrected)	0.789				**Data appear Gamma Distributed at 5% Significance Level**		
635					Theta Star	133.4						
636					nu star	22.09						

637												
638					A-D Test Statistic	0.663	**Nonparametric Statistics**					
639					5% A-D Critical Value	0.762				Kaplan-Meier (KM) Method		
640					K-S Test Statistic	0.762				Mean		99
641					5% K-S Critical Value	0.236				SD		106.3
642	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		28.49
643										95% KM (t) UCL		149.2
644	**Assuming Gamma Distribution**									95% KM (z) UCL		145.9
645				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		148.9
646					Minimum	1E-09				95% KM (bootstrap t) UCL		162.4
647					Maximum	360				95% KM (BCA) UCL		148.9
648					Mean	98.2				95% KM (Percentile Bootstrap) UCL		145.7
649					Median	57				95% KM (Chebyshev) UCL		223.2
650					SD	110.8				97.5% KM (Chebyshev) UCL		276.9
651					k star	0.294				99% KM (Chebyshev) UCL		382.4
652					Theta star	334.2						
653					Nu star	8.816	**Potential UCLs to Use**					
654					AppChi2	3.216				95% KM (Chebyshev) UCL		223.2
655				95% Gamma Approximate UCL		269.2						
656				95% Adjusted Gamma UCL		307.7						
657	**Note: DL/2 is not a recommended method.**											
658												
659												
660	**Total Aroclors**											
661												
662	**General Statistics**											
663					Number of Valid Data	12				Number of Detected Data		6
664					Number of Distinct Detected Data	6				Number of Non-Detect Data		6
665										Percent Non-Detects		50.00%
666												
667	**Raw Statistics**						**Log-transformed Statistics**					
668					Minimum Detected	6.805				Minimum Detected		1.918
669					Maximum Detected	30.3				Maximum Detected		3.411
670					Mean of Detected	18.46				Mean of Detected		2.799
671					SD of Detected	9.119				SD of Detected		0.552
672					Minimum Non-Detect	2.3				Minimum Non-Detect		0.833
673					Maximum Non-Detect	26				Maximum Non-Detect		3.258
674												
675	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		10
676	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
677	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		83.33%
678												
679	**Warning: There are only 6 Detected Values in this data**											
680	**Note: It should be noted that even though bootstrap may be performed on this data set**											
681	**the resulting calculations may not be reliable enough tp draw conclusions**											
682												
683	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
684												
685												
686	**UCL Statistics**											
687	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
688					Shapiro Wilk Test Statistic	0.93				Shapiro Wilk Test Statistic		0.942
689					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788

	A	B	C	D	E	F	G	H	I	J	K	L
690	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
691												
692	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
693					DL/2 Substitution Method						DL/2 Substitution Method	
694					Mean	11.28					Mean	1.845
695					SD	10.24					SD	1.279
696					95% DL/2 (t) UCL	16.58					95% H-Stat (DL/2) UCL	28.16
697												
698					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
699	**MLE method failed to converge properly**										Mean in Log Scale	2.207
700											SD in Log Scale	0.742
701											Mean in Original Scale	11.82
702											SD in Original Scale	9.315
703											95% Percentile Bootstrap UCL	16.23
704											95% BCA Bootstrap UCL	16.79
705												
706	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
707					k star (bias corrected)	2.338	**Data appear Normal at 5% Significance Level**					
708					Theta Star	7.895						
709					nu star	28.06						
710												
711					A-D Test Statistic	0.257	**Nonparametric Statistics**					
712					5% A-D Critical Value	0.699					Kaplan-Meier (KM) Method	
713					K-S Test Statistic	0.699					Mean	12.95
714					5% K-S Critical Value	0.333					SD	8.205
715	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	2.635
716											95% KM (t) UCL	17.68
717	**Assuming Gamma Distribution**										95% KM (z) UCL	17.29
718					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	17.59
719					Minimum	6.805					95% KM (bootstrap t) UCL	18
720					Maximum	30.3					95% KM (BCA) UCL	20.72
721					Mean	17.24					95% KM (Percentile Bootstrap) UCL	19.38
722					Median	16.48					95% KM (Chebyshev) UCL	24.44
723					SD	7.219					97.5% KM (Chebyshev) UCL	29.41
724					k star	4.572					99% KM (Chebyshev) UCL	39.17
725					Theta star	3.77						
726					Nu star	109.7	**Potential UCLs to Use**					
727					AppChi2	86.55					95% KM (t) UCL	17.68
728					95% Gamma Approximate UCL	21.85					95% KM (Percentile Bootstrap) UCL	19.38
729					95% Adjusted Gamma UCL	22.68						
730	**Note: DL/2 is not a recommended method.**											
731												
732												
733	**Total DDT**											
734												
735							**General Statistics**					
736					Number of Valid Data	13					Number of Detected Data	12
737					Number of Distinct Detected Data	12					Number of Non-Detect Data	1
738											Percent Non-Detects	7.69%
739												
740	**Raw Statistics**						**Log-transformed Statistics**					
741					Minimum Detected	0.235					Minimum Detected	-1.447
742					Maximum Detected	232					Maximum Detected	5.447

	A	B	C	D	E	F	G	H	I	J	K	L
743					Mean of Detected	30.51					Mean of Detected	0.93
744					SD of Detected	68.69					SD of Detected	2.32
745					Minimum Non-Detect	2					Minimum Non-Detect	0.693
746					Maximum Non-Detect	2					Maximum Non-Detect	0.693
747												
748												
749	**UCL Statistics**											
750	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
751					Shapiro Wilk Test Statistic	0.526					Shapiro Wilk Test Statistic	0.851
752					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
753	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
754												
755	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
756					DL/2 Substitution Method						DL/2 Substitution Method	
757					Mean	28.24					Mean	0.859
758					SD	66.27					SD	2.237
759					95% DL/2 (t) UCL	61					95% H-Stat (DL/2) UCL	474.1
760												
761					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
762	**MLE yields a negative mean**										Mean in Log Scale	0.848
763											SD in Log Scale	2.241
764											Mean in Original Scale	28.23
765											SD in Original Scale	66.28
766											95% Percentile Bootstrap UCL	61.63
767											95% BCA Bootstrap UCL	79.04
768												
769	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
770					k star (bias corrected)	0.266	**Data do not follow a Discernable Distribution (0.05)**					
771					Theta Star	114.8						
772					nu star	6.378						
773												
774					A-D Test Statistic	1.392	**Nonparametric Statistics**					
775					5% A-D Critical Value	0.832					Kaplan-Meier (KM) Method	
776					K-S Test Statistic	0.832					Mean	28.23
777					5% K-S Critical Value	0.266					SD	63.68
778	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	18.45
779											95% KM (t) UCL	61.1
780	**Assuming Gamma Distribution**										95% KM (z) UCL	58.57
781					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	60.99
782					Minimum	1E-09					95% KM (bootstrap t) UCL	208
783					Maximum	232					95% KM (BCA) UCL	60.97
784					Mean	28.17					95% KM (Percentile Bootstrap) UCL	61.37
785					Median	1.044					95% KM (Chebyshev) UCL	108.6
786					SD	66.31					97.5% KM (Chebyshev) UCL	143.4
787					k star	0.192					99% KM (Chebyshev) UCL	211.8
788					Theta star	146.6						
789					Nu star	4.996	**Potential UCLs to Use**					
790					AppChi2	1.15					99% KM (Chebyshev) UCL	211.8
791					95% Gamma Approximate UCL	122.3						
792					95% Adjusted Gamma UCL	154.2						
793	**Note: DL/2 is not a recommended method.**											
794												
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	**Total Dioxin/Furan TEQ**											
797												
798					**General Statistics**							
799					Number of Valid Data	5			Number of Detected Data			5
800					Number of Distinct Detected Data	5			Number of Non-Detect Data			0
801					Number of Missing Values	5			Percent Non-Detects			0.00%
802												
803					**Raw Statistics**				**Log-transformed Statistics**			
804					Minimum Detected	0.268			Minimum Detected			-1.317
805					Maximum Detected	1.654			Maximum Detected			0.503
806					Mean of Detected	0.605			Mean of Detected			-0.769
807					SD of Detected	0.59			SD of Detected			0.733
808					Minimum Non-Detect	N/A			Minimum Non-Detect			N/A
809					Maximum Non-Detect	N/A			Maximum Non-Detect			N/A
810												
811												
812					**Warning: There are only 5 Detected Values in this data**							
813					**Note: It should be noted that even though bootstrap may be performed on this data set**							
814					**the resulting calculations may not be reliable enough tp draw conclusions**							
815												
816					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
817												
818												
819					**UCL Statistics**							
820					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
821					Shapiro Wilk Test Statistic	0.65			Shapiro Wilk Test Statistic			0.772
822					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value			0.762
823					**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
824												
825					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
826					DL/2 Substitution Method				DL/2 Substitution Method			
827					Mean	0.605			Mean			-0.769
828					SD	0.59			SD			0.733
829					95% DL/2 (t) UCL	1.167			95% H-Stat (DL/2) UCL			2.433
830												
831					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
832					**MLE method failed to converge properly**				Mean in Log Scale			N/A
833									SD in Log Scale			N/A
834									Mean in Original Scale			N/A
835									SD in Original Scale			N/A
836									95% Percentile Bootstrap UCL			N/A
837									95% BCA Bootstrap UCL			N/A
838												
839					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
840					k star (bias corrected)	0.945			**Data appear Lognormal at 5% Significance Level**			
841					Theta Star	0.64						
842					nu star	9.451						
843												
844					A-D Test Statistic	0.812			**Nonparametric Statistics**			
845					5% A-D Critical Value	0.684			Kaplan-Meier (KM) Method			
846					K-S Test Statistic	0.684			Mean			0.605
847					5% K-S Critical Value	0.36			SD			0.527
848					**Data not Gamma Distributed at 5% Significance Level**				SE of Mean			0.264

	A	B	C	D	E	F	G	H	I	J	K	L
849											95% KM (t) UCL	1.167
850	**Assuming Gamma Distribution**										95% KM (z) UCL	1.039
851				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	1.167
852					Minimum	0.268					95% KM (bootstrap t) UCL	5.584
853					Maximum	1.654					95% KM (BCA) UCL	1.109
854					Mean	0.605					95% KM (Percentile Bootstrap) UCL	1.099
855					Median	0.348					95% KM (Chebyshev) UCL	1.754
856					SD	0.59					97.5% KM (Chebyshev) UCL	2.252
857					k star	0.945					99% KM (Chebyshev) UCL	3.229
858					Theta star	0.64						
859					Nu star	9.451				**Potential UCLs to Use**		
860					AppChi2	3.602					95% KM (Chebyshev) UCL	1.754
861				95% Gamma Approximate UCL		1.588						
862				95% Adjusted Gamma UCL		2.584						
863	**Warning: Recommended UCL exceeds the maximum observation**											
864	**Note: DL/2 is not a recommended method.**											
865												

1				**General UCL Statistics for Data Sets with Non-Detects**								
2		**User Selected Options**										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM3.5E.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	**Aldrin**											
10												
11						**General Statistics**							
12				Number of Valid Data		33			Number of Detected Data			21
13				Number of Distinct Detected Data		21			Number of Non-Detect Data			12
14				Number of Missing Values		14			Percent Non-Detects			36.36%
15												
16			**Raw Statistics**						**Log-transformed Statistics**			
17				Minimum Detected		0.0269			Minimum Detected			-3.616
18				Maximum Detected		1.65			Maximum Detected			0.501
19				Mean of Detected		0.513			Mean of Detected			-1.209
20				SD of Detected		0.492			SD of Detected			1.198
21				Minimum Non-Detect		0.0156			Minimum Non-Detect			-4.16
22				Maximum Non-Detect		0.97			Maximum Non-Detect			-0.0305
23												
24			Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect			30
25			For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected			3
26			Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage			90.91%
27												
28						**UCL Statistics**							
29			**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**			
30				Shapiro Wilk Test Statistic		0.844			Shapiro Wilk Test Statistic			0.951
31				5% Shapiro Wilk Critical Value		0.908			5% Shapiro Wilk Critical Value			0.908
32			**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
33												
34			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
35				DL/2 Substitution Method					DL/2 Substitution Method			
36				Mean		0.373			Mean			-1.688
37				SD		0.438			SD			1.321
38				95% DL/2 (t) UCL		0.502			95% H-Stat (DL/2) UCL			0.682
39												
40				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
41			**MLE yields a negative mean**						Mean in Log Scale			-1.833
42									SD in Log Scale			1.319
43									Mean in Original Scale			0.349
44									SD in Original Scale			0.447
45									95% Percentile Bootstrap UCL			0.484
46									95% BCA Bootstrap UCL			0.501
47												
48			**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**			
49				k star (bias corrected)		0.94			**Data appear Gamma Distributed at 5% Significance Level**			
50				Theta Star		0.545						
51				nu star		39.5						
52												
53				A-D Test Statistic		0.218			**Nonparametric Statistics**			

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	0.768				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	0.768					Mean	0.357
56					5% K-S Critical Value	0.195					SD	0.44
57	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0792
58											95% KM (t) UCL	0.491
59	**Assuming Gamma Distribution**										95% KM (z) UCL	0.487
60	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.49
61					Minimum	0.0269					95% KM (bootstrap t) UCL	0.521
62					Maximum	1.65					95% KM (BCA) UCL	0.496
63					Mean	0.46					95% KM (Percentile Bootstrap) UCL	0.489
64					Median	0.327					95% KM (Chebyshev) UCL	0.702
65					SD	0.411					97.5% KM (Chebyshev) UCL	0.852
66					k star	1.183					99% KM (Chebyshev) UCL	1.145
67					Theta star	0.389						
68					Nu star	78.09				**Potential UCLs to Use**		
69					AppChi2	58.73					95% KM (BCA) UCL	0.496
70					95% Gamma Approximate UCL	0.611						
71					95% Adjusted Gamma UCL	0.621						
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Arsenic**											
76												
77						**General Statistics**						
78					Number of Valid Data	39				Number of Detected Data		35
79					Number of Distinct Detected Data	34				Number of Non-Detect Data		4
80					Number of Missing Values	9				Percent Non-Detects		10.26%
81												
82				**Raw Statistics**						**Log-transformed Statistics**		
83					Minimum Detected	1.8				Minimum Detected		0.588
84					Maximum Detected	9.17				Maximum Detected		2.216
85					Mean of Detected	3.835				Mean of Detected		1.285
86					SD of Detected	1.492				SD of Detected		0.333
87					Minimum Non-Detect	4				Minimum Non-Detect		1.386
88					Maximum Non-Detect	5				Maximum Non-Detect		1.609
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		33
91	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		6
92	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		84.62%
93												
94						**UCL Statistics**						
95				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
96					Shapiro Wilk Test Statistic	0.817				Shapiro Wilk Test Statistic		0.949
97					5% Shapiro Wilk Critical Value	0.934				5% Shapiro Wilk Critical Value		0.934
98				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
99												
100				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
101					DL/2 Substitution Method					DL/2 Substitution Method		
102					Mean	3.685				Mean		1.242
103					SD	1.483				SD		0.343
104					95% DL/2 (t) UCL	4.085				95% H-Stat (DL/2) UCL		3.923
105												
106					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		

107					Mean	1.928				Mean in Log Scale		1.276
108					SD	2.965				SD in Log Scale		0.32
109					95% MLE (t) UCL	2.728				Mean in Original Scale		3.781
110					95% MLE (Tiku) UCL	4.332				SD in Original Scale		1.428
111										95% Percentile Bootstrap UCL		4.156
112										95% BCA Bootstrap UCL		4.243
113												
114	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
115					k star (bias corrected)	7.975				**Data appear Lognormal at 5% Significance Level**		
116					Theta Star	0.481						
117					nu star	558.2						
118												
119					A-D Test Statistic	1.097				**Nonparametric Statistics**		
120					5% A-D Critical Value	0.749				Kaplan-Meier (KM) Method		
121					K-S Test Statistic	0.749				Mean		3.775
122					5% K-S Critical Value	0.149				SD		1.419
123	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.233
124										95% KM (t) UCL		4.168
125	**Assuming Gamma Distribution**									95% KM (z) UCL		4.158
126	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		4.168
127					Minimum	1.8				95% KM (bootstrap t) UCL		4.298
128					Maximum	9.17				95% KM (BCA) UCL		4.165
129					Mean	3.837				95% KM (Percentile Bootstrap) UCL		4.169
130					Median	3.5				95% KM (Chebyshev) UCL		4.791
131					SD	1.422				97.5% KM (Chebyshev) UCL		5.231
132					k star	8.785				99% KM (Chebyshev) UCL		6.094
133					Theta star	0.437						
134					Nu star	685.2				**Potential UCLs to Use**		
135					AppChi2	625.5				95% KM (Chebyshev) UCL		4.791
136					95% Gamma Approximate UCL	4.203						
137					95% Adjusted Gamma UCL	4.218						
138	**Note: DL/2 is not a recommended method.**											
139												
140												
141	**Benzo(a)anthracene**											
142												
143	**General Statistics**											
144					Number of Valid Data	40				Number of Detected Data		40
145					Number of Distinct Detected Data	38				Number of Non-Detect Data		0
146					Number of Missing Values	8				Percent Non-Detects		0.00%
147												
148	**Raw Statistics**									**Log-transformed Statistics**		
149					Minimum Detected	1.4				Minimum Detected		0.336
150					Maximum Detected	6000				Maximum Detected		8.7
151					Mean of Detected	291.2				Mean of Detected		4
152					SD of Detected	967.5				SD of Detected		1.644
153					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
154					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
155												
156												
157	**UCL Statistics**											
158	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
159					Shapiro Wilk Test Statistic	0.311				Shapiro Wilk Test Statistic		0.963

160					5% Shapiro Wilk Critical Value	0.94					5% Shapiro Wilk Critical Value	0.94
161	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
162												
163	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
164					DL/2 Substitution Method						DL/2 Substitution Method	
165					Mean	291.2					Mean	4
166					SD	967.5					SD	1.644
167					95% DL/2 (t) UCL	548.9					95% H-Stat (DL/2) UCL	484.5
168												
169					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
170	**MLE method failed to converge properly**										Mean in Log Scale	N/A
171											SD in Log Scale	N/A
172											Mean in Original Scale	N/A
173											SD in Original Scale	N/A
174											95% Percentile Bootstrap UCL	N/A
175											95% BCA Bootstrap UCL	N/A
176												
177	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
178					k star (bias corrected)	0.381	**Data appear Lognormal at 5% Significance Level**					
179					Theta Star	764						
180					nu star	30.49						
181												
182					A-D Test Statistic	3.775	**Nonparametric Statistics**					
183					5% A-D Critical Value	0.837					Kaplan-Meier (KM) Method	
184					K-S Test Statistic	0.837					Mean	291.2
185					5% K-S Critical Value	0.15					SD	955.3
186	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	153
187											95% KM (t) UCL	548.9
188	**Assuming Gamma Distribution**										95% KM (z) UCL	542.8
189					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	548.9
190					Minimum	1.4					95% KM (bootstrap t) UCL	1244
191					Maximum	6000					95% KM (BCA) UCL	594.9
192					Mean	291.2					95% KM (Percentile Bootstrap) UCL	570.3
193					Median	42					95% KM (Chebyshev) UCL	958
194					SD	967.5					97.5% KM (Chebyshev) UCL	1247
195					k star	0.381					99% KM (Chebyshev) UCL	1813
196					Theta star	764						
197					Nu star	30.49	**Potential UCLs to Use**					
198					AppChi2	18.88					97.5% KM (Chebyshev) UCL	1247
199					95% Gamma Approximate UCL	470.3						
200					95% Adjusted Gamma UCL	479						
201	**Note: DL/2 is not a recommended method.**											
202												
203												
204	**Benzo(a)pyrene**											
205												
206	**General Statistics**											
207					Number of Valid Data	40					Number of Detected Data	40
208					Number of Distinct Detected Data	34					Number of Non-Detect Data	0
209					Number of Missing Values	8					Percent Non-Detects	0.00%
210												
211	**Raw Statistics**						**Log-transformed Statistics**					
212					Minimum Detected	2.7					Minimum Detected	0.993

213					Maximum Detected	3800					Maximum Detected	8.243
214					Mean of Detected	247					Mean of Detected	4.24
215					SD of Detected	635					SD of Detected	1.509
216					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
217					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
218												
219												
220	**UCL Statistics**											
221	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
222					Shapiro Wilk Test Statistic	0.394					Shapiro Wilk Test Statistic	0.973
223					5% Shapiro Wilk Critical Value	0.94					5% Shapiro Wilk Critical Value	0.94
224	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
225												
226	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
227					DL/2 Substitution Method						DL/2 Substitution Method	
228					Mean	247					Mean	4.24
229					SD	635					SD	1.509
230					95% DL/2 (t) UCL	416.2					95% H-Stat (DL/2) UCL	445.1
231												
232					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
233	**MLE method failed to converge properly**										Mean in Log Scale	N/A
234											SD in Log Scale	N/A
235											Mean in Original Scale	N/A
236											SD in Original Scale	N/A
237											95% Percentile Bootstrap UCL	N/A
238											95% BCA Bootstrap UCL	N/A
239												
240	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
241					k star (bias corrected)	0.479	**Data appear Lognormal at 5% Significance Level**					
242					Theta Star	515.2						
243					nu star	38.35						
244												
245					A-D Test Statistic	2.623	**Nonparametric Statistics**					
246					5% A-D Critical Value	0.813					Kaplan-Meier (KM) Method	
247					K-S Test Statistic	0.813					Mean	247
248					5% K-S Critical Value	0.148					SD	627
249	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	100.4
250											95% KM (t) UCL	416.2
251	**Assuming Gamma Distribution**										95% KM (z) UCL	412.1
252					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	416.2
253					Minimum	2.7					95% KM (bootstrap t) UCL	756.4
254					Maximum	3800					95% KM (BCA) UCL	426.6
255					Mean	247					95% KM (Percentile Bootstrap) UCL	424.1
256					Median	63					95% KM (Chebyshev) UCL	684.6
257					SD	635					97.5% KM (Chebyshev) UCL	874
258					k star	0.479					99% KM (Chebyshev) UCL	1246
259					Theta star	515.2						
260					Nu star	38.35	**Potential UCLs to Use**					
261					AppChi2	25.17					97.5% KM (Chebyshev) UCL	874
262					95% Gamma Approximate UCL	376.4						
263					95% Adjusted Gamma UCL	382.4						
264	**Note: DL/2 is not a recommended method.**											
265												

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	40	Number of Detected Data	40
Number of Distinct Detected Data	36	Number of Non-Detect Data	0
Number of Missing Values	8	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.8	Minimum Detected	1.03
Maximum Detected	5900	Maximum Detected	8.683
Mean of Detected	351.2	Mean of Detected	4.39
SD of Detected	982.4	SD of Detected	1.591
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.374	Shapiro Wilk Test Statistic	0.965
5% Shapiro Wilk Critical Value	0.94	5% Shapiro Wilk Critical Value	0.94
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	351.2	Mean	4.39
SD	982.4	SD	1.591
95% DL/2 (t) UCL	612.9	95% H-Stat (DL/2) UCL	627.5
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.424	**Data appear Lognormal at 5% Significance Level**	
Theta Star	828.4		
nu star	33.92		
A-D Test Statistic	3.23	**Nonparametric Statistics**	
5% A-D Critical Value	0.826	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.826	Mean	351.2
5% K-S Critical Value	0.149	SD	970
Data not Gamma Distributed at 5% Significance Level		SE of Mean	155.3
		95% KM (t) UCL	612.9
Assuming Gamma Distribution		95% KM (z) UCL	606.7
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	612.9
Minimum	2.8	95% KM (bootstrap t) UCL	1121
Maximum	5900	95% KM (BCA) UCL	633.4
Mean	351.2	95% KM (Percentile Bootstrap) UCL	630.1

319					Median	75				95% KM (Chebyshev) UCL		1028
320					SD	982.4				97.5% KM (Chebyshev) UCL		1321
321					k star	0.424				99% KM (Chebyshev) UCL		1897
322					Theta star	828.4						
323					Nu star	33.92				**Potential UCLs to Use**		
324					AppChi2	21.6				97.5% KM (Chebyshev) UCL		1321
325					95% Gamma Approximate UCL	551.6						
326					95% Adjusted Gamma UCL	561.1						
327	**Note: DL/2 is not a recommended method.**											
328												
329												
330	**Benzo(k)fluoranthene**											
331												
332						**General Statistics**						
333					Number of Valid Data	40				Number of Detected Data		40
334					Number of Distinct Detected Data	34				Number of Non-Detect Data		0
335					Number of Missing Values	8				Percent Non-Detects		0.00%
336												
337					**Raw Statistics**					**Log-transformed Statistics**		
338					Minimum Detected	1.1				Minimum Detected		0.0953
339					Maximum Detected	3400				Maximum Detected		8.132
340					Mean of Detected	170.5				Mean of Detected		3.577
341					SD of Detected	544.4				SD of Detected		1.635
342					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
343					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
344												
345												
346						**UCL Statistics**						
347					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
348					Shapiro Wilk Test Statistic	0.317				Shapiro Wilk Test Statistic		0.974
349					5% Shapiro Wilk Critical Value	0.94				5% Shapiro Wilk Critical Value		0.94
350					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
351												
352					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
353					DL/2 Substitution Method					DL/2 Substitution Method		
354					Mean	170.5				Mean		3.577
355					SD	544.4				SD		1.635
356					95% DL/2 (t) UCL	315.6				95% H-Stat (DL/2) UCL		310.7
357												
358					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
359					**MLE method failed to converge properly**					Mean in Log Scale		N/A
360										SD in Log Scale		N/A
361										Mean in Original Scale		N/A
362										SD in Original Scale		N/A
363										95% Percentile Bootstrap UCL		N/A
364										95% BCA Bootstrap UCL		N/A
365												
366					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
367					k star (bias corrected)	0.404				**Data appear Lognormal at 5% Significance Level**		
368					Theta Star	422.5						
369					nu star	32.29						
370												
371					A-D Test Statistic	3.04				**Nonparametric Statistics**		

372					5% A-D Critical Value	0.831					Kaplan-Meier (KM) Method	
373					K-S Test Statistic	0.831					Mean	170.5
374					5% K-S Critical Value	0.149					SD	537.6
375	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	86.08
376											95% KM (t) UCL	315.6
377	**Assuming Gamma Distribution**										95% KM (z) UCL	312.1
378	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	315.6
379					Minimum	1.1					95% KM (bootstrap t) UCL	727.7
380					Maximum	3400					95% KM (BCA) UCL	346.8
381					Mean	170.5					95% KM (Percentile Bootstrap) UCL	330.7
382					Median	31.25					95% KM (Chebyshev) UCL	545.7
383					SD	544.4					97.5% KM (Chebyshev) UCL	708.1
384					k star	0.404					99% KM (Chebyshev) UCL	1027
385					Theta star	422.5						
386					Nu star	32.29	**Potential UCLs to Use**					
387					AppChi2	20.3					97.5% KM (Chebyshev) UCL	708.1
388					95% Gamma Approximate UCL	271.2						
389					95% Adjusted Gamma UCL	276.1						
390	**Note: DL/2 is not a recommended method.**											
391												
392												
393	**Bis(2-ethylhexyl) phthalate**											
394												
395	**General Statistics**											
396					Number of Valid Data	39					Number of Detected Data	25
397					Number of Distinct Detected Data	23					Number of Non-Detect Data	14
398					Number of Missing Values	9					Percent Non-Detects	35.90%
399												
400	**Raw Statistics**						**Log-transformed Statistics**					
401					Minimum Detected	26					Minimum Detected	3.258
402					Maximum Detected	17000					Maximum Detected	9.741
403					Mean of Detected	2023					Mean of Detected	5.805
404					SD of Detected	4230					SD of Detected	1.887
405					Minimum Non-Detect	7.9					Minimum Non-Detect	2.067
406					Maximum Non-Detect	1200					Maximum Non-Detect	7.09
407												
408	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	31
409	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	8
410	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	79.49%
411												
412	**UCL Statistics**											
413	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
414					Shapiro Wilk Test Statistic	0.535					Shapiro Wilk Test Statistic	0.875
415					5% Shapiro Wilk Critical Value	0.918					5% Shapiro Wilk Critical Value	0.918
416	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
417												
418	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
419					DL/2 Substitution Method						DL/2 Substitution Method	
420					Mean	1323					Mean	4.923
421					SD	3494					SD	2.057
422					95% DL/2 (t) UCL	2266					95% H-Stat (DL/2) UCL	2050
423												
424					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	

425	**MLE yields a negative mean**									Mean in Log Scale		4.546
426										SD in Log Scale		2.33
427										Mean in Original Scale		1302
428										SD in Original Scale		3501
429										95% Percentile Bootstrap UCL		2306
430										95% BCA Bootstrap UCL		2672
431												
432	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
433				k star (bias corrected)	0.351					**Data do not follow a Discernable Distribution (0.05)**		
434				Theta Star	5757							
435				nu star	17.57							
436												
437				A-D Test Statistic	2.406					**Nonparametric Statistics**		
438				5% A-D Critical Value	0.836					Kaplan-Meier (KM) Method		
439				K-S Test Statistic	0.836					Mean		1311
440				5% K-S Critical Value	0.188					SD		3452
441	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		564.2
442										95% KM (t) UCL		2262
443	**Assuming Gamma Distribution**									95% KM (z) UCL		2239
444				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		2249
445				Minimum	1E-09					95% KM (bootstrap t) UCL		3082
446				Maximum	17000					95% KM (BCA) UCL		2478
447				Mean	1392					95% KM (Percentile Bootstrap) UCL		2280
448				Median	109					95% KM (Chebyshev) UCL		3770
449				SD	3484					97.5% KM (Chebyshev) UCL		4834
450				k star	0.103					99% KM (Chebyshev) UCL		6925
451				Theta star	13530							
452				Nu star	8.025					**Potential UCLs to Use**		
453				AppChi2	2.749					99% KM (Chebyshev) UCL		6925
454				95% Gamma Approximate UCL	4063							
455				95% Adjusted Gamma UCL	4249							
456	**Note: DL/2 is not a recommended method.**											
457												
458												
459	**Dibenzo(a,h)anthracene**											
460												
461	**General Statistics**											
462				Number of Valid Data	40					Number of Detected Data		39
463				Number of Distinct Detected Data	35					Number of Non-Detect Data		1
464				Number of Missing Values	8					Percent Non-Detects		2.50%
465												
466	**Raw Statistics**									**Log-transformed Statistics**		
467				Minimum Detected	0.64					Minimum Detected		-0.446
468				Maximum Detected	410					Maximum Detected		6.016
469				Mean of Detected	41.76					Mean of Detected		2.471
470				SD of Detected	92.01					SD of Detected		1.52
471				Minimum Non-Detect	20					Minimum Non-Detect		2.996
472				Maximum Non-Detect	20					Maximum Non-Detect		2.996
473												
474												
475	**UCL Statistics**											
476	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
477				Shapiro Wilk Test Statistic	0.46					Shapiro Wilk Test Statistic		0.966

	A	B	C	D	E	F	G	H	I	J	K	L
478					5% Shapiro Wilk Critical Value	0.939					5% Shapiro Wilk Critical Value	0.939
479	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
480												
481	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
482					DL/2 Substitution Method						DL/2 Substitution Method	
483					Mean	40.97					Mean	2.467
484					SD	90.96					SD	1.5
485					95% DL/2 (t) UCL	65.2					95% H-Stat (DL/2) UCL	70.17
486												
487					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
488	**MLE yields a negative mean**										Mean in Log Scale	2.454
489											SD in Log Scale	1.504
490											Mean in Original Scale	40.86
491											SD in Original Scale	91
492											95% Percentile Bootstrap UCL	66.94
493											95% BCA Bootstrap UCL	74.73
494												
495	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
496					k star (bias corrected)	0.482	**Data appear Lognormal at 5% Significance Level**					
497					Theta Star	86.68						
498					nu star	37.58						
499												
500					A-D Test Statistic	2.468	**Nonparametric Statistics**					
501					5% A-D Critical Value	0.813					Kaplan-Meier (KM) Method	
502					K-S Test Statistic	0.813					Mean	40.9
503					5% K-S Critical Value	0.149					SD	89.84
504	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	14.39
505											95% KM (t) UCL	65.15
506	**Assuming Gamma Distribution**										95% KM (z) UCL	64.57
507					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	65.14
508					Minimum	1E-09					95% KM (bootstrap t) UCL	104.8
509					Maximum	410					95% KM (BCA) UCL	68.08
510					Mean	40.72					95% KM (Percentile Bootstrap) UCL	65.06
511					Median	10					95% KM (Chebyshev) UCL	103.6
512					SD	91.06					97.5% KM (Chebyshev) UCL	130.8
513					k star	0.357					99% KM (Chebyshev) UCL	184.1
514					Theta star	114.2						
515					Nu star	28.53	**Potential UCLs to Use**					
516					AppChi2	17.34					97.5% KM (Chebyshev) UCL	130.8
517					95% Gamma Approximate UCL	66.99						
518					95% Adjusted Gamma UCL	68.28						
519	**Note: DL/2 is not a recommended method.**											
520												
521												
522	**Dieldrin**											
523												
524	**General Statistics**											
525					Number of Valid Data	35					Number of Detected Data	8
526					Number of Distinct Detected Data	8					Number of Non-Detect Data	27
527					Number of Missing Values	8					Percent Non-Detects	77.14%
528												
529	**Raw Statistics**						**Log-transformed Statistics**					
530					Minimum Detected	0.0347					Minimum Detected	-3.361

531					Maximum Detected	1.2					Maximum Detected	0.182
532					Mean of Detected	0.238					Mean of Detected	-2.203
533					SD of Detected	0.395					SD of Detected	1.191
534					Minimum Non-Detect	0.05					Minimum Non-Detect	-2.996
535					Maximum Non-Detect	0.88					Maximum Non-Detect	-0.128
536												
537	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	34
538	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
539	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	97.14%
540												
541	**Warning: There are only 8 Detected Values in this data**											
542	**Note: It should be noted that even though bootstrap may be performed on this data set**											
543	**the resulting calculations may not be reliable enough tp draw conclusions**											
544												
545	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
546												
547												
548	**UCL Statistics**											
549	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
550					Shapiro Wilk Test Statistic	0.57					Shapiro Wilk Test Statistic	0.883
551					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
552	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
553												
554	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
555					DL/2 Substitution Method						DL/2 Substitution Method	
556					Mean	0.125					Mean	-2.752
557					SD	0.217					SD	1.019
558					95% DL/2 (t) UCL	0.187					95% H-Stat (DL/2) UCL	0.18
559												
560					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
561	**MLE method failed to converge properly**										Mean in Log Scale	-3.01
562											SD in Log Scale	0.717
563											Mean in Original Scale	0.0848
564											SD in Original Scale	0.198
565											95% Percentile Bootstrap UCL	0.149
566											95% BCA Bootstrap UCL	0.189
567												
568	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
569					k star (bias corrected)	0.569	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
570					Theta Star	0.418						
571					nu star	9.098						
572												
573					A-D Test Statistic	0.778	**Nonparametric Statistics**					
574					5% A-D Critical Value	0.744					Kaplan-Meier (KM) Method	
575					K-S Test Statistic	0.744					Mean	0.088
576					5% K-S Critical Value	0.304					SD	0.195
577	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	0.0355
578											95% KM (t) UCL	0.148
579	**Assuming Gamma Distribution**										95% KM (z) UCL	0.146
580					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.145
581					Minimum	0.0347					95% KM (bootstrap t) UCL	0.324
582					Maximum	1.2					95% KM (BCA) UCL	0.165
583					Mean	0.235					95% KM (Percentile Bootstrap) UCL	0.156

584					Median	0.235				95% KM (Chebyshev) UCL		0.243
585					SD	0.18				97.5% KM (Chebyshev) UCL		0.31
586					k star	2.756				99% KM (Chebyshev) UCL		0.442
587					Theta star	0.0853						
588					Nu star	192.9				**Potential UCLs to Use**		
589					AppChi2	161.8				95% KM (t) UCL		0.148
590					95% Gamma Approximate UCL	0.28						
591					95% Adjusted Gamma UCL	0.283						
592	**Note: DL/2 is not a recommended method.**											
593												
594												
595	**Indeno(1,2,3-cd)pyrene**											
596												
597					**General Statistics**							
598					Number of Valid Data	40				Number of Detected Data		40
599					Number of Distinct Detected Data	31				Number of Non-Detect Data		0
600					Number of Missing Values	8				Percent Non-Detects		0.00%
601												
602					**Raw Statistics**					**Log-transformed Statistics**		
603					Minimum Detected	2.6				Minimum Detected		0.956
604					Maximum Detected	1100				Maximum Detected		7.003
605					Mean of Detected	148.6				Mean of Detected		4.011
606					SD of Detected	263.1				SD of Detected		1.415
607					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
608					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
609												
610												
611					**UCL Statistics**							
612					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
613					Shapiro Wilk Test Statistic	0.548				Shapiro Wilk Test Statistic		0.968
614					5% Shapiro Wilk Critical Value	0.94				5% Shapiro Wilk Critical Value		0.94
615					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
616												
617					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
618					DL/2 Substitution Method					DL/2 Substitution Method		
619					Mean	148.6				Mean		4.011
620					SD	263.1				SD		1.415
621					95% DL/2 (t) UCL	218.6				95% H-Stat (DL/2) UCL		286.8
622												
623					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
624					**MLE method failed to converge properly**					Mean in Log Scale		N/A
625										SD in Log Scale		N/A
626										Mean in Original Scale		N/A
627										SD in Original Scale		N/A
628										95% Percentile Bootstrap UCL		N/A
629										95% BCA Bootstrap UCL		N/A
630												
631					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
632					k star (bias corrected)	0.591				**Data appear Lognormal at 5% Significance Level**		
633					Theta Star	251.3						
634					nu star	47.28						
635												
636					A-D Test Statistic	1.92				**Nonparametric Statistics**		

637					5% A-D Critical Value	0.801				Kaplan-Meier (KM) Method		
638					K-S Test Statistic	0.801				Mean		148.6
639					5% K-S Critical Value	0.146				SD		259.8
640	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		41.59
641										95% KM (t) UCL		218.6
642	**Assuming Gamma Distribution**									95% KM (z) UCL		217
643	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		218.6
644					Minimum	2.6				95% KM (bootstrap t) UCL		265.7
645					Maximum	1100				95% KM (BCA) UCL		232.8
646					Mean	148.6				95% KM (Percentile Bootstrap) UCL		221.9
647					Median	54.5				95% KM (Chebyshev) UCL		329.9
648					SD	263.1				97.5% KM (Chebyshev) UCL		408.3
649					k star	0.591				99% KM (Chebyshev) UCL		562.4
650					Theta star	251.3						
651					Nu star	47.28				**Potential UCLs to Use**		
652					AppChi2	32.5				95% KM (Chebyshev) UCL		329.9
653					95% Gamma Approximate UCL	216.1						
654					95% Adjusted Gamma UCL	219.2						
655	**Note: DL/2 is not a recommended method.**											
656												
657												
658	**Lead**											
659												
660					**General Statistics**							
661					Number of Valid Data	39				Number of Detected Data		38
662					Number of Distinct Detected Data	35				Number of Non-Detect Data		1
663					Number of Missing Values	9				Percent Non-Detects		2.56%
664												
665	**Raw Statistics**									**Log-transformed Statistics**		
666					Minimum Detected	6				Minimum Detected		1.792
667					Maximum Detected	204				Maximum Detected		5.318
668					Mean of Detected	27.92				Mean of Detected		2.934
669					SD of Detected	35.84				SD of Detected		0.804
670					Minimum Non-Detect	5.3				Minimum Non-Detect		1.668
671					Maximum Non-Detect	5.3				Maximum Non-Detect		1.668
672												
673												
674					**UCL Statistics**							
675	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
676					Shapiro Wilk Test Statistic	0.569				Shapiro Wilk Test Statistic		0.933
677					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
678	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
679												
680	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
681					DL/2 Substitution Method					DL/2 Substitution Method		
682					Mean	27.27				Mean		2.884
683					SD	35.59				SD		0.853
684					95% DL/2 (t) UCL	36.88				95% H-Stat (DL/2) UCL		32.83
685												
686					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
687					Mean	26.77				Mean in Log Scale		2.882
688					SD	35.73				SD in Log Scale		0.856
689					95% MLE (t) UCL	36.42				Mean in Original Scale		27.27

690					95% MLE (Tiku) UCL	35.56				SD in Original Scale		35.6
691										95% Percentile Bootstrap UCL		38.27
692										95% BCA Bootstrap UCL		41.78
693												
694	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
695					k star (bias corrected)	1.314	**Data do not follow a Discernable Distribution (0.05)**					
696					Theta Star	21.24						
697					nu star	99.87						
698												
699					A-D Test Statistic	1.894	**Nonparametric Statistics**					
700					5% A-D Critical Value	0.768				Kaplan-Meier (KM) Method		
701					K-S Test Statistic	0.768				Mean		27.36
702					5% K-S Critical Value	0.146				SD		35.08
703	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		5.692
704										95% KM (t) UCL		36.95
705	**Assuming Gamma Distribution**									95% KM (z) UCL		36.72
706					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		36.95
707					Minimum	1E-09				95% KM (bootstrap t) UCL		46.39
708					Maximum	204				95% KM (BCA) UCL		36.95
709					Mean	27.2				95% KM (Percentile Bootstrap) UCL		37.09
710					Median	17.2				95% KM (Chebyshev) UCL		52.17
711					SD	35.64				97.5% KM (Chebyshev) UCL		62.91
712					k star	0.597				99% KM (Chebyshev) UCL		84
713					Theta star	45.53						
714					Nu star	46.6	**Potential UCLs to Use**					
715					AppChi2	31.94				95% KM (Chebyshev) UCL		52.17
716					95% Gamma Approximate UCL	39.69						
717					95% Adjusted Gamma UCL	40.3						
718	**Note: DL/2 is not a recommended method.**											
719												
720												
721	**Mercury**											
722												
723	**General Statistics**											
724					Number of Valid Data	39				Number of Detected Data		38
725					Number of Distinct Detected Data	32				Number of Non-Detect Data		1
726					Number of Missing Values	9				Percent Non-Detects		2.56%
727												
728	**Raw Statistics**						**Log-transformed Statistics**					
729					Minimum Detected	0.016				Minimum Detected		-4.135
730					Maximum Detected	0.338				Maximum Detected		-1.085
731					Mean of Detected	0.0802				Mean of Detected		-2.783
732					SD of Detected	0.0711				SD of Detected		0.699
733					Minimum Non-Detect	0.05				Minimum Non-Detect		-2.996
734					Maximum Non-Detect	0.05				Maximum Non-Detect		-2.996
735												
736												
737	**UCL Statistics**											
738	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
739					Shapiro Wilk Test Statistic	0.687				Shapiro Wilk Test Statistic		0.952
740					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
741	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
744	DL/2 Substitution Method						DL/2 Substitution Method					
745	Mean					0.0788	Mean					-2.806
746	SD					0.0707	SD					0.705
747	95% DL/2 (t) UCL					0.0979	95% H-Stat (DL/2) UCL					0.0961
748												
749	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
750	Mean					0.0635	Mean in Log Scale					-2.802
751	SD					0.0872	SD in Log Scale					0.7
752	95% MLE (t) UCL					0.0871	Mean in Original Scale					0.0789
753	95% MLE (Tiku) UCL					0.0886	SD in Original Scale					0.0706
754							95% Percentile Bootstrap UCL					0.0976
755							95% BCA Bootstrap UCL					0.102
756												
757	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
758	k star (bias corrected)					1.93	**Data appear Lognormal at 5% Significance Level**					
759	Theta Star					0.0415						
760	nu star					146.7						
761												
762	A-D Test Statistic					1.296	**Nonparametric Statistics**					
763	5% A-D Critical Value					0.759	Kaplan-Meier (KM) Method					
764	K-S Test Statistic					0.759	Mean					0.0789
765	5% K-S Critical Value					0.145	SD					0.0697
766	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0113
767							95% KM (t) UCL					0.098
768	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0975
769	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.098
770	Minimum					0.016	95% KM (bootstrap t) UCL					0.108
771	Maximum					0.338	95% KM (BCA) UCL					0.0991
772	Mean					0.0787	95% KM (Percentile Bootstrap) UCL					0.0984
773	Median					0.063	95% KM (Chebyshev) UCL					0.128
774	SD					0.0708	97.5% KM (Chebyshev) UCL					0.15
775	k star					1.892	99% KM (Chebyshev) UCL					0.192
776	Theta star					0.0416						
777	Nu star					147.6	**Potential UCLs to Use**					
778	AppChi2					120.5	95% KM (Chebyshev) UCL					0.128
779	95% Gamma Approximate UCL					0.0964						
780	95% Adjusted Gamma UCL					0.0972						
781	**Note: DL/2 is not a recommended method.**											
782												
783												
784	**Naphthalene**											
785												
786	**General Statistics**											
787	Number of Valid Data					39	Number of Detected Data					23
788	Number of Distinct Detected Data					20	Number of Non-Detect Data					16
789	Number of Missing Values					9	Percent Non-Detects					41.03%
790												
791	**Raw Statistics**						**Log-transformed Statistics**					
792	Minimum Detected					2.8	Minimum Detected					1.03
793	Maximum Detected					64	Maximum Detected					4.159
794	Mean of Detected					21.47	Mean of Detected					2.846
795	SD of Detected					14.24	SD of Detected					0.722

796					Minimum Non-Detect	0.48					Minimum Non-Detect	-0.734
797					Maximum Non-Detect	20					Maximum Non-Detect	2.996
798												
799	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	28
800	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	11
801	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	71.79%
802												
803	**UCL Statistics**											
804	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
805					Shapiro Wilk Test Statistic	0.902					Shapiro Wilk Test Statistic	0.971
806					5% Shapiro Wilk Critical Value	0.914					5% Shapiro Wilk Critical Value	0.914
807	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
808												
809	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
810					DL/2 Substitution Method						DL/2 Substitution Method	
811					Mean	13.91					Mean	1.667
812					SD	14.44					SD	1.843
813					95% DL/2 (t) UCL	17.81					95% H-Stat (DL/2) UCL	44.53
814												
815					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
816					Mean	7.092					Mean in Log Scale	2.223
817					SD	21.48					SD in Log Scale	0.96
818					95% MLE (t) UCL	12.89					Mean in Original Scale	14.31
819					95% MLE (Tiku) UCL	17.75					SD in Original Scale	13.93
820											95% Percentile Bootstrap UCL	18.02
821											95% BCA Bootstrap UCL	18.59
822												
823	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
824					k star (bias corrected)	2.13	**Data appear Gamma Distributed at 5% Significance Level**					
825					Theta Star	10.08						
826					nu star	97.96						
827												
828					A-D Test Statistic	0.194	**Nonparametric Statistics**					
829					5% A-D Critical Value	0.753					Kaplan-Meier (KM) Method	
830					K-S Test Statistic	0.753					Mean	14.21
831					5% K-S Critical Value	0.183					SD	13.94
832	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	2.301
833											95% KM (t) UCL	18.09
834	**Assuming Gamma Distribution**										95% KM (z) UCL	17.99
835					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	17.6
836					Minimum	2.8					95% KM (bootstrap t) UCL	18.62
837					Maximum	64					95% KM (BCA) UCL	20.2
838					Mean	19.48					95% KM (Percentile Bootstrap) UCL	18.89
839					Median	17.08					95% KM (Chebyshev) UCL	24.24
840					SD	11.61					97.5% KM (Chebyshev) UCL	28.58
841					k star	3.097					99% KM (Chebyshev) UCL	37.11
842					Theta star	6.292						
843					Nu star	241.5	**Potential UCLs to Use**					
844					AppChi2	206.6					95% KM (t) UCL	18.09
845					95% Gamma Approximate UCL	22.78						
846					95% Adjusted Gamma UCL	22.93						
847	**Note: DL/2 is not a recommended method.**											
848												

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850	**Thallium**											
851												
852						**General Statistics**							
853						Number of Valid Data	6				Number of Detected Data	5
854						Number of Distinct Detected Data	4				Number of Non-Detect Data	1
855						Number of Missing Values	42				Percent Non-Detects	16.67%
856												
857						**Raw Statistics**					**Log-transformed Statistics**	
858						Minimum Detected	6				Minimum Detected	1.792
859						Maximum Detected	10				Maximum Detected	2.303
860						Mean of Detected	8.2				Mean of Detected	2.087
861						SD of Detected	1.643				SD of Detected	0.211
862						Minimum Non-Detect	0.0926				Minimum Non-Detect	-2.379
863						Maximum Non-Detect	0.0926				Maximum Non-Detect	-2.379
864												
865												
866						**Warning: There are only 4 Distinct Detected Values in this data**							
867						**Note: It should be noted that even though bootstrap may be performed on this data set**						
868						**the resulting calculations may not be reliable enough tp draw conclusions**						
869												
870						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
871												
872												
873						**UCL Statistics**							
874						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
875						Shapiro Wilk Test Statistic	0.914				Shapiro Wilk Test Statistic	0.9
876						5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value	0.762
877						**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
878												
879						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
880						DL/2 Substitution Method					DL/2 Substitution Method	
881						Mean	6.841				Mean	1.227
882						SD	3.639				SD	2.115
883						95% DL/2 (t) UCL	9.834				95% H-Stat (DL/2) UCL	69257
884												
885						Maximum Likelihood Estimate(MLE) Method					Log ROS Method	
886						Mean	8.2				Mean in Log Scale	2
887						SD	1.47				SD in Log Scale	0.284
888						95% MLE (t) UCL	9.409				Mean in Original Scale	7.632
889						95% MLE (Tiku) UCL	9.524				SD in Original Scale	2.024
890											95% Percentile Bootstrap UCL	8.833
891											95% BCA Bootstrap UCL	8.667
892												
893						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
894						k star (bias corrected)	11.83				**Data appear Normal at 5% Significance Level**	
895						Theta Star	0.693					
896						nu star	118.3					
897												
898						A-D Test Statistic	0.4				**Nonparametric Statistics**	
899						5% A-D Critical Value	0.679				Kaplan-Meier (KM) Method	
900						K-S Test Statistic	0.679				Mean	7.833
901						5% K-S Critical Value	0.357				SD	1.572

902	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.718
903											95% KM (t) UCL	9.279
904	Assuming Gamma Distribution										95% KM (z) UCL	9.014
905	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	9.284
906	Minimum	5.717									95% KM (bootstrap t) UCL	9.171
907	Maximum	10									95% KM (BCA) UCL	9.333
908	Mean	7.786									95% KM (Percentile Bootstrap) UCL	9.167
909	Median	8									95% KM (Chebyshev) UCL	10.96
910	SD	1.785									97.5% KM (Chebyshev) UCL	12.32
911	k star	11.23									99% KM (Chebyshev) UCL	14.97
912	Theta star	0.694										
913	Nu star	134.7									Potential UCLs to Use	
914	AppChi2	108.9									95% KM (t) UCL	9.279
915	95% Gamma Approximate UCL	9.632									95% KM (Percentile Bootstrap) UCL	9.167
916	95% Adjusted Gamma UCL	10.44										
917	Note: DL/2 is not a recommended method.											
918												
919												
920	Total Aroclors											
921												
922	General Statistics											
923	Number of Valid Data	35									Number of Detected Data	30
924	Number of Distinct Detected Data	30									Number of Non-Detect Data	5
925	Number of Missing Values	12									Percent Non-Detects	14.29%
926												
927	Raw Statistics										Log-transformed Statistics	
928	Minimum Detected	22.05									Minimum Detected	3.093
929	Maximum Detected	3458									Maximum Detected	8.148
930	Mean of Detected	436.6									Mean of Detected	4.812
931	SD of Detected	811.2									SD of Detected	1.529
932	Minimum Non-Detect	2.5									Minimum Non-Detect	0.916
933	Maximum Non-Detect	39									Maximum Non-Detect	3.664
934												
935	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
936	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	21
937	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	40.00%
938												
939	UCL Statistics											
940	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
941	Shapiro Wilk Test Statistic	0.569									Shapiro Wilk Test Statistic	0.887
942	5% Shapiro Wilk Critical Value	0.927									5% Shapiro Wilk Critical Value	0.927
943	Data not Normal at 5% Significance Level										Data not Lognormal at 5% Significance Level	
944												
945	Assuming Normal Distribution										Assuming Lognormal Distribution	
946	DL/2 Substitution Method										DL/2 Substitution Method	
947	Mean	375.2									Mean	4.33
948	SD	764.6									SD	1.885
949	95% DL/2 (t) UCL	593.7									95% H-Stat (DL/2) UCL	1011
950												
951	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
952	Mean	44.01									Mean in Log Scale	4.365
953	SD	1064									SD in Log Scale	1.808
954	95% MLE (t) UCL	348.1									Mean in Original Scale	375.1

955					95% MLE (Tiku) UCL	385.8					SD in Original Scale	764.6
956											95% Percentile Bootstrap UCL	597
957											95% BCA Bootstrap UCL	655.9
958												
959				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
960					k star (bias corrected)	0.473					**Data do not follow a Discernable Distribution (0.05)**	
961					Theta Star	922.6						
962					nu star	28.39						
963												
964					A-D Test Statistic	2.489					**Nonparametric Statistics**	
965					5% A-D Critical Value	0.809					Kaplan-Meier (KM) Method	
966					K-S Test Statistic	0.809					Mean	377.5
967					5% K-S Critical Value	0.169					SD	752.5
968				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	129.4
969											95% KM (t) UCL	596.2
970				**Assuming Gamma Distribution**							95% KM (z) UCL	590.3
971					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	595.7
972					Minimum	1E-09					95% KM (bootstrap t) UCL	721.8
973					Maximum	3458					95% KM (BCA) UCL	581.8
974					Mean	374.2					95% KM (Percentile Bootstrap) UCL	595.5
975					Median	63.4					95% KM (Chebyshev) UCL	941.4
976					SD	765.1					97.5% KM (Chebyshev) UCL	1185
977					k star	0.165					99% KM (Chebyshev) UCL	1665
978					Theta star	2264						
979					Nu star	11.57					**Potential UCLs to Use**	
980					AppChi2	4.944					99% KM (Chebyshev) UCL	1665
981					95% Gamma Approximate UCL	875.6						
982					95% Adjusted Gamma UCL	913.4						
983	**Note: DL/2 is not a recommended method.**											
984												
985												
986	**Total DDT**											
987												
988						**General Statistics**							
989					Number of Valid Data	37					Number of Detected Data	33
990					Number of Distinct Detected Data	33					Number of Non-Detect Data	4
991					Number of Missing Values	10					Percent Non-Detects	10.81%
992												
993				**Raw Statistics**							**Log-transformed Statistics**	
994					Minimum Detected	0.19					Minimum Detected	-1.659
995					Maximum Detected	67					Maximum Detected	4.205
996					Mean of Detected	6.577					Mean of Detected	0.64
997					SD of Detected	13.59					SD of Detected	1.556
998					Minimum Non-Detect	0.0613					Minimum Non-Detect	-2.792
999					Maximum Non-Detect	20					Maximum Non-Detect	2.996
1000												
1001	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	34
1002	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
1003	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	91.89%
1004												
1005						**UCL Statistics**							
1006				**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**	
1007					Shapiro Wilk Test Statistic	0.502					Shapiro Wilk Test Statistic	0.943

1008					5% Shapiro Wilk Critical Value	0.931					5% Shapiro Wilk Critical Value	0.931
1009					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1010												
1011					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1012					DL/2 Substitution Method						DL/2 Substitution Method	
1013					Mean	6.168					Mean	0.493
1014					SD	12.95					SD	1.685
1015					95% DL/2 (t) UCL	9.761					95% H-Stat (DL/2) UCL	12.22
1016												
1017					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1018					**MLE yields a negative mean**						Mean in Log Scale	0.432
1019											SD in Log Scale	1.648
1020											Mean in Original Scale	5.924
1021											SD in Original Scale	12.96
1022											95% Percentile Bootstrap UCL	9.676
1023											95% BCA Bootstrap UCL	11.3
1024												
1025					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1026					k star (bias corrected)	0.483					**Data appear Lognormal at 5% Significance Level**	
1027					Theta Star	13.61						
1028					nu star	31.89						
1029												
1030					A-D Test Statistic	1.698					**Nonparametric Statistics**	
1031					5% A-D Critical Value	0.81					Kaplan-Meier (KM) Method	
1032					K-S Test Statistic	0.81					Mean	5.969
1033					5% K-S Critical Value	0.162					SD	12.78
1034					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	2.135
1035											95% KM (t) UCL	9.573
1036					**Assuming Gamma Distribution**						95% KM (z) UCL	9.48
1037					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	9.566
1038					Minimum	1E-09					95% KM (bootstrap t) UCL	17.06
1039					Maximum	67					95% KM (BCA) UCL	9.878
1040					Mean	5.968					95% KM (Percentile Bootstrap) UCL	9.495
1041					Median	1.395					95% KM (Chebyshev) UCL	15.27
1042					SD	12.95					97.5% KM (Chebyshev) UCL	19.3
1043					k star	0.246					99% KM (Chebyshev) UCL	27.21
1044					Theta star	24.22						
1045					Nu star	18.24					**Potential UCLs to Use**	
1046					AppChi2	9.563					99% KM (Chebyshev) UCL	27.21
1047					95% Gamma Approximate UCL	11.38						
1048					95% Adjusted Gamma UCL	11.72						
1049	**Note: DL/2 is not a recommended method.**											
1050												
1051												
1052	**Total Dioxin/Furan TEQ**											
1053												
1054							**General Statistics**					
1055					Number of Valid Data	10					Number of Detected Data	10
1056					Number of Distinct Detected Data	10					Number of Non-Detect Data	0
1057					Number of Missing Values	32					Percent Non-Detects	0.00%
1058												
1059					**Raw Statistics**						**Log-transformed Statistics**	
1060					Minimum Detected	0.234					Minimum Detected	-1.451

	A	B	C	D	E	F	G	H	I	J	K	L
1061					Maximum Detected	19.04					Maximum Detected	2.946
1062					Mean of Detected	3.33					Mean of Detected	0.315
1063					SD of Detected	5.677					SD of Detected	1.354
1064					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1065					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1066												
1067												
1068	**UCL Statistics**											
1069	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1070					Shapiro Wilk Test Statistic	0.569					Shapiro Wilk Test Statistic	0.934
1071					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
1072	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1073												
1074	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1075					DL/2 Substitution Method						DL/2 Substitution Method	
1076					Mean	3.33					Mean	0.315
1077					SD	5.677					SD	1.354
1078					95% DL/2 (t) UCL	6.621					95% H-Stat (DL/2) UCL	19.64
1079												
1080					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1081	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1082											SD in Log Scale	N/A
1083											Mean in Original Scale	N/A
1084											SD in Original Scale	N/A
1085											95% Percentile Bootstrap UCL	N/A
1086											95% BCA Bootstrap UCL	N/A
1087												
1088	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1089					k star (bias corrected)	0.545	**Data appear Gamma Distributed at 5% Significance Level**					
1090					Theta Star	6.113						
1091					nu star	10.9						
1092												
1093					A-D Test Statistic	0.64	**Nonparametric Statistics**					
1094					5% A-D Critical Value	0.762					Kaplan-Meier (KM) Method	
1095					K-S Test Statistic	0.762					Mean	3.33
1096					5% K-S Critical Value	0.277					SD	5.386
1097	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.795
1098											95% KM (t) UCL	6.621
1099	**Assuming Gamma Distribution**										95% KM (z) UCL	6.283
1100					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	6.621
1101					Minimum	0.234					95% KM (bootstrap t) UCL	15.19
1102					Maximum	19.04					95% KM (BCA) UCL	6.931
1103					Mean	3.33					95% KM (Percentile Bootstrap) UCL	6.633
1104					Median	1.641					95% KM (Chebyshev) UCL	11.16
1105					SD	5.677					97.5% KM (Chebyshev) UCL	14.54
1106					k star	0.545					99% KM (Chebyshev) UCL	21.19
1107					Theta star	6.113						
1108					Nu star	10.9	**Potential UCLs to Use**					
1109					AppChi2	4.509					95% KM (Chebyshev) UCL	11.16
1110					95% Gamma Approximate UCL	8.047						
1111					95% Adjusted Gamma UCL	9.496						
1112	**Note: DL/2 is not a recommended method.**											
1113												

	A	B	C	D	E	F	G	H	I	J	K	L
1114												
1115	**Total Dioxin-like PCBs**											
1116												
1117						**General Statistics**						
1118					Number of Valid Data	13			Number of Detected Data	13		
1119					Number of Distinct Detected Data	13			Number of Non-Detect Data	0		
1120					Number of Missing Values	29			Percent Non-Detects	0.00%		
1121												
1122					**Raw Statistics**				**Log-transformed Statistics**			
1123					Minimum Detected	1454			Minimum Detected	7.282		
1124					Maximum Detected	339044			Maximum Detected	12.73		
1125					Mean of Detected	64301			Mean of Detected	9.216		
1126					SD of Detected	117234			SD of Detected	1.961		
1127					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
1128					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
1129												
1130												
1131						**UCL Statistics**						
1132					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
1133					Shapiro Wilk Test Statistic	0.6			Shapiro Wilk Test Statistic	0.822		
1134					5% Shapiro Wilk Critical Value	0.866			5% Shapiro Wilk Critical Value	0.866		
1135					**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**			
1136												
1137					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
1138					DL/2 Substitution Method				DL/2 Substitution Method			
1139					Mean	64301			Mean	9.216		
1140					SD	117234			SD	1.961		
1141					95% DL/2 (t) UCL	122252			95% H-Stat (DL/2) UCL	986866		
1142												
1143					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1144					**MLE method failed to converge properly**				Mean in Log Scale	N/A		
1145									SD in Log Scale	N/A		
1146									Mean in Original Scale	N/A		
1147									SD in Original Scale	N/A		
1148									95% Percentile Bootstrap UCL	N/A		
1149									95% BCA Bootstrap UCL	N/A		
1150												
1151					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
1152					k star (bias corrected)	0.329			**Data do not follow a Discernable Distribution (0.05)**			
1153					Theta Star	195633						
1154					nu star	8.546						
1155												
1156					A-D Test Statistic	1.64			**Nonparametric Statistics**			
1157					5% A-D Critical Value	0.818			Kaplan-Meier (KM) Method			
1158					K-S Test Statistic	0.818			Mean	64301		
1159					5% K-S Critical Value	0.254			SD	112635		
1160					**Data not Gamma Distributed at 5% Significance Level**				SE of Mean	32515		
1161									95% KM (t) UCL	122252		
1162					**Assuming Gamma Distribution**				95% KM (z) UCL	117783		
1163					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL	122252		
1164					Minimum	1454			95% KM (bootstrap t) UCL	173858		
1165					Maximum	339044			95% KM (BCA) UCL	117366		
1166					Mean	64301			95% KM (Percentile Bootstrap) UCL	121655		

1167					Median	5574				95% KM (Chebyshev) UCL		206030
1168					SD	117234				97.5% KM (Chebyshev) UCL		267356
1169					k star	0.329				99% KM (Chebyshev) UCL		387820
1170					Theta star	195633						
1171					Nu star	8.546				**Potential UCLs to Use**		
1172					AppChi2	3.055				99% KM (Chebyshev) UCL		387820
1173					95% Gamma Approximate UCL	179871						
1174					95% Adjusted Gamma UCL	210858						
1175	**Warning: Recommended UCL exceeds the maximum observation**											
1176	**Note: DL/2 is not a recommended method.**											
1177												
1178												
1179	**Total PCB TEQ**											
1180												
1181	**General Statistics**											
1182					Number of Valid Data	13				Number of Detected Data		13
1183					Number of Distinct Detected Data	13				Number of Non-Detect Data		0
1184					Number of Missing Values	29				Percent Non-Detects		0.00%
1185												
1186	**Raw Statistics**									**Log-transformed Statistics**		
1187					Minimum Detected	0.627				Minimum Detected		-0.467
1188					Maximum Detected	121.6				Maximum Detected		4.801
1189					Mean of Detected	17.36				Mean of Detected		1.267
1190					SD of Detected	35.09				SD of Detected		1.733
1191					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1192					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1193												
1194												
1195	**UCL Statistics**											
1196	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
1197					Shapiro Wilk Test Statistic	0.557				Shapiro Wilk Test Statistic		0.844
1198					5% Shapiro Wilk Critical Value	0.866				5% Shapiro Wilk Critical Value		0.866
1199	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
1200												
1201	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1202					DL/2 Substitution Method					DL/2 Substitution Method		
1203					Mean	17.36				Mean		1.267
1204					SD	35.09				SD		1.733
1205					95% DL/2 (t) UCL	34.71				95% H-Stat (DL/2) UCL		130.3
1206												
1207					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1208	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1209										SD in Log Scale		N/A
1210										Mean in Original Scale		N/A
1211										SD in Original Scale		N/A
1212										95% Percentile Bootstrap UCL		N/A
1213										95% BCA Bootstrap UCL		N/A
1214												
1215	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
1216					k star (bias corrected)	0.369				**Data do not follow a Discernable Distribution (0.05)**		
1217					Theta Star	47.1						
1218					nu star	9.584						
1219												

1220					A-D Test Statistic	1.499	**Nonparametric Statistics**					
1221					5% A-D Critical Value	0.807				Kaplan-Meier (KM) Method		
1222					K-S Test Statistic	0.807				Mean		17.36
1223					5% K-S Critical Value	0.253				SD		33.72
1224	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		9.733
1225										95% KM (t) UCL		34.71
1226	**Assuming Gamma Distribution**									95% KM (z) UCL		33.37
1227	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		34.71
1228					Minimum	0.627				95% KM (bootstrap t) UCL		75.42
1229					Maximum	121.6				95% KM (BCA) UCL		33.9
1230					Mean	17.36				95% KM (Percentile Bootstrap) UCL		34.06
1231					Median	2.248				95% KM (Chebyshev) UCL		59.79
1232					SD	35.09				97.5% KM (Chebyshev) UCL		78.14
1233					k star	0.369				99% KM (Chebyshev) UCL		114.2
1234					Theta star	47.1						
1235					Nu star	9.584	**Potential UCLs to Use**					
1236					AppChi2	3.683				99% KM (Chebyshev) UCL		114.2
1237					95% Gamma Approximate UCL	45.17						
1238					95% Adjusted Gamma UCL	52.32						
1239	**Note: DL/2 is not a recommended method.**											
1240												
1241												
1242	**Total PCB_Congeners**											
1243												
1244	**General Statistics**											
1245					Number of Valid Data	13				Number of Detected Data		13
1246					Number of Distinct Detected Data	13				Number of Non-Detect Data		0
1247					Number of Missing Values	29				Percent Non-Detects		0.00%
1248												
1249	**Raw Statistics**						**Log-transformed Statistics**					
1250					Minimum Detected	32370				Minimum Detected		10.38
1251					Maximum Detected	3489812				Maximum Detected		15.07
1252					Mean of Detected	765452				Mean of Detected		12.06
1253					SD of Detected	1308218				SD of Detected		1.735
1254					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1255					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1256												
1257												
1258	**UCL Statistics**											
1259	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1260					Shapiro Wilk Test Statistic	0.603				Shapiro Wilk Test Statistic		0.817
1261					5% Shapiro Wilk Critical Value	0.866				5% Shapiro Wilk Critical Value		0.866
1262	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1263												
1264	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1265					DL/2 Substitution Method					DL/2 Substitution Method		
1266					Mean	765452				Mean		12.06
1267					SD	1308218				SD		1.735
1268					95% DL/2 (t) UCL	1412127				95% H-Stat (DL/2) UCL		6397633
1269												
1270					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1271	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1272										SD in Log Scale		N/A

1273											Mean in Original Scale	N/A
1274											SD in Original Scale	N/A
1275											95% Percentile Bootstrap UCL	N/A
1276											95% BCA Bootstrap UCL	N/A
1277												
1278	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1279					k star (bias corrected)	0.387	**Data do not follow a Discernable Distribution (0.05)**					
1280					Theta Star	1977998						
1281					nu star	10.06						
1282												
1283					A-D Test Statistic	1.573	**Nonparametric Statistics**					
1284					5% A-D Critical Value	0.803	Kaplan-Meier (KM) Method					
1285					K-S Test Statistic	0.803	Mean	765452				
1286					5% K-S Critical Value	0.252	SD	1256895				
1287	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	362834				
1288							95% KM (t) UCL	1412127				
1289	**Assuming Gamma Distribution**						95% KM (z) UCL	1362261				
1290	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1412127				
1291					Minimum	32370	95% KM (bootstrap t) UCL	1905226				
1292					Maximum	3489812	95% KM (BCA) UCL	1430175				
1293					Mean	765452	95% KM (Percentile Bootstrap) UCL	1409873				
1294					Median	94685	95% KM (Chebyshev) UCL	2347010				
1295					SD	1308218	97.5% KM (Chebyshev) UCL	3031351				
1296					k star	0.387	99% KM (Chebyshev) UCL	4375607				
1297					Theta star	1977998						
1298					Nu star	10.06	**Potential UCLs to Use**					
1299					AppChi2	3.98	99% KM (Chebyshev) UCL	4375607				
1300					95% Gamma Approximate UCL	1934952						
1301					95% Adjusted Gamma UCL	2230730						
1302	**Warning: Recommended UCL exceeds the maximum observation**											
1303	**Note: DL/2 is not a recommended method.**											
1304												
1305												
1306	**Total PCBs, Adjusted**											
1307												
1308	**General Statistics**											
1309					Number of Valid Data	13	Number of Detected Data	13				
1310					Number of Distinct Detected Data	13	Number of Non-Detect Data	0				
1311					Number of Missing Values	29	Percent Non-Detects	0.00%				
1312												
1313	**Raw Statistics**						**Log-transformed Statistics**					
1314					Minimum Detected	30865	Minimum Detected	10.34				
1315					Maximum Detected	3150767	Maximum Detected	14.96				
1316					Mean of Detected	701151	Mean of Detected	12				
1317					SD of Detected	1191772	SD of Detected	1.721				
1318					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
1319					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1320												
1321												
1322	**UCL Statistics**											
1323	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1324					Shapiro Wilk Test Statistic	0.602	Shapiro Wilk Test Statistic	0.817				
1325					5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866				

	A	B	C	D	E	F	G	H	I	J	K	L
1326	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1327												
1328	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1329	DL/2 Substitution Method						DL/2 Substitution Method					
1330	Mean					701151	Mean					12
1331	SD					1191772	SD					1.721
1332	95% DL/2 (t) UCL					1290265	95% H-Stat (DL/2) UCL					5686334
1333												
1334	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1335	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1336							SD in Log Scale					N/A
1337							Mean in Original Scale					N/A
1338							SD in Original Scale					N/A
1339							95% Percentile Bootstrap UCL					N/A
1340							95% BCA Bootstrap UCL					N/A
1341												
1342	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1343	k star (bias corrected)					0.392	**Data do not follow a Discernable Distribution (0.05)**					
1344	Theta Star					1789505						
1345	nu star					10.19						
1346												
1347	A-D Test Statistic					1.565	**Nonparametric Statistics**					
1348	5% A-D Critical Value					0.801	Kaplan-Meier (KM) Method					
1349	K-S Test Statistic					0.801	Mean					701151
1350	5% K-S Critical Value					0.252	SD					1145018
1351	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					330538
1352							95% KM (t) UCL					1290265
1353	**Assuming Gamma Distribution**						95% KM (z) UCL					1244838
1354	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1290265
1355	Minimum					30865	95% KM (bootstrap t) UCL					1767972
1356	Maximum					3150767	95% KM (BCA) UCL					1271977
1357	Mean					701151	95% KM (Percentile Bootstrap) UCL					1245858
1358	Median					87512	95% KM (Chebyshev) UCL					2141933
1359	SD					1191772	97.5% KM (Chebyshev) UCL					2765361
1360	k star					0.392	99% KM (Chebyshev) UCL					3989964
1361	Theta star					1789505						
1362	Nu star					10.19	**Potential UCLs to Use**					
1363	AppChi2					4.059	99% KM (Chebyshev) UCL					3989964
1364	95% Gamma Approximate UCL					1759698						
1365	95% Adjusted Gamma UCL					2026294						
1366	**Warning: Recommended UCL exceeds the maximum observation**											
1367	**Note: DL/2 is not a recommended method.**											
1368												
1369												
1370	**Total TEQ**											
1371												
1372	**General Statistics**											
1373	Number of Valid Data					5	Number of Detected Data					5
1374	Number of Distinct Detected Data					5	Number of Non-Detect Data					0
1375	Number of Missing Values					37	Percent Non-Detects					0.00%
1376												
1377	**Raw Statistics**						**Log-transformed Statistics**					
1378	Minimum Detected					1.234	Minimum Detected					0.21

1379					Maximum Detected	49.88					Maximum Detected	3.91
1380					Mean of Detected	11.74					Mean of Detected	1.361
1381					SD of Detected	21.33					SD of Detected	1.473
1382					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1383					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1384												
1385												
1386	**Warning: There are only 5 Detected Values in this data**											
1387	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1388	**the resulting calculations may not be reliable enough tp draw conclusions**											
1389												
1390	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1391												
1392												
1393	**UCL Statistics**											
1394	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1395					Shapiro Wilk Test Statistic	0.588					Shapiro Wilk Test Statistic	0.788
1396					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
1397	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1398												
1399	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1400					DL/2 Substitution Method						DL/2 Substitution Method	
1401					Mean	11.74					Mean	1.361
1402					SD	21.33					SD	1.473
1403					95% DL/2 (t) UCL	32.08					95% H-Stat (DL/2) UCL	1999
1404												
1405					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1406	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1407											SD in Log Scale	N/A
1408											Mean in Original Scale	N/A
1409											SD in Original Scale	N/A
1410											95% Percentile Bootstrap UCL	N/A
1411											95% BCA Bootstrap UCL	N/A
1412												
1413	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1414					k star (bias corrected)	0.36	**Data appear Lognormal at 5% Significance Level**					
1415					Theta Star	32.66						
1416					nu star	3.596						
1417												
1418					A-D Test Statistic	0.881	**Nonparametric Statistics**					
1419					5% A-D Critical Value	0.708					Kaplan-Meier (KM) Method	
1420					K-S Test Statistic	0.708					Mean	11.74
1421					5% K-S Critical Value	0.37					SD	19.08
1422	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	9.541
1423											95% KM (t) UCL	32.08
1424	**Assuming Gamma Distribution**										95% KM (z) UCL	27.44
1425					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	32.08
1426					Minimum	1.234					95% KM (bootstrap t) UCL	406.4
1427					Maximum	49.88					95% KM (BCA) UCL	30.67
1428					Mean	11.74					95% KM (Percentile Bootstrap) UCL	30.42
1429					Median	2.482					95% KM (Chebyshev) UCL	53.33
1430					SD	21.33					97.5% KM (Chebyshev) UCL	71.32
1431					k star	0.36					99% KM (Chebyshev) UCL	106.7

1432					Theta star	32.66						
1433					Nu star	3.596	**Potential UCLs to Use**					
1434					AppChi2	0.569				97.5% KM (Chebyshev) UCL		71.32
1435				95% Gamma Approximate UCL		74.23						
1436				95% Adjusted Gamma UCL		189.4						
1437	**Warning: Recommended UCL exceeds the maximum observation**											
1438	**Note: DL/2 is not a recommended method.**											
1439												
1440												
1441	**Tributyltin ion**											
1442												
1443	**General Statistics**											
1444					Number of Valid Data	27				Number of Detected Data		26
1445					Number of Distinct Detected Data	25				Number of Non-Detect Data		1
1446					Number of Missing Values	20				Percent Non-Detects		3.70%
1447												
1448	**Raw Statistics**						**Log-transformed Statistics**					
1449					Minimum Detected	0.53				Minimum Detected		-0.635
1450					Maximum Detected	47000				Maximum Detected		10.76
1451					Mean of Detected	1854				Mean of Detected		3.52
1452					SD of Detected	9208				SD of Detected		1.958
1453					Minimum Non-Detect	0.23				Minimum Non-Detect		-1.47
1454					Maximum Non-Detect	0.23				Maximum Non-Detect		-1.47
1455												
1456												
1457	**UCL Statistics**											
1458	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1459					Shapiro Wilk Test Statistic	0.206				Shapiro Wilk Test Statistic		0.829
1460					5% Shapiro Wilk Critical Value	0.92				5% Shapiro Wilk Critical Value		0.92
1461	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1462												
1463	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1464					DL/2 Substitution Method					DL/2 Substitution Method		
1465					Mean	1785				Mean		3.31
1466					SD	9036				SD		2.21
1467					95% DL/2 (t) UCL	4751				95% H-Stat (DL/2) UCL		1667
1468												
1469					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
1470					Mean	1537				Mean in Log Scale		3.359
1471					SD	9062				SD in Log Scale		2.095
1472					95% MLE (t) UCL	4511				Mean in Original Scale		1785
1473					95% MLE (Tiku) UCL	4176				SD in Original Scale		9036
1474										95% Percentile Bootstrap UCL		5261
1475										95% BCA Bootstrap UCL		7016
1476												
1477	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1478					k star (bias corrected)	0.19	**Data do not follow a Discernable Distribution (0.05)**					
1479					Theta Star	9752						
1480					nu star	9.883						
1481												
1482					A-D Test Statistic	6.358	**Nonparametric Statistics**					
1483					5% A-D Critical Value	0.9				Kaplan-Meier (KM) Method		
1484					K-S Test Statistic	0.9				Mean		1785

	A	B	C	D	E	F	G	H	I	J	K	L
1485					5% K-S Critical Value	0.19					SD	8868
1486	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	1740
1487											95% KM (t) UCL	4753
1488	**Assuming Gamma Distribution**										95% KM (z) UCL	4648
1489	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	4751
1490					Minimum	1E-09					95% KM (bootstrap t) UCL	407442
1491					Maximum	47000					95% KM (BCA) UCL	5267
1492					Mean	1785					95% KM (Percentile Bootstrap) UCL	5261
1493					Median	24					95% KM (Chebyshev) UCL	9371
1494					SD	9036					97.5% KM (Chebyshev) UCL	12653
1495					k star	0.164					99% KM (Chebyshev) UCL	19101
1496					Theta star	10870						
1497					Nu star	8.867	**Potential UCLs to Use**					
1498					AppChi2	3.247					99% KM (Chebyshev) UCL	19101
1499				95% Gamma Approximate UCL		4875						
1500				95% Adjusted Gamma UCL		5219						
1501	**Note: DL/2 is not a recommended method.**											
1502												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM3.5W.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

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General Statistics

Number of Valid Data	15	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	10
		Percent Non-Detects	66.67%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.249	Minimum Detected	-1.39
Maximum Detected	1.13	Maximum Detected	0.122
Mean of Detected	0.596	Mean of Detected	-0.631
SD of Detected	0.323	SD of Detected	0.535
Minimum Non-Detect	0.0331	Minimum Non-Detect	-3.408
Maximum Non-Detect	0.99	Maximum Non-Detect	-0.0101
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	93.33%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.843	Shapiro Wilk Test Statistic	0.908
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.265	Mean	-2.148
SD	0.319	SD	1.43
95% DL/2 (t) UCL	0.41	95% H-Stat (DL/2) UCL	0.559
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.572
		SD in Log Scale	0.761
		Mean in Original Scale	0.286
		SD in Original Scale	0.286
		95% Percentile Bootstrap UCL	0.419
		95% BCA Bootstrap UCL	0.455

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56	k star (bias corrected)					1.966	**Data appear Normal at 5% Significance Level**					
57	Theta Star					0.303						
58	nu star					19.66						
59												
60	A-D Test Statistic					0.455	**Nonparametric Statistics**					
61	5% A-D Critical Value					0.681	Kaplan-Meier (KM) Method					
62	K-S Test Statistic					0.681	Mean					0.369
63	5% K-S Critical Value					0.358	SD					0.234
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0682
65							95% KM (t) UCL					0.489
66	**Assuming Gamma Distribution**						95% KM (z) UCL					0.481
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.538
68	Minimum					0.249	95% KM (bootstrap t) UCL					0.498
69	Maximum					1.13	95% KM (BCA) UCL					0.647
70	Mean					0.603	95% KM (Percentile Bootstrap) UCL					0.612
71	Median					0.596	95% KM (Chebyshev) UCL					0.666
72	SD					0.179	97.5% KM (Chebyshev) UCL					0.795
73	k star					10.04	99% KM (Chebyshev) UCL					1.048
74	Theta star					0.06						
75	Nu star					301.2	**Potential UCLs to Use**					
76	AppChi2					262	95% KM (t) UCL					0.489
77	95% Gamma Approximate UCL					0.693	95% KM (Percentile Bootstrap) UCL					0.612
78	95% Adjusted Gamma UCL					0.705						
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85	Number of Valid Data					16	Number of Detected Data					15
86	Number of Distinct Detected Data					13	Number of Non-Detect Data					1
87							Percent Non-Detects					6.25%
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90	Minimum Detected					3.05	Minimum Detected					1.115
91	Maximum Detected					16.9	Maximum Detected					2.827
92	Mean of Detected					5.994	Mean of Detected					1.629
93	SD of Detected					4.339	SD of Detected					0.533
94	Minimum Non-Detect					5	Minimum Non-Detect					1.609
95	Maximum Non-Detect					5	Maximum Non-Detect					1.609
96												
97												
98	**UCL Statistics**											
99	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
100	Shapiro Wilk Test Statistic					0.651	Shapiro Wilk Test Statistic					0.817
101	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881
102	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
103												
104	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
105	DL/2 Substitution Method						DL/2 Substitution Method					
106	Mean					5.776	Mean					1.584

107					SD	4.282					SD	0.545
108					95% DL/2 (t) UCL	7.652					95% H-Stat (DL/2) UCL	6.661
109												
110					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
111					Mean	3.288					Mean in Log Scale	1.608
112					SD	6.605					SD in Log Scale	0.522
113					95% MLE (t) UCL	6.183					Mean in Original Scale	5.848
114					95% MLE (Tiku) UCL	7.198					SD in Original Scale	4.232
115											95% Percentile Bootstrap UCL	7.599
116											95% BCA Bootstrap UCL	8.241
117												
118	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
119					k star (bias corrected)	2.636					**Data do not follow a Discernable Distribution (0.05)**	
120					Theta Star	2.274						
121					nu star	79.07						
122												
123					A-D Test Statistic	1.408					**Nonparametric Statistics**	
124					5% A-D Critical Value	0.743					Kaplan-Meier (KM) Method	
125					K-S Test Statistic	0.743					Mean	5.844
126					5% K-S Critical Value	0.223					SD	4.101
127	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	1.062
128											95% KM (t) UCL	7.706
129	**Assuming Gamma Distribution**										95% KM (z) UCL	7.591
130					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	7.702
131					Minimum	3.05					95% KM (bootstrap t) UCL	11.52
132					Maximum	16.9					95% KM (BCA) UCL	7.695
133					Mean	5.887					95% KM (Percentile Bootstrap) UCL	7.649
134					Median	4.288					95% KM (Chebyshev) UCL	10.47
135					SD	4.213					97.5% KM (Chebyshev) UCL	12.48
136					k star	2.788					99% KM (Chebyshev) UCL	16.41
137					Theta star	2.111						
138					Nu star	89.23					**Potential UCLs to Use**	
139					AppChi2	68.45					95% KM (Chebyshev) UCL	10.47
140					95% Gamma Approximate UCL	7.674						
141					95% Adjusted Gamma UCL	7.913						
142	**Note: DL/2 is not a recommended method.**											
143												
144												
145	**Benzo(a)anthracene**											
146												
147	**General Statistics**											
148					Number of Valid Observations	16					Number of Distinct Observations	16
149												
150	**Raw Statistics**						**Log-transformed Statistics**					
151					Minimum	30					Minimum of Log Data	3.401
152					Maximum	2500					Maximum of Log Data	7.824
153					Mean	259.9					Mean of log Data	4.607
154					Median	72					SD of log Data	1.15
155					SD	605						
156					Coefficient of Variation	2.328						
157					Skewness	3.835						
158												
159	**Relevant UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
160	**Normal Distribution Test**						**Lognormal Distribution Test**					
161					Shapiro Wilk Test Statistic	0.395					Shapiro Wilk Test Statistic	0.862
162					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
163	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
164												
165	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
166					95% Student's-t UCL	525.1					95% H-UCL	464.7
167	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	437.9
168					95% Adjusted-CLT UCL	663.7					97.5% Chebyshev (MVUE) UCL	548.4
169					95% Modified-t UCL	549.3					99% Chebyshev (MVUE) UCL	765.6
170												
171	**Gamma Distribution Test**						**Data Distribution**					
172					k star (bias corrected)	0.563	**Data do not follow a Discernable Distribution (0.05)**					
173					Theta Star	461.8						
174					nu star	18.01						
175					Approximate Chi Square Value (.05)	9.401	**Nonparametric Statistics**					
176					Adjusted Level of Significance	0.0335					95% CLT UCL	508.7
177					Adjusted Chi Square Value	8.699					95% Jackknife UCL	525.1
178											95% Standard Bootstrap UCL	501.6
179					Anderson-Darling Test Statistic	1.832					95% Bootstrap-t UCL	1794
180					Anderson-Darling 5% Critical Value	0.784					95% Hall's Bootstrap UCL	1430
181					Kolmogorov-Smirnov Test Statistic	0.267					95% Percentile Bootstrap UCL	546.6
182					Kolmogorov-Smirnov 5% Critical Value	0.225					95% BCA Bootstrap UCL	709.8
183	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	919.2
184											97.5% Chebyshev(Mean, Sd) UCL	1205
185	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	1765
186					95% Approximate Gamma UCL	498.1						
187					95% Adjusted Gamma UCL	538.3						
188												
189	**Potential UCL to Use**										Use 99% Chebyshev (Mean, Sd) UCL	1765
190												
191												
192	**Benzo(a)pyrene**											
193												
194	**General Statistics**											
195					Number of Valid Observations	16					Number of Distinct Observations	16
196												
197	**Raw Statistics**						**Log-transformed Statistics**					
198					Minimum	54					Minimum of Log Data	3.989
199					Maximum	3600					Maximum of Log Data	8.189
200					Mean	392.6					Mean of log Data	5.113
201					Median	125					SD of log Data	1.097
202					SD	867.1						
203					Coefficient of Variation	2.208						
204					Skewness	3.823						
205												
206	**Relevant UCL Statistics**											
207	**Normal Distribution Test**						**Lognormal Distribution Test**					
208					Shapiro Wilk Test Statistic	0.403					Shapiro Wilk Test Statistic	0.862
209					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
210	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
211												
212	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

213					95% Student's-t UCL	772.6					95% H-UCL	681.1
214				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	668.6
215					95% Adjusted-CLT UCL	970.5					97.5% Chebyshev (MVUE) UCL	833.7
216					95% Modified-t UCL	807.2					99% Chebyshev (MVUE) UCL	1158
217												
218				**Gamma Distribution Test**							**Data Distribution**	
219					k star (bias corrected)	0.612					**Data do not follow a Discernable Distribution (0.05)**	
220					Theta Star	641.2						
221					nu star	19.59						
222					Approximate Chi Square Value (.05)	10.55					**Nonparametric Statistics**	
223					Adjusted Level of Significance	0.0335					95% CLT UCL	749.2
224					Adjusted Chi Square Value	9.804					95% Jackknife UCL	772.6
225											95% Standard Bootstrap UCL	737.7
226					Anderson-Darling Test Statistic	1.74					95% Bootstrap-t UCL	2332
227					Anderson-Darling 5% Critical Value	0.779					95% Hall's Bootstrap UCL	1980
228					Kolmogorov-Smirnov Test Statistic	0.256					95% Percentile Bootstrap UCL	813.6
229					Kolmogorov-Smirnov 5% Critical Value	0.224					95% BCA Bootstrap UCL	1044
230				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	1338
231											97.5% Chebyshev(Mean, Sd) UCL	1746
232				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	2550
233					95% Approximate Gamma UCL	729						
234					95% Adjusted Gamma UCL	784.7						
235												
236				**Potential UCL to Use**							Use 99% Chebyshev (Mean, Sd) UCL	2550
237												
238												
239	**Benzo(b)fluoranthene**											
240												
241						**General Statistics**						
242					Number of Valid Observations	16					Number of Distinct Observations	12
243												
244				**Raw Statistics**							**Log-transformed Statistics**	
245					Minimum	37					Minimum of Log Data	3.611
246					Maximum	3200					Maximum of Log Data	8.071
247					Mean	349.9					Mean of log Data	5.033
248					Median	130					SD of log Data	1.058
249					SD	770.1						
250					Coefficient of Variation	2.201						
251					Skewness	3.83						
252												
253						**Relevant UCL Statistics**						
254				**Normal Distribution Test**							**Lognormal Distribution Test**	
255					Shapiro Wilk Test Statistic	0.397					Shapiro Wilk Test Statistic	0.867
256					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
257				**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**	
258												
259				**Assuming Normal Distribution**							**Assuming Lognormal Distribution**	
260					95% Student's-t UCL	687.4					95% H-UCL	575.6
261				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	580.9
262					95% Adjusted-CLT UCL	863.6					97.5% Chebyshev (MVUE) UCL	721.8
263					95% Modified-t UCL	718.2					99% Chebyshev (MVUE) UCL	998.6
264												
265				**Gamma Distribution Test**							**Data Distribution**	

266				k star (bias corrected)	0.634		**Data do not follow a Discernable Distribution (0.05)**					
267				Theta Star	552.2							
268				nu star	20.28							
269				Approximate Chi Square Value (.05)	11.06		**Nonparametric Statistics**					
270				Adjusted Level of Significance	0.0335						95% CLT UCL	666.6
271				Adjusted Chi Square Value	10.29						95% Jackknife UCL	687.4
272											95% Standard Bootstrap UCL	648
273				Anderson-Darling Test Statistic	1.926						95% Bootstrap-t UCL	2193
274				Anderson-Darling 5% Critical Value	0.776						95% Hall's Bootstrap UCL	1765
275				Kolmogorov-Smirnov Test Statistic	0.324						95% Percentile Bootstrap UCL	732.5
276				Kolmogorov-Smirnov 5% Critical Value	0.224						95% BCA Bootstrap UCL	925.9
277				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	1189
278											97.5% Chebyshev(Mean, Sd) UCL	1552
279				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	2266
280				95% Approximate Gamma UCL	641.8							
281				95% Adjusted Gamma UCL	689.8							
282												
283				**Potential UCL to Use**			Use 99% Chebyshev (Mean, Sd) UCL					2266
284												
285												
286	**Benzo(k)fluoranthene**											
287												
288				**General Statistics**								
289				Number of Valid Observations	16		Number of Distinct Observations					16
290												
291				**Raw Statistics**			**Log-transformed Statistics**					
292				Minimum	22		Minimum of Log Data					3.091
293				Maximum	1100		Maximum of Log Data					7.003
294				Mean	144.3		Mean of log Data					4.255
295				Median	48		SD of log Data					1.072
296				SD	263.2							
297				Coefficient of Variation	1.824							
298				Skewness	3.595							
299												
300				**Relevant UCL Statistics**								
301				**Normal Distribution Test**			**Lognormal Distribution Test**					
302				Shapiro Wilk Test Statistic	0.476		Shapiro Wilk Test Statistic					0.877
303				Shapiro Wilk Critical Value	0.887		Shapiro Wilk Critical Value					0.887
304				**Data not Normal at 5% Significance Level**			**Data not Lognormal at 5% Significance Level**					
305												
306				**Assuming Normal Distribution**			**Assuming Lognormal Distribution**					
307				95% Student's-t UCL	259.7		95% H-UCL					273
308				**95% UCLs (Adjusted for Skewness)**			95% Chebyshev (MVUE) UCL					272.8
309				95% Adjusted-CLT UCL	315.8		97.5% Chebyshev (MVUE) UCL					339.4
310				95% Modified-t UCL	269.5		99% Chebyshev (MVUE) UCL					470.2
311												
312				**Gamma Distribution Test**			**Data Distribution**					
313				k star (bias corrected)	0.712		**Data do not follow a Discernable Distribution (0.05)**					
314				Theta Star	202.8							
315				nu star	22.77							
316				Approximate Chi Square Value (.05)	12.92		**Nonparametric Statistics**					
317				Adjusted Level of Significance	0.0335						95% CLT UCL	252.6
318				Adjusted Chi Square Value	12.08						95% Jackknife UCL	259.7

319										95% Standard Bootstrap UCL		250.3
320				Anderson-Darling Test Statistic		1.351				95% Bootstrap-t UCL		538.2
321				Anderson-Darling 5% Critical Value		0.771				95% Hall's Bootstrap UCL		639.7
322				Kolmogorov-Smirnov Test Statistic		0.228				95% Percentile Bootstrap UCL		266.6
323				Kolmogorov-Smirnov 5% Critical Value		0.223				95% BCA Bootstrap UCL		337.9
324				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		431.2
325										97.5% Chebyshev(Mean, Sd) UCL		555.3
326				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		799.1
327				95% Approximate Gamma UCL		254.4						
328				95% Adjusted Gamma UCL		272.1						
329												
330				**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL		799.1
331												
332												
333	**Bis(2-ethylhexyl) phthalate**											
334												
335						**General Statistics**							
336				Number of Valid Data		14				Number of Detected Data		5
337				Number of Distinct Detected Data		5				Number of Non-Detect Data		9
338										Percent Non-Detects		64.29%
339												
340				**Raw Statistics**						**Log-transformed Statistics**		
341				Minimum Detected		73				Minimum Detected		4.29
342				Maximum Detected		110				Maximum Detected		4.7
343				Mean of Detected		84.4				Mean of Detected		4.424
344				SD of Detected		15.14				SD of Detected		0.167
345				Minimum Non-Detect		22				Minimum Non-Detect		3.091
346				Maximum Non-Detect		96				Maximum Non-Detect		4.564
347												
348	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		13
349	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
350	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		92.86%
351												
352	**Warning: There are only 5 Detected Values in this data**											
353	**Note: It should be noted that even though bootstrap may be performed on this data set**											
354	**the resulting calculations may not be reliable enough tp draw conclusions**											
355												
356	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
357												
358												
359						**UCL Statistics**							
360				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
361				Shapiro Wilk Test Statistic		0.809				Shapiro Wilk Test Statistic		0.84
362				5% Shapiro Wilk Critical Value		0.762				5% Shapiro Wilk Critical Value		0.762
363				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
364												
365				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
366				DL/2 Substitution Method						DL/2 Substitution Method		
367				Mean		46.43				Mean		3.6
368				SD		31.84				SD		0.735
369				95% DL/2 (t) UCL		61.5				95% H-Stat (DL/2) UCL		61.67
370												
371				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		

372	MLE method failed to converge properly									Mean in Log Scale		4.131
373										SD in Log Scale		0.247
374										Mean in Original Scale		64.18
375										SD in Original Scale		17.86
376										95% Percentile Bootstrap UCL		72.56
377										95% BCA Bootstrap UCL		74.69
378												
379	Gamma Distribution Test with Detected Values Only									Data Distribution Test with Detected Values Only		
380				k star (bias corrected)	17.34					Data appear Normal at 5% Significance Level		
381				Theta Star	4.868							
382				nu star	173.4							
383												
384				A-D Test Statistic	0.518					Nonparametric Statistics		
385				5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method		
386				K-S Test Statistic	0.678					Mean		77.19
387				5% K-S Critical Value	0.357					SD		9.775
388	Data appear Gamma Distributed at 5% Significance Level									SE of Mean		2.937
389										95% KM (t) UCL		82.39
390	Assuming Gamma Distribution									95% KM (z) UCL		82.02
391				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		81.5
392				Minimum	73					95% KM (bootstrap t) UCL		92.02
393				Maximum	110					95% KM (BCA) UCL		87.71
394				Mean	84.76					95% KM (Percentile Bootstrap) UCL		85.16
395				Median	84.4					95% KM (Chebyshev) UCL		89.99
396				SD	8.505					97.5% KM (Chebyshev) UCL		95.53
397				k star	91.98					99% KM (Chebyshev) UCL		106.4
398				Theta star	0.921							
399				Nu star	2575					Potential UCLs to Use		
400				AppChi2	2458					95% KM (t) UCL		82.39
401				95% Gamma Approximate UCL	88.79					95% KM (Percentile Bootstrap) UCL		85.16
402				95% Adjusted Gamma UCL	89.34							
403	Note: DL/2 is not a recommended method.											
404												
405												
406	Dibenzo(a,h)anthracene											
407												
408	General Statistics											
409				Number of Valid Observations	16					Number of Distinct Observations		15
410												
411	Raw Statistics									Log-transformed Statistics		
412				Minimum	7.1					Minimum of Log Data		1.96
413				Maximum	330					Maximum of Log Data		5.799
414				Mean	43.14					Mean of log Data		3.085
415				Median	16					SD of log Data		1.035
416				SD	78.53							
417				Coefficient of Variation	1.82							
418				Skewness	3.665							
419												
420	Relevant UCL Statistics											
421	Normal Distribution Test									Lognormal Distribution Test		
422				Shapiro Wilk Test Statistic	0.462					Shapiro Wilk Test Statistic		0.882
423				Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value		0.887
424	Data not Normal at 5% Significance Level									Data not Lognormal at 5% Significance Level		

425												
426	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
427					95% Student's-t UCL	77.56					95% H-UCL	78.05
428	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	79.98
429					95% Adjusted-CLT UCL	94.66					97.5% Chebyshev (MVUE) UCL	99.16
430					95% Modified-t UCL	80.56					99% Chebyshev (MVUE) UCL	136.9
431												
432	**Gamma Distribution Test**						**Data Distribution**					
433					k star (bias corrected)	0.744	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
434					Theta Star	57.96						
435					nu star	23.82						
436					Approximate Chi Square Value (.05)	13.71	**Nonparametric Statistics**					
437					Adjusted Level of Significance	0.0335					95% CLT UCL	75.44
438					Adjusted Chi Square Value	12.84					95% Jackknife UCL	77.56
439											95% Standard Bootstrap UCL	75.16
440					Anderson-Darling Test Statistic	1.308					95% Bootstrap-t UCL	165.1
441					Anderson-Darling 5% Critical Value	0.769					95% Hall's Bootstrap UCL	194
442					Kolmogorov-Smirnov Test Statistic	0.192					95% Percentile Bootstrap UCL	80.38
443					Kolmogorov-Smirnov 5% Critical Value	0.222					95% BCA Bootstrap UCL	101.6
444	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	128.7
445											97.5% Chebyshev(Mean, Sd) UCL	165.7
446	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	238.5
447					95% Approximate Gamma UCL	74.95						
448					95% Adjusted Gamma UCL	80.01						
449												
450	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	74.95
451												
452												
453	**Dieldrin**											
454												
455	**General Statistics**											
456					Number of Valid Data	11					Number of Detected Data	7
457					Number of Distinct Detected Data	7					Number of Non-Detect Data	4
458											Percent Non-Detects	36.36%
459												
460	**Raw Statistics**						**Log-transformed Statistics**					
461					Minimum Detected	0.086					Minimum Detected	-2.453
462					Maximum Detected	0.249					Maximum Detected	-1.39
463					Mean of Detected	0.18					Mean of Detected	-1.767
464					SD of Detected	0.0567					SD of Detected	0.363
465					Minimum Non-Detect	0.03					Minimum Non-Detect	-3.507
466					Maximum Non-Detect	0.0824					Maximum Non-Detect	-2.496
467												
468	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	4
469	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	7
470	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	36.36%
471												
472	**Warning: There are only 7 Detected Values in this data**											
473	**Note: It should be noted that even though bootstrap may be performed on this data set**											
474	**the resulting calculations may not be reliable enough tp draw conclusions**											
475												
476	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
477												

478												
479	**UCL Statistics**											
480	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
481				Shapiro Wilk Test Statistic	0.954					Shapiro Wilk Test Statistic	0.904	
482				5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803	
483	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
484												
485	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
486				DL/2 Substitution Method						DL/2 Substitution Method		
487				Mean	0.125					Mean	-2.417	
488				SD	0.0873					SD	0.976	
489				95% DL/2 (t) UCL	0.173					95% H-Stat (DL/2) UCL	0.168	
490												
491				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
492				Mean	0.123					Mean in Log Scale	-2.084	
493				SD	0.0912					SD in Log Scale	0.522	
494				95% MLE (t) UCL	0.172					Mean in Original Scale	0.14	
495				95% MLE (Tiku) UCL	0.178					SD in Original Scale	0.0701	
496										95% Percentile Bootstrap UCL	0.175	
497										95% BCA Bootstrap UCL	0.173	
498												
499	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
500				k star (bias corrected)	5.8		**Data appear Normal at 5% Significance Level**					
501				Theta Star	0.031							
502				nu star	81.2							
503												
504				A-D Test Statistic	0.305		**Nonparametric Statistics**					
505				5% A-D Critical Value	0.708					Kaplan-Meier (KM) Method		
506				K-S Test Statistic	0.708					Mean	0.146	
507				5% K-S Critical Value	0.312					SD	0.0615	
508	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.02	
509										95% KM (t) UCL	0.182	
510	**Assuming Gamma Distribution**									95% KM (z) UCL	0.179	
511				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.184	
512				Minimum	0.086					95% KM (bootstrap t) UCL	0.179	
513				Maximum	0.249					95% KM (BCA) UCL	0.2	
514				Mean	0.165					95% KM (Percentile Bootstrap) UCL	0.192	
515				Median	0.146					95% KM (Chebyshev) UCL	0.233	
516				SD	0.0482					97.5% KM (Chebyshev) UCL	0.271	
517				k star	9.426					99% KM (Chebyshev) UCL	0.345	
518				Theta star	0.0175							
519				Nu star	207.4		**Potential UCLs to Use**					
520				AppChi2	175.1					95% KM (t) UCL	0.182	
521				95% Gamma Approximate UCL	0.196					95% KM (Percentile Bootstrap) UCL	0.192	
522				95% Adjusted Gamma UCL	0.201							
523	**Note: DL/2 is not a recommended method.**											
524												
525												
526	**Indeno(1,2,3-cd)pyrene**											
527												
528	**General Statistics**											
529				Number of Valid Observations	16					Number of Distinct Observations	15	
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Raw Statistics**						**Log-transformed Statistics**					
532					Minimum	49					Minimum of Log Data	3.892
533					Maximum	2900					Maximum of Log Data	7.972
534					Mean	321.2					Mean of log Data	4.953
535					Median	120					SD of log Data	1.045
536					SD	699						
537					Coefficient of Variation	2.176						
538					Skewness	3.793						
539												
540	**Relevant UCL Statistics**											
541	**Normal Distribution Test**						**Lognormal Distribution Test**					
542					Shapiro Wilk Test Statistic	0.403					Shapiro Wilk Test Statistic	0.826
543					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
544	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
545												
546	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
547					95% Student's-t UCL	627.5					95% H-UCL	516.3
548	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	525.6
549					95% Adjusted-CLT UCL	785.7					97.5% Chebyshev (MVUE) UCL	652.3
550					95% Modified-t UCL	655.2					99% Chebyshev (MVUE) UCL	901.2
551												
552	**Gamma Distribution Test**						**Data Distribution**					
553					k star (bias corrected)	0.637	**Data do not follow a Discernable Distribution (0.05)**					
554					Theta Star	504.1						
555					nu star	20.39						
556					Approximate Chi Square Value (.05)	11.14	**Nonparametric Statistics**					
557					Adjusted Level of Significance	0.0335					95% CLT UCL	608.6
558					Adjusted Chi Square Value	10.37					95% Jackknife UCL	627.5
559											95% Standard Bootstrap UCL	601.9
560					Anderson-Darling Test Statistic	2.058					95% Bootstrap-t UCL	1854
561					Anderson-Darling 5% Critical Value	0.776					95% Hall's Bootstrap UCL	1637
562					Kolmogorov-Smirnov Test Statistic	0.301					95% Percentile Bootstrap UCL	651.4
563					Kolmogorov-Smirnov 5% Critical Value	0.223					95% BCA Bootstrap UCL	869.8
564	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	1083
565											97.5% Chebyshev(Mean, Sd) UCL	1412
566	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	2060
567					95% Approximate Gamma UCL	587.9						
568					95% Adjusted Gamma UCL	631.7						
569												
570	**Potential UCL to Use**										Use 99% Chebyshev (Mean, Sd) UCL	2060
571												
572												
573	**Lead**											
574												
575					**General Statistics**							
576					Number of Valid Observations	16					Number of Distinct Observations	14
577												
578	**Raw Statistics**						**Log-transformed Statistics**					
579					Minimum	9.91					Minimum of Log Data	2.294
580					Maximum	26					Maximum of Log Data	3.258
581					Mean	14.71					Mean of log Data	2.667
582					Median	14.05					SD of log Data	0.206
583					SD	3.514						

584					Coefficient of Variation	0.239						
585					Skewness	2.342						
586												
587					**Relevant UCL Statistics**							
588					**Normal Distribution Test**					**Lognormal Distribution Test**		
589					Shapiro Wilk Test Statistic	0.753				Shapiro Wilk Test Statistic	0.86	
590					Shapiro Wilk Critical Value	0.887				Shapiro Wilk Critical Value	0.887	
591					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
592												
593					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
594					95% Student's-t UCL	16.25				95% H-UCL	16.18	
595					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	17.99	
596					95% Adjusted-CLT UCL	16.7				97.5% Chebyshev (MVUE) UCL	19.43	
597					95% Modified-t UCL	16.33				99% Chebyshev (MVUE) UCL	22.24	
598												
599					**Gamma Distribution Test**					**Data Distribution**		
600					k star (bias corrected)	18.87				**Data do not follow a Discernable Distribution (0.05)**		
601					Theta Star	0.779						
602					nu star	603.9						
603					Approximate Chi Square Value (.05)	547.9				**Nonparametric Statistics**		
604					Adjusted Level of Significance	0.0335				95% CLT UCL	16.15	
605					Adjusted Chi Square Value	541.9				95% Jackknife UCL	16.25	
606										95% Standard Bootstrap UCL	16.08	
607					Anderson-Darling Test Statistic	1.087				95% Bootstrap-t UCL	17.5	
608					Anderson-Darling 5% Critical Value	0.736				95% Hall's Bootstrap UCL	23.5	
609					Kolmogorov-Smirnov Test Statistic	0.247				95% Percentile Bootstrap UCL	16.25	
610					Kolmogorov-Smirnov 5% Critical Value	0.215				95% BCA Bootstrap UCL	16.78	
611					**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	18.54	
612										97.5% Chebyshev(Mean, Sd) UCL	20.19	
613					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	23.45	
614					95% Approximate Gamma UCL	16.21						
615					95% Adjusted Gamma UCL	16.39						
616												
617					**Potential UCL to Use**					Use 95% Student's-t UCL	16.25	
618										or 95% Modified-t UCL	16.33	
619												
620												
621	**Mercury**											
622												
623					**General Statistics**							
624					Number of Valid Data	16				Number of Detected Data	15	
625					Number of Distinct Detected Data	13				Number of Non-Detect Data	1	
626										Percent Non-Detects	6.25%	
627												
628					**Raw Statistics**					**Log-transformed Statistics**		
629					Minimum Detected	0.031				Minimum Detected	-3.474	
630					Maximum Detected	0.219				Maximum Detected	-1.519	
631					Mean of Detected	0.0729				Mean of Detected	-2.72	
632					SD of Detected	0.0436				SD of Detected	0.421	
633					Minimum Non-Detect	0.07				Minimum Non-Detect	-2.659	
634					Maximum Non-Detect	0.07				Maximum Non-Detect	-2.659	
635												
636												

	A	B	C	D	E	F	G	H	I	J	K	L
637	**UCL Statistics**											
638	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
639					Shapiro Wilk Test Statistic	0.591					Shapiro Wilk Test Statistic	0.799
640					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
641	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
642												
643	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
644					DL/2 Substitution Method						DL/2 Substitution Method	
645					Mean	0.0706					Mean	-2.759
646					SD	0.0432					SD	0.436
647					95% DL/2 (t) UCL	0.0895					95% H-Stat (DL/2) UCL	0.0873
648												
649					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
650	**MLE yields a negative mean**										Mean in Log Scale	-2.727
651											SD in Log Scale	0.408
652											Mean in Original Scale	0.0721
653											SD in Original Scale	0.0423
654											95% Percentile Bootstrap UCL	0.0907
655											95% BCA Bootstrap UCL	0.102
656												
657	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
658					k star (bias corrected)	4.111	**Data do not follow a Discernable Distribution (0.05)**					
659					Theta Star	0.0177						
660					nu star	123.3						
661												
662					A-D Test Statistic	1.717	**Nonparametric Statistics**					
663					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
664					K-S Test Statistic	0.739					Mean	0.072
665					5% K-S Critical Value	0.222					SD	0.0411
666	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0106
667											95% KM (t) UCL	0.0906
668	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0895
669					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0906
670					Minimum	0.031					95% KM (bootstrap t) UCL	0.13
671					Maximum	0.219					95% KM (BCA) UCL	0.091
672					Mean	0.0729					95% KM (Percentile Bootstrap) UCL	0.0904
673					Median	0.0615					95% KM (Chebyshev) UCL	0.118
674					SD	0.0422					97.5% KM (Chebyshev) UCL	0.138
675					k star	4.438					99% KM (Chebyshev) UCL	0.178
676					Theta star	0.0164						
677					Nu star	142	**Potential UCLs to Use**					
678					AppChi2	115.5					95% KM (Chebyshev) UCL	0.118
679					95% Gamma Approximate UCL	0.0896						
680					95% Adjusted Gamma UCL	0.0918						
681	**Note: DL/2 is not a recommended method.**											
682												
683												
684	**Naphthalene**											
685												
686	**General Statistics**											
687					Number of Valid Data	16					Number of Detected Data	15
688					Number of Distinct Detected Data	13					Number of Non-Detect Data	1
689											Percent Non-Detects	6.25%

Raw Statistics		
Minimum Detected	8.2	
Maximum Detected	980	
Mean of Detected	140.8	
SD of Detected	255.2	
Minimum Non-Detect	9.3	
Maximum Non-Detect	9.3	
Log-transformed Statistics		
Minimum Detected	2.104	
Maximum Detected	6.888	
Mean of Detected	3.867	
SD of Detected	1.454	
Minimum Non-Detect	2.23	
Maximum Non-Detect	2.23	

UCL Statistics

Normal Distribution Test with Detected Values Only		
Shapiro Wilk Test Statistic	0.573	
5% Shapiro Wilk Critical Value	0.881	
Data not Normal at 5% Significance Level		
Assuming Normal Distribution		
DL/2 Substitution Method		
Mean	132.3	
SD	248.9	
95% DL/2 (t) UCL	241.3	
Maximum Likelihood Estimate(MLE) Method		
Mean	110.4	
SD	263.4	
95% MLE (t) UCL	225.9	
95% MLE (Tiku) UCL	219.2	
Gamma Distribution Test with Detected Values Only		
k star (bias corrected)	0.505	
Theta Star	278.7	
nu star	15.15	
A-D Test Statistic	0.96	
5% A-D Critical Value	0.788	
K-S Test Statistic	0.788	
5% K-S Critical Value	0.233	
Data not Gamma Distributed at 5% Significance Level		
Assuming Gamma Distribution		
Gamma ROS Statistics using Extrapolated Data		
Minimum	1E-09	
Maximum	980	
Mean	132	
Median	29	
SD	249	
k star	0.264	
Theta star	499.1	
Nu star	8.462	
AppChi2	3.005	
95% Gamma Approximate UCL	371.6	
Lognormal Distribution Test with Detected Values Only		
Shapiro Wilk Test Statistic	0.926	
5% Shapiro Wilk Critical Value	0.881	
Data appear Lognormal at 5% Significance Level		
Assuming Lognormal Distribution		
DL/2 Substitution Method		
Mean	3.722	
SD	1.521	
95% H-Stat (DL/2) UCL	536.1	
Log ROS Method		
Mean in Log Scale	3.697	
SD in Log Scale	1.561	
Mean in Original Scale	132.2	
SD in Original Scale	248.9	
95% Percentile Bootstrap UCL	238.9	
95% BCA Bootstrap UCL	300.3	
Data Distribution Test with Detected Values Only		
Data appear Lognormal at 5% Significance Level		
Nonparametric Statistics		
Kaplan-Meier (KM) Method		
Mean	132.5	
SD	240.8	
SE of Mean	62.32	
95% KM (t) UCL	241.7	
95% KM (z) UCL	235	
95% KM (jackknife) UCL	241.4	
95% KM (bootstrap t) UCL	447.5	
95% KM (BCA) UCL	248.4	
95% KM (Percentile Bootstrap) UCL	236.8	
95% KM (Chebyshev) UCL	404.1	
97.5% KM (Chebyshev) UCL	521.7	
99% KM (Chebyshev) UCL	752.6	
Potential UCLs to Use		
97.5% KM (Chebyshev) UCL	521.7	

743				95% Adjusted Gamma UCL	421.9							
744	**Note: DL/2 is not a recommended method.**											
745												
746												
747	**Total Aroclors**											
748												
749	**General Statistics**											
750	Number of Valid Observations				14		Number of Distinct Observations					14
751												
752	**Raw Statistics**						**Log-transformed Statistics**					
753	Minimum				9.6		Minimum of Log Data					2.262
754	Maximum				37.8		Maximum of Log Data					3.632
755	Mean				22.65		Mean of log Data					3.048
756	Median				22.38		SD of log Data					0.405
757	SD				8.643							
758	Coefficient of Variation				0.382							
759	Skewness				0.311							
760												
761	**Relevant UCL Statistics**											
762	**Normal Distribution Test**						**Lognormal Distribution Test**					
763	Shapiro Wilk Test Statistic				0.962		Shapiro Wilk Test Statistic					0.969
764	Shapiro Wilk Critical Value				0.874		Shapiro Wilk Critical Value					0.874
765	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
766												
767	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
768	95% Student's-t UCL				26.74		95% H-UCL					28.6
769	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					33.67
770	95% Adjusted-CLT UCL				26.66		97.5% Chebyshev (MVUE) UCL					38.4
771	95% Modified-t UCL				26.78		99% Chebyshev (MVUE) UCL					47.7
772												
773	**Gamma Distribution Test**						**Data Distribution**					
774	k star (bias corrected)				5.587		**Data appear Normal at 5% Significance Level**					
775	Theta Star				4.055							
776	nu star				156.4							
777	Approximate Chi Square Value (.05)				128.5		**Nonparametric Statistics**					
778	Adjusted Level of Significance				0.0312		95% CLT UCL					26.45
779	Adjusted Chi Square Value				125.2		95% Jackknife UCL					26.74
780							95% Standard Bootstrap UCL					26.37
781	Anderson-Darling Test Statistic				0.184		95% Bootstrap-t UCL					27.01
782	Anderson-Darling 5% Critical Value				0.737		95% Hall's Bootstrap UCL					26.65
783	Kolmogorov-Smirnov Test Statistic				0.111		95% Percentile Bootstrap UCL					26.26
784	Kolmogorov-Smirnov 5% Critical Value				0.229		95% BCA Bootstrap UCL					26.31
785	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					32.72
786							97.5% Chebyshev(Mean, Sd) UCL					37.08
787	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					45.64
788	95% Approximate Gamma UCL				27.57							
789	95% Adjusted Gamma UCL				28.31							
790												
791	**Potential UCL to Use**						Use 95% Student's-t UCL					26.74
792												
793												
794	**Total DDT**											
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	**General Statistics**											
797					Number of Valid Data	15				Number of Detected Data		14
798					Number of Distinct Detected Data	14				Number of Non-Detect Data		1
799										Percent Non-Detects		6.67%
800												
801	**Raw Statistics**						**Log-transformed Statistics**					
802					Minimum Detected	0.242				Minimum Detected		-1.419
803					Maximum Detected	30.42				Maximum Detected		3.415
804					Mean of Detected	6.151				Mean of Detected		0.895
805					SD of Detected	9.585				SD of Detected		1.341
806					Minimum Non-Detect	2.2				Minimum Non-Detect		0.788
807					Maximum Non-Detect	2.2				Maximum Non-Detect		0.788
808												
809												
810	**UCL Statistics**											
811	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
812					Shapiro Wilk Test Statistic	0.622				Shapiro Wilk Test Statistic		0.893
813					5% Shapiro Wilk Critical Value	0.874				5% Shapiro Wilk Critical Value		0.874
814	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
815												
816	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
817					DL/2 Substitution Method					DL/2 Substitution Method		
818					Mean	5.814				Mean		0.842
819					SD	9.328				SD		1.309
820					95% DL/2 (t) UCL	10.06				95% H-Stat (DL/2) UCL		16.48
821												
822					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
823	**MLE yields a negative mean**									Mean in Log Scale		0.842
824										SD in Log Scale		1.308
825										Mean in Original Scale		5.815
826										SD in Original Scale		9.328
827										95% Percentile Bootstrap UCL		10.03
828										95% BCA Bootstrap UCL		11.13
829												
830	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
831					k star (bias corrected)	0.567	**Data appear Lognormal at 5% Significance Level**					
832					Theta Star	10.85						
833					nu star	15.87						
834												
835					A-D Test Statistic	1.413	**Nonparametric Statistics**					
836					5% A-D Critical Value	0.779				Kaplan-Meier (KM) Method		
837					K-S Test Statistic	0.779				Mean		5.821
838					5% K-S Critical Value	0.239				SD		9.009
839	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		2.414
840										95% KM (t) UCL		10.07
841	**Assuming Gamma Distribution**									95% KM (z) UCL		9.792
842					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		10.06
843					Minimum	0.242				95% KM (bootstrap t) UCL		14.69
844					Maximum	30.42				95% KM (BCA) UCL		10.22
845					Mean	5.764				95% KM (Percentile Bootstrap) UCL		9.684
846					Median	1.538				95% KM (Chebyshev) UCL		16.34
847					SD	9.357				97.5% KM (Chebyshev) UCL		20.9
848					k star	0.542				99% KM (Chebyshev) UCL		29.84

	A	B	C	D	E	F	G	H	I	J	K	L
849					Theta star	10.64						
850					Nu star	16.26	**Potential UCLs to Use**					
851					AppChi2	8.144				97.5% KM (Chebyshev) UCL		20.9
852				95% Gamma Approximate UCL		11.51						
853				95% Adjusted Gamma UCL		12.58						
854	**Note: DL/2 is not a recommended method.**											
855												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM4.0E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Aldrin											
10												
11						General Statistics						
12					Number of Valid Data	15			Number of Detected Data	5		
13					Number of Distinct Detected Data	5			Number of Non-Detect Data	10		
14					Number of Missing Values	31			Percent Non-Detects	66.67%		
15												
16				Raw Statistics					Log-transformed Statistics			
17					Minimum Detected	0.0267			Minimum Detected	-3.623		
18					Maximum Detected	3.18			Maximum Detected	1.157		
19					Mean of Detected	0.878			Mean of Detected	-1.375		
20					SD of Detected	1.342			SD of Detected	1.906		
21					Minimum Non-Detect	0.19			Minimum Non-Detect	-1.661		
22					Maximum Non-Detect	1.08			Maximum Non-Detect	0.077		
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	14		
25	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	1		
26	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	93.33%		
27												
28						Warning: There are only 5 Detected Values in this data						
29						Note: It should be noted that even though bootstrap may be performed on this data set						
30						the resulting calculations may not be reliable enough tp draw conclusions						
31												
32						It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.						
33												
34												
35						UCL Statistics						
36				Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only			
37					Shapiro Wilk Test Statistic	0.735			Shapiro Wilk Test Statistic	0.942		
38					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value	0.762		
39				Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
40												
41				Assuming Normal Distribution					Assuming Lognormal Distribution			
42					DL/2 Substitution Method				DL/2 Substitution Method			
43					Mean	0.473			Mean	-1.538		
44					SD	0.795			SD	1.225		
45					95% DL/2 (t) UCL	0.835			95% H-Stat (DL/2) UCL	0.793		
46												
47					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
48				MLE method failed to converge properly					Mean in Log Scale	-2.124		
49									SD in Log Scale	1.222		
50									Mean in Original Scale	0.353		
51									SD in Original Scale	0.814		
52									95% Percentile Bootstrap UCL	0.763		
53									95% BCA Bootstrap UCL	0.971		

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56	k star (bias corrected)				0.337		**Data appear Gamma Distributed at 5% Significance Level**					
57	Theta Star				2.605							
58	nu star				3.37							
59												
60	A-D Test Statistic				0.39		**Nonparametric Statistics**					
61	5% A-D Critical Value				0.71		Kaplan-Meier (KM) Method					
62	K-S Test Statistic				0.71		Mean					0.372
63	5% K-S Critical Value				0.371		SD					0.793
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.234
65							95% KM (t) UCL					0.785
66	**Assuming Gamma Distribution**						95% KM (z) UCL					0.757
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.757
68	Minimum				1E-09		95% KM (bootstrap t) UCL					3.371
69	Maximum				3.18		95% KM (BCA) UCL					0.956
70	Mean				0.833		95% KM (Percentile Bootstrap) UCL					0.931
71	Median				0.768		95% KM (Chebyshev) UCL					1.393
72	SD				0.765		97.5% KM (Chebyshev) UCL					1.835
73	k star				0.351		99% KM (Chebyshev) UCL					2.703
74	Theta star				2.372							
75	Nu star				10.53		**Potential UCLs to Use**					
76	AppChi2				4.277		95% KM (t) UCL					0.785
77	95% Gamma Approximate UCL				2.051							
78	95% Adjusted Gamma UCL				2.309							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85	Number of Valid Data				48		Number of Detected Data					45
86	Number of Distinct Detected Data				31		Number of Non-Detect Data					3
87	Number of Missing Values				1		Percent Non-Detects					6.25%
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90	Minimum Detected				1.9		Minimum Detected					0.642
91	Maximum Detected				15.5		Maximum Detected					2.741
92	Mean of Detected				4.334		Mean of Detected					1.385
93	SD of Detected				2.173		SD of Detected					0.381
94	Minimum Non-Detect				5		Minimum Non-Detect					1.609
95	Maximum Non-Detect				5		Maximum Non-Detect					1.609
96												
97												
98	**UCL Statistics**											
99	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
100	Shapiro Wilk Test Statistic				0.716		Shapiro Wilk Test Statistic					0.948
101	5% Shapiro Wilk Critical Value				0.945		5% Shapiro Wilk Critical Value					0.945
102	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
103												
104	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
105	DL/2 Substitution Method						DL/2 Substitution Method					
106	Mean				4.219		Mean					1.356

107					SD	2.149					SD	0.386
108					95% DL/2 (t) UCL	4.74					95% H-Stat (DL/2) UCL	4.404
109												
110					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
111					Mean	1.05					Mean in Log Scale	1.378
112					SD	4.672					SD in Log Scale	0.372
113					95% MLE (t) UCL	2.181					Mean in Original Scale	4.287
114					95% MLE (Tiku) UCL	3.72					SD in Original Scale	2.115
115											95% Percentile Bootstrap UCL	4.82
116											95% BCA Bootstrap UCL	4.922
117												
118					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
119					k star (bias corrected)	5.907					**Data appear Lognormal at 5% Significance Level**	
120					Theta Star	0.734						
121					nu star	531.6						
122												
123					A-D Test Statistic	1.129					**Nonparametric Statistics**	
124					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
125					K-S Test Statistic	0.752					Mean	4.282
126					5% K-S Critical Value	0.132					SD	2.098
127					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.308
128											95% KM (t) UCL	4.798
129					**Assuming Gamma Distribution**						95% KM (z) UCL	4.788
130					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.798
131					Minimum	1.9					95% KM (bootstrap t) UCL	5.057
132					Maximum	15.5					95% KM (BCA) UCL	4.811
133					Mean	4.326					95% KM (Percentile Bootstrap) UCL	4.815
134					Median	3.745					95% KM (Chebyshev) UCL	5.623
135					SD	2.112					97.5% KM (Chebyshev) UCL	6.203
136					k star	6.216					99% KM (Chebyshev) UCL	7.342
137					Theta star	0.696						
138					Nu star	596.8					**Potential UCLs to Use**	
139					AppChi2	541.1					95% KM (Chebyshev) UCL	5.623
140					95% Gamma Approximate UCL	4.77						
141					95% Adjusted Gamma UCL	4.785						
142	**Note: DL/2 is not a recommended method.**											
143												
144												
145	**Benzo(a)anthracene**											
146												
147							**General Statistics**					
148					Number of Valid Data	48					Number of Detected Data	48
149					Number of Distinct Detected Data	42					Number of Non-Detect Data	0
150					Number of Missing Values	1					Percent Non-Detects	0.00%
151												
152					**Raw Statistics**						**Log-transformed Statistics**	
153					Minimum Detected	3.3					Minimum Detected	1.194
154					Maximum Detected	4300					Maximum Detected	8.366
155					Mean of Detected	634					Mean of Detected	5.181
156					SD of Detected	1026					SD of Detected	1.781
157					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
158					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
159												

160												
161	**UCL Statistics**											
162	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
163					Shapiro Wilk Test Statistic	0.638					Shapiro Wilk Test Statistic	0.964
164					5% Shapiro Wilk Critical Value	0.947					5% Shapiro Wilk Critical Value	0.947
165	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
166												
167	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
168					DL/2 Substitution Method						DL/2 Substitution Method	
169					Mean	634					Mean	5.181
170					SD	1026					SD	1.781
171					95% DL/2 (t) UCL	882.4					95% H-Stat (DL/2) UCL	2026
172												
173					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
174	**MLE method failed to converge properly**										Mean in Log Scale	N/A
175											SD in Log Scale	N/A
176											Mean in Original Scale	N/A
177											SD in Original Scale	N/A
178											95% Percentile Bootstrap UCL	N/A
179											95% BCA Bootstrap UCL	N/A
180												
181	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
182					k star (bias corrected)	0.482	**Data appear Lognormal at 5% Significance Level**					
183					Theta Star	1314						
184					nu star	46.3						
185												
186					A-D Test Statistic	1.432	**Nonparametric Statistics**					
187					5% A-D Critical Value	0.814	Kaplan-Meier (KM) Method					
188					K-S Test Statistic	0.814					Mean	634
189					5% K-S Critical Value	0.135					SD	1015
190	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	148.1
191											95% KM (t) UCL	882.4
192	**Assuming Gamma Distribution**										95% KM (z) UCL	877.5
193					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	882.4
194					Minimum	3.3					95% KM (bootstrap t) UCL	984.3
195					Maximum	4300					95% KM (BCA) UCL	883.6
196					Mean	634					95% KM (Percentile Bootstrap) UCL	879.2
197					Median	147					95% KM (Chebyshev) UCL	1279
198					SD	1026					97.5% KM (Chebyshev) UCL	1559
199					k star	0.482					99% KM (Chebyshev) UCL	2107
200					Theta star	1314						
201					Nu star	46.3	**Potential UCLs to Use**					
202					AppChi2	31.69	97.5% KM (Chebyshev) UCL					1559
203					95% Gamma Approximate UCL	926.4						
204					95% Adjusted Gamma UCL	937.5						
205	**Note: DL/2 is not a recommended method.**											
206												
207												
208	**Benzo(a)pyrene**											
209												
210	**General Statistics**											
211					Number of Valid Data	48					Number of Detected Data	48
212					Number of Distinct Detected Data	42					Number of Non-Detect Data	0

	A	B	C	D	E	F	G	H	I	J	K	L
213					Number of Missing Values	1					Percent Non-Detects	0.00%
214												
215				**Raw Statistics**						**Log-transformed Statistics**		
216					Minimum Detected	3					Minimum Detected	1.099
217					Maximum Detected	6300					Maximum Detected	8.748
218					Mean of Detected	875.1					Mean of Detected	5.421
219					SD of Detected	1500					SD of Detected	1.839
220					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
221					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
222												
223												
224						**UCL Statistics**							
225				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
226					Shapiro Wilk Test Statistic	0.609					Shapiro Wilk Test Statistic	0.97
227					5% Shapiro Wilk Critical Value	0.947					5% Shapiro Wilk Critical Value	0.947
228				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
229												
230				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
231					DL/2 Substitution Method						DL/2 Substitution Method	
232					Mean	875.1					Mean	5.421
233					SD	1500					SD	1.839
234					95% DL/2 (t) UCL	1238					95% H-Stat (DL/2) UCL	3007
235												
236					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
237				**MLE method failed to converge properly**							Mean in Log Scale	N/A
238											SD in Log Scale	N/A
239											Mean in Original Scale	N/A
240											SD in Original Scale	N/A
241											95% Percentile Bootstrap UCL	N/A
242											95% BCA Bootstrap UCL	N/A
243												
244				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
245					k star (bias corrected)	0.458				**Data appear Lognormal at 5% Significance Level**		
246					Theta Star	1912						
247					nu star	43.93						
248												
249					A-D Test Statistic	1.376				**Nonparametric Statistics**		
250					5% A-D Critical Value	0.82					Kaplan-Meier (KM) Method	
251					K-S Test Statistic	0.82					Mean	875.1
252					5% K-S Critical Value	0.136					SD	1485
253				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	216.6
254											95% KM (t) UCL	1238
255				**Assuming Gamma Distribution**							95% KM (z) UCL	1231
256					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1238
257					Minimum	3					95% KM (bootstrap t) UCL	1435
258					Maximum	6300					95% KM (BCA) UCL	1262
259					Mean	875.1					95% KM (Percentile Bootstrap) UCL	1252
260					Median	210					95% KM (Chebyshev) UCL	1819
261					SD	1500					97.5% KM (Chebyshev) UCL	2228
262					k star	0.458					99% KM (Chebyshev) UCL	3030
263					Theta star	1912						
264					Nu star	43.93				**Potential UCLs to Use**		
265					AppChi2	29.73					97.5% KM (Chebyshev) UCL	2228

	A	B	C	D	E	F	G	H	I	J	K	L
266					95% Gamma Approximate UCL	1293						
267					95% Adjusted Gamma UCL	1309						
268	**Note: DL/2 is not a recommended method.**											
269												
270												
271	**Benzo(b)fluoranthene**											
272												
273					**General Statistics**							
274					Number of Valid Data	48				Number of Detected Data	48	
275					Number of Distinct Detected Data	39				Number of Non-Detect Data	0	
276					Number of Missing Values	1				Percent Non-Detects	0.00%	
277												
278					**Raw Statistics**					**Log-transformed Statistics**		
279					Minimum Detected	4.1				Minimum Detected	1.411	
280					Maximum Detected	6200				Maximum Detected	8.732	
281					Mean of Detected	904.8				Mean of Detected	5.484	
282					SD of Detected	1520				SD of Detected	1.813	
283					Minimum Non-Detect	N/A				Minimum Non-Detect	N/A	
284					Maximum Non-Detect	N/A				Maximum Non-Detect	N/A	
285												
286												
287					**UCL Statistics**							
288					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
289					Shapiro Wilk Test Statistic	0.618				Shapiro Wilk Test Statistic	0.964	
290					5% Shapiro Wilk Critical Value	0.947				5% Shapiro Wilk Critical Value	0.947	
291					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
292												
293					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
294					DL/2 Substitution Method					DL/2 Substitution Method		
295					Mean	904.8				Mean	5.484	
296					SD	1520				SD	1.813	
297					95% DL/2 (t) UCL	1273				95% H-Stat (DL/2) UCL	2990	
298												
299					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
300					**MLE method failed to converge properly**					Mean in Log Scale	N/A	
301										SD in Log Scale	N/A	
302										Mean in Original Scale	N/A	
303										SD in Original Scale	N/A	
304										95% Percentile Bootstrap UCL	N/A	
305										95% BCA Bootstrap UCL	N/A	
306												
307					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
308					k star (bias corrected)	0.466				**Data appear Lognormal at 5% Significance Level**		
309					Theta Star	1940						
310					nu star	44.77						
311												
312					A-D Test Statistic	1.489				**Nonparametric Statistics**		
313					5% A-D Critical Value	0.818				Kaplan-Meier (KM) Method		
314					K-S Test Statistic	0.818				Mean	904.8	
315					5% K-S Critical Value	0.135				SD	1504	
316					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean	219.3	
317										95% KM (t) UCL	1273	
318					**Assuming Gamma Distribution**					95% KM (z) UCL	1266	

319	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1273
320	Minimum				4.1		95% KM (bootstrap t) UCL					1414
321	Maximum				6200		95% KM (BCA) UCL					1274
322	Mean				904.8		95% KM (Percentile Bootstrap) UCL					1277
323	Median				220		95% KM (Chebyshev) UCL					1861
324	SD				1520		97.5% KM (Chebyshev) UCL					2275
325	k star				0.466		99% KM (Chebyshev) UCL					3087
326	Theta star				1940							
327	Nu star				44.77		**Potential UCLs to Use**					
328	AppChi2				30.42		97.5% KM (Chebyshev) UCL					2275
329	95% Gamma Approximate UCL				1332							
330	95% Adjusted Gamma UCL				1348							
331	**Note: DL/2 is not a recommended method.**											
332												
333												
334	**Benzo(k)fluoranthene**											
335												
336	**General Statistics**											
337	Number of Valid Data				43		Number of Detected Data					43
338	Number of Distinct Detected Data				38		Number of Non-Detect Data					0
339	Number of Missing Values				6		Percent Non-Detects					0.00%
340												
341	**Raw Statistics**						**Log-transformed Statistics**					
342	Minimum Detected				5.6		Minimum Detected					1.723
343	Maximum Detected				4900		Maximum Detected					8.497
344	Mean of Detected				711.2		Mean of Detected					5.229
345	SD of Detected				1174		SD of Detected					1.813
346	Minimum Non-Detect				N/A		Minimum Non-Detect					N/A
347	Maximum Non-Detect				N/A		Maximum Non-Detect					N/A
348												
349												
350	**UCL Statistics**											
351	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
352	Shapiro Wilk Test Statistic				0.638		Shapiro Wilk Test Statistic					0.966
353	5% Shapiro Wilk Critical Value				0.943		5% Shapiro Wilk Critical Value					0.943
354	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
355												
356	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
357	DL/2 Substitution Method						DL/2 Substitution Method					
358	Mean				711.2		Mean					5.229
359	SD				1174		SD					1.813
360	95% DL/2 (t) UCL				1012		95% H-Stat (DL/2) UCL					2467
361												
362	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
363	**MLE method failed to converge properly**						Mean in Log Scale					N/A
364							SD in Log Scale					N/A
365							Mean in Original Scale					N/A
366							SD in Original Scale					N/A
367							95% Percentile Bootstrap UCL					N/A
368							95% BCA Bootstrap UCL					N/A
369												
370	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
371	k star (bias corrected)				0.46		**Data appear Lognormal at 5% Significance Level**					

372					Theta Star	1546						
373					nu star	39.57						
374												
375					A-D Test Statistic	1.241	**Nonparametric Statistics**					
376					5% A-D Critical Value	0.818					Kaplan-Meier (KM) Method	
377					K-S Test Statistic	0.818					Mean	711.2
378					5% K-S Critical Value	0.143					SD	1161
379	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	179.1
380											95% KM (t) UCL	1012
381	**Assuming Gamma Distribution**										95% KM (z) UCL	1006
382					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1012
383					Minimum	5.6					95% KM (bootstrap t) UCL	1118
384					Maximum	4900					95% KM (BCA) UCL	1004
385					Mean	711.2					95% KM (Percentile Bootstrap) UCL	1013
386					Median	185					95% KM (Chebyshev) UCL	1492
387					SD	1174					97.5% KM (Chebyshev) UCL	1830
388					k star	0.46					99% KM (Chebyshev) UCL	2493
389					Theta star	1546						
390					Nu star	39.57	**Potential UCLs to Use**					
391					AppChi2	26.16					97.5% KM (Chebyshev) UCL	1830
392					95% Gamma Approximate UCL	1076						
393					95% Adjusted Gamma UCL	1092						
394	**Note: DL/2 is not a recommended method.**											
395												
396												
397	**Bis(2-ethylhexyl) phthalate**											
398												
399	**General Statistics**											
400					Number of Valid Data	48	Number of Detected Data	29				
401					Number of Distinct Detected Data	28	Number of Non-Detect Data	19				
402					Number of Missing Values	1	Percent Non-Detects	39.58%				
403												
404	**Raw Statistics**						**Log-transformed Statistics**					
405					Minimum Detected	21	Minimum Detected	3.045				
406					Maximum Detected	14000	Maximum Detected	9.547				
407					Mean of Detected	1459	Mean of Detected	5.641				
408					SD of Detected	3254	SD of Detected	1.749				
409					Minimum Non-Detect	16.1	Minimum Non-Detect	2.779				
410					Maximum Non-Detect	1580	Maximum Non-Detect	7.365				
411												
412	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	43				
413	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	5				
414	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	89.58%				
415												
416	**UCL Statistics**											
417	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
418					Shapiro Wilk Test Statistic	0.497	Shapiro Wilk Test Statistic	0.928				
419					5% Shapiro Wilk Critical Value	0.926	5% Shapiro Wilk Critical Value	0.926				
420	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
421												
422	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
423					DL/2 Substitution Method		DL/2 Substitution Method					
424					Mean	914.6	Mean	4.762				

425					SD	2604				SD	1.916	
426					95% DL/2 (t) UCL	1545				95% H-Stat (DL/2) UCL	862.3	
427												
428					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
429					**MLE yields a negative mean**					Mean in Log Scale	4.357	
430										SD in Log Scale	2.189	
431										Mean in Original Scale	888.2	
432										SD in Original Scale	2611	
433										95% Percentile Bootstrap UCL	1616	
434										95% BCA Bootstrap UCL	1831	
435												
436					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
437					k star (bias corrected)	0.382				**Data appear Lognormal at 5% Significance Level**		
438					Theta Star	3822						
439					nu star	22.14						
440												
441					A-D Test Statistic	2.338				**Nonparametric Statistics**		
442					5% A-D Critical Value	0.834				Kaplan-Meier (KM) Method		
443					K-S Test Statistic	0.834				Mean	898	
444					5% K-S Critical Value	0.174				SD	2580	
445					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean	379.1	
446										95% KM (t) UCL	1534	
447					**Assuming Gamma Distribution**					95% KM (z) UCL	1522	
448					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	1527	
449					Minimum	21				95% KM (bootstrap t) UCL	2250	
450					Maximum	14000				95% KM (BCA) UCL	1594	
451					Mean	1443				95% KM (Percentile Bootstrap) UCL	1541	
452					Median	1391				95% KM (Chebyshev) UCL	2550	
453					SD	2512				97.5% KM (Chebyshev) UCL	3265	
454					k star	0.594				99% KM (Chebyshev) UCL	4670	
455					Theta star	2429						
456					Nu star	57.04				**Potential UCLs to Use**		
457					AppChi2	40.68				97.5% KM (Chebyshev) UCL	3265	
458					95% Gamma Approximate UCL	2024						
459					95% Adjusted Gamma UCL	2045						
460	**Note: DL/2 is not a recommended method.**											
461												
462												
463	**Dibenzo(a,h)anthracene**											
464												
465							**General Statistics**					
466					Number of Valid Data	48				Number of Detected Data	45	
467					Number of Distinct Detected Data	41				Number of Non-Detect Data	3	
468					Number of Missing Values	1				Percent Non-Detects	6.25%	
469												
470					**Raw Statistics**					**Log-transformed Statistics**		
471					Minimum Detected	0.5				Minimum Detected	-0.693	
472					Maximum Detected	1100				Maximum Detected	7.003	
473					Mean of Detected	146.8				Mean of Detected	3.547	
474					SD of Detected	257				SD of Detected	1.946	
475					Minimum Non-Detect	19				Minimum Non-Detect	2.944	
476					Maximum Non-Detect	160				Maximum Non-Detect	5.075	
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	36
479	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	12
480	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	75.00%
481												
482	**UCL Statistics**											
483	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
484	Shapiro Wilk Test Statistic					0.605	Shapiro Wilk Test Statistic					0.968
485	5% Shapiro Wilk Critical Value					0.945	5% Shapiro Wilk Critical Value					0.945
486	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
487												
488	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
489	DL/2 Substitution Method						DL/2 Substitution Method					
490	Mean					141.1	Mean					3.555
491	SD					249.8	SD					1.9
492	95% DL/2 (t) UCL					201.6	95% H-Stat (DL/2) UCL					558.8
493												
494	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
495	**MLE yields a negative mean**						Mean in Log Scale					3.478
496							SD in Log Scale					1.907
497							Mean in Original Scale					138.4
498							SD in Original Scale					250.8
499							95% Percentile Bootstrap UCL					202.6
500							95% BCA Bootstrap UCL					209.5
501												
502	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
503	k star (bias corrected)					0.433	**Data appear Lognormal at 5% Significance Level**					
504	Theta Star					338.8						
505	nu star					38.98						
506												
507	A-D Test Statistic					1.089	**Nonparametric Statistics**					
508	5% A-D Critical Value					0.826	Kaplan-Meier (KM) Method					
509	K-S Test Statistic					0.826	Mean					139
510	5% K-S Critical Value					0.14	SD					248
511	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					36.22
512							95% KM (t) UCL					199.7
513	**Assuming Gamma Distribution**						95% KM (z) UCL					198.5
514	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					199.7
515	Minimum					1E-09	95% KM (bootstrap t) UCL					228.6
516	Maximum					1100	95% KM (BCA) UCL					204.5
517	Mean					138.4	95% KM (Percentile Bootstrap) UCL					202
518	Median					30.55	95% KM (Chebyshev) UCL					296.8
519	SD					250.8	97.5% KM (Chebyshev) UCL					365.1
520	k star					0.343	99% KM (Chebyshev) UCL					499.3
521	Theta star					403.3						
522	Nu star					32.93	**Potential UCLs to Use**					
523	AppChi2					20.81	97.5% KM (Chebyshev) UCL					365.1
524	95% Gamma Approximate UCL					218.9						
525	95% Adjusted Gamma UCL					222.1						
526	**Note: DL/2 is not a recommended method.**											
527												
528												
529	**Indeno(1,2,3-cd)pyrene**											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**General Statistics**											
532					Number of Valid Data	48				Number of Detected Data		47
533					Number of Distinct Detected Data	43				Number of Non-Detect Data		1
534					Number of Missing Values	1				Percent Non-Detects		2.08%
535												
536	**Raw Statistics**						**Log-transformed Statistics**					
537					Minimum Detected	2.4				Minimum Detected		0.875
538					Maximum Detected	4800				Maximum Detected		8.476
539					Mean of Detected	652.8				Mean of Detected		5.059
540					SD of Detected	1158				SD of Detected		1.863
541					Minimum Non-Detect	158				Minimum Non-Detect		5.063
542					Maximum Non-Detect	158				Maximum Non-Detect		5.063
543												
544												
545	**UCL Statistics**											
546	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
547					Shapiro Wilk Test Statistic	0.596				Shapiro Wilk Test Statistic		0.972
548					5% Shapiro Wilk Critical Value	0.946				5% Shapiro Wilk Critical Value		0.946
549	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
550												
551	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
552					DL/2 Substitution Method					DL/2 Substitution Method		
553					Mean	640.9				Mean		5.045
554					SD	1149				SD		1.846
555					95% DL/2 (t) UCL	919.2				95% H-Stat (DL/2) UCL		2158
556												
557					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
558	**MLE yields a negative mean**									Mean in Log Scale		5.034
559										SD in Log Scale		1.852
560										Mean in Original Scale		640.2
561										SD in Original Scale		1149
562										95% Percentile Bootstrap UCL		937
563										95% BCA Bootstrap UCL		966.8
564												
565	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
566					k star (bias corrected)	0.439	**Data appear Lognormal at 5% Significance Level**					
567					Theta Star	1488						
568					nu star	41.24						
569												
570					A-D Test Statistic	1.441	**Nonparametric Statistics**					
571					5% A-D Critical Value	0.825				Kaplan-Meier (KM) Method		
572					K-S Test Statistic	0.825				Mean		640.4
573					5% K-S Critical Value	0.137				SD		1137
574	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		165.9
575										95% KM (t) UCL		918.8
576	**Assuming Gamma Distribution**									95% KM (z) UCL		913.3
577					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		918.8
578					Minimum	1E-09				95% KM (bootstrap t) UCL		1074
579					Maximum	4800				95% KM (BCA) UCL		976.7
580					Mean	639.2				95% KM (Percentile Bootstrap) UCL		926.4
581					Median	140				95% KM (Chebyshev) UCL		1364
582					SD	1150				97.5% KM (Chebyshev) UCL		1677
583					k star	0.34				99% KM (Chebyshev) UCL		2291

584					Theta star	1883						
585					Nu star	32.59				**Potential UCLs to Use**		
586					AppChi2	20.54				97.5% KM (Chebyshev) UCL		1677
587				95% Gamma Approximate UCL		1014						
588				95% Adjusted Gamma UCL		1029						
589	**Note: DL/2 is not a recommended method.**											
590												
591												
592	**Lead**											
593												
594						**General Statistics**						
595					Number of Valid Data	48				Number of Detected Data		48
596					Number of Distinct Detected Data	48				Number of Non-Detect Data		0
597					Number of Missing Values	1				Percent Non-Detects		0.00%
598												
599				**Raw Statistics**						**Log-transformed Statistics**		
600					Minimum Detected	7.5				Minimum Detected		2.015
601					Maximum Detected	1950				Maximum Detected		7.576
602					Mean of Detected	79.72				Mean of Detected		3.431
603					SD of Detected	277.9				SD of Detected		1.024
604					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
605					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
606												
607												
608						**UCL Statistics**						
609				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
610					Shapiro Wilk Test Statistic	0.231				Shapiro Wilk Test Statistic		0.899
611					5% Shapiro Wilk Critical Value	0.947				5% Shapiro Wilk Critical Value		0.947
612				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
613												
614				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
615					DL/2 Substitution Method					DL/2 Substitution Method		
616					Mean	79.72				Mean		3.431
617					SD	277.9				SD		1.024
618					95% DL/2 (t) UCL	147				95% H-Stat (DL/2) UCL		74.11
619												
620					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
621				**MLE method failed to converge properly**						Mean in Log Scale		N/A
622										SD in Log Scale		N/A
623										Mean in Original Scale		N/A
624										SD in Original Scale		N/A
625										95% Percentile Bootstrap UCL		N/A
626										95% BCA Bootstrap UCL		N/A
627												
628				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
629					k star (bias corrected)	0.619				**Data do not follow a Discernable Distribution (0.05)**		
630					Theta Star	128.8						
631					nu star	59.41						
632												
633					A-D Test Statistic	4.824				**Nonparametric Statistics**		
634					5% A-D Critical Value	0.801				Kaplan-Meier (KM) Method		
635					K-S Test Statistic	0.801				Mean		79.72
636					5% K-S Critical Value	0.134				SD		275

637	Data not Gamma Distributed at 5% Significance Level										SE of Mean	40.11
638											95% KM (t) UCL	147
639	Assuming Gamma Distribution										95% KM (z) UCL	145.7
640	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	147
641	Minimum	7.5									95% KM (bootstrap t) UCL	509.8
642	Maximum	1950									95% KM (BCA) UCL	163.4
643	Mean	79.72									95% KM (Percentile Bootstrap) UCL	159.6
644	Median	22.75									95% KM (Chebyshev) UCL	254.5
645	SD	277.9									97.5% KM (Chebyshev) UCL	330.2
646	k star	0.619									99% KM (Chebyshev) UCL	478.8
647	Theta star	128.8										
648	Nu star	59.41									Potential UCLs to Use	
649	AppChi2	42.68									95% KM (Chebyshev) UCL	254.5
650	95% Gamma Approximate UCL	111										
651	95% Adjusted Gamma UCL	112.1										
652	Note: DL/2 is not a recommended method.											
653												
654												
655	Mercury											
656												
657	General Statistics											
658	Number of Valid Data	48									Number of Detected Data	43
659	Number of Distinct Detected Data	35									Number of Non-Detect Data	5
660	Number of Missing Values	1									Percent Non-Detects	10.42%
661												
662	Raw Statistics										Log-transformed Statistics	
663	Minimum Detected	0.009									Minimum Detected	-4.711
664	Maximum Detected	0.279									Maximum Detected	-1.277
665	Mean of Detected	0.0719									Mean of Detected	-2.862
666	SD of Detected	0.0464									SD of Detected	0.76
667	Minimum Non-Detect	0.00894									Minimum Non-Detect	-4.717
668	Maximum Non-Detect	0.06									Maximum Non-Detect	-2.813
669												
670	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	19
671	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	29
672	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	39.58%
673												
674	UCL Statistics											
675	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
676	Shapiro Wilk Test Statistic	0.844									Shapiro Wilk Test Statistic	0.891
677	5% Shapiro Wilk Critical Value	0.943									5% Shapiro Wilk Critical Value	0.943
678	Data not Normal at 5% Significance Level										Data not Lognormal at 5% Significance Level	
679												
680	Assuming Normal Distribution										Assuming Lognormal Distribution	
681	DL/2 Substitution Method										DL/2 Substitution Method	
682	Mean	0.0664									Mean	-3.012
683	SD	0.047									SD	0.894
684	95% DL/2 (t) UCL	0.0777									95% H-Stat (DL/2) UCL	0.0979
685												
686	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
687	Mean	0.065									Mean in Log Scale	-2.988
688	SD	0.0504									SD in Log Scale	0.822
689	95% MLE (t) UCL	0.0772									Mean in Original Scale	0.0664

690					95% MLE (Tiku) UCL	0.0786				SD in Original Scale		0.0469
691										95% Percentile Bootstrap UCL		0.0781
692										95% BCA Bootstrap UCL		0.0803
693												
694					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
695					k star (bias corrected)	2.187				**Data do not follow a Discernable Distribution (0.05)**		
696					Theta Star	0.0329						
697					nu star	188.1						
698												
699					A-D Test Statistic	1.354				**Nonparametric Statistics**		
700					5% A-D Critical Value	0.758				Kaplan-Meier (KM) Method		
701					K-S Test Statistic	0.758				Mean		0.0663
702					5% K-S Critical Value	0.136				SD		0.0466
703					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		0.00684
704										95% KM (t) UCL		0.0777
705					**Assuming Gamma Distribution**					95% KM (z) UCL		0.0775
706					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0776
707					Minimum	1E-09				95% KM (bootstrap t) UCL		0.08
708					Maximum	0.279				95% KM (BCA) UCL		0.0781
709					Mean	0.0667				95% KM (Percentile Bootstrap) UCL		0.0774
710					Median	0.0686				95% KM (Chebyshev) UCL		0.0961
711					SD	0.0469				97.5% KM (Chebyshev) UCL		0.109
712					k star	0.63				99% KM (Chebyshev) UCL		0.134
713					Theta star	0.106						
714					Nu star	60.44				**Potential UCLs to Use**		
715					AppChi2	43.56				95% KM (Chebyshev) UCL		0.0961
716					95% Gamma Approximate UCL	0.0926						
717					95% Adjusted Gamma UCL	0.0935						
718	**Note: DL/2 is not a recommended method.**											
719												
720												
721	**Naphthalene**											
722												
723							**General Statistics**					
724					Number of Valid Data	48				Number of Detected Data		40
725					Number of Distinct Detected Data	31				Number of Non-Detect Data		8
726					Number of Missing Values	1				Percent Non-Detects		16.67%
727												
728					**Raw Statistics**					**Log-transformed Statistics**		
729					Minimum Detected	0.45				Minimum Detected		-0.799
730					Maximum Detected	360				Maximum Detected		5.886
731					Mean of Detected	41.37				Mean of Detected		2.848
732					SD of Detected	63.59				SD of Detected		1.508
733					Minimum Non-Detect	0.5				Minimum Non-Detect		-0.693
734					Maximum Non-Detect	160				Maximum Non-Detect		5.075
735												
736	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		46
737	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
738	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		95.83%
739												
740							**UCL Statistics**					
741					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
742					Shapiro Wilk Test Statistic	0.607				Shapiro Wilk Test Statistic		0.967

743					5% Shapiro Wilk Critical Value	0.94					5% Shapiro Wilk Critical Value	0.94
744	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
745												
746	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
747					DL/2 Substitution Method						DL/2 Substitution Method	
748					Mean	38.51					Mean	2.679
749					SD	59.78					SD	1.648
750					95% DL/2 (t) UCL	52.98					95% H-Stat (DL/2) UCL	158.4
751												
752					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
753	**MLE method failed to converge properly**										Mean in Log Scale	2.578
754											SD in Log Scale	1.56
755											Mean in Original Scale	35.35
756											SD in Original Scale	59.53
757											95% Percentile Bootstrap UCL	51.01
758											95% BCA Bootstrap UCL	57.01
759												
760	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
761					k star (bias corrected)	0.657	**Data appear Gamma Distributed at 5% Significance Level**					
762					Theta Star	63						
763					nu star	52.54						
764												
765					A-D Test Statistic	0.381	**Nonparametric Statistics**					
766					5% A-D Critical Value	0.795					Kaplan-Meier (KM) Method	
767					K-S Test Statistic	0.795					Mean	36.06
768					5% K-S Critical Value	0.146					SD	59
769	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	8.674
770											95% KM (t) UCL	50.61
771	**Assuming Gamma Distribution**										95% KM (z) UCL	50.32
772					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	50.58
773					Minimum	1E-09					95% KM (bootstrap t) UCL	61.55
774					Maximum	360					95% KM (BCA) UCL	51.06
775					Mean	36.69					95% KM (Percentile Bootstrap) UCL	51.36
776					Median	20					95% KM (Chebyshev) UCL	73.87
777					SD	59.34					97.5% KM (Chebyshev) UCL	90.23
778					k star	0.257					99% KM (Chebyshev) UCL	122.4
779					Theta star	142.5						
780					Nu star	24.72	**Potential UCLs to Use**					
781					AppChi2	14.39					95% KM (Chebyshev) UCL	73.87
782					95% Gamma Approximate UCL	63						
783					95% Adjusted Gamma UCL	64.09						
784	**Note: DL/2 is not a recommended method.**											
785												
786												
787	**Thallium**											
788												
789	**General Statistics**											
790					Number of Valid Data	5					Number of Detected Data	5
791					Number of Distinct Detected Data	3					Number of Non-Detect Data	0
792					Number of Missing Values	44					Percent Non-Detects	0.00%
793												
794	**Raw Statistics**						**Log-transformed Statistics**					
795					Minimum Detected	7					Minimum Detected	1.946

796					Maximum Detected	9					Maximum Detected	2.197
797					Mean of Detected	8					Mean of Detected	2.076
798					SD of Detected	0.707					SD of Detected	0.089
799					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
800					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
801												
802												
803	**Warning: There are only 3 Distinct Detected Values in this data set**											
804	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
805	**Those methods will return a 'N/A' value on your output display!**											
806												
807	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
808	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
809												
810												
811	**UCL Statistics**											
812	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
813					Shapiro Wilk Test Statistic	0.883					Shapiro Wilk Test Statistic	0.881
814					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
815	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
816												
817	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
818					DL/2 Substitution Method						DL/2 Substitution Method	
819					Mean	8					Mean	2.076
820					SD	0.707					SD	0.089
821					95% DL/2 (t) UCL	8.674					95% H-Stat (DL/2) UCL	N/A
822												
823					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
824	**MLE method failed to converge properly**										Mean in Log Scale	N/A
825											SD in Log Scale	N/A
826											Mean in Original Scale	N/A
827											SD in Original Scale	N/A
828											95% Percentile Bootstrap UCL	N/A
829											95% BCA Bootstrap UCL	N/A
830												
831	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
832					k star (bias corrected)	63.7	**Data appear Normal at 5% Significance Level**					
833					Theta Star	0.126						
834					nu star	637						
835												
836					A-D Test Statistic	0.518	**Nonparametric Statistics**					
837					5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method	
838					K-S Test Statistic	0.678					Mean	8
839					5% K-S Critical Value	0.357					SD	0.632
840	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.316
841											95% KM (t) UCL	8.674
842	**Assuming Gamma Distribution**										95% KM (z) UCL	8.52
843					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	N/A
844					Minimum	7					95% KM (bootstrap t) UCL	N/A
845					Maximum	9					95% KM (BCA) UCL	N/A
846					Mean	8					95% KM (Percentile Bootstrap) UCL	N/A
847					Median	8					95% KM (Chebyshev) UCL	9.378
848					SD	0.707					97.5% KM (Chebyshev) UCL	9.975

849					k star	63.7				99% KM (Chebyshev) UCL		11.15
850					Theta star	0.126						
851					Nu star	637				**Potential UCLs to Use**		
852					AppChi2	579.4				95% KM (t) UCL		8.674
853					95% Gamma Approximate UCL	8.795				95% KM (Percentile Bootstrap) UCL		N/A
854					95% Adjusted Gamma UCL	9.18						
855	**Note: DL/2 is not a recommended method.**											
856												
857												
858	**Total Aroclors**											
859												
860					**General Statistics**							
861					Number of Valid Data	40				Number of Detected Data		35
862					Number of Distinct Detected Data	35				Number of Non-Detect Data		5
863					Number of Missing Values	6				Percent Non-Detects		12.50%
864												
865					**Raw Statistics**					**Log-transformed Statistics**		
866					Minimum Detected	21.4				Minimum Detected		3.063
867					Maximum Detected	1676				Maximum Detected		7.424
868					Mean of Detected	171.3				Mean of Detected		4.393
869					SD of Detected	317.3				SD of Detected		1.091
870					Minimum Non-Detect	2.8				Minimum Non-Detect		1.03
871					Maximum Non-Detect	39				Maximum Non-Detect		3.664
872												
873	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		16
874	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		24
875	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		40.00%
876												
877					**UCL Statistics**							
878					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
879					Shapiro Wilk Test Statistic	0.488				Shapiro Wilk Test Statistic		0.909
880					5% Shapiro Wilk Critical Value	0.934				5% Shapiro Wilk Critical Value		0.934
881					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
882												
883					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
884					DL/2 Substitution Method					DL/2 Substitution Method		
885					Mean	150.8				Mean		4.047
886					SD	301.3				SD		1.409
887					95% DL/2 (t) UCL	231.1				95% H-Stat (DL/2) UCL		222.2
888												
889					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
890					Mean	23.58				Mean in Log Scale		4.113
891					SD	413.7				SD in Log Scale		1.274
892					95% MLE (t) UCL	133.8				Mean in Original Scale		151.1
893					95% MLE (Tiku) UCL	147.7				SD in Original Scale		301.2
894										95% Percentile Bootstrap UCL		240.4
895										95% BCA Bootstrap UCL		274.6
896												
897					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
898					k star (bias corrected)	0.743				**Data do not follow a Discernable Distribution (0.05)**		
899					Theta Star	230.6						
900					nu star	51.99						
901												

902					A-D Test Statistic	2.355	**Nonparametric Statistics**					
903					5% A-D Critical Value	0.786				Kaplan-Meier (KM) Method		
904					K-S Test Statistic	0.786					Mean	152.7
905					5% K-S Critical Value	0.154					SD	296.7
906			**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	47.59
907											95% KM (t) UCL	232.9
908			**Assuming Gamma Distribution**								95% KM (z) UCL	231
909					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	232.6
910					Minimum	1E-09					95% KM (bootstrap t) UCL	371.5
911					Maximum	1676					95% KM (BCA) UCL	242.9
912					Mean	149.9					95% KM (Percentile Bootstrap) UCL	232.8
913					Median	58.15					95% KM (Chebyshev) UCL	360.1
914					SD	301.8					97.5% KM (Chebyshev) UCL	449.9
915					k star	0.198					99% KM (Chebyshev) UCL	626.2
916					Theta star	755.5						
917					Nu star	15.87	**Potential UCLs to Use**					
918					AppChi2	7.871					95% KM (Chebyshev) UCL	360.1
919					95% Gamma Approximate UCL	302.2						
920					95% Adjusted Gamma UCL	310.6						
921	**Note: DL/2 is not a recommended method.**											
922												
923												
924	**Total DDT**											
925												
926							**General Statistics**					
927					Number of Valid Data	44				Number of Detected Data		33
928					Number of Distinct Detected Data	33				Number of Non-Detect Data		11
929					Number of Missing Values	2				Percent Non-Detects		25.00%
930												
931			**Raw Statistics**				**Log-transformed Statistics**					
932					Minimum Detected	0.48				Minimum Detected		-0.734
933					Maximum Detected	68.55				Maximum Detected		4.228
934					Mean of Detected	6.063				Mean of Detected		1.129
935					SD of Detected	11.74				SD of Detected		1.098
936					Minimum Non-Detect	0.4				Minimum Non-Detect		-0.916
937					Maximum Non-Detect	23.2				Maximum Non-Detect		3.144
938												
939	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		43
940	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
941	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		97.73%
942												
943							**UCL Statistics**					
944			**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**					
945					Shapiro Wilk Test Statistic	0.406				Shapiro Wilk Test Statistic		0.946
946					5% Shapiro Wilk Critical Value	0.931				5% Shapiro Wilk Critical Value		0.931
947			**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
948												
949			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
950					DL/2 Substitution Method					DL/2 Substitution Method		
951					Mean	5.423				Mean		0.991
952					SD	10.38				SD		1.172
953					95% DL/2 (t) UCL	8.055				95% H-Stat (DL/2) UCL		10.16
954												

955	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
956	**MLE method failed to converge properly**						Mean in Log Scale					0.853
957							SD in Log Scale					1.131
958							Mean in Original Scale					4.866
959							SD in Original Scale					10.35
960							95% Percentile Bootstrap UCL					7.873
961							95% BCA Bootstrap UCL					9.413
962												
963	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
964	k star (bias corrected)					0.813	**Data appear Lognormal at 5% Significance Level**					
965	Theta Star					7.46						
966	nu star					53.65						
967												
968	A-D Test Statistic					1.328	**Nonparametric Statistics**					
969	5% A-D Critical Value					0.782	Kaplan-Meier (KM) Method					
970	K-S Test Statistic					0.782	Mean					4.993
971	5% K-S Critical Value					0.159	SD					10.23
972	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1.573
973							95% KM (t) UCL					7.638
974	**Assuming Gamma Distribution**						95% KM (z) UCL					7.581
975	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					7.623
976	Minimum					1E-09	95% KM (bootstrap t) UCL					12.77
977	Maximum					68.55	95% KM (BCA) UCL					8.497
978	Mean					5.37	95% KM (Percentile Bootstrap) UCL					7.866
979	Median					3.508	95% KM (Chebyshev) UCL					11.85
980	SD					10.31	97.5% KM (Chebyshev) UCL					14.82
981	k star					0.406	99% KM (Chebyshev) UCL					20.65
982	Theta star					13.24						
983	Nu star					35.7	**Potential UCLs to Use**					
984	AppChi2					23.03	95% KM (Chebyshev) UCL					11.85
985	95% Gamma Approximate UCL					8.326						
986	95% Adjusted Gamma UCL					8.453						
987	**Note: DL/2 is not a recommended method.**											
988												
989												
990	**Total Dioxin/Furan TEQ**											
991												
992	**General Statistics**											
993	Number of Valid Data					6	Number of Detected Data					6
994	Number of Distinct Detected Data					6	Number of Non-Detect Data					0
995	Number of Missing Values					1	Percent Non-Detects					0.00%
996												
997	**Raw Statistics**						**Log-transformed Statistics**					
998	Minimum Detected					0.944	Minimum Detected					-0.0577
999	Maximum Detected					10.31	Maximum Detected					2.333
1000	Mean of Detected					4.136	Mean of Detected					1.132
1001	SD of Detected					3.411	SD of Detected					0.851
1002	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
1003	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
1004												
1005												
1006	**Warning: There are only 6 Detected Values in this data**											
1007	**Note: It should be noted that even though bootstrap may be performed on this data set**											

	A	B	C	D	E	F	G	H	I	J	K	L
1008	the resulting calculations may not be reliable enough tp draw conclusions											
1009												
1010	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
1011												
1012												
1013	UCL Statistics											
1014	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1015	Shapiro Wilk Test Statistic					0.867	Shapiro Wilk Test Statistic					0.977
1016	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
1017	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1018												
1019	Assuming Normal Distribution						Assuming Lognormal Distribution					
1020	DL/2 Substitution Method						DL/2 Substitution Method					
1021	Mean					4.136	Mean					1.132
1022	SD					3.411	SD					0.851
1023	95% DL/2 (t) UCL					6.941	95% H-Stat (DL/2) UCL					17.71
1024												
1025	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1026	MLE method failed to converge properly						Mean in Log Scale					N/A
1027							SD in Log Scale					N/A
1028							Mean in Original Scale					N/A
1029							SD in Original Scale					N/A
1030							95% Percentile Bootstrap UCL					N/A
1031							95% BCA Bootstrap UCL					N/A
1032												
1033	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1034	k star (bias corrected)					1.055	Data appear Normal at 5% Significance Level					
1035	Theta Star					3.92						
1036	nu star					12.66						
1037												
1038	A-D Test Statistic					0.241	Nonparametric Statistics					
1039	5% A-D Critical Value					0.705	Kaplan-Meier (KM) Method					
1040	K-S Test Statistic					0.705	Mean					4.136
1041	5% K-S Critical Value					0.336	SD					3.114
1042	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1.392
1043							95% KM (t) UCL					6.941
1044	Assuming Gamma Distribution						95% KM (z) UCL					6.426
1045	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.941
1046	Minimum					0.944	95% KM (bootstrap t) UCL					8.823
1047	Maximum					10.31	95% KM (BCA) UCL					6.27
1048	Mean					4.136	95% KM (Percentile Bootstrap) UCL					6.437
1049	Median					3.407	95% KM (Chebyshev) UCL					10.21
1050	SD					3.411	97.5% KM (Chebyshev) UCL					12.83
1051	k star					1.055	99% KM (Chebyshev) UCL					17.99
1052	Theta star					3.92						
1053	Nu star					12.66	Potential UCLs to Use					
1054	AppChi2					5.666	95% KM (t) UCL					6.941
1055	95% Gamma Approximate UCL					9.242	95% KM (Percentile Bootstrap) UCL					6.437
1056	95% Adjusted Gamma UCL					12.78						
1057	Note: DL/2 is not a recommended method.											
1058												
1059												
1060	Total Dioxin-like PCBs											

	A	B	C	D	E	F	G	H	I	J	K	L
1061												
1062					**General Statistics**							
1063					Number of Valid Data	5				Number of Detected Data		5
1064					Number of Distinct Detected Data	5				Number of Non-Detect Data		0
1065					Number of Missing Values	2				Percent Non-Detects		0.00%
1066												
1067					**Raw Statistics**					**Log-transformed Statistics**		
1068					Minimum Detected	267.5				Minimum Detected		5.589
1069					Maximum Detected	21969				Maximum Detected		9.997
1070					Mean of Detected	7605				Mean of Detected		8.071
1071					SD of Detected	8874				SD of Detected		1.744
1072					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1073					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1074												
1075												
1076					**Warning: There are only 5 Detected Values in this data**							
1077					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1078					**the resulting calculations may not be reliable enough tp draw conclusions**							
1079												
1080					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1081												
1082												
1083					**UCL Statistics**							
1084					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1085					Shapiro Wilk Test Statistic	0.866				Shapiro Wilk Test Statistic		0.967
1086					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
1087					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1088												
1089					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1090					DL/2 Substitution Method					DL/2 Substitution Method		
1091					Mean	7605				Mean		8.071
1092					SD	8874				SD		1.744
1093					95% DL/2 (t) UCL	16066				95% H-Stat (DL/2) UCL		19075744
1094												
1095					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1096					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1097										SD in Log Scale		N/A
1098										Mean in Original Scale		N/A
1099										SD in Original Scale		N/A
1100										95% Percentile Bootstrap UCL		N/A
1101										95% BCA Bootstrap UCL		N/A
1102												
1103					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1104					k star (bias corrected)	0.413				**Data appear Normal at 5% Significance Level**		
1105					Theta Star	18425						
1106					nu star	4.128						
1107												
1108					A-D Test Statistic	0.174				**Nonparametric Statistics**		
1109					5% A-D Critical Value	0.701				Kaplan-Meier (KM) Method		
1110					K-S Test Statistic	0.701				Mean		7605
1111					5% K-S Critical Value	0.368				SD		7937
1112					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		3969
1113										95% KM (t) UCL		16066

1114	**Assuming Gamma Distribution**									95% KM (z) UCL		14133
1115	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		16066
1116	Minimum					267.5				95% KM (bootstrap t) UCL		30133
1117	Maximum					21969				95% KM (BCA) UCL		14155
1118	Mean					7605				95% KM (Percentile Bootstrap) UCL		14155
1119	Median					4599				95% KM (Chebyshev) UCL		24905
1120	SD					8874				97.5% KM (Chebyshev) UCL		32390
1121	k star					0.413				99% KM (Chebyshev) UCL		47094
1122	Theta star					18425						
1123	Nu star					4.128				**Potential UCLs to Use**		
1124	AppChi2					0.773				95% KM (t) UCL		16066
1125	95% Gamma Approximate UCL					40623				95% KM (Percentile Bootstrap) UCL		14155
1126	95% Adjusted Gamma UCL					97013						
1127	**Note: DL/2 is not a recommended method.**											
1128												
1129												
1130	**Total PCB TEQ**											
1131												
1132	**General Statistics**											
1133	Number of Valid Data					5				Number of Detected Data		5
1134	Number of Distinct Detected Data					5				Number of Non-Detect Data		0
1135	Number of Missing Values					2				Percent Non-Detects		0.00%
1136												
1137	**Raw Statistics**									**Log-transformed Statistics**		
1138	Minimum Detected					0.127				Minimum Detected		-2.065
1139	Maximum Detected					3.384				Maximum Detected		1.219
1140	Mean of Detected					1.916				Mean of Detected		0.13
1141	SD of Detected					1.508				SD of Detected		1.401
1142	Minimum Non-Detect					N/A				Minimum Non-Detect		N/A
1143	Maximum Non-Detect					N/A				Maximum Non-Detect		N/A
1144												
1145												
1146	**Warning: There are only 5 Detected Values in this data**											
1147	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1148	**the resulting calculations may not be reliable enough tp draw conclusions**											
1149												
1150	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1151												
1152												
1153	**UCL Statistics**											
1154	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
1155	Shapiro Wilk Test Statistic					0.875				Shapiro Wilk Test Statistic		0.849
1156	5% Shapiro Wilk Critical Value					0.762				5% Shapiro Wilk Critical Value		0.762
1157	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
1158												
1159	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1160	DL/2 Substitution Method									DL/2 Substitution Method		
1161	Mean					1.916				Mean		0.13
1162	SD					1.508				SD		1.401
1163	95% DL/2 (t) UCL					3.354				95% H-Stat (DL/2) UCL		325.3
1164												
1165	Maximum Likelihood Estimate(MLE) Method					N/A				Log ROS Method		
1166	**MLE method failed to converge properly**									Mean in Log Scale		N/A

1167											SD in Log Scale	N/A
1168											Mean in Original Scale	N/A
1169											SD in Original Scale	N/A
1170											95% Percentile Bootstrap UCL	N/A
1171											95% BCA Bootstrap UCL	N/A
1172												
1173			**Gamma Distribution Test with Detected Values Only**								**Data Distribution Test with Detected Values Only**	
1174					k star (bias corrected)	0.573					**Data appear Normal at 5% Significance Level**	
1175					Theta Star	3.345						
1176					nu star	5.728						
1177												
1178					A-D Test Statistic	0.414					**Nonparametric Statistics**	
1179					5% A-D Critical Value	0.69					Kaplan-Meier (KM) Method	
1180					K-S Test Statistic	0.69					Mean	1.916
1181					5% K-S Critical Value	0.364					SD	1.349
1182			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.674
1183											95% KM (t) UCL	3.354
1184			**Assuming Gamma Distribution**								95% KM (z) UCL	3.025
1185					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.354
1186					Minimum	0.127					95% KM (bootstrap t) UCL	3.32
1187					Maximum	3.384					95% KM (BCA) UCL	2.845
1188					Mean	1.916					95% KM (Percentile Bootstrap) UCL	2.845
1189					Median	2.052					95% KM (Chebyshev) UCL	4.856
1190					SD	1.508					97.5% KM (Chebyshev) UCL	6.128
1191					k star	0.573					99% KM (Chebyshev) UCL	8.626
1192					Theta star	3.345						
1193					Nu star	5.728					**Potential UCLs to Use**	
1194					AppChi2	1.503					95% KM (t) UCL	3.354
1195					95% Gamma Approximate UCL	7.304					95% KM (Percentile Bootstrap) UCL	2.845
1196					95% Adjusted Gamma UCL	14.67						
1197	**Note: DL/2 is not a recommended method.**											
1198												
1199												
1200	**Total PCB_Congeners**											
1201												
1202						**General Statistics**							
1203					Number of Valid Data	5					Number of Detected Data	5
1204					Number of Distinct Detected Data	5					Number of Non-Detect Data	0
1205					Number of Missing Values	2					Percent Non-Detects	0.00%
1206												
1207			**Raw Statistics**								**Log-transformed Statistics**	
1208					Minimum Detected	4963					Minimum Detected	8.51
1209					Maximum Detected	698854					Maximum Detected	13.46
1210					Mean of Detected	216503					Mean of Detected	11.22
1211					SD of Detected	289549					SD of Detected	1.912
1212					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1213					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1214												
1215												
1216						**Warning: There are only 5 Detected Values in this data**							
1217						**Note: It should be noted that even though bootstrap may be performed on this data set**							
1218						**the resulting calculations may not be reliable enough tp draw conclusions**							
1219												

	A	B	C	D	E	F	G	H	I	J	K	L
1220	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
1221												
1222												
1223	UCL Statistics											
1224	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1225					Shapiro Wilk Test Statistic	0.803				Shapiro Wilk Test Statistic		0.98
1226					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
1227	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1228												
1229	Assuming Normal Distribution						Assuming Lognormal Distribution					
1230					DL/2 Substitution Method					DL/2 Substitution Method		
1231					Mean	216503				Mean		11.22
1232					SD	289549				SD		1.912
1233					95% DL/2 (t) UCL	492556				95% H-Stat (DL/2) UCL		2.496E+09
1234												
1235					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1236	MLE method failed to converge properly									Mean in Log Scale		N/A
1237										SD in Log Scale		N/A
1238										Mean in Original Scale		N/A
1239										SD in Original Scale		N/A
1240										95% Percentile Bootstrap UCL		N/A
1241										95% BCA Bootstrap UCL		N/A
1242												
1243	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1244					k star (bias corrected)	0.366	Data appear Normal at 5% Significance Level					
1245					Theta Star	591004						
1246					nu star	3.663						
1247												
1248					A-D Test Statistic	0.202	Nonparametric Statistics					
1249					5% A-D Critical Value	0.707				Kaplan-Meier (KM) Method		
1250					K-S Test Statistic	0.707				Mean		216503
1251					5% K-S Critical Value	0.37				SD		258980
1252	Data appear Gamma Distributed at 5% Significance Level									SE of Mean		129490
1253										95% KM (t) UCL		492556
1254	Assuming Gamma Distribution									95% KM (z) UCL		429495
1255					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		492556
1256					Minimum	4963				95% KM (bootstrap t) UCL		2067249
1257					Maximum	698854				95% KM (BCA) UCL		440182
1258					Mean	216503				95% KM (Percentile Bootstrap) UCL		434165
1259					Median	69300				95% KM (Chebyshev) UCL		780937
1260					SD	289549				97.5% KM (Chebyshev) UCL		1025168
1261					k star	0.366				99% KM (Chebyshev) UCL		1504913
1262					Theta star	591004						
1263					Nu star	3.663				Potential UCLs to Use		
1264					AppChi2	0.593				95% KM (t) UCL		492556
1265					95% Gamma Approximate UCL	1336607				95% KM (Percentile Bootstrap) UCL		434165
1266					95% Adjusted Gamma UCL	3383901						
1267	Note: DL/2 is not a recommended method.											
1268												
1269												
1270	Total PCBs, Adjusted											
1271												
1272	General Statistics											

1273					Number of Valid Data	5					Number of Detected Data	5
1274					Number of Distinct Detected Data	5					Number of Non-Detect Data	0
1275					Number of Missing Values	2					Percent Non-Detects	0.00%
1276												
1277					**Raw Statistics**						**Log-transformed Statistics**	
1278					Minimum Detected	4696					Minimum Detected	8.454
1279					Maximum Detected	676886					Maximum Detected	13.43
1280					Mean of Detected	208897					Mean of Detected	11.17
1281					SD of Detected	280734					SD of Detected	1.92
1282					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1283					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1284												
1285												
1286					**Warning: There are only 5 Detected Values in this data**							
1287					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1288					**the resulting calculations may not be reliable enough tp draw conclusions**							
1289												
1290					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1291												
1292												
1293					**UCL Statistics**							
1294					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1295					Shapiro Wilk Test Statistic	0.801					Shapiro Wilk Test Statistic	0.979
1296					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
1297					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1298												
1299					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1300					DL/2 Substitution Method						DL/2 Substitution Method	
1301					Mean	208897					Mean	11.17
1302					SD	280734					SD	1.92
1303					95% DL/2 (t) UCL	476547					95% H-Stat (DL/2) UCL	2.608E+09
1304												
1305					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1306					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1307											SD in Log Scale	N/A
1308											Mean in Original Scale	N/A
1309											SD in Original Scale	N/A
1310											95% Percentile Bootstrap UCL	N/A
1311											95% BCA Bootstrap UCL	N/A
1312												
1313					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1314					k star (bias corrected)	0.364					**Data appear Normal at 5% Significance Level**	
1315					Theta Star	573223						
1316					nu star	3.644						
1317												
1318					A-D Test Statistic	0.206					**Nonparametric Statistics**	
1319					5% A-D Critical Value	0.707					Kaplan-Meier (KM) Method	
1320					K-S Test Statistic	0.707					Mean	208897
1321					5% K-S Critical Value	0.37					SD	251096
1322					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	125548
1323											95% KM (t) UCL	476547
1324					**Assuming Gamma Distribution**						95% KM (z) UCL	415406
1325					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	476547

1326					Minimum	4696				95% KM (bootstrap t) UCL		1901042
1327					Maximum	676886				95% KM (BCA) UCL		389458
1328					Mean	208897				95% KM (Percentile Bootstrap) UCL		419649
1329					Median	64701				95% KM (Chebyshev) UCL		756149
1330					SD	280734				97.5% KM (Chebyshev) UCL		992945
1331					k star	0.364				99% KM (Chebyshev) UCL		1458085
1332					Theta star	573223						
1333					Nu star	3.644				**Potential UCLs to Use**		
1334					AppChi2	0.586				95% KM (t) UCL		476547
1335				95% Gamma Approximate UCL		1298182				95% KM (Percentile Bootstrap) UCL		419649
1336				95% Adjusted Gamma UCL		3294138						
1337	**Note: DL/2 is not a recommended method.**											
1338												
1339												
1340	**Tributyltin ion**											
1341												
1342	**General Statistics**											
1343					Number of Valid Data	9				Number of Detected Data		9
1344					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
1345					Number of Missing Values	37				Percent Non-Detects		0.00%
1346												
1347	**Raw Statistics**						**Log-transformed Statistics**					
1348					Minimum Detected	1.7				Minimum Detected		0.531
1349					Maximum Detected	59				Maximum Detected		4.078
1350					Mean of Detected	26.16				Mean of Detected		2.969
1351					SD of Detected	16.57				SD of Detected		1.015
1352					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1353					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1354												
1355												
1356	**Warning: There are only 9 Detected Values in this data**											
1357	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1358	**the resulting calculations may not be reliable enough tp draw conclusions**											
1359												
1360	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1361												
1362												
1363	**UCL Statistics**											
1364	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1365					Shapiro Wilk Test Statistic	0.961				Shapiro Wilk Test Statistic		0.811
1366					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
1367	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1368												
1369	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1370					DL/2 Substitution Method					DL/2 Substitution Method		
1371					Mean	26.16				Mean		2.969
1372					SD	16.57				SD		1.015
1373					95% DL/2 (t) UCL	36.43				95% H-Stat (DL/2) UCL		105.6
1374												
1375					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1376	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1377										SD in Log Scale		N/A
1378										Mean in Original Scale		N/A

	A	B	C	D	E	F	G	H	I	J	K	L
1379											SD in Original Scale	N/A
1380											95% Percentile Bootstrap UCL	N/A
1381											95% BCA Bootstrap UCL	N/A
1382												
1383	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1384					k star (bias corrected)	1.302	**Data appear Normal at 5% Significance Level**					
1385					Theta Star	20.09						
1386					nu star	23.44						
1387												
1388					A-D Test Statistic	0.384	**Nonparametric Statistics**					
1389					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
1390					K-S Test Statistic	0.731					Mean	26.16
1391					5% K-S Critical Value	0.283					SD	15.63
1392	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	5.524
1393											95% KM (t) UCL	36.43
1394	**Assuming Gamma Distribution**										95% KM (z) UCL	35.24
1395					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	36.43
1396					Minimum	1.7					95% KM (bootstrap t) UCL	38.4
1397					Maximum	59					95% KM (BCA) UCL	35.16
1398					Mean	26.16					95% KM (Percentile Bootstrap) UCL	35.01
1399					Median	22.3					95% KM (Chebyshev) UCL	50.24
1400					SD	16.57					97.5% KM (Chebyshev) UCL	60.66
1401					k star	1.302					99% KM (Chebyshev) UCL	81.12
1402					Theta star	20.09						
1403					Nu star	23.44	**Potential UCLs to Use**					
1404					AppChi2	13.42					95% KM (t) UCL	36.43
1405					95% Gamma Approximate UCL	45.67					95% KM (Percentile Bootstrap) UCL	35.01
1406					95% Adjusted Gamma UCL	51.72						
1407	**Note: DL/2 is not a recommended method.**											
1408												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM4.0W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Aldrin											
10												
11						General Statistics						
12					Number of Valid Data	25			Number of Detected Data	7		
13					Number of Distinct Detected Data	7			Number of Non-Detect Data	18		
14					Number of Missing Values	5			Percent Non-Detects	72.00%		
15												
16				Raw Statistics					Log-transformed Statistics			
17					Minimum Detected	0.204			Minimum Detected	-1.59		
18					Maximum Detected	1.4			Maximum Detected	0.336		
19					Mean of Detected	0.695			Mean of Detected	-0.682		
20					SD of Detected	0.554			SD of Detected	0.879		
21					Minimum Non-Detect	0.0329			Minimum Non-Detect	-3.414		
22					Maximum Non-Detect	1.28			Maximum Non-Detect	0.247		
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	23		
25	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	2		
26	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	92.00%		
27												
28						Warning: There are only 7 Detected Values in this data						
29						Note: It should be noted that even though bootstrap may be performed on this data set						
30						the resulting calculations may not be reliable enough tp draw conclusions						
31												
32						It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.						
33												
34												
35						UCL Statistics						
36				Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only			
37					Shapiro Wilk Test Statistic	0.784			Shapiro Wilk Test Statistic	0.818		
38					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value	0.803		
39				Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
40												
41				Assuming Normal Distribution					Assuming Lognormal Distribution			
42					DL/2 Substitution Method				DL/2 Substitution Method			
43					Mean	0.388			Mean	-1.537		
44					SD	0.388			SD	1.281		
45					95% DL/2 (t) UCL	0.521			95% H-Stat (DL/2) UCL	0.643		
46												
47					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
48				MLE method failed to converge properly					Mean in Log Scale	-2.04		
49									SD in Log Scale	1.002		
50									Mean in Original Scale	0.252		
51									SD in Original Scale	0.395		
52									95% Percentile Bootstrap UCL	0.388		
53									95% BCA Bootstrap UCL	0.432		

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56	k star (bias corrected)				1.08		**Data appear Gamma Distributed at 5% Significance Level**					
57	Theta Star				0.643							
58	nu star				15.13							
59												
60	A-D Test Statistic				0.715		**Nonparametric Statistics**					
61	5% A-D Critical Value				0.718		Kaplan-Meier (KM) Method					
62	K-S Test Statistic				0.718		Mean					0.354
63	5% K-S Critical Value				0.316		SD					0.352
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0778
65							95% KM (t) UCL					0.487
66	**Assuming Gamma Distribution**						95% KM (z) UCL					0.482
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.479
68	Minimum				0.204		95% KM (bootstrap t) UCL					0.524
69	Maximum				1.4		95% KM (BCA) UCL					0.544
70	Mean				0.795		95% KM (Percentile Bootstrap) UCL					0.507
71	Median				0.987		95% KM (Chebyshev) UCL					0.693
72	SD				0.332		97.5% KM (Chebyshev) UCL					0.84
73	k star				4.005		99% KM (Chebyshev) UCL					1.128
74	Theta star				0.198							
75	Nu star				200.2		**Potential UCLs to Use**					
76	AppChi2				168.5		95% KM (t) UCL					0.487
77	95% Gamma Approximate UCL				0.944							
78	95% Adjusted Gamma UCL				0.955							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85	Number of Valid Data				32		Number of Detected Data					26
86	Number of Distinct Detected Data				26		Number of Non-Detect Data					6
87	Number of Missing Values				1		Percent Non-Detects					18.75%
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90	Minimum Detected				2.27		Minimum Detected					0.82
91	Maximum Detected				8.79		Maximum Detected					2.174
92	Mean of Detected				3.563		Mean of Detected					1.236
93	SD of Detected				1.174		SD of Detected					0.246
94	Minimum Non-Detect				5		Minimum Non-Detect					1.609
95	Maximum Non-Detect				6		Maximum Non-Detect					1.792
96												
97	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					31
98	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
99	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					96.88%
100												
101	**UCL Statistics**											
102	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
103	Shapiro Wilk Test Statistic				0.608		Shapiro Wilk Test Statistic					0.817
104	5% Shapiro Wilk Critical Value				0.92		5% Shapiro Wilk Critical Value					0.92
105	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
108	DL/2 Substitution Method						DL/2 Substitution Method					
109	Mean					3.38	Mean					1.182
110	SD					1.126	SD					0.251
111	95% DL/2 (t) UCL					3.717	95% H-Stat (DL/2) UCL					3.53
112												
113	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
114	**MLE method failed to converge properly**						Mean in Log Scale					1.233
115							SD in Log Scale					0.229
116							Mean in Original Scale					3.536
117							SD in Original Scale					1.076
118							95% Percentile Bootstrap UCL					3.87
119							95% BCA Bootstrap UCL					4.009
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122	k star (bias corrected)					13.01	**Data do not follow a Discernable Distribution (0.05)**					
123	Theta Star					0.274						
124	nu star					676.6						
125												
126	A-D Test Statistic					1.569	**Nonparametric Statistics**					
127	5% A-D Critical Value					0.744	Kaplan-Meier (KM) Method					
128	K-S Test Statistic					0.744	Mean					3.524
129	5% K-S Critical Value					0.171	SD					1.062
130	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.196
131							95% KM (t) UCL					3.857
132	**Assuming Gamma Distribution**						95% KM (z) UCL					3.847
133	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3.856
134	Minimum					2.27	95% KM (bootstrap t) UCL					4.092
135	Maximum					8.79	95% KM (BCA) UCL					3.9
136	Mean					3.571	95% KM (Percentile Bootstrap) UCL					3.859
137	Median					3.545	95% KM (Chebyshev) UCL					4.379
138	SD					1.057	97.5% KM (Chebyshev) UCL					4.749
139	k star					16.24	99% KM (Chebyshev) UCL					5.476
140	Theta star					0.22						
141	Nu star					1039	**Potential UCLs to Use**					
142	AppChi2					965.6	95% KM (Chebyshev) UCL					4.379
143	95% Gamma Approximate UCL					3.844						
144	95% Adjusted Gamma UCL					3.859						
145	**Note: DL/2 is not a recommended method.**											
146												
147												
148	**Benzo(a)anthracene**											
149												
150	**General Statistics**											
151	Number of Valid Observations					33	Number of Distinct Observations					29
152												
153	**Raw Statistics**						**Log-transformed Statistics**					
154	Minimum					0.86	Minimum of Log Data					-0.151
155	Maximum					1600	Maximum of Log Data					7.378
156	Mean					255	Mean of log Data					4.738
157	Median					120	SD of log Data					1.461
158	SD					371.8						
159	Coefficient of Variation					1.458						

160					Skewness	2.609						
161												
162	**Relevant UCL Statistics**											
163	**Normal Distribution Test**						**Lognormal Distribution Test**					
164					Shapiro Wilk Test Statistic	0.623					Shapiro Wilk Test Statistic	0.919
165					Shapiro Wilk Critical Value	0.931					Shapiro Wilk Critical Value	0.931
166	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
167												
168	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
169					95% Student's-t UCL	364.6					95% H-UCL	720.3
170	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	751.1
171					95% Adjusted-CLT UCL	392.9					97.5% Chebyshev (MVUE) UCL	940.9
172					95% Modified-t UCL	369.5					99% Chebyshev (MVUE) UCL	1314
173												
174	**Gamma Distribution Test**						**Data Distribution**					
175					k star (bias corrected)	0.698	**Data do not follow a Discernable Distribution (0.05)**					
176					Theta Star	365.3						
177					nu star	46.07						
178					Approximate Chi Square Value (.05)	31.5	**Nonparametric Statistics**					
179					Adjusted Level of Significance	0.0419					95% CLT UCL	361.4
180					Adjusted Chi Square Value	30.87					95% Jackknife UCL	364.6
181											95% Standard Bootstrap UCL	359.6
182					Anderson-Darling Test Statistic	1.114					95% Bootstrap-t UCL	428.7
183					Anderson-Darling 5% Critical Value	0.788					95% Hall's Bootstrap UCL	440.1
184					Kolmogorov-Smirnov Test Statistic	0.184					95% Percentile Bootstrap UCL	369.2
185					Kolmogorov-Smirnov 5% Critical Value	0.159					95% BCA Bootstrap UCL	391.7
186	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	537.1
187											97.5% Chebyshev(Mean, Sd) UCL	659.2
188	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	899
189					95% Approximate Gamma UCL	373						
190					95% Adjusted Gamma UCL	380.5						
191												
192	**Potential UCL to Use**										Use 99% Chebyshev (Mean, Sd) UCL	899
193												
194												
195	**Benzo(a)pyrene**											
196												
197	**General Statistics**											
198					Number of Valid Observations	33					Number of Distinct Observations	28
199												
200	**Raw Statistics**						**Log-transformed Statistics**					
201					Minimum	0.86					Minimum of Log Data	-0.151
202					Maximum	2500					Maximum of Log Data	7.824
203					Mean	396.5					Mean of log Data	5.162
204					Median	150					SD of log Data	1.503
205					SD	571						
206					Coefficient of Variation	1.44						
207					Skewness	2.615						
208												
209	**Relevant UCL Statistics**											
210	**Normal Distribution Test**						**Lognormal Distribution Test**					
211					Shapiro Wilk Test Statistic	0.639					Shapiro Wilk Test Statistic	0.917
212					Shapiro Wilk Critical Value	0.931					Shapiro Wilk Critical Value	0.931

	A	B	C	D	E	F	G	H	I	J	K	L
213	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
214												
215	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
216	95% Student's-t UCL	564.8					95% H-UCL	1217				
217	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1241				
218	95% Adjusted-CLT UCL	608.3					97.5% Chebyshev (MVUE) UCL	1560				
219	95% Modified-t UCL	572.4					99% Chebyshev (MVUE) UCL	2186				
220												
221	**Gamma Distribution Test**						**Data Distribution**					
222	k star (bias corrected)	0.686					**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
223	Theta Star	578.1										
224	nu star	45.26										
225	Approximate Chi Square Value (.05)	30.83					**Nonparametric Statistics**					
226	Adjusted Level of Significance	0.0419					95% CLT UCL	560				
227	Adjusted Chi Square Value	30.22					95% Jackknife UCL	564.8				
228							95% Standard Bootstrap UCL	557.8				
229	Anderson-Darling Test Statistic	0.874					95% Bootstrap-t UCL	698.9				
230	Anderson-Darling 5% Critical Value	0.789					95% Hall's Bootstrap UCL	804.1				
231	Kolmogorov-Smirnov Test Statistic	0.159					95% Percentile Bootstrap UCL	563.4				
232	Kolmogorov-Smirnov 5% Critical Value	0.159					95% BCA Bootstrap UCL	604.1				
233	**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	829.7				
234							97.5% Chebyshev(Mean, Sd) UCL	1017				
235	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1385				
236	95% Approximate Gamma UCL	582.1										
237	95% Adjusted Gamma UCL	593.9										
238												
239	**Potential UCL to Use**						Use 95% Approximate Gamma UCL	582.1				
240												
241												
242	**Benzo(b)fluoranthene**											
243												
244	**General Statistics**											
245	Number of Valid Observations	33					Number of Distinct Observations	32				
246												
247	**Raw Statistics**						**Log-transformed Statistics**					
248	Minimum	1.1					Minimum of Log Data	0.0953				
249	Maximum	2330					Maximum of Log Data	7.754				
250	Mean	356.6					Mean of log Data	5.097				
251	Median	150					SD of log Data	1.467				
252	SD	484.8										
253	Coefficient of Variation	1.359										
254	Skewness	2.648										
255												
256	**Relevant UCL Statistics**											
257	**Normal Distribution Test**						**Lognormal Distribution Test**					
258	Shapiro Wilk Test Statistic	0.678					Shapiro Wilk Test Statistic	0.938				
259	Shapiro Wilk Critical Value	0.931					Shapiro Wilk Critical Value	0.931				
260	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
261												
262	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
263	95% Student's-t UCL	499.6					95% H-UCL	1045				
264	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1087				
265	95% Adjusted-CLT UCL	537					97.5% Chebyshev (MVUE) UCL	1362				

266				95% Modified-t UCL	506.1					99% Chebyshev (MVUE) UCL	1903	
267												
268				**Gamma Distribution Test**						**Data Distribution**		
269				k star (bias corrected)	0.716					**Data appear Gamma Distributed at 5% Significance Level**		
270				Theta Star	497.9							
271				nu star	47.28							
272				Approximate Chi Square Value (.05)	32.5					**Nonparametric Statistics**		
273				Adjusted Level of Significance	0.0419					95% CLT UCL	495.4	
274				Adjusted Chi Square Value	31.87					95% Jackknife UCL	499.6	
275										95% Standard Bootstrap UCL	493.7	
276				Anderson-Darling Test Statistic	0.571					95% Bootstrap-t UCL	606	
277				Anderson-Darling 5% Critical Value	0.787					95% Hall's Bootstrap UCL	625.6	
278				Kolmogorov-Smirnov Test Statistic	0.127					95% Percentile Bootstrap UCL	503.1	
279				Kolmogorov-Smirnov 5% Critical Value	0.159					95% BCA Bootstrap UCL	552.2	
280				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	724.5	
281										97.5% Chebyshev(Mean, Sd) UCL	883.6	
282				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1196	
283				95% Approximate Gamma UCL	518.8							
284				95% Adjusted Gamma UCL	529.1							
285												
286				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	518.8	
287												
288												
289	**Benzo(k)fluoranthene**											
290												
291						**General Statistics**							
292				Number of Valid Data	28					Number of Detected Data	27	
293				Number of Distinct Detected Data	26					Number of Non-Detect Data	1	
294				Number of Missing Values	5					Percent Non-Detects	3.57%	
295												
296				**Raw Statistics**						**Log-transformed Statistics**		
297				Minimum Detected	10					Minimum Detected	2.303	
298				Maximum Detected	1200					Maximum Detected	7.09	
299				Mean of Detected	137.7					Mean of Detected	4.393	
300				SD of Detected	226					SD of Detected	0.966	
301				Minimum Non-Detect	0.54					Minimum Non-Detect	-0.616	
302				Maximum Non-Detect	0.54					Maximum Non-Detect	-0.616	
303												
304												
305						**UCL Statistics**							
306				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
307				Shapiro Wilk Test Statistic	0.454					Shapiro Wilk Test Statistic	0.936	
308				5% Shapiro Wilk Critical Value	0.923					5% Shapiro Wilk Critical Value	0.923	
309				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
310												
311				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
312				DL/2 Substitution Method						DL/2 Substitution Method		
313				Mean	132.8					Mean	4.189	
314				SD	223.3					SD	1.435	
315				95% DL/2 (t) UCL	204.6					95% H-Stat (DL/2) UCL	354.1	
316												
317				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
318				Mean	127.8					Mean in Log Scale	4.31	

319					SD	224.8				SD in Log Scale		1.044
320					95% MLE (t) UCL	200.1				Mean in Original Scale		133
321					95% MLE (Tiku) UCL	193.8				SD in Original Scale		223.1
322										95% Percentile Bootstrap UCL		210
323										95% BCA Bootstrap UCL		255.7
324												
325	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
326					k star (bias corrected)	0.981				**Data appear Lognormal at 5% Significance Level**		
327					Theta Star	140.3						
328					nu star	53						
329												
330					A-D Test Statistic	1.618				**Nonparametric Statistics**		
331					5% A-D Critical Value	0.772				Kaplan-Meier (KM) Method		
332					K-S Test Statistic	0.772				Mean		133.1
333					5% K-S Critical Value	0.173				SD		219.1
334	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		42.19
335										95% KM (t) UCL		205
336	**Assuming Gamma Distribution**									95% KM (z) UCL		202.5
337					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		204.9
338					Minimum	1E-09				95% KM (bootstrap t) UCL		356.8
339					Maximum	1200				95% KM (BCA) UCL		207.8
340					Mean	132.8				95% KM (Percentile Bootstrap) UCL		211.1
341					Median	82.5				95% KM (Chebyshev) UCL		317
342					SD	223.3				97.5% KM (Chebyshev) UCL		396.6
343					k star	0.436				99% KM (Chebyshev) UCL		552.9
344					Theta star	304.3						
345					Nu star	24.43				**Potential UCLs to Use**		
346					AppChi2	14.17				95% KM (Chebyshev) UCL		317
347					95% Gamma Approximate UCL	228.8						
348					95% Adjusted Gamma UCL	236.9						
349	**Note: DL/2 is not a recommended method.**											
350												
351												
352	**Bis(2-ethylhexyl) phthalate**											
353												
354						**General Statistics**						
355					Number of Valid Data	28				Number of Detected Data		9
356					Number of Distinct Detected Data	9				Number of Non-Detect Data		19
357					Number of Missing Values	5				Percent Non-Detects		67.86%
358												
359	**Raw Statistics**									**Log-transformed Statistics**		
360					Minimum Detected	56				Minimum Detected		4.025
361					Maximum Detected	120				Maximum Detected		4.787
362					Mean of Detected	82				Mean of Detected		4.37
363					SD of Detected	23.79				SD of Detected		0.286
364					Minimum Non-Detect	6.2				Minimum Non-Detect		1.825
365					Maximum Non-Detect	120				Maximum Non-Detect		4.787
366												
367	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		27
368	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
369	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		96.43%
370												
371	**Warning: There are only 9 Detected Values in this data**											

	A	B	C	D	E	F	G	H	I	J	K	L
372	**Note: It should be noted that even though bootstrap may be performed on this data set**											
373	**the resulting calculations may not be reliable enough tp draw conclusions**											
374												
375	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
376												
377												
378	**UCL Statistics**											
379	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
380	Shapiro Wilk Test Statistic					0.909	Shapiro Wilk Test Statistic					0.921
381	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
382	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
383												
384	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
385	DL/2 Substitution Method						DL/2 Substitution Method					
386	Mean					41.7	Mean					3.289
387	SD					34.58	SD					1.06
388	95% DL/2 (t) UCL					52.83	95% H-Stat (DL/2) UCL					51.96
389												
390	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
391	**MLE method failed to converge properly**						Mean in Log Scale					3.888
392							SD in Log Scale					0.382
393							Mean in Original Scale					52.86
394							SD in Original Scale					24.48
395							95% Percentile Bootstrap UCL					60.13
396							95% BCA Bootstrap UCL					61.5
397												
398	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
399	k star (bias corrected)					9.247	**Data appear Normal at 5% Significance Level**					
400	Theta Star					8.868						
401	nu star					166.4						
402												
403	A-D Test Statistic					0.368	**Nonparametric Statistics**					
404	5% A-D Critical Value					0.721	Kaplan-Meier (KM) Method					
405	K-S Test Statistic					0.721	Mean					65.11
406	5% K-S Critical Value					0.279	SD					17.84
407	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					3.689
408							95% KM (t) UCL					71.39
409	**Assuming Gamma Distribution**						95% KM (z) UCL					71.18
410	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					70.48
411	Minimum					56	95% KM (bootstrap t) UCL					73.06
412	Maximum					120	95% KM (BCA) UCL					77.61
413	Mean					82	95% KM (Percentile Bootstrap) UCL					74.68
414	Median					82	95% KM (Chebyshev) UCL					81.19
415	SD					12.95	97.5% KM (Chebyshev) UCL					88.15
416	k star					37.93	99% KM (Chebyshev) UCL					101.8
417	Theta star					2.162						
418	Nu star					2124	**Potential UCLs to Use**					
419	AppChi2					2018	95% KM (t) UCL					71.39
420	95% Gamma Approximate UCL					86.31	95% KM (Percentile Bootstrap) UCL					74.68
421	95% Adjusted Gamma UCL					86.58						
422	**Note: DL/2 is not a recommended method.**											
423												
424												

425	**Dibenzo(a,h)anthracene**											
426												
427	**General Statistics**											
428					Number of Valid Data	33				Number of Detected Data		29
429					Number of Distinct Detected Data	25				Number of Non-Detect Data		4
430										Percent Non-Detects		12.12%
431												
432	**Raw Statistics**									**Log-transformed Statistics**		
433					Minimum Detected	0.47				Minimum Detected		-0.755
434					Maximum Detected	250				Maximum Detected		5.521
435					Mean of Detected	48.64				Mean of Detected		3.181
436					SD of Detected	62.14				SD of Detected		1.376
437					Minimum Non-Detect	19				Minimum Non-Detect		2.944
438					Maximum Non-Detect	20				Maximum Non-Detect		2.996
439												
440	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
441	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		18
442	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		45.45%
443												
444	**UCL Statistics**											
445	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
446					Shapiro Wilk Test Statistic	0.68				Shapiro Wilk Test Statistic		0.945
447					5% Shapiro Wilk Critical Value	0.926				5% Shapiro Wilk Critical Value		0.926
448	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
449												
450	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
451					DL/2 Substitution Method					DL/2 Substitution Method		
452					Mean	43.94				Mean		3.073
453					SD	59.53				SD		1.321
454					95% DL/2 (t) UCL	61.5				95% H-Stat (DL/2) UCL		75.69
455												
456					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
457					Mean	16.74				Mean in Log Scale		3.023
458					SD	86.1				SD in Log Scale		1.365
459					95% MLE (t) UCL	42.13				Mean in Original Scale		43.61
460					95% MLE (Tiku) UCL	46.73				SD in Original Scale		59.74
461										95% Percentile Bootstrap UCL		61.67
462										95% BCA Bootstrap UCL		66.47
463												
464	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
465					k star (bias corrected)	0.774				**Data appear Gamma Distributed at 5% Significance Level**		
466					Theta Star	62.82						
467					nu star	44.91						
468												
469					A-D Test Statistic	0.475				**Nonparametric Statistics**		
470					5% A-D Critical Value	0.78				Kaplan-Meier (KM) Method		
471					K-S Test Statistic	0.78				Mean		43.95
472					5% K-S Critical Value	0.168				SD		58.66
473	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		10.4
474										95% KM (t) UCL		61.57
475	**Assuming Gamma Distribution**									95% KM (z) UCL		61.06
476					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		61.53
477					Minimum	1E-09				95% KM (bootstrap t) UCL		71.97

478					Maximum	250				95% KM (BCA) UCL		63.63
479					Mean	43.83				95% KM (Percentile Bootstrap) UCL		62.05
480					Median	25				95% KM (Chebyshev) UCL		89.29
481					SD	59.69				97.5% KM (Chebyshev) UCL		108.9
482					k star	0.435				99% KM (Chebyshev) UCL		147.4
483					Theta star	100.9						
484					Nu star	28.68				**Potential UCLs to Use**		
485					AppChi2	17.46				95% KM (Chebyshev) UCL		89.29
486				95% Gamma Approximate UCL		72						
487				95% Adjusted Gamma UCL		73.91						
488	**Note: DL/2 is not a recommended method.**											
489												
490												
491	**Indeno(1,2,3-cd)pyrene**											
492												
493	**General Statistics**											
494	Number of Valid Observations					33				Number of Distinct Observations		30
495												
496	**Raw Statistics**									**Log-transformed Statistics**		
497	Minimum					0.95				Minimum of Log Data		-0.0513
498	Maximum					2300				Maximum of Log Data		7.741
499	Mean					315.7				Mean of log Data		4.936
500	Median					120				SD of log Data		1.442
501	SD					491.6						
502	Coefficient of Variation					1.557						
503	Skewness					3.029						
504												
505	**Relevant UCL Statistics**											
506	**Normal Distribution Test**									**Lognormal Distribution Test**		
507	Shapiro Wilk Test Statistic					0.593				Shapiro Wilk Test Statistic		0.93
508	Shapiro Wilk Critical Value					0.931				Shapiro Wilk Critical Value		0.931
509	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
510												
511	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
512	95% Student's-t UCL					460.6				95% H-UCL		839.7
513	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		883.9
514	95% Adjusted-CLT UCL					504.6				97.5% Chebyshev (MVUE) UCL		1106
515	95% Modified-t UCL					468.1				99% Chebyshev (MVUE) UCL		1542
516												
517	**Gamma Distribution Test**									**Data Distribution**		
518	k star (bias corrected)					0.687				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
519	Theta Star					459.5						
520	nu star					45.34						
521	Approximate Chi Square Value (.05)					30.89				**Nonparametric Statistics**		
522	Adjusted Level of Significance					0.0419				95% CLT UCL		456.4
523	Adjusted Chi Square Value					30.28				95% Jackknife UCL		460.6
524										95% Standard Bootstrap UCL		453.9
525	Anderson-Darling Test Statistic					0.962				95% Bootstrap-t UCL		608
526	Anderson-Darling 5% Critical Value					0.789				95% Hall's Bootstrap UCL		1086
527	Kolmogorov-Smirnov Test Statistic					0.141				95% Percentile Bootstrap UCL		464.4
528	Kolmogorov-Smirnov 5% Critical Value					0.159				95% BCA Bootstrap UCL		508.4
529	**Data follow Appr. Gamma Distribution at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		688.6
530										97.5% Chebyshev(Mean, Sd) UCL		850

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					1167
532	95% Approximate Gamma UCL					463.3						
533	95% Adjusted Gamma UCL					472.7						
534												
535	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					463.3
536												
537												
538	**Lead**											
539												
540	**General Statistics**											
541	Number of Valid Data					32	Number of Detected Data					32
542	Number of Distinct Detected Data					29	Number of Non-Detect Data					0
543	Number of Missing Values					1	Percent Non-Detects					0.00%
544												
545	**Raw Statistics**						**Log-transformed Statistics**					
546	Minimum Detected					4.97	Minimum Detected					1.603
547	Maximum Detected					38.9	Maximum Detected					3.661
548	Mean of Detected					15.21	Mean of Detected					2.642
549	SD of Detected					6.488	SD of Detected					0.411
550	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
551	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
552												
553												
554	**UCL Statistics**											
555	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
556	Shapiro Wilk Test Statistic					0.854	Shapiro Wilk Test Statistic					0.936
557	5% Shapiro Wilk Critical Value					0.93	5% Shapiro Wilk Critical Value					0.93
558	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
559												
560	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
561	DL/2 Substitution Method						DL/2 Substitution Method					
562	Mean					15.21	Mean					2.642
563	SD					6.488	SD					0.411
564	95% DL/2 (t) UCL					17.15	95% H-Stat (DL/2) UCL					17.53
565												
566	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
567	**MLE method failed to converge properly**						Mean in Log Scale					N/A
568							SD in Log Scale					N/A
569							Mean in Original Scale					N/A
570							SD in Original Scale					N/A
571							95% Percentile Bootstrap UCL					N/A
572							95% BCA Bootstrap UCL					N/A
573												
574	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
575	k star (bias corrected)					5.831	**Data appear Lognormal at 5% Significance Level**					
576	Theta Star					2.608						
577	nu star					373.2						
578												
579	A-D Test Statistic					0.951	**Nonparametric Statistics**					
580	5% A-D Critical Value					0.747	Kaplan-Meier (KM) Method					
581	K-S Test Statistic					0.747	Mean					15.21
582	5% K-S Critical Value					0.156	SD					6.386
583	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1.147

584											95% KM (t) UCL	17.15
585	**Assuming Gamma Distribution**										95% KM (z) UCL	17.09
586				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	17.15
587					Minimum	4.97					95% KM (bootstrap t) UCL	17.79
588					Maximum	38.9					95% KM (BCA) UCL	17.15
589					Mean	15.21					95% KM (Percentile Bootstrap) UCL	17.16
590					Median	13.95					95% KM (Chebyshev) UCL	20.2
591					SD	6.488					97.5% KM (Chebyshev) UCL	22.37
592					k star	5.831					99% KM (Chebyshev) UCL	26.62
593					Theta star	2.608						
594					Nu star	373.2					**Potential UCLs to Use**	
595					AppChi2	329.4					95% KM (Chebyshev) UCL	20.2
596				95% Gamma Approximate UCL		17.23						
597				95% Adjusted Gamma UCL		17.34						
598	**Note: DL/2 is not a recommended method.**											
599												
600												
601	**Mercury**											
602												
603						**General Statistics**						
604					Number of Valid Data	32					Number of Detected Data	32
605					Number of Distinct Detected Data	25					Number of Non-Detect Data	0
606					Number of Missing Values	1					Percent Non-Detects	0.00%
607												
608	**Raw Statistics**										**Log-transformed Statistics**	
609					Minimum Detected	0.014					Minimum Detected	-4.269
610					Maximum Detected	0.444					Maximum Detected	-0.812
611					Mean of Detected	0.0822					Mean of Detected	-2.706
612					SD of Detected	0.0741					SD of Detected	0.616
613					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
614					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
615												
616												
617						**UCL Statistics**						
618	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
619					Shapiro Wilk Test Statistic	0.556					Shapiro Wilk Test Statistic	0.89
620					5% Shapiro Wilk Critical Value	0.93					5% Shapiro Wilk Critical Value	0.93
621	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
622												
623	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
624					DL/2 Substitution Method						DL/2 Substitution Method	
625					Mean	0.0822					Mean	-2.706
626					SD	0.0741					SD	0.616
627					95% DL/2 (t) UCL	0.104					95% H-Stat (DL/2) UCL	0.101
628												
629					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
630	**MLE method failed to converge properly**										Mean in Log Scale	N/A
631											SD in Log Scale	N/A
632											Mean in Original Scale	N/A
633											SD in Original Scale	N/A
634											95% Percentile Bootstrap UCL	N/A
635											95% BCA Bootstrap UCL	N/A
636												

637	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
638					k star (bias corrected)	2.347	**Data do not follow a Discernable Distribution (0.05)**					
639					Theta Star	0.035						
640					nu star	150.2						
641												
642					A-D Test Statistic	1.985	**Nonparametric Statistics**					
643					5% A-D Critical Value	0.756				Kaplan-Meier (KM) Method		
644					K-S Test Statistic	0.756				Mean		0.0822
645					5% K-S Critical Value	0.157				SD		0.073
646	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0131
647										95% KM (t) UCL		0.104
648	**Assuming Gamma Distribution**									95% KM (z) UCL		0.104
649					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.104
650					Minimum	0.014				95% KM (bootstrap t) UCL		0.132
651					Maximum	0.444				95% KM (BCA) UCL		0.107
652					Mean	0.0822				95% KM (Percentile Bootstrap) UCL		0.106
653					Median	0.062				95% KM (Chebyshev) UCL		0.139
654					SD	0.0741				97.5% KM (Chebyshev) UCL		0.164
655					k star	2.347				99% KM (Chebyshev) UCL		0.213
656					Theta star	0.035						
657					Nu star	150.2	**Potential UCLs to Use**					
658					AppChi2	122.9				95% KM (Chebyshev) UCL		0.139
659					95% Gamma Approximate UCL	0.1						
660					95% Adjusted Gamma UCL	0.102						
661	**Note: DL/2 is not a recommended method.**											
662												
663												
664	**Naphthalene**											
665												
666	**General Statistics**											
667					Number of Valid Data	33				Number of Detected Data		29
668					Number of Distinct Detected Data	26				Number of Non-Detect Data		4
669										Percent Non-Detects		12.12%
670												
671	**Raw Statistics**						**Log-transformed Statistics**					
672					Minimum Detected	9.23				Minimum Detected		2.222
673					Maximum Detected	459				Maximum Detected		6.129
674					Mean of Detected	87.33				Mean of Detected		3.915
675					SD of Detected	108				SD of Detected		1.025
676					Minimum Non-Detect	0.43				Minimum Non-Detect		-0.844
677					Maximum Non-Detect	19				Maximum Non-Detect		2.944
678												
679	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		9
680	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		24
681	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		27.27%
682												
683	**UCL Statistics**											
684	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
685					Shapiro Wilk Test Statistic	0.698				Shapiro Wilk Test Statistic		0.948
686					5% Shapiro Wilk Critical Value	0.926				5% Shapiro Wilk Critical Value		0.926
687	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
688												
689	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

690				DL/2 Substitution Method						DL/2 Substitution Method		
691				Mean	77.05					Mean		3.381
692				SD	104.9					SD		1.835
693				95% DL/2 (t) UCL	108					95% H-Stat (DL/2) UCL		309.9
694												
695				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
696				Mean	55.3					Mean in Log Scale		3.65
697				SD	127.3					SD in Log Scale		1.206
698				95% MLE (t) UCL	92.85					Mean in Original Scale		77.46
699				95% MLE (Tiku) UCL	93.84					SD in Original Scale		104.6
700										95% Percentile Bootstrap UCL		108.1
701										95% BCA Bootstrap UCL		117.4
702												
703	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
704				k star (bias corrected)	0.952					**Data appear Lognormal at 5% Significance Level**		
705				Theta Star	91.68							
706				nu star	55.24							
707												
708				A-D Test Statistic	1.322					**Nonparametric Statistics**		
709				5% A-D Critical Value	0.773					Kaplan-Meier (KM) Method		
710				K-S Test Statistic	0.773					Mean		77.96
711				5% K-S Critical Value	0.167					SD		102.6
712	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		18.18
713										95% KM (t) UCL		108.8
714	**Assuming Gamma Distribution**									95% KM (z) UCL		107.9
715				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		108.3
716				Minimum	1E-09					95% KM (bootstrap t) UCL		122.6
717				Maximum	459					95% KM (BCA) UCL		113
718				Mean	76.74					95% KM (Percentile Bootstrap) UCL		109.8
719				Median	31					95% KM (Chebyshev) UCL		157.2
720				SD	105.1					97.5% KM (Chebyshev) UCL		191.5
721				k star	0.214					99% KM (Chebyshev) UCL		258.9
722				Theta star	358.1							
723				Nu star	14.14					**Potential UCLs to Use**		
724				AppChi2	6.67					97.5% KM (Chebyshev) UCL		191.5
725				95% Gamma Approximate UCL	162.7							
726				95% Adjusted Gamma UCL	169.4							
727	**Note: DL/2 is not a recommended method.**											
728												
729												
730	**Thallium**											
731												
732	**General Statistics**											
733				Number of Valid Data	9					Number of Detected Data		9
734				Number of Distinct Detected Data	8					Number of Non-Detect Data		0
735				Number of Missing Values	24					Percent Non-Detects		0.00%
736												
737	**Raw Statistics**									**Log-transformed Statistics**		
738				Minimum Detected	0.054					Minimum Detected		-2.919
739				Maximum Detected	24					Maximum Detected		3.178
740				Mean of Detected	10.37					Mean of Detected		0.958
741				SD of Detected	9.618					SD of Detected		2.569
742				Minimum Non-Detect	N/A					Minimum Non-Detect		N/A

743				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
744												
745												
746						Warning: There are only 9 Detected Values in this data						
747						Note: It should be noted that even though bootstrap may be performed on this data set						
748						the resulting calculations may not be reliable enough tp draw conclusions						
749												
750						It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.						
751												
752												
753						UCL Statistics						
754				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
755				Shapiro Wilk Test Statistic		0.877				Shapiro Wilk Test Statistic		0.766
756				5% Shapiro Wilk Critical Value		0.829				5% Shapiro Wilk Critical Value		0.829
757				Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
758												
759				Assuming Normal Distribution						Assuming Lognormal Distribution		
760				DL/2 Substitution Method						DL/2 Substitution Method		
761				Mean		10.37				Mean		0.958
762				SD		9.618				SD		2.569
763				95% DL/2 (t) UCL		16.33				95% H-Stat (DL/2) UCL		49031
764												
765				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
766				MLE method failed to converge properly						Mean in Log Scale		N/A
767										SD in Log Scale		N/A
768										Mean in Original Scale		N/A
769										SD in Original Scale		N/A
770										95% Percentile Bootstrap UCL		N/A
771										95% BCA Bootstrap UCL		N/A
772												
773				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
774				k star (bias corrected)		0.384				Data appear Normal at 5% Significance Level		
775				Theta Star		26.98						
776				nu star		6.916						
777												
778				A-D Test Statistic		0.859				Nonparametric Statistics		
779				5% A-D Critical Value		0.777				Kaplan-Meier (KM) Method		
780				K-S Test Statistic		0.777				Mean		10.37
781				5% K-S Critical Value		0.295				SD		9.068
782				Data not Gamma Distributed at 5% Significance Level						SE of Mean		3.206
783										95% KM (t) UCL		16.33
784				Assuming Gamma Distribution						95% KM (z) UCL		15.64
785				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		16.33
786				Minimum		0.054				95% KM (bootstrap t) UCL		16.83
787				Maximum		24				95% KM (BCA) UCL		15.36
788				Mean		10.37				95% KM (Percentile Bootstrap) UCL		15.47
789				Median		9				95% KM (Chebyshev) UCL		24.34
790				SD		9.618				97.5% KM (Chebyshev) UCL		30.39
791				k star		0.384				99% KM (Chebyshev) UCL		42.27
792				Theta star		26.98						
793				Nu star		6.916				Potential UCLs to Use		
794				AppChi2		2.125				95% KM (t) UCL		16.33
795				95% Gamma Approximate UCL		33.74				95% KM (Percentile Bootstrap) UCL		15.47

	A	B	C	D	E	F	G	H	I	J	K	L
796					95% Adjusted Gamma UCL	44.51						
797	**Note: DL/2 is not a recommended method.**											
798												
799												
800	**Total Aroclors**											
801												
802						**General Statistics**						
803						Number of Valid Data	20				Number of Detected Data	17
804						Number of Distinct Detected Data	17				Number of Non-Detect Data	3
805						Number of Missing Values	10				Percent Non-Detects	15.00%
806												
807						**Raw Statistics**					**Log-transformed Statistics**	
808						Minimum Detected	10.85				Minimum Detected	2.384
809						Maximum Detected	49.6				Maximum Detected	3.904
810						Mean of Detected	23.84				Mean of Detected	3.089
811						SD of Detected	10.42				SD of Detected	0.413
812						Minimum Non-Detect	2.47				Minimum Non-Detect	0.904
813						Maximum Non-Detect	38				Maximum Non-Detect	3.638
814												
815	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
816	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
817	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	90.00%
818												
819						**UCL Statistics**						
820						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
821						Shapiro Wilk Test Statistic	0.904				Shapiro Wilk Test Statistic	0.977
822						5% Shapiro Wilk Critical Value	0.892				5% Shapiro Wilk Critical Value	0.892
823						**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
824												
825						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
826						DL/2 Substitution Method					DL/2 Substitution Method	
827						Mean	21.35				Mean	2.806
828						SD	11.8				SD	0.93
829						95% DL/2 (t) UCL	25.92				95% H-Stat (DL/2) UCL	32.7
830												
831						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
832						**MLE method failed to converge properly**					Mean in Log Scale	2.988
833											SD in Log Scale	0.475
834											Mean in Original Scale	22.06
835											SD in Original Scale	10.67
836											95% Percentile Bootstrap UCL	26.18
837											95% BCA Bootstrap UCL	26.47
838												
839						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
840						k star (bias corrected)	5.18				**Data appear Normal at 5% Significance Level**	
841						Theta Star	4.603					
842						nu star	176.1					
843												
844						A-D Test Statistic	0.296				**Nonparametric Statistics**	
845						5% A-D Critical Value	0.741				Kaplan-Meier (KM) Method	
846						K-S Test Statistic	0.741				Mean	22.34
847						5% K-S Critical Value	0.21				SD	10.24
848						**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean	2.389

849											95% KM (t) UCL	26.47
850	**Assuming Gamma Distribution**										95% KM (z) UCL	26.27
851			Gamma ROS Statistics using Extrapolated Data								95% KM (jackknife) UCL	26.38
852					Minimum	6.278					95% KM (bootstrap t) UCL	27.17
853					Maximum	49.6					95% KM (BCA) UCL	26.59
854					Mean	22.18					95% KM (Percentile Bootstrap) UCL	26.54
855					Median	20.38					95% KM (Chebyshev) UCL	32.75
856					SD	11.01					97.5% KM (Chebyshev) UCL	37.26
857					k star	3.509					99% KM (Chebyshev) UCL	46.11
858					Theta star	6.32						
859					Nu star	140.3					**Potential UCLs to Use**	
860					AppChi2	114					95% KM (t) UCL	26.47
861					95% Gamma Approximate UCL	27.31					95% KM (Percentile Bootstrap) UCL	26.54
862					95% Adjusted Gamma UCL	27.77						
863	**Note: DL/2 is not a recommended method.**											
864												
865												
866	**Total DDT**											
867												
868						**General Statistics**						
869					Number of Valid Data	25					Number of Detected Data	18
870					Number of Distinct Detected Data	18					Number of Non-Detect Data	7
871					Number of Missing Values	5					Percent Non-Detects	28.00%
872												
873	**Raw Statistics**										**Log-transformed Statistics**	
874					Minimum Detected	0.201					Minimum Detected	-1.603
875					Maximum Detected	152.5					Maximum Detected	5.027
876					Mean of Detected	26.04					Mean of Detected	1.52
877					SD of Detected	47.52					SD of Detected	2.01
878					Minimum Non-Detect	0.0586					Minimum Non-Detect	-2.837
879					Maximum Non-Detect	2.98					Maximum Non-Detect	1.092
880												
881	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	16
882	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	9
883	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	64.00%
884												
885						**UCL Statistics**						
886	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
887					Shapiro Wilk Test Statistic	0.602					Shapiro Wilk Test Statistic	0.945
888					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
889	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
890												
891	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
892					DL/2 Substitution Method						DL/2 Substitution Method	
893					Mean	18.95					Mean	0.734
894					SD	41.64					SD	2.322
895					95% DL/2 (t) UCL	33.2					95% H-Stat (DL/2) UCL	123.2
896												
897					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
898	**MLE yields a negative mean**										Mean in Log Scale	0.588
899											SD in Log Scale	2.36
900											Mean in Original Scale	18.83
901											SD in Original Scale	41.7

902											95% Percentile Bootstrap UCL	33.75
903											95% BCA Bootstrap UCL	36.35
904												
905	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
906					k star (bias corrected)	0.355	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
907					Theta Star	73.42						
908					nu star	12.77						
909												
910					A-D Test Statistic	1.16	**Nonparametric Statistics**					
911					5% A-D Critical Value	0.825					Kaplan-Meier (KM) Method	
912					K-S Test Statistic	0.825					Mean	18.91
913					5% K-S Critical Value	0.218					SD	40.82
914	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	8.401
915											95% KM (t) UCL	33.28
916	**Assuming Gamma Distribution**										95% KM (z) UCL	32.72
917					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	33.13
918					Minimum	1E-09					95% KM (bootstrap t) UCL	49.43
919					Maximum	152.5					95% KM (BCA) UCL	33.36
920					Mean	20.05					95% KM (Percentile Bootstrap) UCL	33.41
921					Median	4.701					95% KM (Chebyshev) UCL	55.53
922					SD	41.24					97.5% KM (Chebyshev) UCL	71.37
923					k star	0.188					99% KM (Chebyshev) UCL	102.5
924					Theta star	106.5						
925					Nu star	9.415	**Potential UCLs to Use**					
926					AppChi2	3.579					95% KM (Chebyshev) UCL	55.53
927					95% Gamma Approximate UCL	52.73						
928					95% Adjusted Gamma UCL	56.56						
929	**Note: DL/2 is not a recommended method.**											
930												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM4.5E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12						Number of Valid Data	25			Number of Detected Data	20	
13						Number of Distinct Detected Data	17			Number of Non-Detect Data	5	
14										Percent Non-Detects	20.00%	
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	1.2			Minimum Detected	0.182	
18						Maximum Detected	12.3			Maximum Detected	2.51	
19						Mean of Detected	4.32			Mean of Detected	1.334	
20						SD of Detected	2.463			SD of Detected	0.518	
21						Minimum Non-Detect	5			Minimum Non-Detect	1.609	
22						Maximum Non-Detect	6			Maximum Non-Detect	1.792	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	20	
25	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	5	
26	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	80.00%	
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
30						Shapiro Wilk Test Statistic	0.827			Shapiro Wilk Test Statistic	0.968	
31						5% Shapiro Wilk Critical Value	0.905			5% Shapiro Wilk Critical Value	0.905	
32				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
33												
34				Assuming Normal Distribution						Assuming Lognormal Distribution		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	3.976			Mean	1.257	
37						SD	2.303			SD	0.487	
38						95% DL/2 (t) UCL	4.764			95% H-Stat (DL/2) UCL	4.344	
39												
40						Maximum Likelihood Estimate(MLE) Method				Log ROS Method		
41						Mean	2.743			Mean in Log Scale	1.288	
42						SD	3.69			SD in Log Scale	0.481	
43						95% MLE (t) UCL	4.006			Mean in Original Scale	4.075	
44						95% MLE (Tiku) UCL	5.836			SD in Original Scale	2.269	
45										95% Percentile Bootstrap UCL	4.856	
46										95% BCA Bootstrap UCL	4.969	
47												
48				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
49						k star (bias corrected)	3.447			Data appear Gamma Distributed at 5% Significance Level		
50						Theta Star	1.253					
51						nu star	137.9					
52												
53						A-D Test Statistic	0.473			Nonparametric Statistics		

54				5% A-D Critical Value	0.746					Kaplan-Meier (KM) Method		
55				K-S Test Statistic	0.746					Mean		4.075
56				5% K-S Critical Value	0.195					SD		2.236
57	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.468
58										95% KM (t) UCL		4.875
59	**Assuming Gamma Distribution**									95% KM (z) UCL		4.844
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		4.873
61				Minimum	1.2					95% KM (bootstrap t) UCL		5.149
62				Maximum	12.3					95% KM (BCA) UCL		4.919
63				Mean	4.322					95% KM (Percentile Bootstrap) UCL		4.903
64				Median	4.043					95% KM (Chebyshev) UCL		6.113
65				SD	2.217					97.5% KM (Chebyshev) UCL		6.995
66				k star	4.287					99% KM (Chebyshev) UCL		8.728
67				Theta star	1.008							
68				Nu star	214.3					**Potential UCLs to Use**		
69				AppChi2	181.5					95% KM (BCA) UCL		4.919
70				95% Gamma Approximate UCL	5.105							
71				95% Adjusted Gamma UCL	5.164							
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Benzo(a)anthracene**											
76												
77	**General Statistics**											
78				Number of Valid Observations	25					Number of Distinct Observations		24
79												
80	**Raw Statistics**									**Log-transformed Statistics**		
81				Minimum	1.6					Minimum of Log Data		0.47
82				Maximum	41000					Maximum of Log Data		10.62
83				Mean	3315					Mean of log Data		6.28
84				Median	570					SD of log Data		2.172
85				SD	8394							
86				Coefficient of Variation	2.532							
87				Skewness	4.141							
88												
89	**Relevant UCL Statistics**											
90	**Normal Distribution Test**									**Lognormal Distribution Test**		
91				Shapiro Wilk Test Statistic	0.423					Shapiro Wilk Test Statistic		0.976
92				Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value		0.918
93	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
94												
95	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
96				95% Student's-t UCL	6187					95% H-UCL		37248
97	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		15140
98				95% Adjusted-CLT UCL	7562					97.5% Chebyshev (MVUE) UCL		19804
99				95% Modified-t UCL	6419					99% Chebyshev (MVUE) UCL		28966
100												
101	**Gamma Distribution Test**									**Data Distribution**		
102				k star (bias corrected)	0.348					**Data appear Lognormal at 5% Significance Level**		
103				Theta Star	9516							
104				nu star	17.42							
105				Approximate Chi Square Value (.05)	8.972					**Nonparametric Statistics**		
106				Adjusted Level of Significance	0.0395					95% CLT UCL		6077

107				Adjusted Chi Square Value	8.559					95% Jackknife UCL	6187	
108										95% Standard Bootstrap UCL	6004	
109				Anderson-Darling Test Statistic	1.03					95% Bootstrap-t UCL	14088	
110				Anderson-Darling 5% Critical Value	0.837					95% Hall's Bootstrap UCL	15671	
111				Kolmogorov-Smirnov Test Statistic	0.198					95% Percentile Bootstrap UCL	6172	
112				Kolmogorov-Smirnov 5% Critical Value	0.188					95% BCA Bootstrap UCL	8023	
113				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	10633	
114										97.5% Chebyshev(Mean, Sd) UCL	13800	
115				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	20020	
116				95% Approximate Gamma UCL	6436							
117				95% Adjusted Gamma UCL	6746							
118												
119				**Potential UCL to Use**						Use 97.5% Chebyshev (MVUE) UCL	19804	
120												
121												
122	**Benzo(a)pyrene**											
123												
124				**General Statistics**								
125				Number of Valid Observations	25					Number of Distinct Observations	25	
126												
127				**Raw Statistics**						**Log-transformed Statistics**		
128				Minimum	1.6					Minimum of Log Data	0.47	
129				Maximum	48000					Maximum of Log Data	10.78	
130				Mean	4294					Mean of log Data	6.584	
131				Median	740					SD of log Data	2.212	
132				SD	10024							
133				Coefficient of Variation	2.334							
134				Skewness	3.847							
135												
136				**Relevant UCL Statistics**								
137				**Normal Distribution Test**						**Lognormal Distribution Test**		
138				Shapiro Wilk Test Statistic	0.463					Shapiro Wilk Test Statistic	0.97	
139				Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918	
140				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
141												
142				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
143				95% Student's-t UCL	7724					95% H-UCL	58879	
144				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	22404	
145				95% Adjusted-CLT UCL	9240					97.5% Chebyshev (MVUE) UCL	29346	
146				95% Modified-t UCL	7981					99% Chebyshev (MVUE) UCL	42981	
147												
148				**Gamma Distribution Test**						**Data Distribution**		
149				k star (bias corrected)	0.355					**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
150				Theta Star	12079							
151				nu star	17.77							
152				Approximate Chi Square Value (.05)	9.228					**Nonparametric Statistics**		
153				Adjusted Level of Significance	0.0395					95% CLT UCL	7591	
154				Adjusted Chi Square Value	8.809					95% Jackknife UCL	7724	
155										95% Standard Bootstrap UCL	7564	
156				Anderson-Darling Test Statistic	0.87					95% Bootstrap-t UCL	15956	
157				Anderson-Darling 5% Critical Value	0.835					95% Hall's Bootstrap UCL	18916	
158				Kolmogorov-Smirnov Test Statistic	0.184					95% Percentile Bootstrap UCL	7808	
159				Kolmogorov-Smirnov 5% Critical Value	0.188					95% BCA Bootstrap UCL	10141	

	A	B	C	D	E	F	G	H	I	J	K	L
160	Data follow Appr. Gamma Distribution at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		13032
161										97.5% Chebyshev(Mean, Sd) UCL		16813
162	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		24240
163					95% Approximate Gamma UCL	8271						
164					95% Adjusted Gamma UCL	8664						
165												
166	Potential UCL to Use									Use 95% Adjusted Gamma UCL		8664
167												
168												
169	Benzo(b)fluoranthene											
170												
171	General Statistics											
172					Number of Valid Observations	25				Number of Distinct Observations		22
173												
174	Raw Statistics						Log-transformed Statistics					
175					Minimum	2.2				Minimum of Log Data		0.788
176					Maximum	44000				Maximum of Log Data		10.69
177					Mean	3756				Mean of log Data		6.494
178					Median	900				SD of log Data		2.167
179					SD	8976						
180					Coefficient of Variation	2.39						
181					Skewness	4.106						
182												
183	Relevant UCL Statistics											
184	Normal Distribution Test						Lognormal Distribution Test					
185					Shapiro Wilk Test Statistic	0.443				Shapiro Wilk Test Statistic		0.972
186					Shapiro Wilk Critical Value	0.918				Shapiro Wilk Critical Value		0.918
187	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
188												
189	Assuming Normal Distribution						Assuming Lognormal Distribution					
190					95% Student's-t UCL	6827				95% H-UCL		45279
191	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL		18557
192					95% Adjusted-CLT UCL	8284				97.5% Chebyshev (MVUE) UCL		24270
193					95% Modified-t UCL	7073				99% Chebyshev (MVUE) UCL		35493
194												
195	Gamma Distribution Test						Data Distribution					
196					k star (bias corrected)	0.363	Data appear Gamma Distributed at 5% Significance Level					
197					Theta Star	10358						
198					nu star	18.13						
199					Approximate Chi Square Value (.05)	9.486	Nonparametric Statistics					
200					Adjusted Level of Significance	0.0395				95% CLT UCL		6709
201					Adjusted Chi Square Value	9.06				95% Jackknife UCL		6827
202										95% Standard Bootstrap UCL		6589
203					Anderson-Darling Test Statistic	0.815				95% Bootstrap-t UCL		13872
204					Anderson-Darling 5% Critical Value	0.833				95% Hall's Bootstrap UCL		16792
205					Kolmogorov-Smirnov Test Statistic	0.167				95% Percentile Bootstrap UCL		6922
206					Kolmogorov-Smirnov 5% Critical Value	0.187				95% BCA Bootstrap UCL		8720
207	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		11581
208										97.5% Chebyshev(Mean, Sd) UCL		14967
209	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		21617
210					95% Approximate Gamma UCL	7180						
211					95% Adjusted Gamma UCL	7517						
212												

213	**Potential UCL to Use**									Use 95% Adjusted Gamma UCL		7517
214												
215												
216	**Benzo(k)fluoranthene**											
217												
218	**General Statistics**											
219	Number of Valid Observations					25				Number of Distinct Observations		24
220												
221	**Raw Statistics**									**Log-transformed Statistics**		
222	Minimum					1.6				Minimum of Log Data		0.47
223	Maximum					42000				Maximum of Log Data		10.65
224	Mean					3392				Mean of log Data		6.286
225	Median					550				SD of log Data		2.22
226	SD					8519						
227	Coefficient of Variation					2.511						
228	Skewness					4.227						
229												
230	**Relevant UCL Statistics**											
231	**Normal Distribution Test**									**Lognormal Distribution Test**		
232	Shapiro Wilk Test Statistic					0.422				Shapiro Wilk Test Statistic		0.978
233	Shapiro Wilk Critical Value					0.918				Shapiro Wilk Critical Value		0.918
234	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
235												
236	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
237	95% Student's-t UCL					6307				95% H-UCL		44972
238	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		16897
239	95% Adjusted-CLT UCL					7734				97.5% Chebyshev (MVUE) UCL		22138
240	95% Modified-t UCL					6547				99% Chebyshev (MVUE) UCL		32432
241												
242	**Gamma Distribution Test**									**Data Distribution**		
243	k star (bias corrected)					0.346				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
244	Theta Star					9810						
245	nu star					17.29						
246	Approximate Chi Square Value (.05)					8.88				**Nonparametric Statistics**		
247	Adjusted Level of Significance					0.0395				95% CLT UCL		6195
248	Adjusted Chi Square Value					8.47				95% Jackknife UCL		6307
249										95% Standard Bootstrap UCL		6168
250	Anderson-Darling Test Statistic					0.882				95% Bootstrap-t UCL		12570
251	Anderson-Darling 5% Critical Value					0.838				95% Hall's Bootstrap UCL		15454
252	Kolmogorov-Smirnov Test Statistic					0.177				95% Percentile Bootstrap UCL		6466
253	Kolmogorov-Smirnov 5% Critical Value					0.188				95% BCA Bootstrap UCL		8581
254	**Data follow Appr. Gamma Distribution at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		10819
255										97.5% Chebyshev(Mean, Sd) UCL		14032
256	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		20344
257	95% Approximate Gamma UCL					6605						
258	95% Adjusted Gamma UCL					6925						
259												
260	**Potential UCL to Use**									Use 95% Adjusted Gamma UCL		6925
261												
262												
263	**Bis(2-ethylhexyl) phthalate**											
264												
265	**General Statistics**											

266					Number of Valid Data	25					Number of Detected Data	9
267					Number of Distinct Detected Data	9					Number of Non-Detect Data	16
268											Percent Non-Detects	64.00%
269												
270	**Raw Statistics**						**Log-transformed Statistics**					
271					Minimum Detected	40					Minimum Detected	3.689
272					Maximum Detected	520					Maximum Detected	6.254
273					Mean of Detected	153.3					Mean of Detected	4.656
274					SD of Detected	163.4					SD of Detected	0.849
275					Minimum Non-Detect	20					Minimum Non-Detect	2.996
276					Maximum Non-Detect	200					Maximum Non-Detect	5.298
277												
278	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	23
279	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
280	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.00%
281												
282	**Warning: There are only 9 Detected Values in this data**											
283	**Note: It should be noted that even though bootstrap may be performed on this data set**											
284	**the resulting calculations may not be reliable enough tp draw conclusions**											
285												
286	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
287												
288												
289	**UCL Statistics**											
290	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
291					Shapiro Wilk Test Statistic	0.695					Shapiro Wilk Test Statistic	0.853
292					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
293	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
294												
295	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
296					DL/2 Substitution Method						DL/2 Substitution Method	
297					Mean	83.34					Mean	3.866
298					SD	111.8					SD	1.073
299					95% DL/2 (t) UCL	121.6					95% H-Stat (DL/2) UCL	119.8
300												
301					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
302	**MLE method failed to converge properly**										Mean in Log Scale	3.577
303											SD in Log Scale	1.046
304											Mean in Original Scale	69.36
305											SD in Original Scale	114.5
306											95% Percentile Bootstrap UCL	111.3
307											95% BCA Bootstrap UCL	130.9
308												
309	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
310					k star (bias corrected)	1.056	**Data appear Lognormal at 5% Significance Level**					
311					Theta Star	145.2						
312					nu star	19.01						
313												
314					A-D Test Statistic	0.951	**Nonparametric Statistics**					
315					5% A-D Critical Value	0.735	Kaplan-Meier (KM) Method					
316					K-S Test Statistic	0.735					Mean	84.98
317					5% K-S Critical Value	0.284					SD	106.5
318	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	22.77

319											95% KM (t) UCL	123.9
320	**Assuming Gamma Distribution**										95% KM (z) UCL	122.4
321	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	117.7
322	Minimum	40									95% KM (bootstrap t) UCL	215.6
323	Maximum	520									95% KM (BCA) UCL	141.9
324	Mean	179.1									95% KM (Percentile Bootstrap) UCL	127.4
325	Median	153.8									95% KM (Chebyshev) UCL	184.2
326	SD	116.1									97.5% KM (Chebyshev) UCL	227.2
327	k star	2.331									99% KM (Chebyshev) UCL	311.5
328	Theta star	76.82										
329	Nu star	116.6									**Potential UCLs to Use**	
330	AppChi2	92.65									95% KM (t) UCL	123.9
331	95% Gamma Approximate UCL	225.4									95% KM (% Bootstrap) UCL	127.4
332	95% Adjusted Gamma UCL	228.9										
333	**Note: DL/2 is not a recommended method.**											
334												
335												
336	**Dibenzo(a,h)anthracene**											
337												
338	**General Statistics**											
339	Number of Valid Observations	25									Number of Distinct Observations	22
340												
341	**Raw Statistics**										**Log-transformed Statistics**	
342	Minimum	0.22									Minimum of Log Data	-1.514
343	Maximum	6500									Maximum of Log Data	8.78
344	Mean	710.4									Mean of log Data	4.789
345	Median	150									SD of log Data	2.306
346	SD	1467										
347	Coefficient of Variation	2.064										
348	Skewness	3.141										
349												
350	**Relevant UCL Statistics**											
351	**Normal Distribution Test**										**Lognormal Distribution Test**	
352	Shapiro Wilk Test Statistic	0.533									Shapiro Wilk Test Statistic	0.963
353	Shapiro Wilk Critical Value	0.918									Shapiro Wilk Critical Value	0.918
354	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
355												
356	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
357	95% Student's-t UCL	1212									95% H-UCL	14093
358	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	4565
359	95% Adjusted-CLT UCL	1390									97.5% Chebyshev (MVUE) UCL	5997
360	95% Modified-t UCL	1243									99% Chebyshev (MVUE) UCL	8809
361												
362	**Gamma Distribution Test**										**Data Distribution**	
363	k star (bias corrected)	0.356									**Data appear Gamma Distributed at 5% Significance Level**	
364	Theta Star	1996										
365	nu star	17.8										
366	Approximate Chi Square Value (.05)	9.247									**Nonparametric Statistics**	
367	Adjusted Level of Significance	0.0395									95% CLT UCL	1193
368	Adjusted Chi Square Value	8.827									95% Jackknife UCL	1212
369											95% Standard Bootstrap UCL	1190
370	Anderson-Darling Test Statistic	0.684									95% Bootstrap-t UCL	2044
371	Anderson-Darling 5% Critical Value	0.835									95% Hall's Bootstrap UCL	2777

372				Kolmogorov-Smirnov Test Statistic	0.158					95% Percentile Bootstrap UCL	1232	
373				Kolmogorov-Smirnov 5% Critical Value	0.188					95% BCA Bootstrap UCL	1393	
374				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1989	
375										97.5% Chebyshev(Mean, Sd) UCL	2542	
376				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3629	
377				95% Approximate Gamma UCL	1368							
378				95% Adjusted Gamma UCL	1433							
379												
380				**Potential UCL to Use**						Use 95% Adjusted Gamma UCL	1433	
381												
382												
383	**Indeno(1,2,3-cd)pyrene**											
384												
385				**General Statistics**								
386				Number of Valid Observations	25					Number of Distinct Observations	23	
387												
388				**Raw Statistics**						**Log-transformed Statistics**		
389				Minimum	0.9					Minimum of Log Data	-0.105	
390				Maximum	31000					Maximum of Log Data	10.34	
391				Mean	3033					Mean of log Data	6.285	
392				Median	640					SD of log Data	2.251	
393				SD	6620							
394				Coefficient of Variation	2.182							
395				Skewness	3.588							
396												
397				**Relevant UCL Statistics**								
398				**Normal Distribution Test**						**Lognormal Distribution Test**		
399				Shapiro Wilk Test Statistic	0.497					Shapiro Wilk Test Statistic	0.963	
400				Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918	
401				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
402												
403				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
404				95% Student's-t UCL	5299					95% H-UCL	50687	
405				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	18071	
406				95% Adjusted-CLT UCL	6227					97.5% Chebyshev (MVUE) UCL	23698	
407				95% Modified-t UCL	5457					99% Chebyshev (MVUE) UCL	34753	
408												
409				**Gamma Distribution Test**						**Data Distribution**		
410				k star (bias corrected)	0.363					**Data appear Gamma Distributed at 5% Significance Level**		
411				Theta Star	8349							
412				nu star	18.17							
413				Approximate Chi Square Value (.05)	9.512					**Nonparametric Statistics**		
414				Adjusted Level of Significance	0.0395					95% CLT UCL	5211	
415				Adjusted Chi Square Value	9.085					95% Jackknife UCL	5299	
416										95% Standard Bootstrap UCL	5183	
417				Anderson-Darling Test Statistic	0.694					95% Bootstrap-t UCL	9526	
418				Anderson-Darling 5% Critical Value	0.833					95% Hall's Bootstrap UCL	13465	
419				Kolmogorov-Smirnov Test Statistic	0.165					95% Percentile Bootstrap UCL	5477	
420				Kolmogorov-Smirnov 5% Critical Value	0.187					95% BCA Bootstrap UCL	6673	
421				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	8805	
422										97.5% Chebyshev(Mean, Sd) UCL	11302	
423				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	16207	
424				95% Approximate Gamma UCL	5794							

425				95% Adjusted Gamma UCL	6066							
426												
427	**Potential UCL to Use**									Use 95% Adjusted Gamma UCL	6066	
428												
429												
430	**Lead**											
431												
432	**General Statistics**											
433	Number of Valid Observations				25					Number of Distinct Observations	24	
434												
435	**Raw Statistics**							**Log-transformed Statistics**				
436	Minimum				2.64			Minimum of Log Data			0.971	
437	Maximum				1670			Maximum of Log Data			7.421	
438	Mean				155.4			Mean of log Data			3.485	
439	Median				22			SD of log Data			1.703	
440	SD				368.7							
441	Coefficient of Variation				2.373							
442	Skewness				3.513							
443												
444	**Relevant UCL Statistics**											
445	**Normal Distribution Test**							**Lognormal Distribution Test**				
446	Shapiro Wilk Test Statistic				0.456			Shapiro Wilk Test Statistic			0.942	
447	Shapiro Wilk Critical Value				0.918			Shapiro Wilk Critical Value			0.918	
448	**Data not Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
449												
450	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
451	95% Student's-t UCL				281.5			95% H-UCL			470.7	
452	**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL			353.5	
453	95% Adjusted-CLT UCL				332			97.5% Chebyshev (MVUE) UCL			453.3	
454	95% Modified-t UCL				290.2			99% Chebyshev (MVUE) UCL			649.4	
455												
456	**Gamma Distribution Test**							**Data Distribution**				
457	k star (bias corrected)				0.395			**Data appear Lognormal at 5% Significance Level**				
458	Theta Star				393.4							
459	nu star				19.75							
460	Approximate Chi Square Value (.05)				10.66			**Nonparametric Statistics**				
461	Adjusted Level of Significance				0.0395			95% CLT UCL			276.7	
462	Adjusted Chi Square Value				10.21			95% Jackknife UCL			281.5	
463								95% Standard Bootstrap UCL			271.3	
464	Anderson-Darling Test Statistic				1.923			95% Bootstrap-t UCL			650.3	
465	Anderson-Darling 5% Critical Value				0.825			95% Hall's Bootstrap UCL			774.1	
466	Kolmogorov-Smirnov Test Statistic				0.248			95% Percentile Bootstrap UCL			285.2	
467	Kolmogorov-Smirnov 5% Critical Value				0.187			95% BCA Bootstrap UCL			350.9	
468	**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL			476.8	
469								97.5% Chebyshev(Mean, Sd) UCL			615.9	
470	**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL			889.1	
471	95% Approximate Gamma UCL				287.7							
472	95% Adjusted Gamma UCL				300.5							
473												
474	**Potential UCL to Use**							Use 95% Chebyshev (MVUE) UCL			353.5	
475												
476												
477	**Mercury**											

478												
479					**General Statistics**							
480					Number of Valid Observations	25				Number of Distinct Observations	23	
481												
482					**Raw Statistics**					**Log-transformed Statistics**		
483					Minimum	0.009				Minimum of Log Data	-4.711	
484					Maximum	0.119				Maximum of Log Data	-2.129	
485					Mean	0.0632				Mean of log Data	-2.923	
486					Median	0.07				SD of log Data	0.672	
487					SD	0.0288						
488					Coefficient of Variation	0.457						
489					Skewness	-0.307						
490												
491					**Relevant UCL Statistics**							
492					**Normal Distribution Test**					**Lognormal Distribution Test**		
493					Shapiro Wilk Test Statistic	0.966				Shapiro Wilk Test Statistic	0.832	
494					Shapiro Wilk Critical Value	0.918				Shapiro Wilk Critical Value	0.918	
495					**Data appear Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
496												
497					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
498					95% Student's-t UCL	0.073				95% H-UCL	0.0901	
499					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	0.108	
500					95% Adjusted-CLT UCL	0.0723				97.5% Chebyshev (MVUE) UCL	0.127	
501					95% Modified-t UCL	0.073				99% Chebyshev (MVUE) UCL	0.162	
502												
503					**Gamma Distribution Test**					**Data Distribution**		
504					k star (bias corrected)	2.895				**Data appear Normal at 5% Significance Level**		
505					Theta Star	0.0218						
506					nu star	144.7						
507					Approximate Chi Square Value (.05)	117.9				**Nonparametric Statistics**		
508					Adjusted Level of Significance	0.0395				95% CLT UCL	0.0726	
509					Adjusted Chi Square Value	116.3				95% Jackknife UCL	0.073	
510										95% Standard Bootstrap UCL	0.0723	
511					Anderson-Darling Test Statistic	1.071				95% Bootstrap-t UCL	0.0723	
512					Anderson-Darling 5% Critical Value	0.751				95% Hall's Bootstrap UCL	0.072	
513					Kolmogorov-Smirnov Test Statistic	0.196				95% Percentile Bootstrap UCL	0.0726	
514					Kolmogorov-Smirnov 5% Critical Value	0.176				95% BCA Bootstrap UCL	0.0719	
515					**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	0.0883	
516										97.5% Chebyshev(Mean, Sd) UCL	0.0992	
517					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	0.121	
518					95% Approximate Gamma UCL	0.0775						
519					95% Adjusted Gamma UCL	0.0786						
520												
521					**Potential UCL to Use**					Use 95% Student's-t UCL	0.073	
522												
523												
524	**Naphthalene**											
525												
526					**General Statistics**							
527					Number of Valid Data	25				Number of Detected Data	22	
528					Number of Distinct Detected Data	22				Number of Non-Detect Data	3	
529										Percent Non-Detects	12.00%	
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Raw Statistics**						**Log-transformed Statistics**					
532	Minimum Detected					0.27	Minimum Detected					-1.309
533	Maximum Detected					1700	Maximum Detected					7.438
534	Mean of Detected					165	Mean of Detected					3.888
535	SD of Detected					354.8	SD of Detected					1.869
536	Minimum Non-Detect					9.6	Minimum Non-Detect					2.262
537	Maximum Non-Detect					19	Maximum Non-Detect					2.944
538												
539	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					8
540	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					17
541	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					32.00%
542												
543	**UCL Statistics**											
544	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
545	Shapiro Wilk Test Statistic					0.432	Shapiro Wilk Test Statistic					0.93
546	5% Shapiro Wilk Critical Value					0.911	5% Shapiro Wilk Critical Value					0.911
547	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
548												
549	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
550	DL/2 Substitution Method						DL/2 Substitution Method					
551	Mean					146.1	Mean					3.665
552	SD					336	SD					1.858
553	95% DL/2 (t) UCL					261.1	95% H-Stat (DL/2) UCL					779.9
554												
555	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
556	Mean					44.99	Mean in Log Scale					3.559
557	SD					422	SD in Log Scale					1.981
558	95% MLE (t) UCL					189.4	Mean in Original Scale					145.6
559	95% MLE (Tiku) UCL					197.3	SD in Original Scale					336.2
560							95% Percentile Bootstrap UCL					277
561							95% BCA Bootstrap UCL					356.3
562												
563	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
564	k star (bias corrected)					0.478	**Data appear Gamma Distributed at 5% Significance Level**					
565	Theta Star					344.9						
566	nu star					21.05						
567												
568	A-D Test Statistic					0.575	**Nonparametric Statistics**					
569	5% A-D Critical Value					0.803	Kaplan-Meier (KM) Method					
570	K-S Test Statistic					0.803	Mean					145.7
571	5% K-S Critical Value					0.196	SD					329.4
572	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					67.42
573							95% KM (t) UCL					261.1
574	**Assuming Gamma Distribution**						95% KM (z) UCL					256.6
575	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					260.7
576	Minimum					1E-09	95% KM (bootstrap t) UCL					534.4
577	Maximum					1700	95% KM (BCA) UCL					288.6
578	Mean					145.2	95% KM (Percentile Bootstrap) UCL					270.1
579	Median					48	95% KM (Chebyshev) UCL					439.6
580	SD					336.4	97.5% KM (Chebyshev) UCL					566.8
581	k star					0.189	99% KM (Chebyshev) UCL					816.6
582	Theta star					768.6						
583	Nu star					9.444	**Potential UCLs to Use**					

584					AppChi2	3.597				95% KM (Chebyshev) UCL		439.6
585					95% Gamma Approximate UCL	381.1						
586					95% Adjusted Gamma UCL	408.7						
587	**Note: DL/2 is not a recommended method.**											
588												
589												
590	**Thallium**											
591												
592						**General Statistics**						
593					Number of Valid Data	6				Number of Detected Data		5
594					Number of Distinct Detected Data	5				Number of Non-Detect Data		1
595					Number of Missing Values	19				Percent Non-Detects		16.67%
596												
597					**Raw Statistics**					**Log-transformed Statistics**		
598					Minimum Detected	8				Minimum Detected		2.079
599					Maximum Detected	23				Maximum Detected		3.135
600					Mean of Detected	14.6				Mean of Detected		2.588
601					SD of Detected	6.95				SD of Detected		0.482
602					Minimum Non-Detect	6				Minimum Non-Detect		1.792
603					Maximum Non-Detect	6				Maximum Non-Detect		1.792
604												
605												
606						**Warning: There are only 5 Detected Values in this data**							
607						**Note: It should be noted that even though bootstrap may be performed on this data set**							
608						**the resulting calculations may not be reliable enough tp draw conclusions**							
609												
610						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
611												
612												
613						**UCL Statistics**							
614					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
615					Shapiro Wilk Test Statistic	0.857				Shapiro Wilk Test Statistic		0.883
616					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
617					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
618												
619					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
620					DL/2 Substitution Method					DL/2 Substitution Method		
621					Mean	12.67				Mean		2.34
622					SD	7.815				SD		0.746
623					95% DL/2 (t) UCL	19.1				95% H-Stat (DL/2) UCL		32.37
624												
625					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
626					Mean	12.47				Mean in Log Scale		2.385
627					SD	7.548				SD in Log Scale		0.659
628					95% MLE (t) UCL	18.68				Mean in Original Scale		12.82
629					95% MLE (Tiku) UCL	18.75				SD in Original Scale		7.591
630										95% Percentile Bootstrap UCL		17.5
631										95% BCA Bootstrap UCL		17.67
632												
633					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
634					k star (bias corrected)	2.355				**Data appear Normal at 5% Significance Level**		
635					Theta Star	6.199						
636					nu star	23.55						

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638					A-D Test Statistic	0.429	**Nonparametric Statistics**					
639					5% A-D Critical Value	0.681					Kaplan-Meier (KM) Method	
640					K-S Test Statistic	0.681					Mean	13.5
641					5% K-S Critical Value	0.358					SD	6.185
642	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	2.823
643											95% KM (t) UCL	19.19
644	**Assuming Gamma Distribution**										95% KM (z) UCL	18.14
645				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	19.05
646					Minimum	5.269					95% KM (bootstrap t) UCL	26.73
647					Maximum	23					95% KM (BCA) UCL	18.33
648					Mean	13.04					95% KM (Percentile Bootstrap) UCL	18.17
649					Median	10.5					95% KM (Chebyshev) UCL	25.8
650					SD	7.29					97.5% KM (Chebyshev) UCL	31.13
651					k star	2.049					99% KM (Chebyshev) UCL	41.59
652					Theta star	6.365						
653					Nu star	24.59	**Potential UCLs to Use**					
654					AppChi2	14.3					95% KM (t) UCL	19.19
655					95% Gamma Approximate UCL	22.43					95% KM (Percentile Bootstrap) UCL	18.17
656					95% Adjusted Gamma UCL	27.73						
657	**Note: DL/2 is not a recommended method.**											
658												
659												
660	**Total Aroclors**											
661												
662					**General Statistics**							
663					Number of Valid Data	19					Number of Detected Data	15
664					Number of Distinct Detected Data	15					Number of Non-Detect Data	4
665					Number of Missing Values	4					Percent Non-Detects	21.05%
666												
667	**Raw Statistics**						**Log-transformed Statistics**					
668					Minimum Detected	16					Minimum Detected	2.773
669					Maximum Detected	83.5					Maximum Detected	4.425
670					Mean of Detected	41.45					Mean of Detected	3.629
671					SD of Detected	18.37					SD of Detected	0.464
672					Minimum Non-Detect	10					Minimum Non-Detect	2.303
673					Maximum Non-Detect	39					Maximum Non-Detect	3.664
674												
675	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
676	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	9
677	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	52.63%
678												
679	**UCL Statistics**											
680	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
681					Shapiro Wilk Test Statistic	0.951					Shapiro Wilk Test Statistic	0.97
682					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
683	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
684												
685	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
686					DL/2 Substitution Method						DL/2 Substitution Method	
687					Mean	34.54					Mean	3.275
688					SD	21.46					SD	0.86
689					95% DL/2 (t) UCL	43.08					95% H-Stat (DL/2) UCL	43

690												
691				Maximum Likelihood Estimate(MLE) Method							Log ROS Method	
692				Mean		36.38					Mean in Log Scale	3.429
693				SD		20.24					SD in Log Scale	0.582
694				95% MLE (t) UCL		44.43					Mean in Original Scale	35.88
695				95% MLE (Tiku) UCL		46.65					SD in Original Scale	19.71
696											95% Percentile Bootstrap UCL	43.24
697											95% BCA Bootstrap UCL	43.89
698												
699				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
700				k star (bias corrected)		4.364					**Data appear Normal at 5% Significance Level**	
701				Theta Star		9.498						
702				nu star		130.9						
703												
704				A-D Test Statistic		0.189					**Nonparametric Statistics**	
705				5% A-D Critical Value		0.738					Kaplan-Meier (KM) Method	
706				K-S Test Statistic		0.738					Mean	36.4
707				5% K-S Critical Value		0.222					SD	18.66
708				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	4.447
709											95% KM (t) UCL	44.11
710				**Assuming Gamma Distribution**							95% KM (z) UCL	43.72
711				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	43.94
712				Minimum		7.636					95% KM (bootstrap t) UCL	46.08
713				Maximum		83.5					95% KM (BCA) UCL	44.93
714				Mean		37.07					95% KM (Percentile Bootstrap) UCL	44.72
715				Median		35.51					95% KM (Chebyshev) UCL	55.79
716				SD		19.01					97.5% KM (Chebyshev) UCL	64.17
717				k star		3.166					99% KM (Chebyshev) UCL	80.65
718				Theta star		11.71						
719				Nu star		120.3					**Potential UCLs to Use**	
720				AppChi2		96					95% KM (t) UCL	44.11
721				95% Gamma Approximate UCL		46.46					95% KM (Percentile Bootstrap) UCL	44.72
722				95% Adjusted Gamma UCL		47.4						
723	**Note: DL/2 is not a recommended method.**											
724												
725												
726	**Total DDT**											
727												
728							**General Statistics**					
729				Number of Valid Data		20					Number of Detected Data	13
730				Number of Distinct Detected Data		12					Number of Non-Detect Data	7
731				Number of Missing Values		3					Percent Non-Detects	35.00%
732												
733				**Raw Statistics**							**Log-transformed Statistics**	
734				Minimum Detected		0.875					Minimum Detected	-0.134
735				Maximum Detected		31.43					Maximum Detected	3.448
736				Mean of Detected		7.295					Mean of Detected	1.526
737				SD of Detected		8.407					SD of Detected	0.972
738				Minimum Non-Detect		0.4					Minimum Non-Detect	-0.916
739				Maximum Non-Detect		1.9					Maximum Non-Detect	0.642
740												
741	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	9
742	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	11

743	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	45.00%
744												
745	**UCL Statistics**											
746	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
747	Shapiro Wilk Test Statistic					0.706	Shapiro Wilk Test Statistic					0.961
748	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
749	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
750												
751	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
752	DL/2 Substitution Method						DL/2 Substitution Method					
753	Mean					4.863	Mean					0.554
754	SD					7.499	SD					1.599
755	95% DL/2 (t) UCL					7.762	95% H-Stat (DL/2) UCL					11.35
756												
757	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
758	Mean					1.59	Mean in Log Scale					0.704
759	SD					10.65	SD in Log Scale					1.407
760	95% MLE (t) UCL					5.708	Mean in Original Scale					4.908
761	95% MLE (Tiku) UCL					6.431	SD in Original Scale					7.469
762							95% Percentile Bootstrap UCL					7.735
763							95% BCA Bootstrap UCL					8.847
764												
765	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
766	k star (bias corrected)					0.993	**Data appear Gamma Distributed at 5% Significance Level**					
767	Theta Star					7.35						
768	nu star					25.81						
769												
770	A-D Test Statistic					0.593	**Nonparametric Statistics**					
771	5% A-D Critical Value					0.754	Kaplan-Meier (KM) Method					
772	K-S Test Statistic					0.754	Mean					5.053
773	5% K-S Critical Value					0.242	SD					7.193
774	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.674
775							95% KM (t) UCL					7.948
776	**Assuming Gamma Distribution**						95% KM (z) UCL					7.807
777	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					7.72
778	Minimum					1E-09	95% KM (bootstrap t) UCL					11.31
779	Maximum					31.43	95% KM (BCA) UCL					8.694
780	Mean					5.5	95% KM (Percentile Bootstrap) UCL					8.057
781	Median					2.82	95% KM (Chebyshev) UCL					12.35
782	SD					7.205	97.5% KM (Chebyshev) UCL					15.51
783	k star					0.388	99% KM (Chebyshev) UCL					21.71
784	Theta star					14.17						
785	Nu star					15.52	**Potential UCLs to Use**					
786	AppChi2					7.627	95% KM (BCA) UCL					8.694
787	95% Gamma Approximate UCL					11.19						
788	95% Adjusted Gamma UCL					11.87						
789	**Note: DL/2 is not a recommended method.**											
790												

1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM4.5W.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Arsenic											
10												
11	General Statistics											
12	Number of Valid Data			41			Number of Detected Data			37		
13	Number of Distinct Detected Data			35			Number of Non-Detect Data			4		
14	Number of Missing Values			3			Percent Non-Detects			9.76%		
15												
16	Raw Statistics						Log-transformed Statistics					
17	Minimum Detected			1.54			Minimum Detected			0.432		
18	Maximum Detected			12.5			Maximum Detected			2.526		
19	Mean of Detected			3.715			Mean of Detected			1.232		
20	SD of Detected			1.82			SD of Detected			0.388		
21	Minimum Non-Detect			5			Minimum Non-Detect			1.609		
22	Maximum Non-Detect			5			Maximum Non-Detect			1.609		
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
27	Shapiro Wilk Test Statistic			0.698			Shapiro Wilk Test Statistic			0.925		
28	5% Shapiro Wilk Critical Value			0.936			5% Shapiro Wilk Critical Value			0.936		
29	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
30												
31	Assuming Normal Distribution						Assuming Lognormal Distribution					
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean			3.596			Mean			1.201		
34	SD			1.765			SD			0.38		
35	95% DL/2 (t) UCL			4.061			95% H-Stat (DL/2) UCL			3.823		
36												
37	Maximum Likelihood Estimate(MLE) Method			N/A			Log ROS Method					
38	MLE yields a negative mean						Mean in Log Scale			1.226		
39							SD in Log Scale			0.374		
40							Mean in Original Scale			3.673		
41							SD in Original Scale			1.745		
42							95% Percentile Bootstrap UCL			4.149		
43							95% BCA Bootstrap UCL			4.324		
44												
45	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
46	k star (bias corrected)			5.886			Data do not follow a Discernable Distribution (0.05)					
47	Theta Star			0.631								
48	nu star			435.6								
49												
50	A-D Test Statistic			1.239			Nonparametric Statistics					
51	5% A-D Critical Value			0.75			Kaplan-Meier (KM) Method					
52	K-S Test Statistic			0.75			Mean			3.671		
53	5% K-S Critical Value			0.145			SD			1.729		

54	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.277
55											95% KM (t) UCL	4.138
56	**Assuming Gamma Distribution**										95% KM (z) UCL	4.127
57	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	4.137
58	Minimum	1.54									95% KM (bootstrap t) UCL	4.44
59	Maximum	12.5									95% KM (BCA) UCL	4.152
60	Mean	3.725									95% KM (Percentile Bootstrap) UCL	4.161
61	Median	3.626									95% KM (Chebyshev) UCL	4.879
62	SD	1.741									97.5% KM (Chebyshev) UCL	5.401
63	k star	6.409									99% KM (Chebyshev) UCL	6.427
64	Theta star	0.581										
65	Nu star	525.5									**Potential UCLs to Use**	
66	AppChi2	473.4									95% KM (Chebyshev) UCL	4.879
67	95% Gamma Approximate UCL	4.135										
68	95% Adjusted Gamma UCL	4.151										
69	**Note: DL/2 is not a recommended method.**											
70												
71												
72	**Benzo(a)anthracene**											
73												
74	**General Statistics**											
75	Number of Valid Data	42									Number of Detected Data	42
76	Number of Distinct Detected Data	36									Number of Non-Detect Data	0
77	Number of Missing Values	2									Percent Non-Detects	0.00%
78												
79	**Raw Statistics**										**Log-transformed Statistics**	
80	Minimum Detected	1.9									Minimum Detected	0.642
81	Maximum Detected	5100									Maximum Detected	8.537
82	Mean of Detected	551.9									Mean of Detected	5.197
83	SD of Detected	1044									SD of Detected	1.516
84	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
85	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
86												
87												
88	**UCL Statistics**											
89	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
90	Shapiro Wilk Test Statistic	0.532									Shapiro Wilk Test Statistic	0.906
91	5% Shapiro Wilk Critical Value	0.942									5% Shapiro Wilk Critical Value	0.942
92	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
93												
94	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
95	DL/2 Substitution Method										DL/2 Substitution Method	
96	Mean	551.9									Mean	5.197
97	SD	1044									SD	1.516
98	95% DL/2 (t) UCL	823									95% H-Stat (DL/2) UCL	1151
99												
100	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
101	**MLE method failed to converge properly**										Mean in Log Scale	N/A
102											SD in Log Scale	N/A
103											Mean in Original Scale	N/A
104											SD in Original Scale	N/A
105											95% Percentile Bootstrap UCL	N/A
106											95% BCA Bootstrap UCL	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
109					k star (bias corrected)	0.535	**Data do not follow a Discernable Distribution (0.05)**					
110					Theta Star	1031						
111					nu star	44.95						
112												
113					A-D Test Statistic	3.196	**Nonparametric Statistics**					
114					5% A-D Critical Value	0.808				Kaplan-Meier (KM) Method		
115					K-S Test Statistic	0.808				Mean		551.9
116					5% K-S Critical Value	0.144				SD		1031
117	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		161.1
118										95% KM (t) UCL		823
119	**Assuming Gamma Distribution**									95% KM (z) UCL		816.9
120				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		823
121					Minimum	1.9				95% KM (bootstrap t) UCL		998
122					Maximum	5100				95% KM (BCA) UCL		841.8
123					Mean	551.9				95% KM (Percentile Bootstrap) UCL		836.5
124					Median	160				95% KM (Chebyshev) UCL		1254
125					SD	1044				97.5% KM (Chebyshev) UCL		1558
126					k star	0.535				99% KM (Chebyshev) UCL		2155
127					Theta star	1031						
128					Nu star	44.95	**Potential UCLs to Use**					
129					AppChi2	30.57				97.5% KM (Chebyshev) UCL		1558
130				95% Gamma Approximate UCL		811.5						
131				95% Adjusted Gamma UCL		822.9						
132	**Note: DL/2 is not a recommended method.**											
133												
134												
135	**Benzo(a)pyrene**											
136												
137							**General Statistics**					
138					Number of Valid Data	42				Number of Detected Data		42
139					Number of Distinct Detected Data	29				Number of Non-Detect Data		0
140					Number of Missing Values	2				Percent Non-Detects		0.00%
141												
142	**Raw Statistics**						**Log-transformed Statistics**					
143					Minimum Detected	2.8				Minimum Detected		1.03
144					Maximum Detected	7500				Maximum Detected		8.923
145					Mean of Detected	759.1				Mean of Detected		5.538
146					SD of Detected	1452				SD of Detected		1.511
147					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
148					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
149												
150												
151							**UCL Statistics**					
152	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
153					Shapiro Wilk Test Statistic	0.528				Shapiro Wilk Test Statistic		0.915
154					5% Shapiro Wilk Critical Value	0.942				5% Shapiro Wilk Critical Value		0.942
155	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
156												
157	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
158					DL/2 Substitution Method					DL/2 Substitution Method		
159					Mean	759.1				Mean		5.538

160					SD	1452					SD	1.511
161					95% DL/2 (t) UCL	1136					95% H-Stat (DL/2) UCL	1600
162												
163					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
164					**MLE method failed to converge properly**						Mean in Log Scale	N/A
165											SD in Log Scale	N/A
166											Mean in Original Scale	N/A
167											SD in Original Scale	N/A
168											95% Percentile Bootstrap UCL	N/A
169											95% BCA Bootstrap UCL	N/A
170												
171					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
172					k star (bias corrected)	0.544					**Data do not follow a Discernable Distribution (0.05)**	
173					Theta Star	1395						
174					nu star	45.72						
175												
176					A-D Test Statistic	2.78					**Nonparametric Statistics**	
177					5% A-D Critical Value	0.807					Kaplan-Meier (KM) Method	
178					K-S Test Statistic	0.807					Mean	759.1
179					5% K-S Critical Value	0.144					SD	1435
180					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	224.1
181											95% KM (t) UCL	1136
182					**Assuming Gamma Distribution**						95% KM (z) UCL	1128
183					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1136
184					Minimum	2.8					95% KM (bootstrap t) UCL	1462
185					Maximum	7500					95% KM (BCA) UCL	1186
186					Mean	759.1					95% KM (Percentile Bootstrap) UCL	1133
187					Median	210					95% KM (Chebyshev) UCL	1736
188					SD	1452					97.5% KM (Chebyshev) UCL	2158
189					k star	0.544					99% KM (Chebyshev) UCL	2989
190					Theta star	1395						
191					Nu star	45.72					**Potential UCLs to Use**	
192					AppChi2	31.21					97.5% KM (Chebyshev) UCL	2158
193					95% Gamma Approximate UCL	1112						
194					95% Adjusted Gamma UCL	1128						
195	**Note: DL/2 is not a recommended method.**											
196												
197												
198	**Benzo(b)fluoranthene**											
199												
200						**General Statistics**						
201					Number of Valid Data	42					Number of Detected Data	42
202					Number of Distinct Detected Data	36					Number of Non-Detect Data	0
203					Number of Missing Values	2					Percent Non-Detects	0.00%
204												
205					**Raw Statistics**						**Log-transformed Statistics**	
206					Minimum Detected	2.5					Minimum Detected	0.916
207					Maximum Detected	6500					Maximum Detected	8.78
208					Mean of Detected	659.7					Mean of Detected	5.452
209					SD of Detected	1243					SD of Detected	1.494
210					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
211					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**UCL Statistics**											
215	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
216					Shapiro Wilk Test Statistic	0.525				Shapiro Wilk Test Statistic		0.914
217					5% Shapiro Wilk Critical Value	0.942				5% Shapiro Wilk Critical Value		0.942
218	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
219												
220	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
221					DL/2 Substitution Method					DL/2 Substitution Method		
222					Mean	659.7				Mean		5.452
223					SD	1243				SD		1.494
224					95% DL/2 (t) UCL	982.5				95% H-Stat (DL/2) UCL		1414
225												
226					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
227	**MLE method failed to converge properly**									Mean in Log Scale		N/A
228										SD in Log Scale		N/A
229										Mean in Original Scale		N/A
230										SD in Original Scale		N/A
231										95% Percentile Bootstrap UCL		N/A
232										95% BCA Bootstrap UCL		N/A
233												
234	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
235					k star (bias corrected)	0.568	**Data do not follow a Discernable Distribution (0.05)**					
236					Theta Star	1161						
237					nu star	47.73						
238												
239					A-D Test Statistic	2.409	**Nonparametric Statistics**					
240					5% A-D Critical Value	0.804				Kaplan-Meier (KM) Method		
241					K-S Test Statistic	0.804				Mean		659.7
242					5% K-S Critical Value	0.143				SD		1228
243	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		191.8
244										95% KM (t) UCL		982.5
245	**Assuming Gamma Distribution**									95% KM (z) UCL		975.2
246					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		982.5
247					Minimum	2.5				95% KM (bootstrap t) UCL		1277
248					Maximum	6500				95% KM (BCA) UCL		1037
249					Mean	659.7				95% KM (Percentile Bootstrap) UCL		994.4
250					Median	235				95% KM (Chebyshev) UCL		1496
251					SD	1243				97.5% KM (Chebyshev) UCL		1858
252					k star	0.568				99% KM (Chebyshev) UCL		2568
253					Theta star	1161						
254					Nu star	47.73	**Potential UCLs to Use**					
255					AppChi2	32.87				95% KM (Chebyshev) UCL		1496
256					95% Gamma Approximate UCL	957.9						
257					95% Adjusted Gamma UCL	970.8						
258	**Note: DL/2 is not a recommended method.**											
259												
260												
261	**Benzo(k)fluoranthene**											
262												
263	**General Statistics**											
264					Number of Valid Data	42				Number of Detected Data		42
265					Number of Distinct Detected Data	31				Number of Non-Detect Data		0

266	Number of Missing Values					2	Percent Non-Detects					0.00%
267												
268	**Raw Statistics**						**Log-transformed Statistics**					
269	Minimum Detected					2	Minimum Detected					0.693
270	Maximum Detected					2300	Maximum Detected					7.741
271	Mean of Detected					290.8	Mean of Detected					4.776
272	SD of Detected					496.4	SD of Detected					1.38
273	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
274	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
275												
276												
277	**UCL Statistics**											
278	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
279	Shapiro Wilk Test Statistic					0.549	Shapiro Wilk Test Statistic					0.909
280	5% Shapiro Wilk Critical Value					0.942	5% Shapiro Wilk Critical Value					0.942
281	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
282												
283	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
284	DL/2 Substitution Method						DL/2 Substitution Method					
285	Mean					290.8	Mean					4.776
286	SD					496.4	SD					1.38
287	95% DL/2 (t) UCL					419.7	95% H-Stat (DL/2) UCL					561.1
288												
289	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
290	**MLE method failed to converge properly**						Mean in Log Scale					N/A
291							SD in Log Scale					N/A
292							Mean in Original Scale					N/A
293							SD in Original Scale					N/A
294							95% Percentile Bootstrap UCL					N/A
295							95% BCA Bootstrap UCL					N/A
296												
297	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
298	k star (bias corrected)					0.645	**Data do not follow a Discernable Distribution (0.05)**					
299	Theta Star					450.9						
300	nu star					54.18						
301												
302	A-D Test Statistic					2.675	**Nonparametric Statistics**					
303	5% A-D Critical Value					0.796	Kaplan-Meier (KM) Method					
304	K-S Test Statistic					0.796	Mean					290.8
305	5% K-S Critical Value					0.142	SD					490.5
306	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					76.6
307							95% KM (t) UCL					419.7
308	**Assuming Gamma Distribution**						95% KM (z) UCL					416.8
309	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					419.7
310	Minimum					2	95% KM (bootstrap t) UCL					518.5
311	Maximum					2300	95% KM (BCA) UCL					426.1
312	Mean					290.8	95% KM (Percentile Bootstrap) UCL					417.5
313	Median					110	95% KM (Chebyshev) UCL					624.7
314	SD					496.4	97.5% KM (Chebyshev) UCL					769.2
315	k star					0.645	99% KM (Chebyshev) UCL					1053
316	Theta star					450.9						
317	Nu star					54.18	**Potential UCLs to Use**					
318	AppChi2					38.26	95% KM (Chebyshev) UCL					624.7

	A	B	C	D	E	F	G	H	I	J	K	L
319				95% Gamma Approximate UCL		411.7						
320				95% Adjusted Gamma UCL		416.9						
321	**Note: DL/2 is not a recommended method.**											
322												
323												
324	**Bis(2-ethylhexyl) phthalate**											
325												
326					**General Statistics**							
327				Number of Valid Data		38			Number of Detected Data			11
328				Number of Distinct Detected Data		11			Number of Non-Detect Data			27
329				Number of Missing Values		6			Percent Non-Detects			71.05%
330												
331				**Raw Statistics**					**Log-transformed Statistics**			
332				Minimum Detected		42			Minimum Detected			3.738
333				Maximum Detected		230			Maximum Detected			5.438
334				Mean of Detected		92			Mean of Detected			4.35
335				SD of Detected		64.6			SD of Detected			0.574
336				Minimum Non-Detect		6.7			Minimum Non-Detect			1.902
337				Maximum Non-Detect		190			Maximum Non-Detect			5.247
338												
339	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			36
340	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			2
341	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			94.74%
342												
343					**UCL Statistics**							
344				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
345				Shapiro Wilk Test Statistic		0.73			Shapiro Wilk Test Statistic			0.844
346				5% Shapiro Wilk Critical Value		0.85			5% Shapiro Wilk Critical Value			0.85
347				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
348												
349				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
350				DL/2 Substitution Method					DL/2 Substitution Method			
351				Mean		49.54			Mean			3.458
352				SD		48.84			SD			1.015
353				95% DL/2 (t) UCL		62.9			95% H-Stat (DL/2) UCL			64.48
354												
355				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
356				**MLE method failed to converge properly**					Mean in Log Scale			3.388
357									SD in Log Scale			0.737
358									Mean in Original Scale			41.57
359									SD in Original Scale			47.23
360									95% Percentile Bootstrap UCL			54.59
361									95% BCA Bootstrap UCL			59.29
362												
363				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
364				k star (bias corrected)		2.285			**Data do not follow a Discernable Distribution (0.05)**			
365				Theta Star		40.26						
366				nu star		50.28						
367												
368				A-D Test Statistic		1.015			**Nonparametric Statistics**			
369				5% A-D Critical Value		0.733			Kaplan-Meier (KM) Method			
370				K-S Test Statistic		0.733			Mean			58.2
371				5% K-S Critical Value		0.257			SD			40.18

372	Data not Gamma Distributed at 5% Significance Level										SE of Mean	6.955
373											95% KM (t) UCL	69.93
374	Assuming Gamma Distribution										95% KM (z) UCL	69.64
375	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	67.86
376	Minimum	42									95% KM (bootstrap t) UCL	82
377	Maximum	230									95% KM (BCA) UCL	76.79
378	Mean	94.11									95% KM (Percentile Bootstrap) UCL	73.43
379	Median	92.19									95% KM (Chebyshev) UCL	88.51
380	SD	33.88									97.5% KM (Chebyshev) UCL	101.6
381	k star	9.21									99% KM (Chebyshev) UCL	127.4
382	Theta star	10.22										
383	Nu star	699.9									Potential UCLs to Use	
384	AppChi2	639.5									95% KM (t) UCL	69.93
385	95% Gamma Approximate UCL	103									95% KM (% Bootstrap) UCL	73.43
386	95% Adjusted Gamma UCL	103.4										
387	Note: DL/2 is not a recommended method.											
388												
389												
390	Dibenzo(a,h)anthracene											
391												
392	General Statistics											
393	Number of Valid Data	42									Number of Detected Data	40
394	Number of Distinct Detected Data	32									Number of Non-Detect Data	2
395	Number of Missing Values	2									Percent Non-Detects	4.76%
396												
397	Raw Statistics										Log-transformed Statistics	
398	Minimum Detected	0.54									Minimum Detected	-0.616
399	Maximum Detected	590									Maximum Detected	6.38
400	Mean of Detected	88.31									Mean of Detected	3.434
401	SD of Detected	154.9									SD of Detected	1.513
402	Minimum Non-Detect	19									Minimum Non-Detect	2.944
403	Maximum Non-Detect	19									Maximum Non-Detect	2.944
404												
405												
406	UCL Statistics											
407	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
408	Shapiro Wilk Test Statistic	0.55									Shapiro Wilk Test Statistic	0.931
409	5% Shapiro Wilk Critical Value	0.94									5% Shapiro Wilk Critical Value	0.94
410	Data not Normal at 5% Significance Level										Data not Lognormal at 5% Significance Level	
411												
412	Assuming Normal Distribution										Assuming Lognormal Distribution	
413	DL/2 Substitution Method										DL/2 Substitution Method	
414	Mean	84.56									Mean	3.378
415	SD	152									SD	1.498
416	95% DL/2 (t) UCL	124									95% H-Stat (DL/2) UCL	158.1
417												
418	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
419	Mean	43.17									Mean in Log Scale	3.353
420	SD	190.9									SD in Log Scale	1.523
421	95% MLE (t) UCL	92.73									Mean in Original Scale	84.39
422	95% MLE (Tiku) UCL	95.06									SD in Original Scale	152.1
423											95% Percentile Bootstrap UCL	123.6
424											95% BCA Bootstrap UCL	137.3

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
427	k star (bias corrected)					0.564	**Data do not follow a Discernable Distribution (0.05)**					
428	Theta Star					156.6						
429	nu star					45.11						
430												
431	A-D Test Statistic					2.426	**Nonparametric Statistics**					
432	5% A-D Critical Value					0.804	Kaplan-Meier (KM) Method					
433	K-S Test Statistic					0.804	Mean					84.52
434	5% K-S Critical Value					0.147	SD					150.2
435	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					23.47
436							95% KM (t) UCL					124
437	**Assuming Gamma Distribution**						95% KM (z) UCL					123.1
438	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					124
439	Minimum					1E-09	95% KM (bootstrap t) UCL					142.2
440	Maximum					590	95% KM (BCA) UCL					127.9
441	Mean					84.11	95% KM (Percentile Bootstrap) UCL					125.9
442	Median					27	95% KM (Chebyshev) UCL					186.8
443	SD					152.2	97.5% KM (Chebyshev) UCL					231.1
444	k star					0.311	99% KM (Chebyshev) UCL					318.1
445	Theta star					270.3						
446	Nu star					26.14	**Potential UCLs to Use**					
447	AppChi2					15.48	97.5% KM (Chebyshev) UCL					231.1
448	95% Gamma Approximate UCL					142						
449	95% Adjusted Gamma UCL					144.7						
450	**Note: DL/2 is not a recommended method.**											
451												
452												
453	**Dieldrin**											
454												
455	**General Statistics**											
456	Number of Valid Data					17	Number of Detected Data					10
457	Number of Distinct Detected Data					10	Number of Non-Detect Data					7
458	Number of Missing Values					21	Percent Non-Detects					41.18%
459												
460	**Raw Statistics**						**Log-transformed Statistics**					
461	Minimum Detected					0.0653	Minimum Detected					-2.729
462	Maximum Detected					0.391	Maximum Detected					-0.939
463	Mean of Detected					0.181	Mean of Detected					-1.853
464	SD of Detected					0.105	SD of Detected					0.558
465	Minimum Non-Detect					0.051	Minimum Non-Detect					-2.976
466	Maximum Non-Detect					0.369	Maximum Non-Detect					-0.997
467												
468	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					16
469	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
470	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					94.12%
471												
472	**UCL Statistics**											
473	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
474	Shapiro Wilk Test Statistic					0.858	Shapiro Wilk Test Statistic					0.956
475	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842
476	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
479	DL/2 Substitution Method						DL/2 Substitution Method					
480	Mean					0.133	Mean					-2.328
481	SD					0.104	SD					0.868
482	95% DL/2 (t) UCL					0.178	95% H-Stat (DL/2) UCL					0.156
483												
484	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
485	**MLE method failed to converge properly**						Mean in Log Scale					-2.243
486							SD in Log Scale					0.669
487							Mean in Original Scale					0.133
488							SD in Original Scale					0.0995
489							95% Percentile Bootstrap UCL					0.173
490							95% BCA Bootstrap UCL					0.185
491												
492	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
493	k star (bias corrected)					2.657	**Data appear Normal at 5% Significance Level**					
494	Theta Star					0.0679						
495	nu star					53.15						
496												
497	A-D Test Statistic					0.353	**Nonparametric Statistics**					
498	5% A-D Critical Value					0.73	Kaplan-Meier (KM) Method					
499	K-S Test Statistic					0.73	Mean					0.14
500	5% K-S Critical Value					0.268	SD					0.0942
501	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0248
502							95% KM (t) UCL					0.184
503	**Assuming Gamma Distribution**						95% KM (z) UCL					0.181
504	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.181
505	Minimum					0.0653	95% KM (bootstrap t) UCL					0.207
506	Maximum					0.391	95% KM (BCA) UCL					0.198
507	Mean					0.169	95% KM (Percentile Bootstrap) UCL					0.188
508	Median					0.149	95% KM (Chebyshev) UCL					0.248
509	SD					0.088	97.5% KM (Chebyshev) UCL					0.295
510	k star					3.834	99% KM (Chebyshev) UCL					0.387
511	Theta star					0.044						
512	Nu star					130.4	**Potential UCLs to Use**					
513	AppChi2					105	95% KM (t) UCL					0.184
514	95% Gamma Approximate UCL					0.209	95% KM (Percentile Bootstrap) UCL					0.188
515	95% Adjusted Gamma UCL					0.214						
516	**Note: DL/2 is not a recommended method.**											
517												
518												
519	**Indeno(1,2,3-cd)pyrene**											
520												
521	**General Statistics**											
522	Number of Valid Data					42	Number of Detected Data					42
523	Number of Distinct Detected Data					38	Number of Non-Detect Data					0
524	Number of Missing Values					2	Percent Non-Detects					0.00%
525												
526	**Raw Statistics**						**Log-transformed Statistics**					
527	Minimum Detected					2.5	Minimum Detected					0.916
528	Maximum Detected					5900	Maximum Detected					8.683
529	Mean of Detected					594.8	Mean of Detected					5.304
530	SD of Detected					1115	SD of Detected					1.52

	A	B	C	D	E	F	G	H	I	J	K	L
531					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
532					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
533												
534												
535	**UCL Statistics**											
536	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
537					Shapiro Wilk Test Statistic	0.539					Shapiro Wilk Test Statistic	0.925
538					5% Shapiro Wilk Critical Value	0.942					5% Shapiro Wilk Critical Value	0.942
539	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
540												
541	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
542					DL/2 Substitution Method						DL/2 Substitution Method	
543					Mean	594.8					Mean	5.304
544					SD	1115					SD	1.52
545					95% DL/2 (t) UCL	884.2					95% H-Stat (DL/2) UCL	1293
546												
547					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
548	**MLE method failed to converge properly**										Mean in Log Scale	N/A
549											SD in Log Scale	N/A
550											Mean in Original Scale	N/A
551											SD in Original Scale	N/A
552											95% Percentile Bootstrap UCL	N/A
553											95% BCA Bootstrap UCL	N/A
554												
555	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
556					k star (bias corrected)	0.549	**Data do not follow a Discernable Distribution (0.05)**					
557					Theta Star	1084						
558					nu star	46.09						
559												
560					A-D Test Statistic	2.272	**Nonparametric Statistics**					
561					5% A-D Critical Value	0.806					Kaplan-Meier (KM) Method	
562					K-S Test Statistic	0.806					Mean	594.8
563					5% K-S Critical Value	0.144					SD	1101
564	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	172
565											95% KM (t) UCL	884.2
566	**Assuming Gamma Distribution**										95% KM (z) UCL	877.7
567					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	884.2
568					Minimum	2.5					95% KM (bootstrap t) UCL	1119
569					Maximum	5900					95% KM (BCA) UCL	926.4
570					Mean	594.8					95% KM (Percentile Bootstrap) UCL	901.4
571					Median	180					95% KM (Chebyshev) UCL	1345
572					SD	1115					97.5% KM (Chebyshev) UCL	1669
573					k star	0.549					99% KM (Chebyshev) UCL	2306
574					Theta star	1084						
575					Nu star	46.09	**Potential UCLs to Use**					
576					AppChi2	31.52					97.5% KM (Chebyshev) UCL	1669
577					95% Gamma Approximate UCL	869.9						
578					95% Adjusted Gamma UCL	881.9						
579	**Note: DL/2 is not a recommended method.**											
580												
581												
582	**Lead**											
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584	**General Statistics**											
585	Number of Valid Data					41	Number of Detected Data					41
586	Number of Distinct Detected Data					38	Number of Non-Detect Data					0
587	Number of Missing Values					3	Percent Non-Detects					0.00%
588												
589	**Raw Statistics**						**Log-transformed Statistics**					
590	Minimum Detected					2.75	Minimum Detected					1.012
591	Maximum Detected					330	Maximum Detected					5.799
592	Mean of Detected					28.47	Mean of Detected					2.895
593	SD of Detected					50.63	SD of Detected					0.819
594	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
595	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
596												
597												
598	**UCL Statistics**											
599	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
600	Shapiro Wilk Test Statistic					0.374	Shapiro Wilk Test Statistic					0.907
601	5% Shapiro Wilk Critical Value					0.941	5% Shapiro Wilk Critical Value					0.941
602	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
603												
604	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
605	DL/2 Substitution Method						DL/2 Substitution Method					
606	Mean					28.47	Mean					2.895
607	SD					50.63	SD					0.819
608	95% DL/2 (t) UCL					41.78	95% H-Stat (DL/2) UCL					33.46
609												
610	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
611	**MLE method failed to converge properly**						Mean in Log Scale					N/A
612							SD in Log Scale					N/A
613							Mean in Original Scale					N/A
614							SD in Original Scale					N/A
615							95% Percentile Bootstrap UCL					N/A
616							95% BCA Bootstrap UCL					N/A
617												
618	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
619	k star (bias corrected)					1.167	**Data do not follow a Discernable Distribution (0.05)**					
620	Theta Star					24.39						
621	nu star					95.71						
622												
623	A-D Test Statistic					3.283	**Nonparametric Statistics**					
624	5% A-D Critical Value					0.772	Kaplan-Meier (KM) Method					
625	K-S Test Statistic					0.772	Mean					28.47
626	5% K-S Critical Value					0.141	SD					50.01
627	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					7.907
628							95% KM (t) UCL					41.78
629	**Assuming Gamma Distribution**						95% KM (z) UCL					41.47
630	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					41.78
631	Minimum					2.75	95% KM (bootstrap t) UCL					70.27
632	Maximum					330	95% KM (BCA) UCL					41.6
633	Mean					28.47	95% KM (Percentile Bootstrap) UCL					43.2
634	Median					16.4	95% KM (Chebyshev) UCL					62.93
635	SD					50.63	97.5% KM (Chebyshev) UCL					77.85
636	k star					1.167	99% KM (Chebyshev) UCL					107.1

637					Theta star	24.39						
638					Nu star	95.71		**Potential UCLs to Use**				
639					AppChi2	74.14				95% KM (Chebyshev) UCL		62.93
640				95% Gamma Approximate UCL		36.75						
641				95% Adjusted Gamma UCL		37.09						
642	**Note: DL/2 is not a recommended method.**											
643												
644												
645	**Mercury**											
646												
647					**General Statistics**							
648					Number of Valid Data	38				Number of Detected Data		36
649					Number of Distinct Detected Data	25				Number of Non-Detect Data		2
650					Number of Missing Values	6				Percent Non-Detects		5.26%
651												
652				**Raw Statistics**				**Log-transformed Statistics**				
653					Minimum Detected	0.008				Minimum Detected		-4.828
654					Maximum Detected	0.74				Maximum Detected		-0.301
655					Mean of Detected	0.0892				Mean of Detected		-2.793
656					SD of Detected	0.122				SD of Detected		0.805
657					Minimum Non-Detect	0.008				Minimum Non-Detect		-4.828
658					Maximum Non-Detect	0.07				Maximum Non-Detect		-2.659
659												
660	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		22
661	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		16
662	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		57.89%
663												
664					**UCL Statistics**							
665				**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**				
666					Shapiro Wilk Test Statistic	0.47				Shapiro Wilk Test Statistic		0.933
667					5% Shapiro Wilk Critical Value	0.935				5% Shapiro Wilk Critical Value		0.935
668				**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**				
669												
670				**Assuming Normal Distribution**				**Assuming Lognormal Distribution**				
671					DL/2 Substitution Method					DL/2 Substitution Method		
672					Mean	0.0855				Mean		-2.879
673					SD	0.12				SD		0.902
674					95% DL/2 (t) UCL	0.118				95% H-Stat (DL/2) UCL		0.111
675												
676					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
677				**MLE yields a negative mean**						Mean in Log Scale		-2.857
678										SD in Log Scale		0.846
679										Mean in Original Scale		0.0857
680										SD in Original Scale		0.12
681										95% Percentile Bootstrap UCL		0.123
682										95% BCA Bootstrap UCL		0.139
683												
684				**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**				
685					k star (bias corrected)	1.371		**Data do not follow a Discernable Distribution (0.05)**				
686					Theta Star	0.065						
687					nu star	98.73						
688												
689					A-D Test Statistic	2.075		**Nonparametric Statistics**				

690					5% A-D Critical Value	0.767				Kaplan-Meier (KM) Method		
691					K-S Test Statistic	0.767				Mean		0.0858
692					5% K-S Critical Value	0.15				SD		0.118
693	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0195
694										95% KM (t) UCL		0.119
695	**Assuming Gamma Distribution**									95% KM (z) UCL		0.118
696	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.118
697					Minimum	1E-09				95% KM (bootstrap t) UCL		0.177
698					Maximum	0.74				95% KM (BCA) UCL		0.123
699					Mean	0.0858				95% KM (Percentile Bootstrap) UCL		0.12
700					Median	0.06				95% KM (Chebyshev) UCL		0.171
701					SD	0.12				97.5% KM (Chebyshev) UCL		0.207
702					k star	0.696				99% KM (Chebyshev) UCL		0.28
703					Theta star	0.123						
704					Nu star	52.91				**Potential UCLs to Use**		
705					AppChi2	37.2				95% KM (Chebyshev) UCL		0.171
706					95% Gamma Approximate UCL	0.122						
707					95% Adjusted Gamma UCL	0.124						
708	**Note: DL/2 is not a recommended method.**											
709												
710												
711	**Naphthalene**											
712												
713						**General Statistics**						
714					Number of Valid Data	42				Number of Detected Data		35
715					Number of Distinct Detected Data	29				Number of Non-Detect Data		7
716					Number of Missing Values	2				Percent Non-Detects		16.67%
717												
718					**Raw Statistics**					**Log-transformed Statistics**		
719					Minimum Detected	12				Minimum Detected		2.485
720					Maximum Detected	1400				Maximum Detected		7.244
721					Mean of Detected	196.1				Mean of Detected		4.208
722					SD of Detected	362.6				SD of Detected		1.333
723					Minimum Non-Detect	0.43				Minimum Non-Detect		-0.844
724					Maximum Non-Detect	13				Maximum Non-Detect		2.565
725												
726	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		9
727	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		33
728	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		21.43%
729												
730						**UCL Statistics**						
731	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
732					Shapiro Wilk Test Statistic	0.537				Shapiro Wilk Test Statistic		0.888
733					5% Shapiro Wilk Critical Value	0.934				5% Shapiro Wilk Critical Value		0.934
734	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
735												
736	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
737					DL/2 Substitution Method					DL/2 Substitution Method		
738					Mean	163.7				Mean		3.464
739					SD	338.2				SD		2.158
740					95% DL/2 (t) UCL	251.6				95% H-Stat (DL/2) UCL		704.9
741												
742					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		

743					Mean	105.4				Mean in Log Scale		3.726
744					SD	391.3				SD in Log Scale		1.633
745					95% MLE (t) UCL	207				Mean in Original Scale		164
746					95% MLE (Tiku) UCL	205.5				SD in Original Scale		338.1
747										95% Percentile Bootstrap UCL		255.3
748										95% BCA Bootstrap UCL		273.8
749												
750			**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**		
751					k star (bias corrected)	0.549				**Data do not follow a Discernable Distribution (0.05)**		
752					Theta Star	356.9						
753					nu star	38.46						
754												
755					A-D Test Statistic	3.3				**Nonparametric Statistics**		
756					5% A-D Critical Value	0.804				Kaplan-Meier (KM) Method		
757					K-S Test Statistic	0.804				Mean		165.4
758					5% K-S Critical Value	0.156				SD		333.4
759			**Data not Gamma Distributed at 5% Significance Level**							SE of Mean		52.2
760										95% KM (t) UCL		253.2
761			**Assuming Gamma Distribution**							95% KM (z) UCL		251.3
762			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		253
763					Minimum	1E-09				95% KM (bootstrap t) UCL		307.1
764					Maximum	1400				95% KM (BCA) UCL		265.5
765					Mean	163.4				95% KM (Percentile Bootstrap) UCL		260
766					Median	43.5				95% KM (Chebyshev) UCL		392.9
767					SD	338.4				97.5% KM (Chebyshev) UCL		491.4
768					k star	0.157				99% KM (Chebyshev) UCL		684.8
769					Theta star	1040						
770					Nu star	13.2				**Potential UCLs to Use**		
771					AppChi2	6.025				95% KM (Chebyshev) UCL		392.9
772					95% Gamma Approximate UCL	357.9						
773					95% Adjusted Gamma UCL	368.5						
774	**Note: DL/2 is not a recommended method.**											
775												
776												
777	**Thallium**											
778												
779						**General Statistics**						
780					Number of Valid Data	12				Number of Detected Data		12
781					Number of Distinct Detected Data	11				Number of Non-Detect Data		0
782					Number of Missing Values	32				Percent Non-Detects		0.00%
783												
784			**Raw Statistics**							**Log-transformed Statistics**		
785					Minimum Detected	0.026				Minimum Detected		-3.65
786					Maximum Detected	23				Maximum Detected		3.135
787					Mean of Detected	9.029				Mean of Detected		-0.0534
788					SD of Detected	10.17				SD of Detected		3.049
789					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
790					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
791												
792												
793						**UCL Statistics**						
794			**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**		
795					Shapiro Wilk Test Statistic	0.761				Shapiro Wilk Test Statistic		0.758

796					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
797	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
798												
799	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
800					DL/2 Substitution Method						DL/2 Substitution Method	
801					Mean	9.029					Mean	-0.0534
802					SD	10.17					SD	3.049
803					95% DL/2 (t) UCL	14.3					95% H-Stat (DL/2) UCL	81216
804												
805					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
806	**MLE method failed to converge properly**										Mean in Log Scale	N/A
807											SD in Log Scale	N/A
808											Mean in Original Scale	N/A
809											SD in Original Scale	N/A
810											95% Percentile Bootstrap UCL	N/A
811											95% BCA Bootstrap UCL	N/A
812												
813	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
814					k star (bias corrected)	0.284	**Data do not follow a Discernable Distribution (0.05)**					
815					Theta Star	31.75						
816					nu star	6.825						
817												
818					A-D Test Statistic	1.39	**Nonparametric Statistics**					
819					5% A-D Critical Value	0.823					Kaplan-Meier (KM) Method	
820					K-S Test Statistic	0.823					Mean	9.029
821					5% K-S Critical Value	0.265					SD	9.737
822	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	2.936
823											95% KM (t) UCL	14.3
824	**Assuming Gamma Distribution**										95% KM (z) UCL	13.86
825					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	14.3
826					Minimum	0.026					95% KM (bootstrap t) UCL	14.75
827					Maximum	23					95% KM (BCA) UCL	13.52
828					Mean	9.029					95% KM (Percentile Bootstrap) UCL	13.6
829					Median	5.048					95% KM (Chebyshev) UCL	21.83
830					SD	10.17					97.5% KM (Chebyshev) UCL	27.36
831					k star	0.284					99% KM (Chebyshev) UCL	38.24
832					Theta star	31.75						
833					Nu star	6.825	**Potential UCLs to Use**					
834					AppChi2	2.075					99% KM (Chebyshev) UCL	38.24
835					95% Gamma Approximate UCL	29.7						
836					95% Adjusted Gamma UCL	36.26						
837	**Warning: Recommended UCL exceeds the maximum observation**											
838	**Note: DL/2 is not a recommended method.**											
839												
840												
841	**Total Aroclors**											
842												
843	**General Statistics**											
844					Number of Valid Data	24					Number of Detected Data	15
845					Number of Distinct Detected Data	15					Number of Non-Detect Data	9
846					Number of Missing Values	16					Percent Non-Detects	37.50%
847												
848	**Raw Statistics**						**Log-transformed Statistics**					

849					Minimum Detected	15					Minimum Detected	2.708
850					Maximum Detected	131.5					Maximum Detected	4.879
851					Mean of Detected	36.8					Mean of Detected	3.442
852					SD of Detected	28.37					SD of Detected	0.532
853					Minimum Non-Detect	1.7					Minimum Non-Detect	0.531
854					Maximum Non-Detect	38					Maximum Non-Detect	3.638
855												
856	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	20
857	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
858	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.33%
859												
860	**UCL Statistics**											
861	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
862					Shapiro Wilk Test Statistic	0.635					Shapiro Wilk Test Statistic	0.902
863					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
864	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
865												
866	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
867					DL/2 Substitution Method						DL/2 Substitution Method	
868					Mean	24.54					Mean	2.468
869					SD	27.62					SD	1.476
870					95% DL/2 (t) UCL	34.21					95% H-Stat (DL/2) UCL	42.79
871												
872					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
873	**MLE yields a negative mean**										Mean in Log Scale	3.017
874											SD in Log Scale	0.706
875											Mean in Original Scale	26.85
876											SD in Original Scale	25.77
877											95% Percentile Bootstrap UCL	35.88
878											95% BCA Bootstrap UCL	39.74
879												
880	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
881					k star (bias corrected)	2.618	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
882					Theta Star	14.06						
883					nu star	78.55						
884												
885					A-D Test Statistic	0.866	**Nonparametric Statistics**					
886					5% A-D Critical Value	0.744					Kaplan-Meier (KM) Method	
887					K-S Test Statistic	0.744					Mean	28.87
888					5% K-S Critical Value	0.223					SD	24.03
889	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	5.086
890											95% KM (t) UCL	37.59
891	**Assuming Gamma Distribution**										95% KM (z) UCL	37.24
892					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	36.66
893					Minimum	15					95% KM (bootstrap t) UCL	46.05
894					Maximum	131.5					95% KM (BCA) UCL	41.22
895					Mean	31.46					95% KM (Percentile Bootstrap) UCL	38.37
896					Median	22.68					95% KM (Chebyshev) UCL	51.04
897					SD	23.91					97.5% KM (Chebyshev) UCL	60.64
898					k star	3.116					99% KM (Chebyshev) UCL	79.48
899					Theta star	10.1						
900					Nu star	149.6	**Potential UCLs to Use**					
901					AppChi2	122.3					95% KM (Percentile Bootstrap) UCL	38.37

	A	B	C	D	E	F	G	H	I	J	K	L
902					95% Gamma Approximate UCL	38.48						
903					95% Adjusted Gamma UCL	39.03						
904	**Note: DL/2 is not a recommended method.**											
905												
906												
907	**Total DDT**											
908												
909						**General Statistics**							
910					Number of Valid Data	23			Number of Detected Data			17
911					Number of Distinct Detected Data	17			Number of Non-Detect Data			6
912					Number of Missing Values	17			Percent Non-Detects			26.09%
913												
914			**Raw Statistics**						**Log-transformed Statistics**			
915					Minimum Detected	0.117			Minimum Detected			-2.146
916					Maximum Detected	49.97			Maximum Detected			3.911
917					Mean of Detected	5.981			Mean of Detected			0.514
918					SD of Detected	12.5			SD of Detected			1.568
919					Minimum Non-Detect	0.0555			Minimum Non-Detect			-2.891
920					Maximum Non-Detect	2.1			Maximum Non-Detect			0.742
921												
922	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			18
923	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			5
924	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			78.26%
925												
926						**UCL Statistics**							
927			**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**			
928					Shapiro Wilk Test Statistic	0.505			Shapiro Wilk Test Statistic			0.943
929					5% Shapiro Wilk Critical Value	0.892			5% Shapiro Wilk Critical Value			0.892
930			**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
931												
932			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
933					DL/2 Substitution Method				DL/2 Substitution Method			
934					Mean	4.524			Mean			-0.116
935					SD	10.95			SD			1.893
936					95% DL/2 (t) UCL	8.445			95% H-Stat (DL/2) UCL			16.06
937												
938					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
939			**MLE yields a negative mean**						Mean in Log Scale			-0.156
940									SD in Log Scale			1.838
941									Mean in Original Scale			4.475
942									SD in Original Scale			10.97
943									95% Percentile Bootstrap UCL			8.679
944									95% BCA Bootstrap UCL			11.07
945												
946			**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**			
947					k star (bias corrected)	0.45			**Data appear Lognormal at 5% Significance Level**			
948					Theta Star	13.3						
949					nu star	15.29						
950												
951					A-D Test Statistic	1.384			**Nonparametric Statistics**			
952					5% A-D Critical Value	0.798			Kaplan-Meier (KM) Method			
953					K-S Test Statistic	0.798			Mean			4.509
954					5% K-S Critical Value	0.221			SD			10.72

955	Data not Gamma Distributed at 5% Significance Level										SE of Mean	2.303
956											95% KM (t) UCL	8.465
957	Assuming Gamma Distribution										95% KM (z) UCL	8.298
958	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	8.421
959	Minimum	0.117									95% KM (bootstrap t) UCL	21
960	Maximum	49.97									95% KM (BCA) UCL	9.179
961	Mean	5.321									95% KM (Percentile Bootstrap) UCL	8.436
962	Median	1.594									95% KM (Chebyshev) UCL	14.55
963	SD	10.73									97.5% KM (Chebyshev) UCL	18.89
964	k star	0.573									99% KM (Chebyshev) UCL	27.43
965	Theta star	9.281										
966	Nu star	26.38									Potential UCLs to Use	
967	AppChi2	15.67									99% KM (Chebyshev) UCL	27.43
968	95% Gamma Approximate UCL	8.958										
969	95% Adjusted Gamma UCL	9.313										
970	Note: DL/2 is not a recommended method.											
971												
972												
973	Total Dioxin-like PCBs											
974												
975	General Statistics											
976	Number of Valid Data	5									Number of Detected Data	5
977	Number of Distinct Detected Data	5									Number of Non-Detect Data	0
978	Number of Missing Values	19									Percent Non-Detects	0.00%
979												
980	Raw Statistics										Log-transformed Statistics	
981	Minimum Detected	781									Minimum Detected	6.661
982	Maximum Detected	16188									Maximum Detected	9.692
983	Mean of Detected	5521									Mean of Detected	8.109
984	SD of Detected	6216									SD of Detected	1.156
985	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
986	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
987												
988												
989	Warning: There are only 5 Detected Values in this data											
990	Note: It should be noted that even though bootstrap may be performed on this data set											
991	the resulting calculations may not be reliable enough tp draw conclusions											
992												
993	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
994												
995												
996	UCL Statistics											
997	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
998	Shapiro Wilk Test Statistic	0.798									Shapiro Wilk Test Statistic	0.987
999	5% Shapiro Wilk Critical Value	0.762									5% Shapiro Wilk Critical Value	0.762
1000	Data appear Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
1001												
1002	Assuming Normal Distribution										Assuming Lognormal Distribution	
1003	DL/2 Substitution Method										DL/2 Substitution Method	
1004	Mean	5521									Mean	8.109
1005	SD	6216									SD	1.156
1006	95% DL/2 (t) UCL	11447									95% H-Stat (DL/2) UCL	163587
1007												

1008	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1009	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1010							SD in Log Scale					N/A
1011							Mean in Original Scale					N/A
1012							SD in Original Scale					N/A
1013							95% Percentile Bootstrap UCL					N/A
1014							95% BCA Bootstrap UCL					N/A
1015												
1016	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1017	k star (bias corrected)					0.582	**Data appear Normal at 5% Significance Level**					
1018	Theta Star					9482						
1019	nu star					5.823						
1020												
1021	A-D Test Statistic					0.249	**Nonparametric Statistics**					
1022	5% A-D Critical Value					0.69	Kaplan-Meier (KM) Method					
1023	K-S Test Statistic					0.69	Mean					5521
1024	5% K-S Critical Value					0.364	SD					5559
1025	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					2780
1026							95% KM (t) UCL					11447
1027	**Assuming Gamma Distribution**						95% KM (z) UCL					10094
1028	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					11447
1029	Minimum					781	95% KM (bootstrap t) UCL					19042
1030	Maximum					16188	95% KM (BCA) UCL					10025
1031	Mean					5521	95% KM (Percentile Bootstrap) UCL					9322
1032	Median					3811	95% KM (Chebyshev) UCL					17638
1033	SD					6216	97.5% KM (Chebyshev) UCL					22881
1034	k star					0.582	99% KM (Chebyshev) UCL					33179
1035	Theta star					9482						
1036	Nu star					5.823	**Potential UCLs to Use**					
1037	AppChi2					1.55	95% KM (t) UCL					11447
1038	95% Gamma Approximate UCL					20742	95% KM (Percentile Bootstrap) UCL					9322
1039	95% Adjusted Gamma UCL					41311						
1040	**Note: DL/2 is not a recommended method.**											
1041												
1042												
1043	**Total PCB TEQ**											
1044												
1045	**General Statistics**											
1046	Number of Valid Data					5	Number of Detected Data					5
1047	Number of Distinct Detected Data					5	Number of Non-Detect Data					0
1048	Number of Missing Values					19	Percent Non-Detects					0.00%
1049												
1050	**Raw Statistics**						**Log-transformed Statistics**					
1051	Minimum Detected					0.481	Minimum Detected					-0.732
1052	Maximum Detected					3.305	Maximum Detected					1.196
1053	Mean of Detected					1.41	Mean of Detected					0.106
1054	SD of Detected					1.136	SD of Detected					0.759
1055	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
1056	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
1057												
1058												
1059	**Warning: There are only 5 Detected Values in this data**											
1060	**Note: It should be noted that even though bootstrap may be performed on this data set**											

	A	B	C	D	E	F	G	H	I	J	K	L
1061	the resulting calculations may not be reliable enough tp draw conclusions											
1062												
1063	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
1064												
1065												
1066	UCL Statistics											
1067	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1068	Shapiro Wilk Test Statistic					0.847	Shapiro Wilk Test Statistic					0.966
1069	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
1070	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1071												
1072	Assuming Normal Distribution						Assuming Lognormal Distribution					
1073	DL/2 Substitution Method						DL/2 Substitution Method					
1074	Mean					1.41	Mean					0.106
1075	SD					1.136	SD					0.759
1076	95% DL/2 (t) UCL					2.493	95% H-Stat (DL/2) UCL					6.504
1077												
1078	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1079	MLE method failed to converge properly						Mean in Log Scale					N/A
1080							SD in Log Scale					N/A
1081							Mean in Original Scale					N/A
1082							SD in Original Scale					N/A
1083							95% Percentile Bootstrap UCL					N/A
1084							95% BCA Bootstrap UCL					N/A
1085												
1086	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1087	k star (bias corrected)					1.036	Data appear Normal at 5% Significance Level					
1088	Theta Star					1.361						
1089	nu star					10.36						
1090												
1091	A-D Test Statistic					0.272	Nonparametric Statistics					
1092	5% A-D Critical Value					0.684	Kaplan-Meier (KM) Method					
1093	K-S Test Statistic					0.684	Mean					1.41
1094	5% K-S Critical Value					0.36	SD					1.016
1095	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.508
1096							95% KM (t) UCL					2.493
1097	Assuming Gamma Distribution						95% KM (z) UCL					2.245
1098	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.493
1099	Minimum					0.481	95% KM (bootstrap t) UCL					3.665
1100	Maximum					3.305	95% KM (BCA) UCL					2.232
1101	Mean					1.41	95% KM (Percentile Bootstrap) UCL					2.302
1102	Median					1.114	95% KM (Chebyshev) UCL					3.624
1103	SD					1.136	97.5% KM (Chebyshev) UCL					4.582
1104	k star					1.036	99% KM (Chebyshev) UCL					6.464
1105	Theta star					1.361						
1106	Nu star					10.36	Potential UCLs to Use					
1107	AppChi2					4.168	95% KM (t) UCL					2.493
1108	95% Gamma Approximate UCL					3.504	95% KM (Percentile Bootstrap) UCL					2.302
1109	95% Adjusted Gamma UCL					5.535						
1110	Note: DL/2 is not a recommended method.											
1111												
1112												
1113	Total PCB_Congeners											

1114												
1115	**General Statistics**											
1116					Number of Valid Data	5			Number of Detected Data	5		
1117					Number of Distinct Detected Data	5			Number of Non-Detect Data	0		
1118					Number of Missing Values	19			Percent Non-Detects	0.00%		
1119												
1120	**Raw Statistics**							**Log-transformed Statistics**				
1121					Minimum Detected	15201			Minimum Detected	9.629		
1122					Maximum Detected	160403			Maximum Detected	11.99		
1123					Mean of Detected	84982			Mean of Detected	11.01		
1124					SD of Detected	67421			SD of Detected	1.001		
1125					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
1126					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
1127												
1128												
1129	**Warning: There are only 5 Detected Values in this data**											
1130	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1131	**the resulting calculations may not be reliable enough tp draw conclusions**											
1132												
1133	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1134												
1135												
1136	**UCL Statistics**											
1137	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
1138					Shapiro Wilk Test Statistic	0.857			Shapiro Wilk Test Statistic	0.92		
1139					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value	0.762		
1140	**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
1141												
1142	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
1143					DL/2 Substitution Method				DL/2 Substitution Method			
1144					Mean	84982			Mean	11.01		
1145					SD	67421			SD	1.001		
1146					95% DL/2 (t) UCL	149260			95% H-Stat (DL/2) UCL	1163189		
1147												
1148					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1149	**MLE method failed to converge properly**								Mean in Log Scale	N/A		
1150									SD in Log Scale	N/A		
1151									Mean in Original Scale	N/A		
1152									SD in Original Scale	N/A		
1153									95% Percentile Bootstrap UCL	N/A		
1154									95% BCA Bootstrap UCL	N/A		
1155												
1156	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
1157					k star (bias corrected)	0.778		**Data appear Normal at 5% Significance Level**				
1158					Theta Star	109198						
1159					nu star	7.782						
1160												
1161					A-D Test Statistic	0.335		**Nonparametric Statistics**				
1162					5% A-D Critical Value	0.686			Kaplan-Meier (KM) Method			
1163					K-S Test Statistic	0.686			Mean	84982		
1164					5% K-S Critical Value	0.361			SD	60303		
1165	**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	30151		
1166									95% KM (t) UCL	149260		

1167	**Assuming Gamma Distribution**									95% KM (z) UCL		134577
1168	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		149260
1169	Minimum					15201				95% KM (bootstrap t) UCL		233316
1170	Maximum					160403				95% KM (BCA) UCL		128301
1171	Mean					84982				95% KM (Percentile Bootstrap) UCL		132318
1172	Median					61273				95% KM (Chebyshev) UCL		216409
1173	SD					67421				97.5% KM (Chebyshev) UCL		273278
1174	k star					0.778				99% KM (Chebyshev) UCL		384985
1175	Theta star					109198						
1176	Nu star					7.782				**Potential UCLs to Use**		
1177	AppChi2					2.61				95% KM (t) UCL		149260
1178	95% Gamma Approximate UCL					253429				95% KM (Percentile Bootstrap) UCL		132318
1179	95% Adjusted Gamma UCL					443255						
1180	**Note: DL/2 is not a recommended method.**											
1181												
1182												
1183	**Total PCBs, Adjusted**											
1184												
1185	**General Statistics**											
1186	Number of Valid Data					5				Number of Detected Data		5
1187	Number of Distinct Detected Data					5				Number of Non-Detect Data		0
1188	Number of Missing Values					19				Percent Non-Detects		0.00%
1189												
1190	**Raw Statistics**									**Log-transformed Statistics**		
1191	Minimum Detected					14420				Minimum Detected		9.576
1192	Maximum Detected					156592				Maximum Detected		11.96
1193	Mean of Detected					79461				Mean of Detected		10.94
1194	SD of Detected					63412				SD of Detected		0.994
1195	Minimum Non-Detect					N/A				Minimum Non-Detect		N/A
1196	Maximum Non-Detect					N/A				Maximum Non-Detect		N/A
1197												
1198												
1199	**Warning: There are only 5 Detected Values in this data**											
1200	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1201	**the resulting calculations may not be reliable enough tp draw conclusions**											
1202												
1203	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1204												
1205												
1206	**UCL Statistics**											
1207	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
1208	Shapiro Wilk Test Statistic					0.885				Shapiro Wilk Test Statistic		0.936
1209	5% Shapiro Wilk Critical Value					0.762				5% Shapiro Wilk Critical Value		0.762
1210	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
1211												
1212	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1213	DL/2 Substitution Method									DL/2 Substitution Method		
1214	Mean					79461				Mean		10.94
1215	SD					63412				SD		0.994
1216	95% DL/2 (t) UCL					139917				95% H-Stat (DL/2) UCL		1047831
1217												
1218	Maximum Likelihood Estimate(MLE) Method					N/A				Log ROS Method		
1219	**MLE method failed to converge properly**									Mean in Log Scale		N/A

	A	B	C	D	E	F	G	H	I	J	K	L
1220											SD in Log Scale	N/A
1221											Mean in Original Scale	N/A
1222											SD in Original Scale	N/A
1223											95% Percentile Bootstrap UCL	N/A
1224											95% BCA Bootstrap UCL	N/A
1225												
1226	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1227					k star (bias corrected)	0.782	**Data appear Normal at 5% Significance Level**					
1228					Theta Star	101584						
1229					nu star	7.822						
1230												
1231					A-D Test Statistic	0.295	**Nonparametric Statistics**					
1232					5% A-D Critical Value	0.686					Kaplan-Meier (KM) Method	
1233					K-S Test Statistic	0.686					Mean	79461
1234					5% K-S Critical Value	0.361					SD	56718
1235	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	28359
1236											95% KM (t) UCL	139917
1237	**Assuming Gamma Distribution**										95% KM (z) UCL	126107
1238					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	139917
1239					Minimum	14420					95% KM (bootstrap t) UCL	246749
1240					Maximum	156592					95% KM (BCA) UCL	120145
1241					Mean	79461					95% KM (Percentile Bootstrap) UCL	124151
1242					Median	56061					95% KM (Chebyshev) UCL	203074
1243					SD	63412					97.5% KM (Chebyshev) UCL	256561
1244					k star	0.782					99% KM (Chebyshev) UCL	361627
1245					Theta star	101584						
1246					Nu star	7.822					**Potential UCLs to Use**	
1247					AppChi2	2.632					95% KM (t) UCL	139917
1248					95% Gamma Approximate UCL	236111					95% KM (Percentile Bootstrap) UCL	124151
1249					95% Adjusted Gamma UCL	412128						
1250	**Note: DL/2 is not a recommended method.**											
1251												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM5.0E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12						Number of Valid Data	22			Number of Detected Data	20	
13						Number of Distinct Detected Data	20			Number of Non-Detect Data	2	
14										Percent Non-Detects	9.09%	
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	1.98			Minimum Detected	0.683	
18						Maximum Detected	6			Maximum Detected	1.792	
19						Mean of Detected	3.313			Mean of Detected	1.158	
20						SD of Detected	0.987			SD of Detected	0.29	
21						Minimum Non-Detect	5			Minimum Non-Detect	1.609	
22						Maximum Non-Detect	5			Maximum Non-Detect	1.609	
23												
24												
25						UCL Statistics						
26				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
27						Shapiro Wilk Test Statistic	0.937			Shapiro Wilk Test Statistic	0.971	
28						5% Shapiro Wilk Critical Value	0.905			5% Shapiro Wilk Critical Value	0.905	
29				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
30												
31				Assuming Normal Distribution						Assuming Lognormal Distribution		
32						DL/2 Substitution Method				DL/2 Substitution Method		
33						Mean	3.239			Mean	1.136	
34						SD	0.968			SD	0.285	
35						95% DL/2 (t) UCL	3.594			95% H-Stat (DL/2) UCL	3.631	
36												
37						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
38				MLE method failed to converge properly						Mean in Log Scale	1.155	
39										SD in Log Scale	0.279	
40										Mean in Original Scale	3.296	
41										SD in Original Scale	0.948	
42										95% Percentile Bootstrap UCL	3.648	
43										95% BCA Bootstrap UCL	3.661	
44												
45				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
46						k star (bias corrected)	10.71			Data appear Normal at 5% Significance Level		
47						Theta Star	0.309					
48						nu star	428.5					
49												
50						A-D Test Statistic	0.239			Nonparametric Statistics		
51						5% A-D Critical Value	0.742			Kaplan-Meier (KM) Method		
52						K-S Test Statistic	0.742			Mean	3.3	
53						5% K-S Critical Value	0.194			SD	0.946	

54	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.213
55										95% KM (t) UCL	3.667
56	**Assuming Gamma Distribution**									95% KM (z) UCL	3.651
57	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL	3.668
58	Minimum	1.98								95% KM (bootstrap t) UCL	3.705
59	Maximum	6								95% KM (BCA) UCL	3.67
60	Mean	3.324								95% KM (Percentile Bootstrap) UCL	3.643
61	Median	3.275								95% KM (Chebyshev) UCL	4.23
62	SD	0.945								97.5% KM (Chebyshev) UCL	4.633
63	k star	11.8								99% KM (Chebyshev) UCL	5.424
64	Theta star	0.282									
65	Nu star	519								**Potential UCLs to Use**	
66	AppChi2	467.2								95% KM (t) UCL	3.667
67	95% Gamma Approximate UCL	3.693								95% KM (Percentile Bootstrap) UCL	3.643
68	95% Adjusted Gamma UCL	3.722									
69	**Note: DL/2 is not a recommended method.**										
70											
71											
72	**Benzo(a)anthracene**										
73											
74	**General Statistics**										
75	Number of Valid Observations	22								Number of Distinct Observations	21
76											
77	**Raw Statistics**									**Log-transformed Statistics**	
78	Minimum	12.8								Minimum of Log Data	2.549
79	Maximum	990								Maximum of Log Data	6.898
80	Mean	213.7								Mean of log Data	4.735
81	Median	110.1								SD of log Data	1.162
82	SD	263									
83	Coefficient of Variation	1.231									
84	Skewness	1.919									
85											
86	**Relevant UCL Statistics**										
87	**Normal Distribution Test**									**Lognormal Distribution Test**	
88	Shapiro Wilk Test Statistic	0.723								Shapiro Wilk Test Statistic	0.98
89	Shapiro Wilk Critical Value	0.911								Shapiro Wilk Critical Value	0.911
90	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**	
91											
92	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**	
93	95% Student's-t UCL	310.2								95% H-UCL	451.2
94	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	479.6
95	95% Adjusted-CLT UCL	330.5								97.5% Chebyshev (MVUE) UCL	594.8
96	95% Modified-t UCL	314								99% Chebyshev (MVUE) UCL	821.2
97											
98	**Gamma Distribution Test**									**Data Distribution**	
99	k star (bias corrected)	0.829								**Data appear Gamma Distributed at 5% Significance Level**	
100	Theta Star	257.8									
101	nu star	36.48									
102	Approximate Chi Square Value (.05)	23.65								**Nonparametric Statistics**	
103	Adjusted Level of Significance	0.0386								95% CLT UCL	305.9
104	Adjusted Chi Square Value	22.88								95% Jackknife UCL	310.2
105										95% Standard Bootstrap UCL	303.4
106	Anderson-Darling Test Statistic	0.608								95% Bootstrap-t UCL	365

	A	B	C	D	E	F	G	H	I	J	K	L
107				Anderson-Darling 5% Critical Value		0.774				95% Hall's Bootstrap UCL		324.2
108				Kolmogorov-Smirnov Test Statistic		0.144				95% Percentile Bootstrap UCL		311.4
109				Kolmogorov-Smirnov 5% Critical Value		0.191				95% BCA Bootstrap UCL		332.4
110				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		458.1
111										97.5% Chebyshev(Mean, Sd) UCL		563.9
112				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		771.7
113				95% Approximate Gamma UCL		329.6						
114				95% Adjusted Gamma UCL		340.7						
115												
116				**Potential UCL to Use**						Use 95% Approximate Gamma UCL		329.6
117												
118												
119	**Benzo(a)pyrene**											
120												
121					**General Statistics**							
122				Number of Valid Observations		22				Number of Distinct Observations		21
123												
124				**Raw Statistics**						**Log-transformed Statistics**		
125				Minimum		16.4				Minimum of Log Data		2.797
126				Maximum		1900				Maximum of Log Data		7.55
127				Mean		298.1				Mean of log Data		4.976
128				Median		114				SD of log Data		1.178
129				SD		447.6						
130				Coefficient of Variation		1.502						
131				Skewness		2.691						
132												
133					**Relevant UCL Statistics**							
134				**Normal Distribution Test**						**Lognormal Distribution Test**		
135				Shapiro Wilk Test Statistic		0.614				Shapiro Wilk Test Statistic		0.972
136				Shapiro Wilk Critical Value		0.911				Shapiro Wilk Critical Value		0.911
137				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
138												
139				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
140				95% Student's-t UCL		462.3				95% H-UCL		594.8
141				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		626.8
142				95% Adjusted-CLT UCL		513.5				97.5% Chebyshev (MVUE) UCL		778.6
143				95% Modified-t UCL		471.4				99% Chebyshev (MVUE) UCL		1077
144												
145				**Gamma Distribution Test**						**Data Distribution**		
146				k star (bias corrected)		0.739				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
147				Theta Star		403.4						
148				nu star		32.51						
149				Approximate Chi Square Value (.05)		20.48				**Nonparametric Statistics**		
150				Adjusted Level of Significance		0.0386				95% CLT UCL		455
151				Adjusted Chi Square Value		19.77				95% Jackknife UCL		462.3
152										95% Standard Bootstrap UCL		450.3
153				Anderson-Darling Test Statistic		1.034				95% Bootstrap-t UCL		614.4
154				Anderson-Darling 5% Critical Value		0.78				95% Hall's Bootstrap UCL		543.8
155				Kolmogorov-Smirnov Test Statistic		0.178				95% Percentile Bootstrap UCL		464.3
156				Kolmogorov-Smirnov 5% Critical Value		0.192				95% BCA Bootstrap UCL		499.3
157				**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		714
158										97.5% Chebyshev(Mean, Sd) UCL		894
159				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		1248

160				95% Approximate Gamma UCL	473.2							
161				95% Adjusted Gamma UCL	490.3							
162												
163				**Potential UCL to Use**						**Use 95% Approximate Gamma UCL**		473.2
164												
165												
166	**Benzo(b)fluoranthene**											
167												
168				**General Statistics**								
169				Number of Valid Observations	22					Number of Distinct Observations		22
170												
171				**Raw Statistics**						**Log-transformed Statistics**		
172				Minimum	29.7					Minimum of Log Data		3.391
173				Maximum	1600					Maximum of Log Data		7.378
174				Mean	319.3					Mean of log Data		5.185
175				Median	125					SD of log Data		1.087
176				SD	387.3							
177				Coefficient of Variation	1.213							
178				Skewness	2.123							
179												
180				**Relevant UCL Statistics**								
181				**Normal Distribution Test**						**Lognormal Distribution Test**		
182				Shapiro Wilk Test Statistic	0.722					Shapiro Wilk Test Statistic		0.947
183				Shapiro Wilk Critical Value	0.911					Shapiro Wilk Critical Value		0.911
184				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
185												
186				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
187				95% Student's-t UCL	461.4					95% H-UCL		607.1
188				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		668.2
189				95% Adjusted-CLT UCL	495.1					97.5% Chebyshev (MVUE) UCL		823.1
190				95% Modified-t UCL	467.6					99% Chebyshev (MVUE) UCL		1128
191												
192				**Gamma Distribution Test**						**Data Distribution**		
193				k star (bias corrected)	0.889					**Data appear Lognormal at 5% Significance Level**		
194				Theta Star	359.2							
195				nu star	39.12							
196				Approximate Chi Square Value (.05)	25.79					**Nonparametric Statistics**		
197				Adjusted Level of Significance	0.0386					95% CLT UCL		455.1
198				Adjusted Chi Square Value	24.98					95% Jackknife UCL		461.4
199										95% Standard Bootstrap UCL		452.9
200				Anderson-Darling Test Statistic	0.953					95% Bootstrap-t UCL		543.4
201				Anderson-Darling 5% Critical Value	0.771					95% Hall's Bootstrap UCL		562.9
202				Kolmogorov-Smirnov Test Statistic	0.235					95% Percentile Bootstrap UCL		461.9
203				Kolmogorov-Smirnov 5% Critical Value	0.191					95% BCA Bootstrap UCL		502.6
204				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		679.2
205										97.5% Chebyshev(Mean, Sd) UCL		835
206				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		1141
207				95% Approximate Gamma UCL	484.3							
208				95% Adjusted Gamma UCL	500							
209												
210				**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL		668.2
211												
212												

213	**Benzo(k)fluoranthene**											
214												
215	**General Statistics**											
216					Number of Valid Data	17			Number of Detected Data			17
217					Number of Distinct Detected Data	15			Number of Non-Detect Data			0
218					Number of Missing Values	5			Percent Non-Detects			0.00%
219												
220	**Raw Statistics**							**Log-transformed Statistics**				
221					Minimum Detected	23			Minimum Detected			3.135
222					Maximum Detected	530			Maximum Detected			6.273
223					Mean of Detected	151.3			Mean of Detected			4.599
224					SD of Detected	143.6			SD of Detected			0.972
225					Minimum Non-Detect	N/A			Minimum Non-Detect			N/A
226					Maximum Non-Detect	N/A			Maximum Non-Detect			N/A
227												
228												
229	**UCL Statistics**											
230	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
231					Shapiro Wilk Test Statistic	0.818			Shapiro Wilk Test Statistic			0.955
232					5% Shapiro Wilk Critical Value	0.892			5% Shapiro Wilk Critical Value			0.892
233	**Data not Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
234												
235	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
236					DL/2 Substitution Method				DL/2 Substitution Method			
237					Mean	151.3			Mean			4.599
238					SD	143.6			SD			0.972
239					95% DL/2 (t) UCL	212.1			95% H-Stat (DL/2) UCL			301.8
240												
241					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
242	**MLE method failed to converge properly**								Mean in Log Scale			N/A
243									SD in Log Scale			N/A
244									Mean in Original Scale			N/A
245									SD in Original Scale			N/A
246									95% Percentile Bootstrap UCL			N/A
247									95% BCA Bootstrap UCL			N/A
248												
249	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
250					k star (bias corrected)	1.135		**Data appear Gamma Distributed at 5% Significance Level**				
251					Theta Star	133.3						
252					nu star	38.59						
253												
254					A-D Test Statistic	0.391		**Nonparametric Statistics**				
255					5% A-D Critical Value	0.759			Kaplan-Meier (KM) Method			
256					K-S Test Statistic	0.759			Mean			151.3
257					5% K-S Critical Value	0.214			SD			139.3
258	**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean			34.83
259									95% KM (t) UCL			212.1
260	**Assuming Gamma Distribution**								95% KM (z) UCL			208.6
261					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL			212.1
262					Minimum	23			95% KM (bootstrap t) UCL			233.9
263					Maximum	530			95% KM (BCA) UCL			212.2
264					Mean	151.3			95% KM (Percentile Bootstrap) UCL			211.1
265					Median	100			95% KM (Chebyshev) UCL			303.1

266					SD	143.6				97.5% KM (Chebyshev) UCL		368.8
267					k star	1.135				99% KM (Chebyshev) UCL		497.8
268					Theta star	133.3						
269					Nu star	38.59				**Potential UCLs to Use**		
270					AppChi2	25.37				95% KM (Chebyshev) UCL		303.1
271					95% Gamma Approximate UCL	230.2						
272					95% Adjusted Gamma UCL	240.8						
273	**Note: DL/2 is not a recommended method.**											
274												
275												
276	**Bis(2-ethylhexyl) phthalate**											
277												
278					**General Statistics**							
279					Number of Valid Data	22				Number of Detected Data		10
280					Number of Distinct Detected Data	10				Number of Non-Detect Data		12
281										Percent Non-Detects		54.55%
282												
283					**Raw Statistics**					**Log-transformed Statistics**		
284					Minimum Detected	46.1				Minimum Detected		3.831
285					Maximum Detected	388				Maximum Detected		5.961
286					Mean of Detected	148.4				Mean of Detected		4.72
287					SD of Detected	122.8				SD of Detected		0.769
288					Minimum Non-Detect	13				Minimum Non-Detect		2.565
289					Maximum Non-Detect	160				Maximum Non-Detect		5.075
290												
291	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		19
292	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		3
293	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		86.36%
294												
295					**UCL Statistics**							
296					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
297					Shapiro Wilk Test Statistic	0.804				Shapiro Wilk Test Statistic		0.912
298					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
299					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
300												
301					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
302					DL/2 Substitution Method					DL/2 Substitution Method		
303					Mean	85.18				Mean		3.86
304					SD	101.5				SD		1.149
305					95% DL/2 (t) UCL	122.4				95% H-Stat (DL/2) UCL		168.1
306												
307					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
308					**MLE yields a negative mean**					Mean in Log Scale		3.834
309										SD in Log Scale		0.998
310										Mean in Original Scale		80.13
311										SD in Original Scale		102.8
312										95% Percentile Bootstrap UCL		115.9
313										95% BCA Bootstrap UCL		125.5
314												
315					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
316					k star (bias corrected)	1.423				**Data appear Gamma Distributed at 5% Significance Level**		
317					Theta Star	104.3						
318					nu star	28.47						

319												
320					A-D Test Statistic	0.539	**Nonparametric Statistics**					
321					5% A-D Critical Value	0.736				Kaplan-Meier (KM) Method		
322					K-S Test Statistic	0.736				Mean		94.75
323					5% K-S Critical Value	0.27				SD		93.05
324				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		21.02
325										95% KM (t) UCL		130.9
326				**Assuming Gamma Distribution**						95% KM (z) UCL		129.3
327				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		128.6
328					Minimum	46.1				95% KM (bootstrap t) UCL		165.9
329					Maximum	388				95% KM (BCA) UCL		142.1
330					Mean	142.1				95% KM (Percentile Bootstrap) UCL		133
331					Median	96.5				95% KM (Chebyshev) UCL		186.4
332					SD	90.15				97.5% KM (Chebyshev) UCL		226
333					k star	2.721				99% KM (Chebyshev) UCL		303.9
334					Theta star	52.23						
335					Nu star	119.7	**Potential UCLs to Use**					
336					AppChi2	95.46				95% KM (t) UCL		130.9
337					95% Gamma Approximate UCL	178.3						
338					95% Adjusted Gamma UCL	181.3						
339	**Note: DL/2 is not a recommended method.**											
340												
341												
342	**Dibenzo(a,h)anthracene**											
343												
344					**General Statistics**							
345					Number of Valid Data	22				Number of Detected Data		21
346					Number of Distinct Detected Data	20				Number of Non-Detect Data		1
347										Percent Non-Detects		4.55%
348												
349				**Raw Statistics**						**Log-transformed Statistics**		
350					Minimum Detected	6.73				Minimum Detected		1.907
351					Maximum Detected	200				Maximum Detected		5.298
352					Mean of Detected	44.88				Mean of Detected		3.331
353					SD of Detected	52.15				SD of Detected		0.956
354					Minimum Non-Detect	1.56				Minimum Non-Detect		0.445
355					Maximum Non-Detect	1.56				Maximum Non-Detect		0.445
356												
357												
358					**UCL Statistics**							
359				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
360					Shapiro Wilk Test Statistic	0.695				Shapiro Wilk Test Statistic		0.963
361					5% Shapiro Wilk Critical Value	0.908				5% Shapiro Wilk Critical Value		0.908
362				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
363												
364				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
365					DL/2 Substitution Method					DL/2 Substitution Method		
366					Mean	42.87				Mean		3.168
367					SD	51.75				SD		1.205
368					95% DL/2 (t) UCL	61.86				95% H-Stat (DL/2) UCL		85.13
369												
370					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
371					Mean	41.54				Mean in Log Scale		3.223

372					SD	52.29				SD in Log Scale		1.062
373					95% MLE (t) UCL	60.72				Mean in Original Scale		42.96
374					95% MLE (Tiku) UCL	59.5				SD in Original Scale		51.68
375										95% Percentile Bootstrap UCL		61.39
376										95% BCA Bootstrap UCL		67.16
377												
378	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
379					k star (bias corrected)	1.057				**Data appear Gamma Distributed at 5% Significance Level**		
380					Theta Star	42.46						
381					nu star	44.39						
382												
383					A-D Test Statistic	0.752				**Nonparametric Statistics**		
384					5% A-D Critical Value	0.765				Kaplan-Meier (KM) Method		
385					K-S Test Statistic	0.765				Mean		43.14
386					5% K-S Critical Value	0.194				SD		50.35
387	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		11
388										95% KM (t) UCL		62.07
389	**Assuming Gamma Distribution**									95% KM (z) UCL		61.24
390					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		62.04
391					Minimum	1E-09				95% KM (bootstrap t) UCL		77.36
392					Maximum	200				95% KM (BCA) UCL		63.9
393					Mean	42.84				95% KM (Percentile Bootstrap) UCL		62.71
394					Median	23				95% KM (Chebyshev) UCL		91.09
395					SD	51.78				97.5% KM (Chebyshev) UCL		111.8
396					k star	0.4				99% KM (Chebyshev) UCL		152.6
397					Theta star	107.1						
398					Nu star	17.61				**Potential UCLs to Use**		
399					AppChi2	9.107				95% KM (Chebyshev) UCL		91.09
400					95% Gamma Approximate UCL	82.82						
401					95% Adjusted Gamma UCL	87.17						
402	**Note: DL/2 is not a recommended method.**											
403												
404												
405	**Indeno(1,2,3-cd)pyrene**											
406												
407	**General Statistics**											
408					Number of Valid Observations	22				Number of Distinct Observations		21
409												
410	**Raw Statistics**									**Log-transformed Statistics**		
411					Minimum	20.2				Minimum of Log Data		3.006
412					Maximum	1600				Maximum of Log Data		7.378
413					Mean	241.1				Mean of log Data		4.723
414					Median	82				SD of log Data		1.173
415					SD	382.5						
416					Coefficient of Variation	1.586						
417					Skewness	2.712						
418												
419	**Relevant UCL Statistics**											
420	**Normal Distribution Test**									**Lognormal Distribution Test**		
421					Shapiro Wilk Test Statistic	0.587				Shapiro Wilk Test Statistic		0.941
422					Shapiro Wilk Critical Value	0.911				Shapiro Wilk Critical Value		0.911
423	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
424												

425	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
426					95% Student's-t UCL	381.4					95% H-UCL	457.2
427	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	483
428					95% Adjusted-CLT UCL	425.6					97.5% Chebyshev (MVUE) UCL	599.7
429					95% Modified-t UCL	389.3					99% Chebyshev (MVUE) UCL	828.9
430												
431	**Gamma Distribution Test**						**Data Distribution**					
432					k star (bias corrected)	0.705	**Data appear Lognormal at 5% Significance Level**					
433					Theta Star	341.9						
434					nu star	31.03						
435					Approximate Chi Square Value (.05)	19.31	**Nonparametric Statistics**					
436					Adjusted Level of Significance	0.0386					95% CLT UCL	375.2
437					Adjusted Chi Square Value	18.62					95% Jackknife UCL	381.4
438											95% Standard Bootstrap UCL	372.8
439					Anderson-Darling Test Statistic	1.35					95% Bootstrap-t UCL	498.7
440					Anderson-Darling 5% Critical Value	0.781					95% Hall's Bootstrap UCL	424.1
441					Kolmogorov-Smirnov Test Statistic	0.204					95% Percentile Bootstrap UCL	380.6
442					Kolmogorov-Smirnov 5% Critical Value	0.192					95% BCA Bootstrap UCL	413.6
443	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	596.5
444											97.5% Chebyshev(Mean, Sd) UCL	750.3
445	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	1052
446					95% Approximate Gamma UCL	387.5						
447					95% Adjusted Gamma UCL	401.9						
448												
449	**Potential UCL to Use**										Use 95% Chebyshev (MVUE) UCL	483
450												
451												
452	**Lead**											
453												
454	**General Statistics**											
455					Number of Valid Observations	22					Number of Distinct Observations	20
456												
457	**Raw Statistics**						**Log-transformed Statistics**					
458					Minimum	4.7					Minimum of Log Data	1.548
459					Maximum	38.5					Maximum of Log Data	3.651
460					Mean	14.03					Mean of log Data	2.516
461					Median	12.8					SD of log Data	0.513
462					SD	7.63						
463					Coefficient of Variation	0.544						
464					Skewness	1.715						
465												
466	**Relevant UCL Statistics**											
467	**Normal Distribution Test**						**Lognormal Distribution Test**					
468					Shapiro Wilk Test Statistic	0.845					Shapiro Wilk Test Statistic	0.958
469					Shapiro Wilk Critical Value	0.911					Shapiro Wilk Critical Value	0.911
470	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
471												
472	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
473					95% Student's-t UCL	16.83					95% H-UCL	17.65
474	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	20.98
475					95% Adjusted-CLT UCL	17.34					97.5% Chebyshev (MVUE) UCL	23.99
476					95% Modified-t UCL	16.93					99% Chebyshev (MVUE) UCL	29.9
477												

478	**Gamma Distribution Test**						**Data Distribution**					
479	k star (bias corrected)					3.627	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
480	Theta Star					3.869						
481	nu star					159.6						
482	Approximate Chi Square Value (.05)					131.4	**Nonparametric Statistics**					
483	Adjusted Level of Significance					0.0386	95% CLT UCL					16.71
484	Adjusted Chi Square Value					129.5	95% Jackknife UCL					16.83
485							95% Standard Bootstrap UCL					16.65
486	Anderson-Darling Test Statistic					0.471	95% Bootstrap-t UCL					17.98
487	Anderson-Darling 5% Critical Value					0.747	95% Hall's Bootstrap UCL					19.9
488	Kolmogorov-Smirnov Test Statistic					0.19	95% Percentile Bootstrap UCL					16.7
489	Kolmogorov-Smirnov 5% Critical Value					0.186	95% BCA Bootstrap UCL					17.52
490	**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					21.12
491							97.5% Chebyshev(Mean, Sd) UCL					24.19
492	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					30.22
493	95% Approximate Gamma UCL					17.04						
494	95% Adjusted Gamma UCL					17.29						
495												
496	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					17.04
497												
498												
499	**Mercury**											
500												
501	**General Statistics**											
502	Number of Valid Data					22	Number of Detected Data					21
503	Number of Distinct Detected Data					20	Number of Non-Detect Data					1
504							Percent Non-Detects					4.55%
505												
506	**Raw Statistics**						**Log-transformed Statistics**					
507	Minimum Detected					0.0163	Minimum Detected					-4.117
508	Maximum Detected					0.201	Maximum Detected					-1.604
509	Mean of Detected					0.0699	Mean of Detected					-2.885
510	SD of Detected					0.0505	SD of Detected					0.685
511	Minimum Non-Detect					0.06	Minimum Non-Detect					-2.813
512	Maximum Non-Detect					0.06	Maximum Non-Detect					-2.813
513												
514												
515	**UCL Statistics**											
516	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
517	Shapiro Wilk Test Statistic					0.842	Shapiro Wilk Test Statistic					0.975
518	5% Shapiro Wilk Critical Value					0.908	5% Shapiro Wilk Critical Value					0.908
519	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
520												
521	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
522	DL/2 Substitution Method						DL/2 Substitution Method					
523	Mean					0.0681	Mean					-2.914
524	SD					0.05	SD					0.681
525	95% DL/2 (t) UCL					0.0864	95% H-Stat (DL/2) UCL					0.0946
526												
527	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
528	Mean					0.0477	Mean in Log Scale					-2.907
529	SD					0.0712	SD in Log Scale					0.676
530	95% MLE (t) UCL					0.0738	Mean in Original Scale					0.0683

531					95% MLE (Tiku) UCL	0.0819				SD in Original Scale		0.0499
532										95% Percentile Bootstrap UCL		0.0858
533										95% BCA Bootstrap UCL		0.0895
534												
535	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
536					k star (bias corrected)	2.073				**Data appear Gamma Distributed at 5% Significance Level**		
537					Theta Star	0.0337						
538					nu star	87.05						
539												
540					A-D Test Statistic	0.411				**Nonparametric Statistics**		
541					5% A-D Critical Value	0.752				Kaplan-Meier (KM) Method		
542					K-S Test Statistic	0.752				Mean		0.0684
543					5% K-S Critical Value	0.191				SD		0.0488
544	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0107
545										95% KM (t) UCL		0.0867
546	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0859
547					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0867
548					Minimum	0.0163				95% KM (bootstrap t) UCL		0.0931
549					Maximum	0.201				95% KM (BCA) UCL		0.0859
550					Mean	0.0687				95% KM (Percentile Bootstrap) UCL		0.0863
551					Median	0.0555				95% KM (Chebyshev) UCL		0.115
552					SD	0.0496				97.5% KM (Chebyshev) UCL		0.135
553					k star	2.138				99% KM (Chebyshev) UCL		0.175
554					Theta star	0.0321						
555					Nu star	94.09				**Potential UCLs to Use**		
556					AppChi2	72.71				95% KM (BCA) UCL		0.0859
557					95% Gamma Approximate UCL	0.0889						
558					95% Adjusted Gamma UCL	0.0906						
559	**Note: DL/2 is not a recommended method.**											
560												
561												
562	**Naphthalene**											
563												
564							**General Statistics**					
565					Number of Valid Data	22				Number of Detected Data		18
566					Number of Distinct Detected Data	18				Number of Non-Detect Data		4
567										Percent Non-Detects		18.18%
568												
569	**Raw Statistics**									**Log-transformed Statistics**		
570					Minimum Detected	3.26				Minimum Detected		1.182
571					Maximum Detected	360				Maximum Detected		5.886
572					Mean of Detected	64.98				Mean of Detected		3.4
573					SD of Detected	91.41				SD of Detected		1.347
574					Minimum Non-Detect	4				Minimum Non-Detect		1.386
575					Maximum Non-Detect	22.9				Maximum Non-Detect		3.131
576												
577	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		12
578	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		10
579	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		54.55%
580												
581							**UCL Statistics**					
582	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
583					Shapiro Wilk Test Statistic	0.663				Shapiro Wilk Test Statistic		0.965

584					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
585	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
586												
587	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
588					DL/2 Substitution Method						DL/2 Substitution Method	
589					Mean	54.5					Mean	3.11
590					SD	85.35					SD	1.398
591					95% DL/2 (t) UCL	85.81					95% H-Stat (DL/2) UCL	143.4
592												
593					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
594	**MLE yields a negative mean**										Mean in Log Scale	3.109
595											SD in Log Scale	1.374
596											Mean in Original Scale	54.31
597											SD in Original Scale	85.45
598											95% Percentile Bootstrap UCL	85.39
599											95% BCA Bootstrap UCL	100.1
600												
601	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
602					k star (bias corrected)	0.679	**Data appear Gamma Distributed at 5% Significance Level**					
603					Theta Star	95.64						
604					nu star	24.46						
605												
606					A-D Test Statistic	0.402	**Nonparametric Statistics**					
607					5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method					
608					K-S Test Statistic	0.777	Mean					54.39
609					5% K-S Critical Value	0.211	SD					83.47
610	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					18.32
611							95% KM (t) UCL					85.91
612	**Assuming Gamma Distribution**						95% KM (z) UCL					84.52
613					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL					85.74
614					Minimum	1E-09	95% KM (bootstrap t) UCL					135.3
615					Maximum	360	95% KM (BCA) UCL					87.47
616					Mean	54.44	95% KM (Percentile Bootstrap) UCL					87.34
617					Median	20	95% KM (Chebyshev) UCL					134.2
618					SD	85.43	97.5% KM (Chebyshev) UCL					168.8
619					k star	0.245	99% KM (Chebyshev) UCL					236.7
620					Theta star	222.3						
621					Nu star	10.78	**Potential UCLs to Use**					
622					AppChi2	4.433	95% KM (Chebyshev) UCL					134.2
623					95% Gamma Approximate UCL	132.3						
624					95% Adjusted Gamma UCL	142						
625	**Note: DL/2 is not a recommended method.**											
626												
627												
628	**Total Aroclors**											
629												
630						**General Statistics**							
631					Number of Valid Data	15	Number of Detected Data					12
632					Number of Distinct Detected Data	12	Number of Non-Detect Data					3
633					Number of Missing Values	6	Percent Non-Detects					20.00%
634												
635	**Raw Statistics**						**Log-transformed Statistics**					
636					Minimum Detected	5.31	Minimum Detected					1.67

637					Maximum Detected	44.75					Maximum Detected	3.801
638					Mean of Detected	22.5					Mean of Detected	2.976
639					SD of Detected	10.96					SD of Detected	0.596
640					Minimum Non-Detect	3.5					Minimum Non-Detect	1.253
641					Maximum Non-Detect	38					Maximum Non-Detect	3.638
642												
643	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
644	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
645	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.33%
646												
647	**UCL Statistics**											
648	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
649					Shapiro Wilk Test Statistic	0.974					Shapiro Wilk Test Statistic	0.926
650					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
651	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
652												
653	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
654					DL/2 Substitution Method						DL/2 Substitution Method	
655					Mean	19.65					Mean	2.706
656					SD	11.91					SD	0.895
657					95% DL/2 (t) UCL	25.06					95% H-Stat (DL/2) UCL	29.12
658												
659					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
660	**MLE method failed to converge properly**										Mean in Log Scale	2.802
661											SD in Log Scale	0.673
662											Mean in Original Scale	19.84
663											SD in Original Scale	11.36
664											95% Percentile Bootstrap UCL	24.59
665											95% BCA Bootstrap UCL	24.67
666												
667	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
668					k star (bias corrected)	2.899	**Data appear Normal at 5% Significance Level**					
669					Theta Star	7.762						
670					nu star	69.57						
671												
672					A-D Test Statistic	0.299	**Nonparametric Statistics**					
673					5% A-D Critical Value	0.736	Kaplan-Meier (KM) Method					
674					K-S Test Statistic	0.736	Mean					19.92
675					5% K-S Critical Value	0.247	SD					11.32
676	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					3.129
677							95% KM (t) UCL					25.43
678	**Assuming Gamma Distribution**						95% KM (z) UCL					25.06
679	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					25.27
680					Minimum	3.441	95% KM (bootstrap t) UCL					25.55
681					Maximum	44.75	95% KM (BCA) UCL					25.92
682					Mean	20.48	95% KM (Percentile Bootstrap) UCL					25.31
683					Median	23.4	95% KM (Chebyshev) UCL					33.56
684					SD	11.44	97.5% KM (Chebyshev) UCL					39.46
685					k star	2.18	99% KM (Chebyshev) UCL					51.05
686					Theta star	9.394						
687					Nu star	65.41	**Potential UCLs to Use**					
688					AppChi2	47.8	95% KM (t) UCL					25.43
689					95% Gamma Approximate UCL	28.03	95% KM (Percentile Bootstrap) UCL					25.31

690					95% Adjusted Gamma UCL	29.15						
691	**Note: DL/2 is not a recommended method.**											
692												
693												
694	**Total DDT**											
695												
696						**General Statistics**							
697						Number of Valid Data	20				Number of Detected Data	10
698						Number of Distinct Detected Data	10				Number of Non-Detect Data	10
699						Number of Missing Values	1				Percent Non-Detects	50.00%
700												
701						**Raw Statistics**					**Log-transformed Statistics**	
702						Minimum Detected	0.36				Minimum Detected	-1.022
703						Maximum Detected	6.5				Maximum Detected	1.872
704						Mean of Detected	1.914				Mean of Detected	0.228
705						SD of Detected	1.916				SD of Detected	0.975
706						Minimum Non-Detect	0.0441				Minimum Non-Detect	-3.121
707						Maximum Non-Detect	3.11				Maximum Non-Detect	1.135
708												
709	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
710	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
711	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	90.00%
712												
713						**UCL Statistics**							
714						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
715						Shapiro Wilk Test Statistic	0.802				Shapiro Wilk Test Statistic	0.95
716						5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value	0.842
717						**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
718												
719						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
720						DL/2 Substitution Method					DL/2 Substitution Method	
721						Mean	1.373				Mean	-0.252
722						SD	1.49				SD	1.279
723						95% DL/2 (t) UCL	1.949				95% H-Stat (DL/2) UCL	3.038
724												
725						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
726						**MLE method failed to converge properly**					Mean in Log Scale	-0.453
727											SD in Log Scale	1.041
728											Mean in Original Scale	1.138
729											SD in Original Scale	1.544
730											95% Percentile Bootstrap UCL	1.704
731											95% BCA Bootstrap UCL	1.945
732												
733						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
734						k star (bias corrected)	0.997				**Data appear Gamma Distributed at 5% Significance Level**	
735						Theta Star	1.919					
736						nu star	19.94					
737												
738						A-D Test Statistic	0.33				**Nonparametric Statistics**	
739						5% A-D Critical Value	0.742				Kaplan-Meier (KM) Method	
740						K-S Test Statistic	0.742				Mean	1.251
741						5% K-S Critical Value	0.272				SD	1.483
742						**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean	0.36

	A	B	C	D	E	F	G	H	I	J	K	L
743											95% KM (t) UCL	1.873
744	**Assuming Gamma Distribution**										95% KM (z) UCL	1.843
745	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	1.855
746					Minimum	1E-09					95% KM (bootstrap t) UCL	2.292
747					Maximum	6.5					95% KM (BCA) UCL	1.975
748					Mean	1.694					95% KM (Percentile Bootstrap) UCL	1.873
749					Median	1.725					95% KM (Chebyshev) UCL	2.82
750					SD	1.495					97.5% KM (Chebyshev) UCL	3.499
751					k star	0.291					99% KM (Chebyshev) UCL	4.832
752					Theta star	5.827						
753					Nu star	11.63			**Potential UCLs to Use**			
754					AppChi2	4.983					95% KM (t) UCL	1.873
755				95% Gamma Approximate UCL		3.953						
756				95% Adjusted Gamma UCL		4.243						
757	**Note: DL/2 is not a recommended method.**											
758												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM5.0W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12					Number of Valid Data	27			Number of Detected Data	20		
13					Number of Distinct Detected Data	20			Number of Non-Detect Data	7		
14					Number of Missing Values	13			Percent Non-Detects	25.93%		
15												
16				Raw Statistics					Log-transformed Statistics			
17					Minimum Detected	2.19			Minimum Detected	0.784		
18					Maximum Detected	6.05			Maximum Detected	1.8		
19					Mean of Detected	3.537			Mean of Detected	1.229		
20					SD of Detected	0.994			SD of Detected	0.265		
21					Minimum Non-Detect	4			Minimum Non-Detect	1.386		
22					Maximum Non-Detect	5			Maximum Non-Detect	1.609		
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	24		
25	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	3		
26	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	88.89%		
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only			
30					Shapiro Wilk Test Statistic	0.915			Shapiro Wilk Test Statistic	0.965		
31					5% Shapiro Wilk Critical Value	0.905			5% Shapiro Wilk Critical Value	0.905		
32				Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
33												
34				Assuming Normal Distribution					Assuming Lognormal Distribution			
35					DL/2 Substitution Method				DL/2 Substitution Method			
36					Mean	3.25			Mean	1.14		
37					SD	0.988			SD	0.277		
38					95% DL/2 (t) UCL	3.574			95% H-Stat (DL/2) UCL	3.473		
39												
40					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
41					Mean	3.863			Mean in Log Scale	1.21		
42					SD	0.925			SD in Log Scale	0.242		
43					95% MLE (t) UCL	4.166			Mean in Original Scale	3.455		
44					95% MLE (Tiku) UCL	5.045			SD in Original Scale	0.899		
45									95% Percentile Bootstrap UCL	3.739		
46									95% BCA Bootstrap UCL	3.789		
47												
48				Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only			
49					k star (bias corrected)	12.5			Data appear Normal at 5% Significance Level			
50					Theta Star	0.283						
51					nu star	500.1						
52												
53					A-D Test Statistic	0.372			Nonparametric Statistics			

54				5% A-D Critical Value	0.741					Kaplan-Meier (KM) Method		
55				K-S Test Statistic	0.741					Mean		3.448
56				5% K-S Critical Value	0.194					SD		0.896
57				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.19
58										95% KM (t) UCL		3.771
59				**Assuming Gamma Distribution**						95% KM (z) UCL		3.76
60				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		3.772
61				Minimum	2.19					95% KM (bootstrap t) UCL		3.82
62				Maximum	6.05					95% KM (BCA) UCL		3.785
63				Mean	3.552					95% KM (Percentile Bootstrap) UCL		3.757
64				Median	3.47					95% KM (Chebyshev) UCL		4.275
65				SD	0.862					97.5% KM (Chebyshev) UCL		4.632
66				k star	17.04					99% KM (Chebyshev) UCL		5.335
67				Theta star	0.208							
68				Nu star	920.1					**Potential UCLs to Use**		
69				AppChi2	850.7					95% KM (t) UCL		3.771
70				95% Gamma Approximate UCL	3.842					95% KM (Percentile Bootstrap) UCL		3.757
71				95% Adjusted Gamma UCL	3.862							
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Benzo(a)anthracene**											
76												
77					**General Statistics**							
78				Number of Valid Observations	40					Number of Distinct Observations		36
79												
80				**Raw Statistics**						**Log-transformed Statistics**		
81				Minimum	4					Minimum of Log Data		1.386
82				Maximum	10201					Maximum of Log Data		9.23
83				Mean	590.7					Mean of log Data		5.118
84				Median	162					SD of log Data		1.319
85				SD	1803							
86				Coefficient of Variation	3.052							
87				Skewness	4.728							
88												
89					**Relevant UCL Statistics**							
90				**Normal Distribution Test**						**Lognormal Distribution Test**		
91				Shapiro Wilk Test Statistic	0.313					Shapiro Wilk Test Statistic		0.9
92				Shapiro Wilk Critical Value	0.94					Shapiro Wilk Critical Value		0.94
93				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
94												
95				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
96				95% Student's-t UCL	1071					95% H-UCL		710.4
97				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		820.8
98				95% Adjusted-CLT UCL	1287					97.5% Chebyshev (MVUE) UCL		1010
99				95% Modified-t UCL	1106					99% Chebyshev (MVUE) UCL		1382
100												
101				**Gamma Distribution Test**						**Data Distribution**		
102				k star (bias corrected)	0.482					**Data do not follow a Discernable Distribution (0.05)**		
103				Theta Star	1227							
104				nu star	38.52							
105				Approximate Chi Square Value (.05)	25.31					**Nonparametric Statistics**		
106				Adjusted Level of Significance	0.044					95% CLT UCL		1059

107				Adjusted Chi Square Value	24.91					95% Jackknife UCL	1071	
108										95% Standard Bootstrap UCL	1050	
109				Anderson-Darling Test Statistic	5.206					95% Bootstrap-t UCL	4491	
110				Anderson-Darling 5% Critical Value	0.813					95% Hall's Bootstrap UCL	3395	
111				Kolmogorov-Smirnov Test Statistic	0.329					95% Percentile Bootstrap UCL	1095	
112				Kolmogorov-Smirnov 5% Critical Value	0.148					95% BCA Bootstrap UCL	1432	
113				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1833	
114										97.5% Chebyshev(Mean, Sd) UCL	2370	
115				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3426	
116				95% Approximate Gamma UCL	899.1							
117				95% Adjusted Gamma UCL	913.6							
118												
119				**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	3426	
120												
121												
122	**Benzo(a)pyrene**											
123												
124				**General Statistics**								
125				Number of Valid Observations	40					Number of Distinct Observations	37	
126												
127				**Raw Statistics**						**Log-transformed Statistics**		
128				Minimum	8					Minimum of Log Data	2.079	
129				Maximum	13041					Maximum of Log Data	9.476	
130				Mean	792.6					Mean of log Data	5.448	
131				Median	220.5					SD of log Data	1.297	
132				SD	2354							
133				Coefficient of Variation	2.97							
134				Skewness	4.597							
135												
136				**Relevant UCL Statistics**								
137				**Normal Distribution Test**						**Lognormal Distribution Test**		
138				Shapiro Wilk Test Statistic	0.32					Shapiro Wilk Test Statistic	0.913	
139				Shapiro Wilk Critical Value	0.94					Shapiro Wilk Critical Value	0.94	
140				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
141												
142				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
143				95% Student's-t UCL	1420					95% H-UCL	945.1	
144				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1098	
145				95% Adjusted-CLT UCL	1694					97.5% Chebyshev (MVUE) UCL	1349	
146				95% Modified-t UCL	1465					99% Chebyshev (MVUE) UCL	1841	
147												
148				**Gamma Distribution Test**						**Data Distribution**		
149				k star (bias corrected)	0.493					**Data do not follow a Discernable Distribution (0.05)**		
150				Theta Star	1607							
151				nu star	39.45							
152				Approximate Chi Square Value (.05)	26.06					**Nonparametric Statistics**		
153				Adjusted Level of Significance	0.044					95% CLT UCL	1405	
154				Adjusted Chi Square Value	25.65					95% Jackknife UCL	1420	
155										95% Standard Bootstrap UCL	1402	
156				Anderson-Darling Test Statistic	4.887					95% Bootstrap-t UCL	6003	
157				Anderson-Darling 5% Critical Value	0.812					95% Hall's Bootstrap UCL	4295	
158				Kolmogorov-Smirnov Test Statistic	0.297					95% Percentile Bootstrap UCL	1470	
159				Kolmogorov-Smirnov 5% Critical Value	0.147					95% BCA Bootstrap UCL	1726	

160	Data not Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		2415
161										97.5% Chebyshev(Mean, Sd) UCL		3116
162	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		4495
163					95% Approximate Gamma UCL	1200						
164					95% Adjusted Gamma UCL	1219						
165												
166	Potential UCL to Use									Use 99% Chebyshev (Mean, Sd) UCL		4495
167												
168												
169	Benzo(b)fluoranthene											
170												
171	General Statistics											
172					Number of Valid Observations	40				Number of Distinct Observations		34
173												
174	Raw Statistics									Log-transformed Statistics		
175					Minimum	9.4				Minimum of Log Data		2.241
176					Maximum	7457				Maximum of Log Data		8.917
177					Mean	567.6				Mean of log Data		5.295
178					Median	194.5				SD of log Data		1.189
179					SD	1536						
180					Coefficient of Variation	2.706						
181					Skewness	4.223						
182												
183	Relevant UCL Statistics											
184	Normal Distribution Test									Lognormal Distribution Test		
185					Shapiro Wilk Test Statistic	0.324				Shapiro Wilk Test Statistic		0.878
186					Shapiro Wilk Critical Value	0.94				Shapiro Wilk Critical Value		0.94
187	Data not Normal at 5% Significance Level									Data not Lognormal at 5% Significance Level		
188												
189	Assuming Normal Distribution									Assuming Lognormal Distribution		
190					95% Student's-t UCL	976.7				95% H-UCL		659.7
191	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL		784.3
192					95% Adjusted-CLT UCL	1140				97.5% Chebyshev (MVUE) UCL		953.8
193					95% Modified-t UCL	1004				99% Chebyshev (MVUE) UCL		1287
194												
195	Gamma Distribution Test									Data Distribution		
196					k star (bias corrected)	0.564				Data do not follow a Discernable Distribution (0.05)		
197					Theta Star	1006						
198					nu star	45.13						
199					Approximate Chi Square Value (.05)	30.72				Nonparametric Statistics		
200					Adjusted Level of Significance	0.044				95% CLT UCL		967
201					Adjusted Chi Square Value	30.27				95% Jackknife UCL		976.7
202										95% Standard Bootstrap UCL		968
203					Anderson-Darling Test Statistic	5.183				95% Bootstrap-t UCL		3865
204					Anderson-Darling 5% Critical Value	0.804				95% Hall's Bootstrap UCL		3006
205					Kolmogorov-Smirnov Test Statistic	0.28				95% Percentile Bootstrap UCL		1019
206					Kolmogorov-Smirnov 5% Critical Value	0.147				95% BCA Bootstrap UCL		1146
207	Data not Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		1626
208										97.5% Chebyshev(Mean, Sd) UCL		2084
209	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		2984
210					95% Approximate Gamma UCL	833.8						
211					95% Adjusted Gamma UCL	846.1						
212												

213	**Potential UCL to Use**									Use 99% Chebyshev (Mean, Sd) UCL		2984
214												
215												
216	**Benzo(k)fluoranthene**											
217												
218	**General Statistics**											
219	Number of Valid Observations				40		Number of Distinct Observations					39
220												
221	**Raw Statistics**						**Log-transformed Statistics**					
222	Minimum				2.9		Minimum of Log Data					1.065
223	Maximum				8273		Maximum of Log Data					9.021
224	Mean				412.4		Mean of log Data					4.826
225	Median				142		SD of log Data					1.355
226	SD				1317							
227	Coefficient of Variation				3.193							
228	Skewness				5.781							
229												
230	**Relevant UCL Statistics**											
231	**Normal Distribution Test**						**Lognormal Distribution Test**					
232	Shapiro Wilk Test Statistic				0.288		Shapiro Wilk Test Statistic					0.96
233	Shapiro Wilk Critical Value				0.94		Shapiro Wilk Critical Value					0.94
234	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
235												
236	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
237	95% Student's-t UCL				763.1		95% H-UCL					570.8
238	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					653
239	95% Adjusted-CLT UCL				958.1		97.5% Chebyshev (MVUE) UCL					805.9
240	95% Modified-t UCL				794.8		99% Chebyshev (MVUE) UCL					1106
241												
242	**Gamma Distribution Test**						**Data Distribution**					
243	k star (bias corrected)				0.504		**Data appear Lognormal at 5% Significance Level**					
244	Theta Star				818							
245	nu star				40.33							
246	Approximate Chi Square Value (.05)				26.78		**Nonparametric Statistics**					
247	Adjusted Level of Significance				0.044		95% CLT UCL					754.8
248	Adjusted Chi Square Value				26.36		95% Jackknife UCL					763.1
249							95% Standard Bootstrap UCL					746
250	Anderson-Darling Test Statistic				3.477		95% Bootstrap-t UCL					2815
251	Anderson-Darling 5% Critical Value				0.811		95% Hall's Bootstrap UCL					1983
252	Kolmogorov-Smirnov Test Statistic				0.27		95% Percentile Bootstrap UCL					801
253	Kolmogorov-Smirnov 5% Critical Value				0.147		95% BCA Bootstrap UCL					1038
254	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					1320
255							97.5% Chebyshev(Mean, Sd) UCL					1712
256	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					2484
257	95% Approximate Gamma UCL				621.1							
258	95% Adjusted Gamma UCL				630.8							
259												
260	**Potential UCL to Use**						Use 95% H-UCL					570.8
261												
262												
263	**Bis(2-ethylhexyl) phthalate**											
264												
265	**General Statistics**											

266					Number of Valid Data	27					Number of Detected Data	16
267					Number of Distinct Detected Data	15					Number of Non-Detect Data	11
268					Number of Missing Values	13					Percent Non-Detects	40.74%
269												
270					**Raw Statistics**						**Log-transformed Statistics**	
271					Minimum Detected	29					Minimum Detected	3.367
272					Maximum Detected	250					Maximum Detected	5.521
273					Mean of Detected	93.69					Mean of Detected	4.351
274					SD of Detected	61.64					SD of Detected	0.634
275					Minimum Non-Detect	14					Minimum Non-Detect	2.639
276					Maximum Non-Detect	190					Maximum Non-Detect	5.247
277												
278	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	26
279	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
280	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.30%
281												
282					**UCL Statistics**							
283					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
284					Shapiro Wilk Test Statistic	0.866					Shapiro Wilk Test Statistic	0.963
285					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
286					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
287												
288					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
289					DL/2 Substitution Method						DL/2 Substitution Method	
290					Mean	70.98					Mean	3.918
291					SD	57.89					SD	0.912
292					95% DL/2 (t) UCL	89.98					95% H-Stat (DL/2) UCL	98.36
293												
294					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
295					**MLE method failed to converge properly**						Mean in Log Scale	3.942
296											SD in Log Scale	0.737
297											Mean in Original Scale	67.9
298											SD in Original Scale	57
299											95% Percentile Bootstrap UCL	86.37
300											95% BCA Bootstrap UCL	90.15
301												
302					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
303					k star (bias corrected)	2.323					**Data appear Gamma Distributed at 5% Significance Level**	
304					Theta Star	40.34						
305					nu star	74.32						
306												
307					A-D Test Statistic	0.352					**Nonparametric Statistics**	
308					5% A-D Critical Value	0.745					Kaplan-Meier (KM) Method	
309					K-S Test Statistic	0.745					Mean	71.63
310					5% K-S Critical Value	0.217					SD	55.12
311					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	11.27
312											95% KM (t) UCL	90.86
313					**Assuming Gamma Distribution**						95% KM (z) UCL	90.17
314					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	89.86
315					Minimum	25.98					95% KM (bootstrap t) UCL	96.47
316					Maximum	250					95% KM (BCA) UCL	91.9
317					Mean	84.92					95% KM (Percentile Bootstrap) UCL	90.71
318					Median	76.27					95% KM (Chebyshev) UCL	120.8

319					SD	54.91				97.5% KM (Chebyshev) UCL		142
320					k star	2.375				99% KM (Chebyshev) UCL		183.8
321					Theta star	35.76						
322					Nu star	128.2				**Potential UCLs to Use**		
323					AppChi2	103.1				95% KM (t) UCL		90.86
324					95% Gamma Approximate UCL	105.6						
325					95% Adjusted Gamma UCL	107.1						
326	**Note: DL/2 is not a recommended method.**											
327												
328												
329	**Dibenzo(a,h)anthracene**											
330												
331					**General Statistics**							
332					Number of Valid Data	40				Number of Detected Data		38
333					Number of Distinct Detected Data	28				Number of Non-Detect Data		2
334										Percent Non-Detects		5.00%
335												
336					**Raw Statistics**					**Log-transformed Statistics**		
337					Minimum Detected	1.4				Minimum Detected		0.336
338					Maximum Detected	1242				Maximum Detected		7.124
339					Mean of Detected	85.61				Mean of Detected		3.49
340					SD of Detected	219.4				SD of Detected		1.223
341					Minimum Non-Detect	19				Minimum Non-Detect		2.944
342					Maximum Non-Detect	19				Maximum Non-Detect		2.944
343												
344												
345					**UCL Statistics**							
346					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
347					Shapiro Wilk Test Statistic	0.344				Shapiro Wilk Test Statistic		0.896
348					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
349					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
350												
351					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
352					DL/2 Substitution Method					DL/2 Substitution Method		
353					Mean	81.81				Mean		3.428
354					SD	214.4				SD		1.222
355					95% DL/2 (t) UCL	138.9				95% H-Stat (DL/2) UCL		100.5
356												
357					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
358					Mean	35.32				Mean in Log Scale		3.413
359					SD	252.1				SD in Log Scale		1.239
360					95% MLE (t) UCL	102.5				Mean in Original Scale		81.7
361					95% MLE (Tiku) UCL	102.8				SD in Original Scale		214.4
362										95% Percentile Bootstrap UCL		145.3
363										95% BCA Bootstrap UCL		183.5
364												
365					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
366					k star (bias corrected)	0.605				**Data do not follow a Discernable Distribution (0.05)**		
367					Theta Star	141.5						
368					nu star	45.99						
369												
370					A-D Test Statistic	4.029				**Nonparametric Statistics**		
371					5% A-D Critical Value	0.799				Kaplan-Meier (KM) Method		

372					K-S Test Statistic	0.799				Mean		81.82
373					5% K-S Critical Value	0.15				SD		211.7
374	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		33.92
375										95% KM (t) UCL		139
376	**Assuming Gamma Distribution**									95% KM (z) UCL		137.6
377	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		138.9
378					Minimum	1E-09				95% KM (bootstrap t) UCL		507.8
379					Maximum	1242				95% KM (BCA) UCL		147
380					Mean	81.33				95% KM (Percentile Bootstrap) UCL		145
381					Median	31.5				95% KM (Chebyshev) UCL		229.7
382					SD	214.5				97.5% KM (Chebyshev) UCL		293.6
383					k star	0.314				99% KM (Chebyshev) UCL		419.3
384					Theta star	258.8						
385					Nu star	25.14				**Potential UCLs to Use**		
386					AppChi2	14.72				95% KM (Chebyshev) UCL		229.7
387					95% Gamma Approximate UCL	138.9						
388					95% Adjusted Gamma UCL	141.8						
389	**Note: DL/2 is not a recommended method.**											
390												
391												
392	**Indeno(1,2,3-cd)pyrene**											
393												
394	**General Statistics**											
395					Number of Valid Observations	40				Number of Distinct Observations		38
396												
397	**Raw Statistics**									**Log-transformed Statistics**		
398					Minimum	7.1				Minimum of Log Data		1.96
399					Maximum	9291				Maximum of Log Data		9.137
400					Mean	586.2				Mean of log Data		5.165
401					Median	155				SD of log Data		1.282
402					SD	1710						
403					Coefficient of Variation	2.918						
404					Skewness	4.496						
405												
406	**Relevant UCL Statistics**											
407	**Normal Distribution Test**									**Lognormal Distribution Test**		
408					Shapiro Wilk Test Statistic	0.324				Shapiro Wilk Test Statistic		0.921
409					Shapiro Wilk Critical Value	0.94				Shapiro Wilk Critical Value		0.94
410	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
411												
412	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
413					95% Student's-t UCL	1042				95% H-UCL		692.2
414	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		807.2
415					95% Adjusted-CLT UCL	1236				97.5% Chebyshev (MVUE) UCL		990
416					95% Modified-t UCL	1074				99% Chebyshev (MVUE) UCL		1349
417												
418	**Gamma Distribution Test**									**Data Distribution**		
419					k star (bias corrected)	0.5				**Data do not follow a Discernable Distribution (0.05)**		
420					Theta Star	1173						
421					nu star	39.98						
422					Approximate Chi Square Value (.05)	26.49				**Nonparametric Statistics**		
423					Adjusted Level of Significance	0.044				95% CLT UCL		1031
424					Adjusted Chi Square Value	26.08				95% Jackknife UCL		1042

	A	B	C	D	E	F	G	H	I	J	K	L
425											95% Standard Bootstrap UCL	1015
426					Anderson-Darling Test Statistic	4.725					95% Bootstrap-t UCL	4276
427					Anderson-Darling 5% Critical Value	0.811					95% Hall's Bootstrap UCL	3163
428					Kolmogorov-Smirnov Test Statistic	0.288					95% Percentile Bootstrap UCL	1086
429					Kolmogorov-Smirnov 5% Critical Value	0.147					95% BCA Bootstrap UCL	1282
430					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1765
431											97.5% Chebyshev(Mean, Sd) UCL	2275
432					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3277
433					95% Approximate Gamma UCL	884.6						
434					95% Adjusted Gamma UCL	898.6						
435												
436					**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	3277
437												
438												
439	**Lead**											
440												
441					**General Statistics**							
442					Number of Valid Data	27					Number of Detected Data	27
443					Number of Distinct Detected Data	23					Number of Non-Detect Data	0
444					Number of Missing Values	13					Percent Non-Detects	0.00%
445												
446					**Raw Statistics**						**Log-transformed Statistics**	
447					Minimum Detected	5.74					Minimum Detected	1.747
448					Maximum Detected	16					Maximum Detected	2.773
449					Mean of Detected	12.43					Mean of Detected	2.489
450					SD of Detected	2.82					SD of Detected	0.269
451					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
452					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
453												
454												
455					**UCL Statistics**							
456					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
457					Shapiro Wilk Test Statistic	0.899					Shapiro Wilk Test Statistic	0.835
458					5% Shapiro Wilk Critical Value	0.923					5% Shapiro Wilk Critical Value	0.923
459					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
460												
461					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
462					DL/2 Substitution Method						DL/2 Substitution Method	
463					Mean	12.43					Mean	2.489
464					SD	2.82					SD	0.269
465					95% DL/2 (t) UCL	13.35					95% H-Stat (DL/2) UCL	13.73
466												
467					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
468					**MLE method failed to converge properly**						Mean in Log Scale	N/A
469											SD in Log Scale	N/A
470											Mean in Original Scale	N/A
471											SD in Original Scale	N/A
472											95% Percentile Bootstrap UCL	N/A
473											95% BCA Bootstrap UCL	N/A
474												
475					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
476					k star (bias corrected)	14.54					**Data do not follow a Discernable Distribution (0.05)**	
477					Theta Star	0.855						

478					nu star	785.1						
479												
480					A-D Test Statistic	1.427	**Nonparametric Statistics**					
481					5% A-D Critical Value	0.744	Kaplan-Meier (KM) Method					
482					K-S Test Statistic	0.744	Mean	12.43				
483					5% K-S Critical Value	0.168	SD	2.767				
484	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.543				
485							95% KM (t) UCL	13.35				
486	**Assuming Gamma Distribution**						95% KM (z) UCL	13.32				
487	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	13.35				
488					Minimum	5.74	95% KM (bootstrap t) UCL	13.26				
489					Maximum	16	95% KM (BCA) UCL	13.3				
490					Mean	12.43	95% KM (Percentile Bootstrap) UCL	13.25				
491					Median	13	95% KM (Chebyshev) UCL	14.79				
492					SD	2.82	97.5% KM (Chebyshev) UCL	15.82				
493					k star	14.54	99% KM (Chebyshev) UCL	17.83				
494					Theta star	0.855						
495					Nu star	785.1	**Potential UCLs to Use**					
496					AppChi2	721.1	95% KM (Chebyshev) UCL	14.79				
497					95% Gamma Approximate UCL	13.53						
498					95% Adjusted Gamma UCL	13.6						
499	**Note: DL/2 is not a recommended method.**											
500												
501												
502	**Mercury**											
503												
504	**General Statistics**											
505					Number of Valid Data	27	Number of Detected Data	27				
506					Number of Distinct Detected Data	17	Number of Non-Detect Data	0				
507					Number of Missing Values	13	Percent Non-Detects	0.00%				
508												
509	**Raw Statistics**						**Log-transformed Statistics**					
510					Minimum Detected	0.018	Minimum Detected	-4.017				
511					Maximum Detected	0.141	Maximum Detected	-1.959				
512					Mean of Detected	0.0525	Mean of Detected	-3.024				
513					SD of Detected	0.0232	SD of Detected	0.391				
514					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
515					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
516												
517												
518	**UCL Statistics**											
519	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
520					Shapiro Wilk Test Statistic	0.803	Shapiro Wilk Test Statistic	0.948				
521					5% Shapiro Wilk Critical Value	0.923	5% Shapiro Wilk Critical Value	0.923				
522	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
523												
524	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
525					DL/2 Substitution Method		DL/2 Substitution Method					
526					Mean	0.0525	Mean	-3.024				
527					SD	0.0232	SD	0.391				
528					95% DL/2 (t) UCL	0.0601	95% H-Stat (DL/2) UCL	0.0605				
529												
530					Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method					

531	**MLE method failed to converge properly**									Mean in Log Scale		N/A
532										SD in Log Scale		N/A
533										Mean in Original Scale		N/A
534										SD in Original Scale		N/A
535										95% Percentile Bootstrap UCL		N/A
536										95% BCA Bootstrap UCL		N/A
537												
538	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
539				k star (bias corrected)		6.001				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
540				Theta Star		0.00875						
541				nu star		324						
542												
543				A-D Test Statistic		0.836				**Nonparametric Statistics**		
544				5% A-D Critical Value		0.746				Kaplan-Meier (KM) Method		
545				K-S Test Statistic		0.746				Mean		0.0525
546				5% K-S Critical Value		0.168				SD		0.0228
547	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		0.00446
548										95% KM (t) UCL		0.0601
549	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0598
550				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.0601
551				Minimum		0.018				95% KM (bootstrap t) UCL		0.0629
552				Maximum		0.141				95% KM (BCA) UCL		0.0604
553				Mean		0.0525				95% KM (Percentile Bootstrap) UCL		0.0601
554				Median		0.05				95% KM (Chebyshev) UCL		0.0719
555				SD		0.0232				97.5% KM (Chebyshev) UCL		0.0804
556				k star		6.001				99% KM (Chebyshev) UCL		0.0969
557				Theta star		0.00875						
558				Nu star		324				**Potential UCLs to Use**		
559				AppChi2		283.3				95% KM (BCA) UCL		0.0604
560				95% Gamma Approximate UCL		0.06						
561				95% Adjusted Gamma UCL		0.0605						
562	**Note: DL/2 is not a recommended method.**											
563												
564												
565	**Naphthalene**											
566												
567							**General Statistics**					
568				Number of Valid Data		40				Number of Detected Data		36
569				Number of Distinct Detected Data		30				Number of Non-Detect Data		4
570										Percent Non-Detects		10.00%
571												
572				**Raw Statistics**						**Log-transformed Statistics**		
573				Minimum Detected		11				Minimum Detected		2.398
574				Maximum Detected		2500				Maximum Detected		7.824
575				Mean of Detected		151.9				Mean of Detected		3.932
576				SD of Detected		433.8				SD of Detected		1.124
577				Minimum Non-Detect		0.48				Minimum Non-Detect		-0.734
578				Maximum Non-Detect		0.91				Maximum Non-Detect		-0.0943
579												
580	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		4
581	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		36
582	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		10.00%
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584	**UCL Statistics**											
585	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
586	Shapiro Wilk Test Statistic					0.332	Shapiro Wilk Test Statistic					0.837
587	5% Shapiro Wilk Critical Value					0.935	5% Shapiro Wilk Critical Value					0.935
588	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
589												
590	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
591	DL/2 Substitution Method						DL/2 Substitution Method					
592	Mean					136.8	Mean					3.415
593	SD					413.6	SD					1.899
594	95% DL/2 (t) UCL					246.9	95% H-Stat (DL/2) UCL					395.4
595												
596	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
597	Mean					105.6	Mean in Log Scale					3.694
598	SD					435.9	SD in Log Scale					1.288
599	95% MLE (t) UCL					221.7	Mean in Original Scale					137.2
600	95% MLE (Tiku) UCL					212.5	SD in Original Scale					413.4
601							95% Percentile Bootstrap UCL					250.7
602							95% BCA Bootstrap UCL					329.2
603												
604	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
605	k star (bias corrected)					0.541	**Data do not follow a Discernable Distribution (0.05)**					
606	Theta Star					280.6						
607	nu star					38.98						
608												
609	A-D Test Statistic					5.192	**Nonparametric Statistics**					
610	5% A-D Critical Value					0.806	Kaplan-Meier (KM) Method					
611	K-S Test Statistic					0.806	Mean					137.8
612	5% K-S Critical Value					0.154	SD					408
613	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					65.43
614							95% KM (t) UCL					248.1
615	**Assuming Gamma Distribution**						95% KM (z) UCL					245.5
616	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					247.6
617	Minimum					1E-09	95% KM (bootstrap t) UCL					723.6
618	Maximum					2500	95% KM (BCA) UCL					268.4
619	Mean					136.7	95% KM (Percentile Bootstrap) UCL					253
620	Median					35	95% KM (Chebyshev) UCL					423
621	SD					413.6	97.5% KM (Chebyshev) UCL					546.4
622	k star					0.212	99% KM (Chebyshev) UCL					788.8
623	Theta star					644.4						
624	Nu star					16.97	**Potential UCLs to Use**					
625	AppChi2					8.654	95% KM (Chebyshev) UCL					423
626	95% Gamma Approximate UCL					268.2						
627	95% Adjusted Gamma UCL					275.3						
628	**Note: DL/2 is not a recommended method.**											
629												
630												
631	**Thallium**											
632												
633	**General Statistics**											
634	Number of Valid Data					9	Number of Detected Data					8
635	Number of Distinct Detected Data					6	Number of Non-Detect Data					1
636	Number of Missing Values					31	Percent Non-Detects					11.11%

Raw Statistics		
Minimum Detected	0.053	
Maximum Detected	27	
Mean of Detected	17.26	
SD of Detected	9.796	
Minimum Non-Detect	5	
Maximum Non-Detect	5	

Log-transformed Statistics	
Minimum Detected	-2.937
Maximum Detected	3.296
Mean of Detected	2.13
SD of Detected	2.136
Minimum Non-Detect	1.609
Maximum Non-Detect	1.609

Warning: There are only 8 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.808
5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level	
Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	15.62
SD	10.4
95% DL/2 (t) UCL	22.06
Maximum Likelihood Estimate(MLE) Method	
Mean	14.21
SD	12.18
95% MLE (t) UCL	21.76
95% MLE (Tiku) UCL	22.66
Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.598
Theta Star	28.86
nu star	9.568
A-D Test Statistic	1.429
5% A-D Critical Value	0.742
K-S Test Statistic	0.742
5% K-S Critical Value	0.303
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.053
Maximum	27
Mean	16.39

Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.597
5% Shapiro Wilk Critical Value	0.818
Data not Lognormal at 5% Significance Level	
Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	1.995
SD	2.039
95% H-Stat (DL/2) UCL	2527
Log ROS Method	
Mean in Log Scale	1.885
SD in Log Scale	2.129
Mean in Original Scale	15.44
SD in Original Scale	10.66
95% Percentile Bootstrap UCL	20.56
95% BCA Bootstrap UCL	20.21
Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	15.56
SD	9.898
SE of Mean	3.539
95% KM (t) UCL	22.15
95% KM (z) UCL	21.39
95% KM (jackknife) UCL	22.14
95% KM (bootstrap t) UCL	20.88
95% KM (BCA) UCL	21.56
95% KM (Percentile Bootstrap) UCL	21.89

690					Median	20				95% KM (Chebyshev) UCL		30.99
691					SD	9.526				97.5% KM (Chebyshev) UCL		37.66
692					k star	0.671				99% KM (Chebyshev) UCL		50.78
693					Theta star	24.43						
694					Nu star	12.07				**Potential UCLs to Use**		
695					AppChi2	5.276				99% KM (Chebyshev) UCL		50.78
696					95% Gamma Approximate UCL	37.51						
697					95% Adjusted Gamma UCL	45.31						
698	**Warning: Recommended UCL exceeds the maximum observation**											
699	**Note: DL/2 is not a recommended method.**											
700												
701												
702	**Total Aroclors**											
703												
704	**General Statistics**											
705					Number of Valid Data	15				Number of Detected Data		10
706					Number of Distinct Detected Data	10				Number of Non-Detect Data		5
707					Number of Missing Values	23				Percent Non-Detects		33.33%
708												
709	**Raw Statistics**									**Log-transformed Statistics**		
710					Minimum Detected	7.95				Minimum Detected		2.073
711					Maximum Detected	51.15				Maximum Detected		3.935
712					Mean of Detected	22.96				Mean of Detected		3.039
713					SD of Detected	11.21				SD of Detected		0.463
714					Minimum Non-Detect	2.3				Minimum Non-Detect		0.833
715					Maximum Non-Detect	38				Maximum Non-Detect		3.638
716												
717	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		14
718	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
719	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.33%
720												
721	**UCL Statistics**											
722	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
723					Shapiro Wilk Test Statistic	0.802				Shapiro Wilk Test Statistic		0.9
724					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
725	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
726												
727	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
728					DL/2 Substitution Method					DL/2 Substitution Method		
729					Mean	16.93				Mean		2.296
730					SD	13.29				SD		1.315
731					95% DL/2 (t) UCL	22.97				95% H-Stat (DL/2) UCL		51.34
732												
733					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
734	**MLE method failed to converge properly**									Mean in Log Scale		2.758
735										SD in Log Scale		0.576
736										Mean in Original Scale		18.42
737										SD in Original Scale		11.31
738										95% Percentile Bootstrap UCL		23.82
739										95% BCA Bootstrap UCL		24.24
740												
741	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
742					k star (bias corrected)	3.853				**Data appear Gamma Distributed at 5% Significance Level**		

743					Theta Star	5.961						
744					nu star	77.05						
745												
746					A-D Test Statistic	0.59	**Nonparametric Statistics**					
747					5% A-D Critical Value	0.729				Kaplan-Meier (KM) Method		
748					K-S Test Statistic	0.729				Mean		18.51
749					5% K-S Critical Value	0.267				SD		11.05
750	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		3.05
751										95% KM (t) UCL		23.88
752	**Assuming Gamma Distribution**									95% KM (z) UCL		23.52
753					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		23.78
754					Minimum	7.95				95% KM (bootstrap t) UCL		24.8
755					Maximum	51.15				95% KM (BCA) UCL		26.62
756					Mean	20.92				95% KM (Percentile Bootstrap) UCL		25.26
757					Median	18.5				95% KM (Chebyshev) UCL		31.8
758					SD	10.08				97.5% KM (Chebyshev) UCL		37.55
759					k star	4.581				99% KM (Chebyshev) UCL		48.85
760					Theta star	4.568						
761					Nu star	137.4	**Potential UCLs to Use**					
762					AppChi2	111.3				95% KM (Percentile Bootstrap) UCL		25.26
763					95% Gamma Approximate UCL	25.83						
764					95% Adjusted Gamma UCL	26.51						
765	**Note: DL/2 is not a recommended method.**											
766												
767												
768	**Total DDT**											
769												
770							**General Statistics**					
771					Number of Valid Data	16				Number of Detected Data		15
772					Number of Distinct Detected Data	15				Number of Non-Detect Data		1
773					Number of Missing Values	22				Percent Non-Detects		6.25%
774												
775	**Raw Statistics**						**Log-transformed Statistics**					
776					Minimum Detected	0.0993				Minimum Detected		-2.31
777					Maximum Detected	115.5				Maximum Detected		4.749
778					Mean of Detected	12.33				Mean of Detected		1.139
779					SD of Detected	29				SD of Detected		1.726
780					Minimum Non-Detect	0.0651				Minimum Non-Detect		-2.732
781					Maximum Non-Detect	0.0651				Maximum Non-Detect		-2.732
782												
783												
784							**UCL Statistics**					
785	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
786					Shapiro Wilk Test Statistic	0.428				Shapiro Wilk Test Statistic		0.981
787					5% Shapiro Wilk Critical Value	0.881				5% Shapiro Wilk Critical Value		0.881
788	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
789												
790	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
791					DL/2 Substitution Method					DL/2 Substitution Method		
792					Mean	11.56				Mean		0.854
793					SD	28.19				SD		2.021
794					95% DL/2 (t) UCL	23.91				95% H-Stat (DL/2) UCL		131.2
795												

796	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
797	Mean					10.35	Mean in Log Scale					0.877
798	SD					28.45	SD in Log Scale					1.97
799	95% MLE (t) UCL					22.82	Mean in Original Scale					11.56
800	95% MLE (Tiku) UCL					21.68	SD in Original Scale					28.19
801							95% Percentile Bootstrap UCL					24.98
802							95% BCA Bootstrap UCL					32.84
803												
804	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
805	k star (bias corrected)					0.419	**Data appear Lognormal at 5% Significance Level**					
806	Theta Star					29.45						
807	nu star					12.56						
808												
809	A-D Test Statistic					0.844	**Nonparametric Statistics**					
810	5% A-D Critical Value					0.8	Kaplan-Meier (KM) Method					
811	K-S Test Statistic					0.8	Mean					11.56
812	5% K-S Critical Value					0.235	SD					27.29
813	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					7.062
814							95% KM (t) UCL					23.94
815	**Assuming Gamma Distribution**						95% KM (z) UCL					23.18
816	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					23.91
817	Minimum					1E-09	95% KM (bootstrap t) UCL					70.24
818	Maximum					115.5	95% KM (BCA) UCL					26.47
819	Mean					11.56	95% KM (Percentile Bootstrap) UCL					24.42
820	Median					3.265	95% KM (Chebyshev) UCL					42.35
821	SD					28.19	97.5% KM (Chebyshev) UCL					55.67
822	k star					0.256	99% KM (Chebyshev) UCL					81.83
823	Theta star					45.21						
824	Nu star					8.181	**Potential UCLs to Use**					
825	AppChi2					2.84	99% KM (Chebyshev) UCL					81.83
826	95% Gamma Approximate UCL					33.29						
827	95% Adjusted Gamma UCL					37.91						
828	**Note: DL/2 is not a recommended method.**											
829												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM5.5E.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Aldrin											
10												
11					General Statistics							
12				Number of Valid Data	43			Number of Detected Data	9			
13				Number of Distinct Detected Data	9			Number of Non-Detect Data	34			
14				Number of Missing Values	4			Percent Non-Detects	79.07%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	0.0178			Minimum Detected	-4.029			
18				Maximum Detected	2.57			Maximum Detected	0.944			
19				Mean of Detected	0.955			Mean of Detected	-0.507			
20				SD of Detected	0.722			SD of Detected	1.412			
21				Minimum Non-Detect	0.0328			Minimum Non-Detect	-3.417			
22				Maximum Non-Detect	1.41			Maximum Non-Detect	0.344			
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect	42			
25	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected	1			
26	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage	97.67%			
27												
28				Warning: There are only 9 Detected Values in this data								
29				Note: It should be noted that even though bootstrap may be performed on this data set								
30				the resulting calculations may not be reliable enough tp draw conclusions								
31												
32				It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.								
33												
34												
35					UCL Statistics							
36				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
37				Shapiro Wilk Test Statistic	0.891			Shapiro Wilk Test Statistic	0.736			
38				5% Shapiro Wilk Critical Value	0.829			5% Shapiro Wilk Critical Value	0.829			
39				Data appear Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level				
40												
41				Assuming Normal Distribution				Assuming Lognormal Distribution				
42				DL/2 Substitution Method				DL/2 Substitution Method				
43				Mean	0.408			Mean	-1.663			
44				SD	0.478			SD	1.429			
45				95% DL/2 (t) UCL	0.531			95% H-Stat (DL/2) UCL	0.838			
46												
47				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
48				MLE method failed to converge properly				Mean in Log Scale	-2.506			
49								SD in Log Scale	1.252			
50								Mean in Original Scale	0.241			
51								SD in Original Scale	0.488			
52								95% Percentile Bootstrap UCL	0.374			
53								95% BCA Bootstrap UCL	0.417			

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56				k star (bias corrected)	0.89		**Data appear Normal at 5% Significance Level**					
57				Theta Star	1.074							
58				nu star	16.01							
59												
60				A-D Test Statistic	0.562		**Nonparametric Statistics**					
61				5% A-D Critical Value	0.739		Kaplan-Meier (KM) Method					
62				K-S Test Statistic	0.739		Mean	0.253				
63				5% K-S Critical Value	0.286		SD	0.505				
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0868				
65							95% KM (t) UCL	0.399				
66	**Assuming Gamma Distribution**						95% KM (z) UCL	0.396				
67				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	0.52				
68				Minimum	1E-09		95% KM (bootstrap t) UCL	0.398				
69				Maximum	2.57		95% KM (BCA) UCL	0.822				
70				Mean	0.2		95% KM (Percentile Bootstrap) UCL	0.748				
71				Median	1E-09		95% KM (Chebyshev) UCL	0.631				
72				SD	0.504		97.5% KM (Chebyshev) UCL	0.795				
73				k star	0.0694		99% KM (Chebyshev) UCL	1.117				
74				Theta star	2.879							
75				Nu star	5.973		**Potential UCLs to Use**					
76				AppChi2	1.626		95% KM (t) UCL	0.399				
77				95% Gamma Approximate UCL	0.735		95% KM (Percentile Bootstrap) UCL	0.748				
78				95% Adjusted Gamma UCL	0.771							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85				Number of Valid Data	47		Number of Detected Data	44				
86				Number of Distinct Detected Data	42		Number of Non-Detect Data	3				
87							Percent Non-Detects	6.38%				
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90				Minimum Detected	1.92		Minimum Detected	0.652				
91				Maximum Detected	22		Maximum Detected	3.091				
92				Mean of Detected	6.011		Mean of Detected	1.582				
93				SD of Detected	4.889		SD of Detected	0.601				
94				Minimum Non-Detect	4		Minimum Non-Detect	1.386				
95				Maximum Non-Detect	5		Maximum Non-Detect	1.609				
96												
97	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	31				
98	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	16				
99	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	65.96%				
100												
101	**UCL Statistics**											
102	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
103				Shapiro Wilk Test Statistic	0.681		Shapiro Wilk Test Statistic	0.894				
104				5% Shapiro Wilk Critical Value	0.944		5% Shapiro Wilk Critical Value	0.944				
105	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
108					DL/2 Substitution Method						DL/2 Substitution Method	
109					Mean	5.766					Mean	1.53
110					SD	4.822					SD	0.616
111					95% DL/2 (t) UCL	6.946					95% H-Stat (DL/2) UCL	5.964
112												
113					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
114					Mean	0.838					Mean in Log Scale	1.555
115					SD	9.181					SD in Log Scale	0.592
116					95% MLE (t) UCL	3.086					Mean in Original Scale	5.833
117					95% MLE (Tiku) UCL	4.43					SD in Original Scale	4.778
118											95% Percentile Bootstrap UCL	7.017
119											95% BCA Bootstrap UCL	7.228
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122					k star (bias corrected)	2.358	**Data do not follow a Discernable Distribution (0.05)**					
123					Theta Star	2.549						
124					nu star	207.5						
125												
126					A-D Test Statistic	2.833	**Nonparametric Statistics**					
127					5% A-D Critical Value	0.758					Kaplan-Meier (KM) Method	
128					K-S Test Statistic	0.758					Mean	5.834
129					5% K-S Critical Value	0.135					SD	4.728
130	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.698
131											95% KM (t) UCL	7.006
132	**Assuming Gamma Distribution**										95% KM (z) UCL	6.982
133					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	7.005
134					Minimum	1.92					95% KM (bootstrap t) UCL	7.537
135					Maximum	22					95% KM (BCA) UCL	7.049
136					Mean	5.873					95% KM (Percentile Bootstrap) UCL	7.112
137					Median	4.45					95% KM (Chebyshev) UCL	8.877
138					SD	4.768					97.5% KM (Chebyshev) UCL	10.19
139					k star	2.41					99% KM (Chebyshev) UCL	12.78
140					Theta star	2.437						
141					Nu star	226.5	**Potential UCLs to Use**					
142					AppChi2	192.7					95% KM (Chebyshev) UCL	8.877
143					95% Gamma Approximate UCL	6.904						
144					95% Adjusted Gamma UCL	6.94						
145	**Note: DL/2 is not a recommended method.**											
146												
147												
148	**Benzo(a)anthracene**											
149												
150	**General Statistics**											
151					Number of Valid Observations	47					Number of Distinct Observations	42
152												
153	**Raw Statistics**						**Log-transformed Statistics**					
154					Minimum	17.7					Minimum of Log Data	2.874
155					Maximum	2600					Maximum of Log Data	7.863
156					Mean	462.1					Mean of log Data	5.752
157					Median	350					SD of log Data	0.948
158					SD	450.9						
159					Coefficient of Variation	0.976						

160					Skewness	2.76						
161												
162	**Relevant UCL Statistics**											
163	**Normal Distribution Test**						**Lognormal Distribution Test**					
164					Shapiro Wilk Test Statistic	0.746					Shapiro Wilk Test Statistic	0.972
165					Shapiro Wilk Critical Value	0.946					Shapiro Wilk Critical Value	0.946
166	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
167												
168	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
169					95% Student's-t UCL	572.5					95% H-UCL	677.6
170	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	826.9
171					95% Adjusted-CLT UCL	598.6					97.5% Chebyshev (MVUE) UCL	974
172					95% Modified-t UCL	577					99% Chebyshev (MVUE) UCL	1263
173												
174	**Gamma Distribution Test**						**Data Distribution**					
175					k star (bias corrected)	1.368	**Data appear Gamma Distributed at 5% Significance Level**					
176					Theta Star	337.8						
177					nu star	128.6						
178					Approximate Chi Square Value (.05)	103.4	**Nonparametric Statistics**					
179					Adjusted Level of Significance	0.0449					95% CLT UCL	570.3
180					Adjusted Chi Square Value	102.7					95% Jackknife UCL	572.5
181											95% Standard Bootstrap UCL	569.3
182					Anderson-Darling Test Statistic	0.44					95% Bootstrap-t UCL	614.2
183					Anderson-Darling 5% Critical Value	0.769					95% Hall's Bootstrap UCL	672.9
184					Kolmogorov-Smirnov Test Statistic	0.111					95% Percentile Bootstrap UCL	575
185					Kolmogorov-Smirnov 5% Critical Value	0.132					95% BCA Bootstrap UCL	597.3
186	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	748.8
187											97.5% Chebyshev(Mean, Sd) UCL	872.9
188	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	1117
189					95% Approximate Gamma UCL	574.7						
190					95% Adjusted Gamma UCL	578.7						
191												
192	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	574.7
193												
194												
195	**Benzo(a)pyrene**											
196												
197	**General Statistics**											
198					Number of Valid Observations	47					Number of Distinct Observations	41
199												
200	**Raw Statistics**						**Log-transformed Statistics**					
201					Minimum	38.3					Minimum of Log Data	3.645
202					Maximum	2520					Maximum of Log Data	7.832
203					Mean	561.6					Mean of log Data	5.946
204					Median	390					SD of log Data	0.937
205					SD	514.7						
206					Coefficient of Variation	0.916						
207					Skewness	1.846						
208												
209	**Relevant UCL Statistics**											
210	**Normal Distribution Test**						**Lognormal Distribution Test**					
211					Shapiro Wilk Test Statistic	0.811					Shapiro Wilk Test Statistic	0.98
212					Shapiro Wilk Critical Value	0.946					Shapiro Wilk Critical Value	0.946

213	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
214												
215	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
216				95% Student's-t UCL	687.7						95% H-UCL	809.8
217	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	987.9
218				95% Adjusted-CLT UCL	706.7						97.5% Chebyshev (MVUE) UCL	1162
219				95% Modified-t UCL	691						99% Chebyshev (MVUE) UCL	1505
220												
221	**Gamma Distribution Test**						**Data Distribution**					
222				k star (bias corrected)	1.364		**Data appear Gamma Distributed at 5% Significance Level**					
223				Theta Star	411.6							
224				nu star	128.2							
225				Approximate Chi Square Value (.05)	103.1		**Nonparametric Statistics**					
226				Adjusted Level of Significance	0.0449						95% CLT UCL	685.1
227				Adjusted Chi Square Value	102.4						95% Jackknife UCL	687.7
228											95% Standard Bootstrap UCL	687.9
229				Anderson-Darling Test Statistic	0.327						95% Bootstrap-t UCL	720
230				Anderson-Darling 5% Critical Value	0.769						95% Hall's Bootstrap UCL	725.8
231				Kolmogorov-Smirnov Test Statistic	0.084						95% Percentile Bootstrap UCL	690.6
232				Kolmogorov-Smirnov 5% Critical Value	0.132						95% BCA Bootstrap UCL	712.8
233	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	888.9
234											97.5% Chebyshev(Mean, Sd) UCL	1030
235	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	1309
236				95% Approximate Gamma UCL	698.7							
237				95% Adjusted Gamma UCL	703.6							
238												
239	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	698.7
240												
241												
242	**Benzo(b)fluoranthene**											
243												
244	**General Statistics**											
245				Number of Valid Observations	47						Number of Distinct Observations	45
246												
247	**Raw Statistics**						**Log-transformed Statistics**					
248				Minimum	67.6						Minimum of Log Data	4.214
249				Maximum	4130						Maximum of Log Data	8.326
250				Mean	677.4						Mean of log Data	6.151
251				Median	516						SD of log Data	0.898
252				SD	676.6							
253				Coefficient of Variation	0.999							
254				Skewness	3.213							
255												
256	**Relevant UCL Statistics**											
257	**Normal Distribution Test**						**Lognormal Distribution Test**					
258				Shapiro Wilk Test Statistic	0.714						Shapiro Wilk Test Statistic	0.971
259				Shapiro Wilk Critical Value	0.946						Shapiro Wilk Critical Value	0.946
260	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
261												
262	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
263				95% Student's-t UCL	843						95% H-UCL	941.9
264	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1148
265				95% Adjusted-CLT UCL	889.1						97.5% Chebyshev (MVUE) UCL	1344

266					95% Modified-t UCL	850.8					99% Chebyshev (MVUE) UCL	1729
267												
268				**Gamma Distribution Test**						**Data Distribution**		
269					k star (bias corrected)	1.423				**Data appear Gamma Distributed at 5% Significance Level**		
270					Theta Star	476						
271					nu star	133.8						
272					Approximate Chi Square Value (.05)	108.1				**Nonparametric Statistics**		
273					Adjusted Level of Significance	0.0449					95% CLT UCL	839.7
274					Adjusted Chi Square Value	107.3					95% Jackknife UCL	843
275											95% Standard Bootstrap UCL	837.8
276					Anderson-Darling Test Statistic	0.385					95% Bootstrap-t UCL	927
277					Anderson-Darling 5% Critical Value	0.768					95% Hall's Bootstrap UCL	1460
278					Kolmogorov-Smirnov Test Statistic	0.0803					95% Percentile Bootstrap UCL	852.8
279					Kolmogorov-Smirnov 5% Critical Value	0.131					95% BCA Bootstrap UCL	889.6
280				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	1108
281											97.5% Chebyshev(Mean, Sd) UCL	1294
282				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	1659
283					95% Approximate Gamma UCL	838.6						
284					95% Adjusted Gamma UCL	844.3						
285												
286				**Potential UCL to Use**							Use 95% Approximate Gamma UCL	838.6
287												
288												
289	**Benzo(k)fluoranthene**											
290												
291						**General Statistics**						
292					Number of Valid Data	33				Number of Detected Data		33
293					Number of Distinct Detected Data	28				Number of Non-Detect Data		0
294					Number of Missing Values	14				Percent Non-Detects		0.00%
295												
296				**Raw Statistics**						**Log-transformed Statistics**		
297					Minimum Detected	52				Minimum Detected		3.951
298					Maximum Detected	1100				Maximum Detected		7.003
299					Mean of Detected	261.6				Mean of Detected		5.276
300					SD of Detected	237.3				SD of Detected		0.759
301					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
302					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
303												
304												
305						**UCL Statistics**						
306				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
307					Shapiro Wilk Test Statistic	0.722				Shapiro Wilk Test Statistic		0.964
308					5% Shapiro Wilk Critical Value	0.931				5% Shapiro Wilk Critical Value		0.931
309				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
310												
311				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
312					DL/2 Substitution Method					DL/2 Substitution Method		
313					Mean	261.6				Mean		5.276
314					SD	237.3				SD		0.759
315					95% DL/2 (t) UCL	331.6				95% H-Stat (DL/2) UCL		347.9
316												
317					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
318				**MLE method failed to converge properly**						Mean in Log Scale		N/A

319											SD in Log Scale	N/A
320											Mean in Original Scale	N/A
321											SD in Original Scale	N/A
322											95% Percentile Bootstrap UCL	N/A
323											95% BCA Bootstrap UCL	N/A
324												
325	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
326					k star (bias corrected)	1.718	**Data appear Gamma Distributed at 5% Significance Level**					
327					Theta Star	152.3						
328					nu star	113.4						
329												
330					A-D Test Statistic	0.664	**Nonparametric Statistics**					
331					5% A-D Critical Value	0.761					Kaplan-Meier (KM) Method	
332					K-S Test Statistic	0.761					Mean	261.6
333					5% K-S Critical Value	0.155					SD	233.7
334	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	41.31
335											95% KM (t) UCL	331.6
336	**Assuming Gamma Distribution**										95% KM (z) UCL	329.6
337					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	331.6
338					Minimum	52					95% KM (bootstrap t) UCL	380.4
339					Maximum	1100					95% KM (BCA) UCL	336.6
340					Mean	261.6					95% KM (Percentile Bootstrap) UCL	335.6
341					Median	200					95% KM (Chebyshev) UCL	441.7
342					SD	237.3					97.5% KM (Chebyshev) UCL	519.6
343					k star	1.718					99% KM (Chebyshev) UCL	672.7
344					Theta star	152.3						
345					Nu star	113.4	**Potential UCLs to Use**					
346					AppChi2	89.78					95% KM (Chebyshev) UCL	441.7
347					95% Gamma Approximate UCL	330.3						
348					95% Adjusted Gamma UCL	334.4						
349	**Note: DL/2 is not a recommended method.**											
350												
351												
352	**Bis(2-ethylhexyl) phthalate**											
353												
354	**General Statistics**											
355					Number of Valid Data	47					Number of Detected Data	34
356					Number of Distinct Detected Data	32					Number of Non-Detect Data	13
357											Percent Non-Detects	27.66%
358												
359	**Raw Statistics**						**Log-transformed Statistics**					
360					Minimum Detected	78					Minimum Detected	4.357
361					Maximum Detected	1510					Maximum Detected	7.32
362					Mean of Detected	329.8					Mean of Detected	5.517
363					SD of Detected	286.3					SD of Detected	0.744
364					Minimum Non-Detect	23.3					Minimum Non-Detect	3.148
365					Maximum Non-Detect	330					Maximum Non-Detect	5.799
366												
367	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	34
368	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	13
369	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	72.34%
370												
371	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
372	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
373					Shapiro Wilk Test Statistic	0.767					Shapiro Wilk Test Statistic	0.962
374					5% Shapiro Wilk Critical Value	0.933					5% Shapiro Wilk Critical Value	0.933
375	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
376												
377	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
378					DL/2 Substitution Method						DL/2 Substitution Method	
379					Mean	256.9					Mean	5.092
380					SD	271.2					SD	1.008
381					95% DL/2 (t) UCL	323.3					95% H-Stat (DL/2) UCL	309.3
382												
383					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
384					Mean	23.69					Mean in Log Scale	5.143
385					SD	487.7					SD in Log Scale	0.899
386					95% MLE (t) UCL	143.1					Mean in Original Scale	257.6
387					95% MLE (Tiku) UCL	247.5					SD in Original Scale	270.1
388											95% Percentile Bootstrap UCL	325
389											95% BCA Bootstrap UCL	335.6
390												
391	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
392					k star (bias corrected)	1.777	**Data appear Gamma Distributed at 5% Significance Level**					
393					Theta Star	185.6						
394					nu star	120.8						
395												
396					A-D Test Statistic	0.602	**Nonparametric Statistics**					
397					5% A-D Critical Value	0.76					Kaplan-Meier (KM) Method	
398					K-S Test Statistic	0.76					Mean	264.1
399					5% K-S Critical Value	0.153					SD	263
400	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	38.99
401											95% KM (t) UCL	329.6
402	**Assuming Gamma Distribution**										95% KM (z) UCL	328.3
403					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	327.6
404					Minimum	54.87					95% KM (bootstrap t) UCL	354
405					Maximum	1510					95% KM (BCA) UCL	335.5
406					Mean	287.2					95% KM (Percentile Bootstrap) UCL	329.6
407					Median	204					95% KM (Chebyshev) UCL	434.1
408					SD	257.7					97.5% KM (Chebyshev) UCL	507.6
409					k star	1.759					99% KM (Chebyshev) UCL	652.1
410					Theta star	163.3						
411					Nu star	165.3	**Potential UCLs to Use**					
412					AppChi2	136.6					95% KM (Percentile Bootstrap) UCL	329.6
413					95% Gamma Approximate UCL	347.6						
414					95% Adjusted Gamma UCL	349.7						
415	**Note: DL/2 is not a recommended method.**											
416												
417												
418	**Dibenzo(a,h)anthracene**											
419												
420	**General Statistics**											
421					Number of Valid Data	47					Number of Detected Data	46
422					Number of Distinct Detected Data	41					Number of Non-Detect Data	1
423											Percent Non-Detects	2.13%
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425	**Raw Statistics**						**Log-transformed Statistics**					
426	Minimum Detected					13	Minimum Detected					2.565
427	Maximum Detected					456	Maximum Detected					6.122
428	Mean of Detected					89.72	Mean of Detected					4.164
429	SD of Detected					81.4	SD of Detected					0.849
430	Minimum Non-Detect					15.9	Minimum Non-Detect					2.766
431	Maximum Non-Detect					15.9	Maximum Non-Detect					2.766
432												
433												
434	**UCL Statistics**											
435	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
436	Shapiro Wilk Test Statistic					0.771	Shapiro Wilk Test Statistic					0.964
437	5% Shapiro Wilk Critical Value					0.945	5% Shapiro Wilk Critical Value					0.945
438	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
439												
440	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
441	DL/2 Substitution Method						DL/2 Substitution Method					
442	Mean					87.98	Mean					4.12
443	SD					81.39	SD					0.894
444	95% DL/2 (t) UCL					107.9	95% H-Stat (DL/2) UCL					116.8
445												
446	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
447	Mean					83.04	Mean in Log Scale					4.132
448	SD					87.3	SD in Log Scale					0.867
449	95% MLE (t) UCL					104.4	Mean in Original Scale					88.12
450	95% MLE (Tiku) UCL					103.7	SD in Original Scale					81.25
451							95% Percentile Bootstrap UCL					109.2
452							95% BCA Bootstrap UCL					112.7
453												
454	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
455	k star (bias corrected)					1.557	**Data appear Gamma Distributed at 5% Significance Level**					
456	Theta Star					57.62						
457	nu star					143.2						
458												
459	A-D Test Statistic					0.395	**Nonparametric Statistics**					
460	5% A-D Critical Value					0.766	Kaplan-Meier (KM) Method					
461	K-S Test Statistic					0.766	Mean					88.09
462	5% K-S Critical Value					0.133	SD					80.41
463	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					11.86
464							95% KM (t) UCL					108
465	**Assuming Gamma Distribution**						95% KM (z) UCL					107.6
466	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					108
467	Minimum					1E-09	95% KM (bootstrap t) UCL					117.8
468	Maximum					456	95% KM (BCA) UCL					110.2
469	Mean					87.81	95% KM (Percentile Bootstrap) UCL					109.6
470	Median					72.9	95% KM (Chebyshev) UCL					139.8
471	SD					81.56	97.5% KM (Chebyshev) UCL					162.1
472	k star					0.685	99% KM (Chebyshev) UCL					206.1
473	Theta star					128.2						
474	Nu star					64.39	**Potential UCLs to Use**					
475	AppChi2					46.93	95% KM (Chebyshev) UCL					139.8
476	95% Gamma Approximate UCL					120.5						
477	95% Adjusted Gamma UCL					121.7						

	A	B	C	D	E	F	G	H	I	J	K	L
478	**Note: DL/2 is not a recommended method.**											
479												
480												
481	**Dieldrin**											
482												
483	**General Statistics**											
484	Number of Valid Data					42	Number of Detected Data					8
485	Number of Distinct Detected Data					8	Number of Non-Detect Data					34
486	Number of Missing Values					5	Percent Non-Detects					80.95%
487												
488	**Raw Statistics**						**Log-transformed Statistics**					
489	Minimum Detected					0.038	Minimum Detected					-3.27
490	Maximum Detected					5.3	Maximum Detected					1.668
491	Mean of Detected					1.436	Mean of Detected					-0.816
492	SD of Detected					2.004	SD of Detected					1.772
493	Minimum Non-Detect					0.0536	Minimum Non-Detect					-2.926
494	Maximum Non-Detect					2	Maximum Non-Detect					0.693
495												
496	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					40
497	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					2
498	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					95.24%
499												
500	**Warning: There are only 8 Detected Values in this data**											
501	**Note: It should be noted that even though bootstrap may be performed on this data set**											
502	**the resulting calculations may not be reliable enough tp draw conclusions**											
503												
504	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
505												
506												
507	**UCL Statistics**											
508	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
509	Shapiro Wilk Test Statistic					0.746	Shapiro Wilk Test Statistic					0.913
510	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
511	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
512												
513	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
514	DL/2 Substitution Method						DL/2 Substitution Method					
515	Mean					0.471	Mean					-1.691
516	SD					0.974	SD					1.303
517	95% DL/2 (t) UCL					0.724	95% H-Stat (DL/2) UCL					0.7
518												
519	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
520	**MLE method failed to converge properly**						Mean in Log Scale					-3.035
521							SD in Log Scale					1.359
522							Mean in Original Scale					0.298
523							SD in Original Scale					0.999
524							95% Percentile Bootstrap UCL					0.56
525							95% BCA Bootstrap UCL					0.718
526												
527	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
528	k star (bias corrected)					0.417	**Data appear Gamma Distributed at 5% Significance Level**					
529	Theta Star					3.443						
530	nu star					6.672						

531												
532					A-D Test Statistic	0.575	**Nonparametric Statistics**					
533					5% A-D Critical Value	0.76				Kaplan-Meier (KM) Method		
534					K-S Test Statistic	0.76				Mean		0.325
535					5% K-S Critical Value	0.308				SD		0.982
536	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.163
537										95% KM (t) UCL		0.598
538	**Assuming Gamma Distribution**									95% KM (z) UCL		0.592
539	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.546
540					Minimum	0.038				95% KM (bootstrap t) UCL		1.102
541					Maximum	5.918				95% KM (BCA) UCL		0.766
542					Mean	2.248				95% KM (Percentile Bootstrap) UCL		0.641
543					Median	2.555				95% KM (Chebyshev) UCL		1.033
544					SD	1.268				97.5% KM (Chebyshev) UCL		1.34
545					k star	1.607				99% KM (Chebyshev) UCL		1.943
546					Theta star	1.399						
547					Nu star	135	**Potential UCLs to Use**					
548					AppChi2	109.2				95% KM (t) UCL		0.598
549					95% Gamma Approximate UCL	2.78						
550					95% Adjusted Gamma UCL	2.801						
551	**Note: DL/2 is not a recommended method.**											
552												
553												
554	**Indeno(1,2,3-cd)pyrene**											
555												
556	**General Statistics**											
557					Number of Valid Observations	47				Number of Distinct Observations		44
558												
559	**Raw Statistics**						**Log-transformed Statistics**					
560					Minimum	33				Minimum of Log Data		3.497
561					Maximum	2120				Maximum of Log Data		7.659
562					Mean	426				Mean of log Data		5.69
563					Median	310				SD of log Data		0.889
564					SD	397.1						
565					Coefficient of Variation	0.932						
566					Skewness	2.209						
567												
568	**Relevant UCL Statistics**											
569	**Normal Distribution Test**						**Lognormal Distribution Test**					
570					Shapiro Wilk Test Statistic	0.789				Shapiro Wilk Test Statistic		0.99
571					Shapiro Wilk Critical Value	0.946				Shapiro Wilk Critical Value		0.946
572	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
573												
574	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
575					95% Student's-t UCL	523.2				95% H-UCL		586.7
576	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		714.4
577					95% Adjusted-CLT UCL	541.2				97.5% Chebyshev (MVUE) UCL		835.7
578					95% Modified-t UCL	526.4				99% Chebyshev (MVUE) UCL		1074
579												
580	**Gamma Distribution Test**						**Data Distribution**					
581					k star (bias corrected)	1.435	**Data appear Gamma Distributed at 5% Significance Level**					
582					Theta Star	296.9						
583					nu star	134.9						

584					Approximate Chi Square Value (.05)	109		**Nonparametric Statistics**				
585					Adjusted Level of Significance	0.0449					95% CLT UCL	521.3
586					Adjusted Chi Square Value	108.3					95% Jackknife UCL	523.2
587											95% Standard Bootstrap UCL	522.3
588					Anderson-Darling Test Statistic	0.363					95% Bootstrap-t UCL	550.6
589					Anderson-Darling 5% Critical Value	0.767					95% Hall's Bootstrap UCL	571.5
590					Kolmogorov-Smirnov Test Statistic	0.0874					95% Percentile Bootstrap UCL	521.7
591					Kolmogorov-Smirnov 5% Critical Value	0.131					95% BCA Bootstrap UCL	536.6
592	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	678.5
593											97.5% Chebyshev(Mean, Sd) UCL	787.7
594	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	1002
595					95% Approximate Gamma UCL	526.9						
596					95% Adjusted Gamma UCL	530.5						
597												
598	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	526.9
599												
600												
601	**Lead**											
602												
603					**General Statistics**							
604					Number of Valid Observations	47					Number of Distinct Observations	47
605												
606					**Raw Statistics**			**Log-transformed Statistics**				
607					Minimum	8.08					Minimum of Log Data	2.089
608					Maximum	332					Maximum of Log Data	5.805
609					Mean	60.18					Mean of log Data	3.748
610					Median	36.2					SD of log Data	0.845
611					SD	56.85						
612					Coefficient of Variation	0.945						
613					Skewness	2.62						
614												
615					**Relevant UCL Statistics**							
616					**Normal Distribution Test**			**Lognormal Distribution Test**				
617					Shapiro Wilk Test Statistic	0.758					Shapiro Wilk Test Statistic	0.963
618					Shapiro Wilk Critical Value	0.946					Shapiro Wilk Critical Value	0.946
619	**Data not Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
620												
621					**Assuming Normal Distribution**			**Assuming Lognormal Distribution**				
622					95% Student's-t UCL	74.1					95% H-UCL	79.39
623					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	96.43
624					95% Adjusted-CLT UCL	77.21					97.5% Chebyshev (MVUE) UCL	112.2
625					95% Modified-t UCL	74.63					99% Chebyshev (MVUE) UCL	143.1
626												
627					**Gamma Distribution Test**			**Data Distribution**				
628					k star (bias corrected)	1.49		**Data appear Lognormal at 5% Significance Level**				
629					Theta Star	40.39						
630					nu star	140.1						
631					Approximate Chi Square Value (.05)	113.7		**Nonparametric Statistics**				
632					Adjusted Level of Significance	0.0449					95% CLT UCL	73.82
633					Adjusted Chi Square Value	113					95% Jackknife UCL	74.1
634											95% Standard Bootstrap UCL	73.27
635					Anderson-Darling Test Statistic	0.876					95% Bootstrap-t UCL	78.74
636					Anderson-Darling 5% Critical Value	0.767					95% Hall's Bootstrap UCL	84.82

	A	B	C	D	E	F	G	H	I	J	K	L
637					Kolmogorov-Smirnov Test Statistic	0.139					95% Percentile Bootstrap UCL	74.11
638					Kolmogorov-Smirnov 5% Critical Value	0.131					95% BCA Bootstrap UCL	78.67
639					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	96.33
640											97.5% Chebyshev(Mean, Sd) UCL	112
641					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	142.7
642					95% Approximate Gamma UCL	74.12						
643					95% Adjusted Gamma UCL	74.62						
644												
645					**Potential UCL to Use**						Use 95% H-UCL	79.39
646												
647												
648	**Mercury**											
649												
650					**General Statistics**							
651					Number of Valid Data	47					Number of Detected Data	46
652					Number of Distinct Detected Data	42					Number of Non-Detect Data	1
653											Percent Non-Detects	2.13%
654												
655					**Raw Statistics**						**Log-transformed Statistics**	
656					Minimum Detected	0.0085					Minimum Detected	-4.768
657					Maximum Detected	4.84					Maximum Detected	1.577
658					Mean of Detected	0.231					Mean of Detected	-2.209
659					SD of Detected	0.701					SD of Detected	0.952
660					Minimum Non-Detect	0.00887					Minimum Non-Detect	-4.725
661					Maximum Non-Detect	0.00887					Maximum Non-Detect	-4.725
662												
663												
664					**UCL Statistics**							
665					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
666					Shapiro Wilk Test Statistic	0.236					Shapiro Wilk Test Statistic	0.868
667					5% Shapiro Wilk Critical Value	0.945					5% Shapiro Wilk Critical Value	0.945
668					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
669												
670					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
671					DL/2 Substitution Method						DL/2 Substitution Method	
672					Mean	0.226					Mean	-2.278
673					SD	0.694					SD	1.051
674					95% DL/2 (t) UCL	0.396					95% H-Stat (DL/2) UCL	0.242
675												
676					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
677					Mean	0.205					Mean in Log Scale	-2.251
678					SD	0.705					SD in Log Scale	0.983
679					95% MLE (t) UCL	0.378					Mean in Original Scale	0.226
680					95% MLE (Tiku) UCL	0.359					SD in Original Scale	0.694
681											95% Percentile Bootstrap UCL	0.425
682											95% BCA Bootstrap UCL	0.528
683												
684					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
685					k star (bias corrected)	0.761					**Data do not follow a Discernable Distribution (0.05)**	
686					Theta Star	0.303						
687					nu star	70.04						
688												
689					A-D Test Statistic	5.559					**Nonparametric Statistics**	

690					5% A-D Critical Value	0.788				Kaplan-Meier (KM) Method		
691					K-S Test Statistic	0.788				Mean		0.226
692					5% K-S Critical Value	0.135				SD		0.687
693	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.101
694										95% KM (t) UCL		0.396
695	**Assuming Gamma Distribution**									95% KM (z) UCL		0.393
696	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.396
697					Minimum	1E-09				95% KM (bootstrap t) UCL		1.438
698					Maximum	4.84				95% KM (BCA) UCL		0.432
699					Mean	0.226				95% KM (Percentile Bootstrap) UCL		0.427
700					Median	0.119				95% KM (Chebyshev) UCL		0.668
701					SD	0.694				97.5% KM (Chebyshev) UCL		0.859
702					k star	0.538				99% KM (Chebyshev) UCL		1.234
703					Theta star	0.42						
704					Nu star	50.59				**Potential UCLs to Use**		
705					AppChi2	35.26				95% KM (Chebyshev) UCL		0.668
706					95% Gamma Approximate UCL	0.324						
707					95% Adjusted Gamma UCL	0.328						
708	**Note: DL/2 is not a recommended method.**											
709												
710												
711	**Naphthalene**											
712												
713						**General Statistics**						
714					Number of Valid Data	47				Number of Detected Data		44
715					Number of Distinct Detected Data	40				Number of Non-Detect Data		3
716										Percent Non-Detects		6.38%
717												
718					**Raw Statistics**					**Log-transformed Statistics**		
719					Minimum Detected	3.63				Minimum Detected		1.289
720					Maximum Detected	2300				Maximum Detected		7.741
721					Mean of Detected	142.9				Mean of Detected		4.094
722					SD of Detected	351.4				SD of Detected		1.223
723					Minimum Non-Detect	10				Minimum Non-Detect		2.303
724					Maximum Non-Detect	16.5				Maximum Non-Detect		2.803
725												
726	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		6
727	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		41
728	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		12.77%
729												
730						**UCL Statistics**						
731					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
732					Shapiro Wilk Test Statistic	0.349				Shapiro Wilk Test Statistic		0.964
733					5% Shapiro Wilk Critical Value	0.944				5% Shapiro Wilk Critical Value		0.944
734					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
735												
736					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
737					DL/2 Substitution Method					DL/2 Substitution Method		
738					Mean	134.3				Mean		3.956
739					SD	341.4				SD		1.299
740					95% DL/2 (t) UCL	217.9				95% H-Stat (DL/2) UCL		176
741												
742					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		

743					Mean	102				Mean in Log Scale		3.953
744					SD	367.4				SD in Log Scale		1.303
745					95% MLE (t) UCL	191.9				Mean in Original Scale		134.2
746					95% MLE (Tiku) UCL	186				SD in Original Scale		341.4
747										95% Percentile Bootstrap UCL		227.9
748										95% BCA Bootstrap UCL		286
749												
750				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
751					k star (bias corrected)	0.664				**Data appear Lognormal at 5% Significance Level**		
752					Theta Star	215.2						
753					nu star	58.45						
754												
755					A-D Test Statistic	2.262				**Nonparametric Statistics**		
756					5% A-D Critical Value	0.795				Kaplan-Meier (KM) Method		
757					K-S Test Statistic	0.795				Mean		134.1
758					5% K-S Critical Value	0.139				SD		337.8
759				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		49.85
760										95% KM (t) UCL		217.8
761				**Assuming Gamma Distribution**						95% KM (z) UCL		216.1
762					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		217.7
763					Minimum	1E-09				95% KM (bootstrap t) UCL		440
764					Maximum	2300				95% KM (BCA) UCL		240
765					Mean	133.8				95% KM (Percentile Bootstrap) UCL		226.4
766					Median	55				95% KM (Chebyshev) UCL		351.3
767					SD	341.6				97.5% KM (Chebyshev) UCL		445.4
768					k star	0.286				99% KM (Chebyshev) UCL		630
769					Theta star	467.7						
770					Nu star	26.9				**Potential UCLs to Use**		
771					AppChi2	16.07				95% KM (Chebyshev) UCL		351.3
772					95% Gamma Approximate UCL	224						
773					95% Adjusted Gamma UCL	227.7						
774	**Note: DL/2 is not a recommended method.**											
775												
776												
777	**Thallium**											
778												
779							**General Statistics**					
780					Number of Valid Data	5				Number of Detected Data		5
781					Number of Distinct Detected Data	5				Number of Non-Detect Data		0
782					Number of Missing Values	42				Percent Non-Detects		0.00%
783												
784				**Raw Statistics**						**Log-transformed Statistics**		
785					Minimum Detected	0.083				Minimum Detected		-2.489
786					Maximum Detected	21				Maximum Detected		3.045
787					Mean of Detected	9.234				Mean of Detected		0.542
788					SD of Detected	10.48				SD of Detected		2.809
789					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
790					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
791												
792												
793	**Warning: There are only 5 Detected Values in this data**											
794	**Note: It should be noted that even though bootstrap may be performed on this data set**											
795	**the resulting calculations may not be reliable enough tp draw conclusions**											

	A	B	C	D	E	F	G	H	I	J	K	L
796												
797	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
798												
799												
800	UCL Statistics											
801	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
802	Shapiro Wilk Test Statistic					0.796	Shapiro Wilk Test Statistic					0.789
803	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
804	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
805												
806	Assuming Normal Distribution						Assuming Lognormal Distribution					
807	DL/2 Substitution Method						DL/2 Substitution Method					
808	Mean					9.234	Mean					0.542
809	SD					10.48	SD					2.809
810	95% DL/2 (t) UCL					19.23	95% H-Stat (DL/2) UCL					8.563E+09
811												
812	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
813	MLE method failed to converge properly						Mean in Log Scale					N/A
814							SD in Log Scale					N/A
815							Mean in Original Scale					N/A
816							SD in Original Scale					N/A
817							95% Percentile Bootstrap UCL					N/A
818							95% BCA Bootstrap UCL					N/A
819												
820	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
821	k star (bias corrected)					0.29	Data appear Normal at 5% Significance Level					
822	Theta Star					31.8						
823	nu star					2.904						
824												
825	A-D Test Statistic					0.545	Nonparametric Statistics					
826	5% A-D Critical Value					0.726	Kaplan-Meier (KM) Method					
827	K-S Test Statistic					0.726	Mean					9.234
828	5% K-S Critical Value					0.376	SD					9.378
829	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					4.689
830							95% KM (t) UCL					19.23
831	Assuming Gamma Distribution						95% KM (z) UCL					16.95
832	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					19.23
833	Minimum					0.083	95% KM (bootstrap t) UCL					37.21
834	Maximum					21	95% KM (BCA) UCL					16.42
835	Mean					9.234	95% KM (Percentile Bootstrap) UCL					16.62
836	Median					5	95% KM (Chebyshev) UCL					29.67
837	SD					10.48	97.5% KM (Chebyshev) UCL					38.52
838	k star					0.29	99% KM (Chebyshev) UCL					55.89
839	Theta star					31.8						
840	Nu star					2.904	Potential UCLs to Use					
841	AppChi2					0.345	95% KM (t) UCL					19.23
842	95% Gamma Approximate UCL					77.82	95% KM (Percentile Bootstrap) UCL					16.62
843	95% Adjusted Gamma UCL					208.4						
844	Note: DL/2 is not a recommended method.											
845												
846												
847	Total Aroclors											
848												

	A	B	C	D	E	F	G	H	I	J	K	L
849	**General Statistics**											
850					Number of Valid Data	31				Number of Detected Data		30
851					Number of Distinct Detected Data	30				Number of Non-Detect Data		1
852					Number of Missing Values	16				Percent Non-Detects		3.23%
853												
854	**Raw Statistics**						**Log-transformed Statistics**					
855					Minimum Detected	15.29				Minimum Detected		2.727
856					Maximum Detected	411				Maximum Detected		6.019
857					Mean of Detected	108.1				Mean of Detected		4.352
858					SD of Detected	94.93				SD of Detected		0.824
859					Minimum Non-Detect	40				Minimum Non-Detect		3.689
860					Maximum Non-Detect	40				Maximum Non-Detect		3.689
861												
862												
863	**UCL Statistics**											
864	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
865					Shapiro Wilk Test Statistic	0.811				Shapiro Wilk Test Statistic		0.961
866					5% Shapiro Wilk Critical Value	0.927				5% Shapiro Wilk Critical Value		0.927
867	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
868												
869	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
870					DL/2 Substitution Method					DL/2 Substitution Method		
871					Mean	105.3				Mean		4.308
872					SD	94.67				SD		0.846
873					95% DL/2 (t) UCL	134.1				95% H-Stat (DL/2) UCL		137.3
874												
875					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
876					Mean	89.09				Mean in Log Scale		4.319
877					SD	113.3				SD in Log Scale		0.831
878					95% MLE (t) UCL	123.6				Mean in Original Scale		105.5
879					95% MLE (Tiku) UCL	124.6				SD in Original Scale		94.44
880										95% Percentile Bootstrap UCL		133.9
881										95% BCA Bootstrap UCL		138.4
882												
883	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
884					k star (bias corrected)	1.512	**Data appear Lognormal at 5% Significance Level**					
885					Theta Star	71.49						
886					nu star	90.74						
887												
888					A-D Test Statistic	0.901	**Nonparametric Statistics**					
889					5% A-D Critical Value	0.762				Kaplan-Meier (KM) Method		
890					K-S Test Statistic	0.762				Mean		105.6
891					5% K-S Critical Value	0.163				SD		92.88
892	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		16.97
893										95% KM (t) UCL		134.4
894	**Assuming Gamma Distribution**									95% KM (z) UCL		133.5
895					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		134.4
896					Minimum	4.383				95% KM (bootstrap t) UCL		143.2
897					Maximum	411				95% KM (BCA) UCL		134.3
898					Mean	104.8				95% KM (Percentile Bootstrap) UCL		134.3
899					Median	61.4				95% KM (Chebyshev) UCL		179.5
900					SD	95.18				97.5% KM (Chebyshev) UCL		211.5
901					k star	1.301				99% KM (Chebyshev) UCL		274.4

902					Theta star	80.52						
903					Nu star	80.68	**Potential UCLs to Use**					
904					AppChi2	60.98				95% KM (Chebyshev) UCL		179.5
905				95% Gamma Approximate UCL		138.6						
906				95% Adjusted Gamma UCL		140.8						
907	**Note: DL/2 is not a recommended method.**											
908												
909												
910	**Total DDT**											
911												
912						**General Statistics**						
913					Number of Valid Data	45				Number of Detected Data		35
914					Number of Distinct Detected Data	35				Number of Non-Detect Data		10
915					Number of Missing Values	2				Percent Non-Detects		22.22%
916												
917				**Raw Statistics**						**Log-transformed Statistics**		
918					Minimum Detected	0.44				Minimum Detected		-0.821
919					Maximum Detected	93.26				Maximum Detected		4.535
920					Mean of Detected	10.05				Mean of Detected		1.238
921					SD of Detected	19.69				SD of Detected		1.413
922					Minimum Non-Detect	0.32				Minimum Non-Detect		-1.139
923					Maximum Non-Detect	18				Maximum Non-Detect		2.89
924												
925	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		41
926	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
927	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		91.11%
928												
929						**UCL Statistics**						
930				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
931					Shapiro Wilk Test Statistic	0.513				Shapiro Wilk Test Statistic		0.947
932					5% Shapiro Wilk Critical Value	0.934				5% Shapiro Wilk Critical Value		0.934
933				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
934												
935				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
936					DL/2 Substitution Method					DL/2 Substitution Method		
937					Mean	8.242				Mean		1.007
938					SD	17.68				SD		1.387
939					95% DL/2 (t) UCL	12.67				95% H-Stat (DL/2) UCL		10.36
940												
941					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
942				**MLE yields a negative mean**						Mean in Log Scale		0.935
943										SD in Log Scale		1.417
944										Mean in Original Scale		8.054
945										SD in Original Scale		17.72
946										95% Percentile Bootstrap UCL		12.77
947										95% BCA Bootstrap UCL		14.35
948												
949				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
950					k star (bias corrected)	0.55				**Data appear Lognormal at 5% Significance Level**		
951					Theta Star	18.28						
952					nu star	38.49						
953												
954					A-D Test Statistic	1.72				**Nonparametric Statistics**		

955					5% A-D Critical Value	0.804					Kaplan-Meier (KM) Method	
956					K-S Test Statistic	0.804					Mean	8.107
957					5% K-S Critical Value	0.156					SD	17.51
958					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	2.65
959											95% KM (t) UCL	12.56
960					**Assuming Gamma Distribution**						95% KM (z) UCL	12.47
961					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	12.54
962					Minimum	1E-09					95% KM (bootstrap t) UCL	19.4
963					Maximum	93.26					95% KM (BCA) UCL	13.53
964					Mean	8.283					95% KM (Percentile Bootstrap) UCL	12.75
965					Median	2.004					95% KM (Chebyshev) UCL	19.66
966					SD	17.68					97.5% KM (Chebyshev) UCL	24.66
967					k star	0.413					99% KM (Chebyshev) UCL	34.48
968					Theta star	20.05						
969					Nu star	37.18					**Potential UCLs to Use**	
970					AppChi2	24.22					95% KM (Chebyshev) UCL	19.66
971					95% Gamma Approximate UCL	12.71						
972					95% Adjusted Gamma UCL	12.9						
973	**Note: DL/2 is not a recommended method.**											
974												
975												
976	**Total Dioxin/Furan TEQ**											
977												
978					**General Statistics**							
979					Number of Valid Data	5					Number of Detected Data	5
980					Number of Distinct Detected Data	5					Number of Non-Detect Data	0
981					Number of Missing Values	21					Percent Non-Detects	0.00%
982												
983					**Raw Statistics**						**Log-transformed Statistics**	
984					Minimum Detected	0.724					Minimum Detected	-0.323
985					Maximum Detected	11.48					Maximum Detected	2.441
986					Mean of Detected	4.449					Mean of Detected	0.978
987					SD of Detected	4.626					SD of Detected	1.175
988					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
989					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
990												
991												
992	**Warning: There are only 5 Detected Values in this data**											
993	**Note: It should be noted that even though bootstrap may be performed on this data set**											
994	**the resulting calculations may not be reliable enough tp draw conclusions**											
995												
996	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
997												
998												
999	**UCL Statistics**											
1000	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
1001					Shapiro Wilk Test Statistic	0.849					Shapiro Wilk Test Statistic	0.935
1002					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
1003	**Data appear Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
1004												
1005	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
1006					DL/2 Substitution Method						DL/2 Substitution Method	
1007					Mean	4.449					Mean	0.978

1008					SD	4.626					SD	1.175
1009					95% DL/2 (t) UCL	8.859					95% H-Stat (DL/2) UCL	148.2
1010												
1011					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1012					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1013											SD in Log Scale	N/A
1014											Mean in Original Scale	N/A
1015											SD in Original Scale	N/A
1016											95% Percentile Bootstrap UCL	N/A
1017											95% BCA Bootstrap UCL	N/A
1018												
1019					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1020					k star (bias corrected)	0.577					**Data appear Normal at 5% Significance Level**	
1021					Theta Star	7.71						
1022					nu star	5.77						
1023												
1024					A-D Test Statistic	0.335					**Nonparametric Statistics**	
1025					5% A-D Critical Value	0.69					Kaplan-Meier (KM) Method	
1026					K-S Test Statistic	0.69					Mean	4.449
1027					5% K-S Critical Value	0.364					SD	4.137
1028					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	2.069
1029											95% KM (t) UCL	8.859
1030					**Assuming Gamma Distribution**						95% KM (z) UCL	7.851
1031					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	8.859
1032					Minimum	0.724					95% KM (bootstrap t) UCL	25.01
1033					Maximum	11.48					95% KM (BCA) UCL	7.546
1034					Mean	4.449					95% KM (Percentile Bootstrap) UCL	7.546
1035					Median	2.094					95% KM (Chebyshev) UCL	13.47
1036					SD	4.626					97.5% KM (Chebyshev) UCL	17.37
1037					k star	0.577					99% KM (Chebyshev) UCL	25.03
1038					Theta star	7.71						
1039					Nu star	5.77					**Potential UCLs to Use**	
1040					AppChi2	1.524					95% KM (t) UCL	8.859
1041					95% Gamma Approximate UCL	16.85					95% KM (Percentile Bootstrap) UCL	7.546
1042					95% Adjusted Gamma UCL	33.71						
1043	**Note: DL/2 is not a recommended method.**											
1044												
1045												
1046	**Total Dioxin-like PCBs**											
1047												
1048									**General Statistics**			
1049					Number of Valid Data	8					Number of Detected Data	8
1050					Number of Distinct Detected Data	8					Number of Non-Detect Data	0
1051					Number of Missing Values	18					Percent Non-Detects	0.00%
1052												
1053					**Raw Statistics**						**Log-transformed Statistics**	
1054					Minimum Detected	736.1					Minimum Detected	6.601
1055					Maximum Detected	15617					Maximum Detected	9.656
1056					Mean of Detected	4356					Mean of Detected	7.87
1057					SD of Detected	5032					SD of Detected	1.063
1058					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1059					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1060												

1061												
1062	**Warning: There are only 8 Detected Values in this data**											
1063	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1064	**the resulting calculations may not be reliable enough tp draw conclusions**											
1065												
1066	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1067												
1068												
1069	**UCL Statistics**											
1070	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1071	Shapiro Wilk Test Statistic				0.753		Shapiro Wilk Test Statistic					0.94
1072	5% Shapiro Wilk Critical Value				0.818		5% Shapiro Wilk Critical Value					0.818
1073	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1074												
1075	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1076	DL/2 Substitution Method						DL/2 Substitution Method					
1077	Mean				4356		Mean					7.87
1078	SD				5032		SD					1.063
1079	95% DL/2 (t) UCL				7726		95% H-Stat (DL/2) UCL					19413
1080												
1081	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
1082	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1083							SD in Log Scale					N/A
1084							Mean in Original Scale					N/A
1085							SD in Original Scale					N/A
1086							95% Percentile Bootstrap UCL					N/A
1087							95% BCA Bootstrap UCL					N/A
1088												
1089	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1090	k star (bias corrected)				0.782		**Data appear Gamma Distributed at 5% Significance Level**					
1091	Theta Star				5568							
1092	nu star				12.52							
1093												
1094	A-D Test Statistic				0.407		**Nonparametric Statistics**					
1095	5% A-D Critical Value				0.734		Kaplan-Meier (KM) Method					
1096	K-S Test Statistic				0.734		Mean					4356
1097	5% K-S Critical Value				0.301		SD					4707
1098	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1779
1099							95% KM (t) UCL					7726
1100	**Assuming Gamma Distribution**						95% KM (z) UCL					7282
1101	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					7726
1102	Minimum				736.1		95% KM (bootstrap t) UCL					12832
1103	Maximum				15617		95% KM (BCA) UCL					7599
1104	Mean				4356		95% KM (Percentile Bootstrap) UCL					7284
1105	Median				2429		95% KM (Chebyshev) UCL					12110
1106	SD				5032		97.5% KM (Chebyshev) UCL					15466
1107	k star				0.782		99% KM (Chebyshev) UCL					22057
1108	Theta star				5568							
1109	Nu star				12.52		**Potential UCLs to Use**					
1110	AppChi2				5.569		95% KM (Chebyshev) UCL					12110
1111	95% Gamma Approximate UCL				9789							
1112	95% Adjusted Gamma UCL				12241							
1113	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
1114												
1115												
1116	**Total PCB TEQ**											
1117												
1118						**General Statistics**						
1119					Number of Valid Data	8			Number of Detected Data	8		
1120					Number of Distinct Detected Data	8			Number of Non-Detect Data	0		
1121					Number of Missing Values	18			Percent Non-Detects	0.00%		
1122												
1123					**Raw Statistics**				**Log-transformed Statistics**			
1124					Minimum Detected	0.335			Minimum Detected	-1.093		
1125					Maximum Detected	7.358			Maximum Detected	1.996		
1126					Mean of Detected	2.041			Mean of Detected	0.159		
1127					SD of Detected	2.458			SD of Detected	1.094		
1128					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
1129					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
1130												
1131												
1132					**Warning: There are only 8 Detected Values in this data**							
1133					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1134					**the resulting calculations may not be reliable enough tp draw conclusions**							
1135												
1136					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1137												
1138												
1139						**UCL Statistics**						
1140					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
1141					Shapiro Wilk Test Statistic	0.741			Shapiro Wilk Test Statistic	0.931		
1142					5% Shapiro Wilk Critical Value	0.818			5% Shapiro Wilk Critical Value	0.818		
1143					**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
1144												
1145					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
1146					DL/2 Substitution Method				DL/2 Substitution Method			
1147					Mean	2.041			Mean	0.159		
1148					SD	2.458			SD	1.094		
1149					95% DL/2 (t) UCL	3.687			95% H-Stat (DL/2) UCL	9.702		
1150												
1151					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1152					**MLE method failed to converge properly**				Mean in Log Scale	N/A		
1153									SD in Log Scale	N/A		
1154									Mean in Original Scale	N/A		
1155									SD in Original Scale	N/A		
1156									95% Percentile Bootstrap UCL	N/A		
1157									95% BCA Bootstrap UCL	N/A		
1158												
1159					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
1160					k star (bias corrected)	0.732			**Data appear Gamma Distributed at 5% Significance Level**			
1161					Theta Star	2.789						
1162					nu star	11.71						
1163												
1164					A-D Test Statistic	0.483			**Nonparametric Statistics**			
1165					5% A-D Critical Value	0.735			Kaplan-Meier (KM) Method			
1166					K-S Test Statistic	0.735			Mean	2.041		

1167					5% K-S Critical Value	0.301					SD	2.299
1168					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.869
1169											95% KM (t) UCL	3.687
1170					**Assuming Gamma Distribution**						95% KM (z) UCL	3.47
1171					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.687
1172					Minimum	0.335					95% KM (bootstrap t) UCL	8.641
1173					Maximum	7.358					95% KM (BCA) UCL	3.545
1174					Mean	2.041					95% KM (Percentile Bootstrap) UCL	3.488
1175					Median	0.978					95% KM (Chebyshev) UCL	5.828
1176					SD	2.458					97.5% KM (Chebyshev) UCL	7.467
1177					k star	0.732					99% KM (Chebyshev) UCL	10.69
1178					Theta star	2.789						
1179					Nu star	11.71					**Potential UCLs to Use**	
1180					AppChi2	5.036					95% KM (Chebyshev) UCL	5.828
1181					95% Gamma Approximate UCL	4.745						
1182					95% Adjusted Gamma UCL	5.993						
1183	**Note: DL/2 is not a recommended method.**											
1184												
1185												
1186	**Total PCB_Congeners**											
1187												
1188					**General Statistics**							
1189					Number of Valid Data	8					Number of Detected Data	8
1190					Number of Distinct Detected Data	8					Number of Non-Detect Data	0
1191					Number of Missing Values	18					Percent Non-Detects	0.00%
1192												
1193					**Raw Statistics**						**Log-transformed Statistics**	
1194					Minimum Detected	18957					Minimum Detected	9.85
1195					Maximum Detected	250586					Maximum Detected	12.43
1196					Mean of Detected	81184					Mean of Detected	10.84
1197					SD of Detected	87522					SD of Detected	0.999
1198					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1199					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1200												
1201												
1202					**Warning: There are only 8 Detected Values in this data**							
1203					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1204					**the resulting calculations may not be reliable enough tp draw conclusions**							
1205												
1206					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1207												
1208												
1209					**UCL Statistics**							
1210					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1211					Shapiro Wilk Test Statistic	0.752					Shapiro Wilk Test Statistic	0.877
1212					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
1213					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1214												
1215					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1216					DL/2 Substitution Method						DL/2 Substitution Method	
1217					Mean	81184					Mean	10.84
1218					SD	87522					SD	0.999
1219					95% DL/2 (t) UCL	139809					95% H-Stat (DL/2) UCL	306260

1220												
1221					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1222					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1223										SD in Log Scale		N/A
1224										Mean in Original Scale		N/A
1225										SD in Original Scale		N/A
1226										95% Percentile Bootstrap UCL		N/A
1227										95% BCA Bootstrap UCL		N/A
1228												
1229					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1230					k star (bias corrected)	0.844				**Data appear Gamma Distributed at 5% Significance Level**		
1231					Theta Star	96205						
1232					nu star	13.5						
1233												
1234					A-D Test Statistic	0.624				**Nonparametric Statistics**		
1235					5% A-D Critical Value	0.732				Kaplan-Meier (KM) Method		
1236					K-S Test Statistic	0.732				Mean		81184
1237					5% K-S Critical Value	0.3				SD		81869
1238					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		30944
1239										95% KM (t) UCL		139809
1240					**Assuming Gamma Distribution**					95% KM (z) UCL		132081
1241					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		139809
1242					Minimum	18957				95% KM (bootstrap t) UCL		309287
1243					Maximum	250586				95% KM (BCA) UCL		132630
1244					Mean	81184				95% KM (Percentile Bootstrap) UCL		130947
1245					Median	41262				95% KM (Chebyshev) UCL		216064
1246					SD	87522				97.5% KM (Chebyshev) UCL		274427
1247					k star	0.844				99% KM (Chebyshev) UCL		389070
1248					Theta star	96205						
1249					Nu star	13.5				**Potential UCLs to Use**		
1250					AppChi2	6.232				95% KM (Chebyshev) UCL		216064
1251					95% Gamma Approximate UCL	175895						
1252					95% Adjusted Gamma UCL	217577						
1253	**Note: DL/2 is not a recommended method.**											
1254												
1255												
1256	**Total PCBs, Adjusted**											
1257												
1258					**General Statistics**							
1259					Number of Valid Data	8				Number of Detected Data		8
1260					Number of Distinct Detected Data	8				Number of Non-Detect Data		0
1261					Number of Missing Values	18				Percent Non-Detects		0.00%
1262												
1263					**Raw Statistics**					**Log-transformed Statistics**		
1264					Minimum Detected	18221				Minimum Detected		9.81
1265					Maximum Detected	243516				Maximum Detected		12.4
1266					Mean of Detected	76828				Mean of Detected		10.78
1267					SD of Detected	83672				SD of Detected		0.995
1268					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1269					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1270												
1271												
1272	**Warning: There are only 8 Detected Values in this data**											

	A	B	C	D	E	F	G	H	I	J	K	L
1273	Note: It should be noted that even though bootstrap may be performed on this data set											
1274	the resulting calculations may not be reliable enough tp draw conclusions											
1275												
1276	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
1277												
1278												
1279	UCL Statistics											
1280	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1281					Shapiro Wilk Test Statistic	0.751				Shapiro Wilk Test Statistic		0.877
1282					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value		0.818
1283	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1284												
1285	Assuming Normal Distribution						Assuming Lognormal Distribution					
1286					DL/2 Substitution Method					DL/2 Substitution Method		
1287					Mean	76828				Mean		10.78
1288					SD	83672				SD		0.995
1289					95% DL/2 (t) UCL	132874				95% H-Stat (DL/2) UCL		286339
1290												
1291					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1292	MLE method failed to converge properly									Mean in Log Scale		N/A
1293										SD in Log Scale		N/A
1294										Mean in Original Scale		N/A
1295										SD in Original Scale		N/A
1296										95% Percentile Bootstrap UCL		N/A
1297										95% BCA Bootstrap UCL		N/A
1298												
1299	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1300					k star (bias corrected)	0.844	Data appear Gamma Distributed at 5% Significance Level					
1301					Theta Star	91074						
1302					nu star	13.5						
1303												
1304					A-D Test Statistic	0.622	Nonparametric Statistics					
1305					5% A-D Critical Value	0.732				Kaplan-Meier (KM) Method		
1306					K-S Test Statistic	0.732				Mean		76828
1307					5% K-S Critical Value	0.3				SD		78268
1308	Data appear Gamma Distributed at 5% Significance Level									SE of Mean		29583
1309										95% KM (t) UCL		132874
1310	Assuming Gamma Distribution									95% KM (z) UCL		125487
1311					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		132874
1312					Minimum	18221				95% KM (bootstrap t) UCL		274126
1313					Maximum	243516				95% KM (BCA) UCL		128120
1314					Mean	76828				95% KM (Percentile Bootstrap) UCL		126441
1315					Median	38835				95% KM (Chebyshev) UCL		205775
1316					SD	83672				97.5% KM (Chebyshev) UCL		261571
1317					k star	0.844				99% KM (Chebyshev) UCL		371170
1318					Theta star	91074						
1319					Nu star	13.5	Potential UCLs to Use					
1320					AppChi2	6.229				95% KM (Chebyshev) UCL		205775
1321					95% Gamma Approximate UCL	166484						
1322					95% Adjusted Gamma UCL	205945						
1323	Note: DL/2 is not a recommended method.											
1324												
1325												

	A	B	C	D	E	F	G	H	I	J	K	L
1326	**Tributyltin ion**											
1327												
1328						**General Statistics**							
1329						Number of Valid Data	19			Number of Detected Data		19
1330						Number of Distinct Detected Data	17			Number of Non-Detect Data		0
1331						Number of Missing Values	28			Percent Non-Detects		0.00%
1332												
1333						**Raw Statistics**				**Log-transformed Statistics**		
1334						Minimum Detected	6.6			Minimum Detected		1.887
1335						Maximum Detected	480			Maximum Detected		6.174
1336						Mean of Detected	173			Mean of Detected		4.649
1337						SD of Detected	147.9			SD of Detected		1.2
1338						Minimum Non-Detect	N/A			Minimum Non-Detect		N/A
1339						Maximum Non-Detect	N/A			Maximum Non-Detect		N/A
1340												
1341												
1342						**UCL Statistics**							
1343						**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**		
1344						Shapiro Wilk Test Statistic	0.898			Shapiro Wilk Test Statistic		0.937
1345						5% Shapiro Wilk Critical Value	0.901			5% Shapiro Wilk Critical Value		0.901
1346						**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**		
1347												
1348						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**		
1349						DL/2 Substitution Method				DL/2 Substitution Method		
1350						Mean	173			Mean		4.649
1351						SD	147.9			SD		1.2
1352						95% DL/2 (t) UCL	231.8			95% H-Stat (DL/2) UCL		488.4
1353												
1354						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
1355						**MLE method failed to converge properly**				Mean in Log Scale		N/A
1356										SD in Log Scale		N/A
1357										Mean in Original Scale		N/A
1358										SD in Original Scale		N/A
1359										95% Percentile Bootstrap UCL		N/A
1360										95% BCA Bootstrap UCL		N/A
1361												
1362						**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**		
1363						k star (bias corrected)	0.986			**Data appear Gamma Distributed at 5% Significance Level**		
1364						Theta Star	175.4					
1365						nu star	37.48					
1366												
1367						A-D Test Statistic	0.23			**Nonparametric Statistics**		
1368						5% A-D Critical Value	0.766			Kaplan-Meier (KM) Method		
1369						K-S Test Statistic	0.766			Mean		173
1370						5% K-S Critical Value	0.204			SD		143.9
1371						**Data appear Gamma Distributed at 5% Significance Level**				SE of Mean		33.93
1372										95% KM (t) UCL		231.8
1373						**Assuming Gamma Distribution**				95% KM (z) UCL		228.8
1374						Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL		231.8
1375						Minimum	6.6			95% KM (bootstrap t) UCL		244.2
1376						Maximum	480			95% KM (BCA) UCL		228.6
1377						Mean	173			95% KM (Percentile Bootstrap) UCL		229.4
1378						Median	150			95% KM (Chebyshev) UCL		320.9

	A	B	C	D	E	F	G	H	I	J	K	L
1379					SD	147.9				97.5% KM (Chebyshev) UCL		384.9
1380					k star	0.986				99% KM (Chebyshev) UCL		510.6
1381					Theta star	175.4						
1382					Nu star	37.48				**Potential UCLs to Use**		
1383					AppChi2	24.46				95% KM (Chebyshev) UCL		320.9
1384				95% Gamma Approximate UCL		265						
1385				95% Adjusted Gamma UCL		275.4						
1386	**Note: DL/2 is not a recommended method.**											
1387												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM5.5W.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

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General Statistics

Number of Valid Data	26	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	21
Number of Missing Values	4	Percent Non-Detects	80.77%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.0554	Minimum Detected	-2.893
Maximum Detected	4.65	Maximum Detected	1.537
Mean of Detected	1.387	Mean of Detected	-0.882
SD of Detected	1.98	SD of Detected	1.889
Minimum Non-Detect	0.0388	Minimum Non-Detect	-3.249
Maximum Non-Detect	1.2	Maximum Non-Detect	0.182
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	24
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	92.31%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.774	Shapiro Wilk Test Statistic	0.918
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.418	Mean	-1.988
SD	0.943	SD	1.4
95% DL/2 (t) UCL	0.734	95% H-Stat (DL/2) UCL	0.633
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.456
		SD in Log Scale	2.02
		Mean in Original Scale	0.272
		SD in Original Scale	0.967
		95% Percentile Bootstrap UCL	0.626
		95% BCA Bootstrap UCL	0.907

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56	k star (bias corrected)				0.342		**Data appear Normal at 5% Significance Level**					
57	Theta Star				4.055							
58	nu star				3.421							
59												
60	A-D Test Statistic				0.407		**Nonparametric Statistics**					
61	5% A-D Critical Value				0.71		Kaplan-Meier (KM) Method					
62	K-S Test Statistic				0.71		Mean					0.322
63	5% K-S Critical Value				0.371		SD					0.935
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.205
65							95% KM (t) UCL					0.672
66	**Assuming Gamma Distribution**						95% KM (z) UCL					0.659
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.612
68	Minimum				0.0554		95% KM (bootstrap t) UCL					3.241
69	Maximum				4.65		95% KM (BCA) UCL					2.112
70	Mean				1.387		95% KM (Percentile Bootstrap) UCL					0.85
71	Median				1.387		95% KM (Chebyshev) UCL					1.216
72	SD				0.792		97.5% KM (Chebyshev) UCL					1.604
73	k star				2.063		99% KM (Chebyshev) UCL					2.364
74	Theta star				0.672							
75	Nu star				107.3		**Potential UCLs to Use**					
76	AppChi2				84.37		95% KM (t) UCL					0.672
77	95% Gamma Approximate UCL				1.764		95% KM (Percentile Bootstrap) UCL					0.85
78	95% Adjusted Gamma UCL				1.792							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85	Number of Valid Data				29		Number of Detected Data					25
86	Number of Distinct Detected Data				25		Number of Non-Detect Data					4
87	Number of Missing Values				2		Percent Non-Detects					13.79%
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90	Minimum Detected				2.32		Minimum Detected					0.842
91	Maximum Detected				12.5		Maximum Detected					2.526
92	Mean of Detected				4.452		Mean of Detected					1.408
93	SD of Detected				2.235		SD of Detected					0.393
94	Minimum Non-Detect				4		Minimum Non-Detect					1.386
95	Maximum Non-Detect				10		Maximum Non-Detect					2.303
96												
97	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					28
98	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
99	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					96.55%
100												
101	**UCL Statistics**											
102	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
103	Shapiro Wilk Test Statistic				0.745		Shapiro Wilk Test Statistic					0.912
104	5% Shapiro Wilk Critical Value				0.918		5% Shapiro Wilk Critical Value					0.918
105	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
106												

107	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
108				DL/2 Substitution Method						DL/2 Substitution Method		
109				Mean		4.252				Mean		1.356
110				SD		2.176				SD		0.408
111				95% DL/2 (t) UCL		4.94				95% H-Stat (DL/2) UCL		4.377
112												
113				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
114	**MLE method failed to converge properly**									Mean in Log Scale		1.391
115										SD in Log Scale		0.369
116										Mean in Original Scale		4.34
117										SD in Original Scale		2.095
118										95% Percentile Bootstrap UCL		5.027
119										95% BCA Bootstrap UCL		5.196
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122				k star (bias corrected)		5.316	**Data do not follow a Discernable Distribution (0.05)**					
123				Theta Star		0.837						
124				nu star		265.8						
125												
126				A-D Test Statistic		1.073	**Nonparametric Statistics**					
127				5% A-D Critical Value		0.747				Kaplan-Meier (KM) Method		
128				K-S Test Statistic		0.747				Mean		4.335
129				5% K-S Critical Value		0.175				SD		2.085
130	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.401
131										95% KM (t) UCL		5.017
132	**Assuming Gamma Distribution**									95% KM (z) UCL		4.995
133				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		5.016
134				Minimum		2.32				95% KM (bootstrap t) UCL		5.389
135				Maximum		12.5				95% KM (BCA) UCL		5.051
136				Mean		4.455				95% KM (Percentile Bootstrap) UCL		5.017
137				Median		3.87				95% KM (Chebyshev) UCL		6.083
138				SD		2.081				97.5% KM (Chebyshev) UCL		6.84
139				k star		6.153				99% KM (Chebyshev) UCL		8.325
140				Theta star		0.724						
141				Nu star		356.9	**Potential UCLs to Use**					
142				AppChi2		314.1				95% KM (Chebyshev) UCL		6.083
143				95% Gamma Approximate UCL		5.062						
144				95% Adjusted Gamma UCL		5.101						
145	**Note: DL/2 is not a recommended method.**											
146												
147												
148	**Benzo(a)anthracene**											
149												
150	**General Statistics**											
151				Number of Valid Observations		31				Number of Distinct Observations		30
152												
153	**Raw Statistics**						**Log-transformed Statistics**					
154				Minimum		27				Minimum of Log Data		3.296
155				Maximum		17000				Maximum of Log Data		9.741
156				Mean		1330				Mean of log Data		6.055
157				Median		460				SD of log Data		1.498
158				SD		3086						
159				Coefficient of Variation		2.32						

160					Skewness	4.678						
161												
162	**Relevant UCL Statistics**											
163	**Normal Distribution Test**						**Lognormal Distribution Test**					
164					Shapiro Wilk Test Statistic	0.417					Shapiro Wilk Test Statistic	0.98
165					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
166	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
167												
168	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
169					95% Student's-t UCL	2271					95% H-UCL	3033
170	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	3032
171					95% Adjusted-CLT UCL	2740					97.5% Chebyshev (MVUE) UCL	3815
172					95% Modified-t UCL	2349					99% Chebyshev (MVUE) UCL	5355
173												
174	**Gamma Distribution Test**						**Data Distribution**					
175					k star (bias corrected)	0.518	**Data appear Lognormal at 5% Significance Level**					
176					Theta Star	2567						
177					nu star	32.14						
178					Approximate Chi Square Value (.05)	20.18	**Nonparametric Statistics**					
179					Adjusted Level of Significance	0.0413					95% CLT UCL	2242
180					Adjusted Chi Square Value	19.65					95% Jackknife UCL	2271
181											95% Standard Bootstrap UCL	2243
182					Anderson-Darling Test Statistic	1.262					95% Bootstrap-t UCL	4402
183					Anderson-Darling 5% Critical Value	0.805					95% Hall's Bootstrap UCL	5353
184					Kolmogorov-Smirnov Test Statistic	0.186					95% Percentile Bootstrap UCL	2366
185					Kolmogorov-Smirnov 5% Critical Value	0.166					95% BCA Bootstrap UCL	2985
186	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	3747
187											97.5% Chebyshev(Mean, Sd) UCL	4792
188	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	6846
189					95% Approximate Gamma UCL	2119						
190					95% Adjusted Gamma UCL	2176						
191												
192	**Potential UCL to Use**										Use 95% H-UCL	3033
193												
194												
195	**Benzo(a)pyrene**											
196												
197	**General Statistics**											
198					Number of Valid Observations	31					Number of Distinct Observations	29
199												
200	**Raw Statistics**						**Log-transformed Statistics**					
201					Minimum	36					Minimum of Log Data	3.584
202					Maximum	23000					Maximum of Log Data	10.04
203					Mean	1888					Mean of log Data	6.438
204					Median	640					SD of log Data	1.487
205					SD	4216						
206					Coefficient of Variation	2.233						
207					Skewness	4.519						
208												
209	**Relevant UCL Statistics**											
210	**Normal Distribution Test**						**Lognormal Distribution Test**					
211					Shapiro Wilk Test Statistic	0.434					Shapiro Wilk Test Statistic	0.978
212					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929

213	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
214												
215	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
216				95% Student's-t UCL	3173					95% H-UCL	4340	
217	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	4363	
218				95% Adjusted-CLT UCL	3790					97.5% Chebyshev (MVUE) UCL	5487	
219				95% Modified-t UCL	3275					99% Chebyshev (MVUE) UCL	7696	
220												
221	**Gamma Distribution Test**						**Data Distribution**					
222				k star (bias corrected)	0.531		**Data appear Lognormal at 5% Significance Level**					
223				Theta Star	3553							
224				nu star	32.94							
225				Approximate Chi Square Value (.05)	20.82		**Nonparametric Statistics**					
226				Adjusted Level of Significance	0.0413					95% CLT UCL	3133	
227				Adjusted Chi Square Value	20.28					95% Jackknife UCL	3173	
228										95% Standard Bootstrap UCL	3111	
229				Anderson-Darling Test Statistic	1.249					95% Bootstrap-t UCL	5767	
230				Anderson-Darling 5% Critical Value	0.804					95% Hall's Bootstrap UCL	7553	
231				Kolmogorov-Smirnov Test Statistic	0.209					95% Percentile Bootstrap UCL	3211	
232				Kolmogorov-Smirnov 5% Critical Value	0.166					95% BCA Bootstrap UCL	4217	
233	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	5188	
234										97.5% Chebyshev(Mean, Sd) UCL	6616	
235	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	9422	
236				95% Approximate Gamma UCL	2987							
237				95% Adjusted Gamma UCL	3066							
238												
239	**Potential UCL to Use**									Use 95% H-UCL	4340	
240												
241												
242	**Benzo(b)fluoranthene**											
243												
244	**General Statistics**											
245				Number of Valid Observations	31					Number of Distinct Observations	26	
246												
247	**Raw Statistics**						**Log-transformed Statistics**					
248				Minimum	37					Minimum of Log Data	3.611	
249				Maximum	20000					Maximum of Log Data	9.903	
250				Mean	1535					Mean of log Data	6.294	
251				Median	820					SD of log Data	1.405	
252				SD	3599							
253				Coefficient of Variation	2.344							
254				Skewness	4.824							
255												
256	**Relevant UCL Statistics**											
257	**Normal Distribution Test**						**Lognormal Distribution Test**					
258				Shapiro Wilk Test Statistic	0.394					Shapiro Wilk Test Statistic	0.972	
259				Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929	
260	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
261												
262	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
263				95% Student's-t UCL	2632					95% H-UCL	3094	
264	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	3250	
265				95% Adjusted-CLT UCL	3197					97.5% Chebyshev (MVUE) UCL	4063	

266				95% Modified-t UCL	2725					99% Chebyshev (MVUE) UCL	5661	
267												
268				**Gamma Distribution Test**						**Data Distribution**		
269				k star (bias corrected)	0.558					**Data appear Lognormal at 5% Significance Level**		
270				Theta Star	2752							
271				nu star	34.59							
272				Approximate Chi Square Value (.05)	22.13					**Nonparametric Statistics**		
273				Adjusted Level of Significance	0.0413					95% CLT UCL	2598	
274				Adjusted Chi Square Value	21.58					95% Jackknife UCL	2632	
275										95% Standard Bootstrap UCL	2591	
276				Anderson-Darling Test Statistic	1.408					95% Bootstrap-t UCL	5222	
277				Anderson-Darling 5% Critical Value	0.802					95% Hall's Bootstrap UCL	6419	
278				Kolmogorov-Smirnov Test Statistic	0.224					95% Percentile Bootstrap UCL	2767	
279				Kolmogorov-Smirnov 5% Critical Value	0.166					95% BCA Bootstrap UCL	3565	
280				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	4352	
281										97.5% Chebyshev(Mean, Sd) UCL	5572	
282				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	7966	
283				95% Approximate Gamma UCL	2399							
284				95% Adjusted Gamma UCL	2460							
285												
286				**Potential UCL to Use**						Use 95% H-UCL	3094	
287												
288												
289	**Benzo(k)fluoranthene**											
290												
291				**General Statistics**								
292				Number of Valid Observations	31					Number of Distinct Observations	27	
293												
294				**Raw Statistics**						**Log-transformed Statistics**		
295				Minimum	13					Minimum of Log Data	2.565	
296				Maximum	6000					Maximum of Log Data	8.7	
297				Mean	747.5					Mean of log Data	5.59	
298				Median	260					SD of log Data	1.533	
299				SD	1248							
300				Coefficient of Variation	1.67							
301				Skewness	3.054							
302												
303				**Relevant UCL Statistics**								
304				**Normal Distribution Test**						**Lognormal Distribution Test**		
305				Shapiro Wilk Test Statistic	0.599					Shapiro Wilk Test Statistic	0.96	
306				Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929	
307				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
308												
309				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
310				95% Student's-t UCL	1128					95% H-UCL	2077	
311				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	2033	
312				95% Adjusted-CLT UCL	1248					97.5% Chebyshev (MVUE) UCL	2564	
313				95% Modified-t UCL	1148					99% Chebyshev (MVUE) UCL	3608	
314												
315				**Gamma Distribution Test**						**Data Distribution**		
316				k star (bias corrected)	0.565					**Data appear Lognormal at 5% Significance Level**		
317				Theta Star	1323							
318				nu star	35.02							

319	Approximate Chi Square Value (.05)					22.48	**Nonparametric Statistics**					
320	Adjusted Level of Significance					0.0413	95% CLT UCL					1116
321	Adjusted Chi Square Value					21.92	95% Jackknife UCL					1128
322							95% Standard Bootstrap UCL					1106
323	Anderson-Darling Test Statistic					1.097	95% Bootstrap-t UCL					1545
324	Anderson-Darling 5% Critical Value					0.801	95% Hall's Bootstrap UCL					2798
325	Kolmogorov-Smirnov Test Statistic					0.217	95% Percentile Bootstrap UCL					1134
326	Kolmogorov-Smirnov 5% Critical Value					0.166	95% BCA Bootstrap UCL					1250
327	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					1725
328							97.5% Chebyshev(Mean, Sd) UCL					2147
329	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					2978
330	95% Approximate Gamma UCL					1164						
331	95% Adjusted Gamma UCL					1194						
332												
333	**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL					2033
334												
335												
336	**Bis(2-ethylhexyl) phthalate**											
337												
338	**General Statistics**											
339	Number of Valid Data					29	Number of Detected Data					10
340	Number of Distinct Detected Data					7	Number of Non-Detect Data					19
341	Number of Missing Values					2	Percent Non-Detects					65.52%
342												
343	**Raw Statistics**						**Log-transformed Statistics**					
344	Minimum Detected					82	Minimum Detected					4.407
345	Maximum Detected					210	Maximum Detected					5.347
346	Mean of Detected					131	Mean of Detected					4.838
347	SD of Detected					38.38	SD of Detected					0.288
348	Minimum Non-Detect					9.9	Minimum Non-Detect					2.293
349	Maximum Non-Detect					200	Maximum Non-Detect					5.298
350												
351	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					28
352	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
353	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					96.55%
354												
355	**UCL Statistics**											
356	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
357	Shapiro Wilk Test Statistic					0.933	Shapiro Wilk Test Statistic					0.96
358	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842
359	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
360												
361	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
362	DL/2 Substitution Method						DL/2 Substitution Method					
363	Mean					74.46	Mean					3.993
364	SD					51.6	SD					0.93
365	95% DL/2 (t) UCL					90.76	95% H-Stat (DL/2) UCL					107.2
366												
367	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
368	**MLE method failed to converge properly**						Mean in Log Scale					4.389
369							SD in Log Scale					0.381
370							Mean in Original Scale					87.16
371							SD in Original Scale					39.5

372											95% Percentile Bootstrap UCL	99.49
373											95% BCA Bootstrap UCL	101.1
374												
375	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
376					k star (bias corrected)	9.51					**Data appear Normal at 5% Significance Level**	
377					Theta Star	13.77						
378					nu star	190.2						
379												
380					A-D Test Statistic	0.279					**Nonparametric Statistics**	
381					5% A-D Critical Value	0.725					Kaplan-Meier (KM) Method	
382					K-S Test Statistic	0.725					Mean	100.5
383					5% K-S Critical Value	0.266					SD	31.7
384	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	6.376
385											95% KM (t) UCL	111.3
386	**Assuming Gamma Distribution**										95% KM (z) UCL	111
387					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	109.7
388					Minimum	82					95% KM (bootstrap t) UCL	113.2
389					Maximum	210					95% KM (BCA) UCL	131.5
390					Mean	131.9					95% KM (Percentile Bootstrap) UCL	120
391					Median	130					95% KM (Chebyshev) UCL	128.3
392					SD	27.25					97.5% KM (Chebyshev) UCL	140.3
393					k star	22.5					99% KM (Chebyshev) UCL	163.9
394					Theta star	5.862						
395					Nu star	1305					**Potential UCLs to Use**	
396					AppChi2	1222					95% KM (t) UCL	111.3
397					95% Gamma Approximate UCL	140.8					95% KM (Percentile Bootstrap) UCL	120
398					95% Adjusted Gamma UCL	141.4						
399	**Note: DL/2 is not a recommended method.**											
400												
401												
402	**Dibenzo(a,h)anthracene**											
403												
404	**General Statistics**											
405					Number of Valid Observations	31					Number of Distinct Observations	27
406												
407	**Raw Statistics**										**Log-transformed Statistics**	
408					Minimum	4.8					Minimum of Log Data	1.569
409					Maximum	1500					Maximum of Log Data	7.313
410					Mean	169.5					Mean of log Data	4.301
411					Median	86					SD of log Data	1.324
412					SD	288.9						
413					Coefficient of Variation	1.705						
414					Skewness	3.664						
415												
416	**Relevant UCL Statistics**											
417	**Normal Distribution Test**										**Lognormal Distribution Test**	
418					Shapiro Wilk Test Statistic	0.547					Shapiro Wilk Test Statistic	0.972
419					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
420	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
421												
422	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
423					95% Student's-t UCL	257.5					95% H-UCL	351.6
424	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	383.3

425				95% Adjusted-CLT UCL	291.3					97.5% Chebyshev (MVUE) UCL	476.2	
426				95% Modified-t UCL	263.2					99% Chebyshev (MVUE) UCL	658.7	
427												
428				**Gamma Distribution Test**						**Data Distribution**		
429				k star (bias corrected)	0.675					**Data appear Lognormal at 5% Significance Level**		
430				Theta Star	251							
431				nu star	41.85							
432				Approximate Chi Square Value (.05)	28.03					**Nonparametric Statistics**		
433				Adjusted Level of Significance	0.0413					95% CLT UCL	254.8	
434				Adjusted Chi Square Value	27.4					95% Jackknife UCL	257.5	
435										95% Standard Bootstrap UCL	254.2	
436				Anderson-Darling Test Statistic	1.026					95% Bootstrap-t UCL	366.7	
437				Anderson-Darling 5% Critical Value	0.79					95% Hall's Bootstrap UCL	585.1	
438				Kolmogorov-Smirnov Test Statistic	0.179					95% Percentile Bootstrap UCL	263.3	
439				Kolmogorov-Smirnov 5% Critical Value	0.164					95% BCA Bootstrap UCL	311.7	
440				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	395.6	
441										97.5% Chebyshev(Mean, Sd) UCL	493.4	
442				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	685.7	
443				95% Approximate Gamma UCL	253.1							
444				95% Adjusted Gamma UCL	258.9							
445												
446				**Potential UCL to Use**						Use 95% H-UCL	351.6	
447												
448												
449	**Dieldrin**											
450												
451						**General Statistics**							
452				Number of Valid Data	24					Number of Detected Data	7	
453				Number of Distinct Detected Data	7					Number of Non-Detect Data	17	
454				Number of Missing Values	3					Percent Non-Detects	70.83%	
455												
456				**Raw Statistics**						**Log-transformed Statistics**		
457				Minimum Detected	0.102					Minimum Detected	-2.283	
458				Maximum Detected	1.45					Maximum Detected	0.372	
459				Mean of Detected	0.621					Mean of Detected	-0.836	
460				SD of Detected	0.547					SD of Detected	0.949	
461				Minimum Non-Detect	0.0525					Minimum Non-Detect	-2.947	
462				Maximum Non-Detect	1					Maximum Non-Detect	0	
463												
464	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	22	
465	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	2	
466	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	91.67%	
467												
468	**Warning: There are only 7 Detected Values in this data**											
469	**Note: It should be noted that even though bootstrap may be performed on this data set**											
470	**the resulting calculations may not be reliable enough tp draw conclusions**											
471												
472	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
473												
474												
475						**UCL Statistics**							
476				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
477				Shapiro Wilk Test Statistic	0.8					Shapiro Wilk Test Statistic	0.936	

	A	B	C	D	E	F	G	H	I	J	K	L
478					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
479	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
480												
481	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
482					DL/2 Substitution Method						DL/2 Substitution Method	
483					Mean	0.313					Mean	-1.783
484					SD	0.375					SD	1.193
485					95% DL/2 (t) UCL	0.444					95% H-Stat (DL/2) UCL	0.59
486												
487					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
488	**MLE method failed to converge properly**										Mean in Log Scale	-2.448
489											SD in Log Scale	1.225
490											Mean in Original Scale	0.217
491											SD in Original Scale	0.386
492											95% Percentile Bootstrap UCL	0.358
493											95% BCA Bootstrap UCL	0.395
494												
495	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
496					k star (bias corrected)	0.974	**Data appear Gamma Distributed at 5% Significance Level**					
497					Theta Star	0.637						
498					nu star	13.64						
499												
500					A-D Test Statistic	0.411	**Nonparametric Statistics**					
501					5% A-D Critical Value	0.721					Kaplan-Meier (KM) Method	
502					K-S Test Statistic	0.721					Mean	0.269
503					5% K-S Critical Value	0.317					SD	0.36
504	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0807
505											95% KM (t) UCL	0.408
506	**Assuming Gamma Distribution**										95% KM (z) UCL	0.402
507					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.386
508					Minimum	0.102					95% KM (bootstrap t) UCL	0.498
509					Maximum	1.629					95% KM (BCA) UCL	0.56
510					Mean	0.68					95% KM (Percentile Bootstrap) UCL	0.501
511					Median	0.551					95% KM (Chebyshev) UCL	0.621
512					SD	0.381					97.5% KM (Chebyshev) UCL	0.773
513					k star	2.901					99% KM (Chebyshev) UCL	1.072
514					Theta star	0.234						
515					Nu star	139.3	**Potential UCLs to Use**					
516					AppChi2	113					95% KM (t) UCL	0.408
517					95% Gamma Approximate UCL	0.838						
518					95% Adjusted Gamma UCL	0.851						
519	**Note: DL/2 is not a recommended method.**											
520												
521												
522	**Indeno(1,2,3-cd)pyrene**											
523												
524	**General Statistics**											
525					Number of Valid Observations	31					Number of Distinct Observations	28
526												
527	**Raw Statistics**						**Log-transformed Statistics**					
528					Minimum	28					Minimum of Log Data	3.332
529					Maximum	17000					Maximum of Log Data	9.741
530					Mean	1483					Mean of log Data	6.182

531					Median	440					SD of log Data	1.504
532					SD	3187						
533					Coefficient of Variation	2.149						
534					Skewness	4.237						
535												
536					**Relevant UCL Statistics**							
537					**Normal Distribution Test**						**Lognormal Distribution Test**	
538					Shapiro Wilk Test Statistic	0.461					Shapiro Wilk Test Statistic	0.982
539					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
540					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
541												
542					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
543					95% Student's-t UCL	2454					95% H-UCL	3498
544					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	3483
545					95% Adjusted-CLT UCL	2889					97.5% Chebyshev (MVUE) UCL	4385
546					95% Modified-t UCL	2527					99% Chebyshev (MVUE) UCL	6158
547												
548					**Gamma Distribution Test**						**Data Distribution**	
549					k star (bias corrected)	0.525					**Data appear Lognormal at 5% Significance Level**	
550					Theta Star	2822						
551					nu star	32.58						
552					Approximate Chi Square Value (.05)	20.53					**Nonparametric Statistics**	
553					Adjusted Level of Significance	0.0413					95% CLT UCL	2424
554					Adjusted Chi Square Value	20					95% Jackknife UCL	2454
555											95% Standard Bootstrap UCL	2420
556					Anderson-Darling Test Statistic	1.185					95% Bootstrap-t UCL	4288
557					Anderson-Darling 5% Critical Value	0.805					95% Hall's Bootstrap UCL	6021
558					Kolmogorov-Smirnov Test Statistic	0.206					95% Percentile Bootstrap UCL	2497
559					Kolmogorov-Smirnov 5% Critical Value	0.166					95% BCA Bootstrap UCL	3054
560					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	3977
561											97.5% Chebyshev(Mean, Sd) UCL	5057
562					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	7177
563					95% Approximate Gamma UCL	2352						
564					95% Adjusted Gamma UCL	2415						
565												
566					**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL	3483
567												
568												
569	**Lead**											
570												
571					**General Statistics**							
572					Number of Valid Data	29					Number of Detected Data	29
573					Number of Distinct Detected Data	27					Number of Non-Detect Data	0
574					Number of Missing Values	2					Percent Non-Detects	0.00%
575												
576					**Raw Statistics**						**Log-transformed Statistics**	
577					Minimum Detected	9					Minimum Detected	2.197
578					Maximum Detected	36.6					Maximum Detected	3.6
579					Mean of Detected	19.96					Mean of Detected	2.905
580					SD of Detected	8.296					SD of Detected	0.437
581					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
582					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584												
585	**UCL Statistics**											
586	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
587	Shapiro Wilk Test Statistic					0.939	Shapiro Wilk Test Statistic					0.94
588	5% Shapiro Wilk Critical Value					0.926	5% Shapiro Wilk Critical Value					0.926
589	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
590												
591	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
592	DL/2 Substitution Method						DL/2 Substitution Method					
593	Mean					19.96	Mean					2.905
594	SD					8.296	SD					0.437
595	95% DL/2 (t) UCL					22.58	95% H-Stat (DL/2) UCL					23.49
596												
597	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
598	**MLE method failed to converge properly**						Mean in Log Scale					N/A
599							SD in Log Scale					N/A
600							Mean in Original Scale					N/A
601							SD in Original Scale					N/A
602							95% Percentile Bootstrap UCL					N/A
603							95% BCA Bootstrap UCL					N/A
604												
605	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
606	k star (bias corrected)					5.229	**Data appear Normal at 5% Significance Level**					
607	Theta Star					3.817						
608	nu star					303.3						
609												
610	A-D Test Statistic					0.412	**Nonparametric Statistics**					
611	5% A-D Critical Value					0.747	Kaplan-Meier (KM) Method					
612	K-S Test Statistic					0.747	Mean					19.96
613	5% K-S Critical Value					0.163	SD					8.151
614	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.54
615							95% KM (t) UCL					22.58
616	**Assuming Gamma Distribution**						95% KM (z) UCL					22.49
617	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					22.58
618	Minimum					9	95% KM (bootstrap t) UCL					22.8
619	Maximum					36.6	95% KM (BCA) UCL					22.68
620	Mean					19.96	95% KM (Percentile Bootstrap) UCL					22.38
621	Median					19.3	95% KM (Chebyshev) UCL					26.67
622	SD					8.296	97.5% KM (Chebyshev) UCL					29.58
623	k star					5.229	99% KM (Chebyshev) UCL					35.29
624	Theta star					3.817						
625	Nu star					303.3	**Potential UCLs to Use**					
626	AppChi2					264	95% KM (t) UCL					22.58
627	95% Gamma Approximate UCL					22.93	95% KM (Percentile Bootstrap) UCL					22.38
628	95% Adjusted Gamma UCL					23.13						
629	**Note: DL/2 is not a recommended method.**											
630												
631												
632	**Mercury**											
633												
634	**General Statistics**											
635	Number of Valid Data					29	Number of Detected Data					28
636	Number of Distinct Detected Data					24	Number of Non-Detect Data					1

	A	B	C	D	E	F	G	H	I	J	K	L
637					Number of Missing Values	2					Percent Non-Detects	3.45%
638												
639				**Raw Statistics**						**Log-transformed Statistics**		
640					Minimum Detected	0.013					Minimum Detected	-4.343
641					Maximum Detected	0.172					Maximum Detected	-1.76
642					Mean of Detected	0.069					Mean of Detected	-2.84
643					SD of Detected	0.0385					SD of Detected	0.627
644					Minimum Non-Detect	0.08					Minimum Non-Detect	-2.526
645					Maximum Non-Detect	0.08					Maximum Non-Detect	-2.526
646												
647												
648						**UCL Statistics**							
649				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
650					Shapiro Wilk Test Statistic	0.936					Shapiro Wilk Test Statistic	0.955
651					5% Shapiro Wilk Critical Value	0.924					5% Shapiro Wilk Critical Value	0.924
652				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
653												
654				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
655					DL/2 Substitution Method						DL/2 Substitution Method	
656					Mean	0.068					Mean	-2.853
657					SD	0.0382					SD	0.62
658					95% DL/2 (t) UCL	0.0801					95% H-Stat (DL/2) UCL	0.0883
659												
660					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
661					Mean	0.0593					Mean in Log Scale	-2.851
662					SD	0.0486					SD in Log Scale	0.619
663					95% MLE (t) UCL	0.0746					Mean in Original Scale	0.0681
664					95% MLE (Tiku) UCL	0.0835					SD in Original Scale	0.0381
665											95% Percentile Bootstrap UCL	0.0796
666											95% BCA Bootstrap UCL	0.0805
667												
668				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
669					k star (bias corrected)	2.836				**Data appear Normal at 5% Significance Level**		
670					Theta Star	0.0243						
671					nu star	158.8						
672												
673					A-D Test Statistic	0.248				**Nonparametric Statistics**		
674					5% A-D Critical Value	0.753					Kaplan-Meier (KM) Method	
675					K-S Test Statistic	0.753					Mean	0.0683
676					5% K-S Critical Value	0.167					SD	0.0375
677				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.00713
678											95% KM (t) UCL	0.0804
679				**Assuming Gamma Distribution**							95% KM (z) UCL	0.08
680					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0804
681					Minimum	0.013					95% KM (bootstrap t) UCL	0.0824
682					Maximum	0.172					95% KM (BCA) UCL	0.0804
683					Mean	0.0686					95% KM (Percentile Bootstrap) UCL	0.0798
684					Median	0.061					95% KM (Chebyshev) UCL	0.0993
685					SD	0.0379					97.5% KM (Chebyshev) UCL	0.113
686					k star	2.932					99% KM (Chebyshev) UCL	0.139
687					Theta star	0.0234						
688					Nu star	170.1				**Potential UCLs to Use**		
689					AppChi2	140.9					95% KM (t) UCL	0.0804

690				95% Gamma Approximate UCL		0.0828				95% KM (Percentile Bootstrap) UCL		0.0798
691				95% Adjusted Gamma UCL		0.0837						
692	**Note: DL/2 is not a recommended method.**											
693												
694												
695	**Naphthalene**											
696												
697					**General Statistics**							
698				Number of Valid Data		31				Number of Detected Data		27
699				Number of Distinct Detected Data		25				Number of Non-Detect Data		4
700										Percent Non-Detects		12.90%
701												
702				**Raw Statistics**						**Log-transformed Statistics**		
703				Minimum Detected		4.2				Minimum Detected		1.435
704				Maximum Detected		940				Maximum Detected		6.846
705				Mean of Detected		134.4				Mean of Detected		4.239
706				SD of Detected		198.5				SD of Detected		1.138
707				Minimum Non-Detect		0.58				Minimum Non-Detect		-0.545
708				Maximum Non-Detect		21				Maximum Non-Detect		3.045
709												
710	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		7
711	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		24
712	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		22.58%
713												
714					**UCL Statistics**							
715				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
716				Shapiro Wilk Test Statistic		0.596				Shapiro Wilk Test Statistic		0.939
717				5% Shapiro Wilk Critical Value		0.923				5% Shapiro Wilk Critical Value		0.923
718				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
719												
720				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
721				DL/2 Substitution Method						DL/2 Substitution Method		
722				Mean		117.6				Mean		3.787
723				SD		190				SD		1.663
724				95% DL/2 (t) UCL		175.5				95% H-Stat (DL/2) UCL		347
725												
726				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
727				Mean		85.64				Mean in Log Scale		3.935
728				SD		220.9				SD in Log Scale		1.332
729				95% MLE (t) UCL		153				Mean in Original Scale		118
730				95% MLE (Tiku) UCL		152.7				SD in Original Scale		189.8
731										95% Percentile Bootstrap UCL		178.1
732										95% BCA Bootstrap UCL		193.4
733												
734				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
735				k star (bias corrected)		0.811				**Data appear Lognormal at 5% Significance Level**		
736				Theta Star		165.8						
737				nu star		43.79						
738												
739				A-D Test Statistic		1.77				**Nonparametric Statistics**		
740				5% A-D Critical Value		0.778				Kaplan-Meier (KM) Method		
741				K-S Test Statistic		0.778				Mean		117.8
742				5% K-S Critical Value		0.174				SD		186.8

743	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	34.2
744											95% KM (t) UCL	175.8
745	**Assuming Gamma Distribution**										95% KM (z) UCL	174
746	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	174.5
747	Minimum	1E-09									95% KM (bootstrap t) UCL	227.7
748	Maximum	940									95% KM (BCA) UCL	187.6
749	Mean	117.1									95% KM (Percentile Bootstrap) UCL	174.9
750	Median	53									95% KM (Chebyshev) UCL	266.8
751	SD	190.3									97.5% KM (Chebyshev) UCL	331.3
752	k star	0.199									99% KM (Chebyshev) UCL	458
753	Theta star	587.1										
754	Nu star	12.36									**Potential UCLs to Use**	
755	AppChi2	5.467									97.5% KM (Chebyshev) UCL	331.3
756	95% Gamma Approximate UCL	264.7										
757	95% Adjusted Gamma UCL	277.6										
758	**Note: DL/2 is not a recommended method.**											
759												
760												
761	**Total Aroclors**											
762												
763	**General Statistics**											
764	Number of Valid Data	29									Number of Detected Data	17
765	Number of Distinct Detected Data	17									Number of Non-Detect Data	12
766	Number of Missing Values	2									Percent Non-Detects	41.38%
767												
768	**Raw Statistics**										**Log-transformed Statistics**	
769	Minimum Detected	6.692									Minimum Detected	1.901
770	Maximum Detected	244.9									Maximum Detected	5.501
771	Mean of Detected	48.67									Mean of Detected	3.346
772	SD of Detected	61.28									SD of Detected	1.033
773	Minimum Non-Detect	3.31									Minimum Non-Detect	1.197
774	Maximum Non-Detect	39									Maximum Non-Detect	3.664
775												
776	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	24
777	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
778	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	82.76%
779												
780	**UCL Statistics**											
781	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
782	Shapiro Wilk Test Statistic	0.678									Shapiro Wilk Test Statistic	0.951
783	5% Shapiro Wilk Critical Value	0.892									5% Shapiro Wilk Critical Value	0.892
784	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
785												
786	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
787	DL/2 Substitution Method										DL/2 Substitution Method	
788	Mean	32.35									Mean	2.692
789	SD	50.61									SD	1.296
790	95% DL/2 (t) UCL	48.34									95% H-Stat (DL/2) UCL	39.39
791												
792	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
793	**MLE yields a negative mean**										Mean in Log Scale	2.607
794											SD in Log Scale	1.257
795											Mean in Original Scale	30.99

796											SD in Original Scale	51.12
797											95% Percentile Bootstrap UCL	48.08
798											95% BCA Bootstrap UCL	53.48
799												
800	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
801				k star (bias corrected)	0.915		**Data appear Gamma Distributed at 5% Significance Level**					
802				Theta Star	53.2							
803				nu star	31.1							
804												
805				A-D Test Statistic	0.697		**Nonparametric Statistics**					
806				5% A-D Critical Value	0.765		Kaplan-Meier (KM) Method					
807				K-S Test Statistic	0.765		Mean	32.58				
808				5% K-S Critical Value	0.215		SD	49.59				
809	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	9.527				
810							95% KM (t) UCL	48.79				
811	**Assuming Gamma Distribution**						95% KM (z) UCL	48.25				
812				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	48.35				
813				Minimum	2.764		95% KM (bootstrap t) UCL	66.71				
814				Maximum	244.9		95% KM (BCA) UCL	51.32				
815				Mean	40.64		95% KM (Percentile Bootstrap) UCL	49.64				
816				Median	24.47		95% KM (Chebyshev) UCL	74.11				
817				SD	51.48		97.5% KM (Chebyshev) UCL	92.08				
818				k star	0.809		99% KM (Chebyshev) UCL	127.4				
819				Theta star	50.22							
820				Nu star	46.93		**Potential UCLs to Use**					
821				AppChi2	32.21		95% KM (BCA) UCL	51.32				
822				95% Gamma Approximate UCL	59.21							
823				95% Adjusted Gamma UCL	60.58							
824	**Note: DL/2 is not a recommended method.**											
825												
826												
827	**Total DDT**											
828												
829							**General Statistics**					
830				Number of Valid Data	28		Number of Detected Data	27				
831				Number of Distinct Detected Data	27		Number of Non-Detect Data	1				
832				Number of Missing Values	2		Percent Non-Detects	3.57%				
833												
834	**Raw Statistics**						**Log-transformed Statistics**					
835				Minimum Detected	0.271		Minimum Detected	-1.306				
836				Maximum Detected	275.6		Maximum Detected	5.619				
837				Mean of Detected	19.88		Mean of Detected	1.785				
838				SD of Detected	52.21		SD of Detected	1.513				
839				Minimum Non-Detect	0.68		Minimum Non-Detect	-0.386				
840				Maximum Non-Detect	0.68		Maximum Non-Detect	-0.386				
841												
842												
843							**UCL Statistics**					
844	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
845				Shapiro Wilk Test Statistic	0.353		Shapiro Wilk Test Statistic	0.983				
846				5% Shapiro Wilk Critical Value	0.923		5% Shapiro Wilk Critical Value	0.923				
847	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
848												

	A	B	C	D	E	F	G	H	I	J	K	L
849	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
850	DL/2 Substitution Method						DL/2 Substitution Method					
851	Mean					19.18	Mean					1.682
852	SD					51.37	SD					1.58
853	95% DL/2 (t) UCL					35.72	95% H-Stat (DL/2) UCL					43.74
854												
855	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
856	Mean					15.11	Mean in Log Scale					1.685
857	SD					54.16	SD in Log Scale					1.575
858	95% MLE (t) UCL					32.54	Mean in Original Scale					19.18
859	95% MLE (Tiku) UCL					31.24	SD in Original Scale					51.37
860							95% Percentile Bootstrap UCL					37.99
861							95% BCA Bootstrap UCL					49.8
862												
863	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
864	k star (bias corrected)					0.49	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
865	Theta Star					40.57						
866	nu star					26.46						
867												
868	A-D Test Statistic					1.282	**Nonparametric Statistics**					
869	5% A-D Critical Value					0.805	Kaplan-Meier (KM) Method					
870	K-S Test Statistic					0.805	Mean					19.18
871	5% K-S Critical Value					0.178	SD					50.44
872	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean					9.714
873							95% KM (t) UCL					35.73
874	**Assuming Gamma Distribution**						95% KM (z) UCL					35.16
875	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					35.72
876	Minimum					1E-09	95% KM (bootstrap t) UCL					86.6
877	Maximum					275.6	95% KM (BCA) UCL					39.34
878	Mean					19.17	95% KM (Percentile Bootstrap) UCL					37.49
879	Median					4.741	95% KM (Chebyshev) UCL					61.52
880	SD					51.37	97.5% KM (Chebyshev) UCL					79.85
881	k star					0.329	99% KM (Chebyshev) UCL					115.8
882	Theta star					58.21						
883	Nu star					18.44	**Potential UCLs to Use**					
884	AppChi2					9.711	95% KM (Chebyshev) UCL					61.52
885	95% Gamma Approximate UCL					36.4						
886	95% Adjusted Gamma UCL					37.93						
887	**Note: DL/2 is not a recommended method.**											
888												
889												
890	**Tributyltin ion**											
891												
892	**General Statistics**											
893	Number of Valid Data					17	Number of Detected Data					16
894	Number of Distinct Detected Data					16	Number of Non-Detect Data					1
895	Number of Missing Values					14	Percent Non-Detects					5.88%
896												
897	**Raw Statistics**						**Log-transformed Statistics**					
898	Minimum Detected					0.49	Minimum Detected					-0.713
899	Maximum Detected					91	Maximum Detected					4.511
900	Mean of Detected					18.28	Mean of Detected					2.032
901	SD of Detected					25.06	SD of Detected					1.489

902				Minimum Non-Detect	5.8					Minimum Non-Detect	1.758	
903				Maximum Non-Detect	5.8					Maximum Non-Detect	1.758	
904												
905												
906	**UCL Statistics**											
907	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
908				Shapiro Wilk Test Statistic	0.713					Shapiro Wilk Test Statistic	0.971	
909				5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887	
910	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
911												
912	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
913				DL/2 Substitution Method						DL/2 Substitution Method		
914				Mean	17.38					Mean	1.975	
915				SD	24.55					SD	1.461	
916				95% DL/2 (t) UCL	27.77					95% H-Stat (DL/2) UCL	61.21	
917												
918				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
919				Mean	4.867					Mean in Log Scale	1.958	
920				SD	36.57					SD in Log Scale	1.474	
921				95% MLE (t) UCL	20.35					Mean in Original Scale	17.33	
922				95% MLE (Tiku) UCL	23.42					SD in Original Scale	24.58	
923										95% Percentile Bootstrap UCL	27.59	
924										95% BCA Bootstrap UCL	29.6	
925												
926	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
927				k star (bias corrected)	0.604		**Data appear Gamma Distributed at 5% Significance Level**					
928				Theta Star	30.25							
929				nu star	19.34							
930												
931				A-D Test Statistic	0.345		**Nonparametric Statistics**					
932				5% A-D Critical Value	0.78					Kaplan-Meier (KM) Method		
933				K-S Test Statistic	0.78					Mean	17.37	
934				5% K-S Critical Value	0.224					SD	23.82	
935	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	5.969	
936										95% KM (t) UCL	27.79	
937	**Assuming Gamma Distribution**									95% KM (z) UCL	27.19	
938				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	27.77	
939				Minimum	1E-09					95% KM (bootstrap t) UCL	36.39	
940				Maximum	91					95% KM (BCA) UCL	29.11	
941				Mean	17.2					95% KM (Percentile Bootstrap) UCL	26.99	
942				Median	6.3					95% KM (Chebyshev) UCL	43.39	
943				SD	24.67					97.5% KM (Chebyshev) UCL	54.65	
944				k star	0.301					99% KM (Chebyshev) UCL	76.76	
945				Theta star	57.22							
946				Nu star	10.22		**Potential UCLs to Use**					
947				AppChi2	4.082					95% KM (Chebyshev) UCL	43.39	
948				95% Gamma Approximate UCL	43.09							
949				95% Adjusted Gamma UCL	47.75							
950	**Note: DL/2 is not a recommended method.**											
951												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM6.0E.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

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General Statistics

Number of Valid Data	18	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	13
Number of Missing Values	2	Percent Non-Detects	72.22%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.311	Minimum Detected	-1.168
Maximum Detected	1.71	Maximum Detected	0.536
Mean of Detected	0.799	Mean of Detected	-0.387
SD of Detected	0.542	SD of Detected	0.627
Minimum Non-Detect	0.0306	Minimum Non-Detect	-3.487
Maximum Non-Detect	1.1	Maximum Non-Detect	0.0953
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	94.44%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.848	Shapiro Wilk Test Statistic	0.968
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.41	Mean	-1.546
SD	0.407	SD	1.431
95% DL/2 (t) UCL	0.576	95% H-Stat (DL/2) UCL	0.803
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.384
		SD in Log Scale	0.731
		Mean in Original Scale	0.349
		SD in Original Scale	0.391
		95% Percentile Bootstrap UCL	0.504
		95% BCA Bootstrap UCL	0.588

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56				k star (bias corrected)	1.42		**Data appear Normal at 5% Significance Level**					
57				Theta Star	0.563							
58				nu star	14.2							
59												
60				A-D Test Statistic	0.31		**Nonparametric Statistics**					
61				5% A-D Critical Value	0.682		Kaplan-Meier (KM) Method					
62				K-S Test Statistic	0.682		Mean	0.475				
63				5% K-S Critical Value	0.359		SD	0.34				
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.094				
65							95% KM (t) UCL	0.638				
66	**Assuming Gamma Distribution**						95% KM (z) UCL	0.63				
67				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	0.646				
68				Minimum	0.311		95% KM (bootstrap t) UCL	0.679				
69				Maximum	1.71		95% KM (BCA) UCL	0.886				
70				Mean	0.799		95% KM (Percentile Bootstrap) UCL	0.799				
71				Median	0.799		95% KM (Chebyshev) UCL	0.885				
72				SD	0.263		97.5% KM (Chebyshev) UCL	1.062				
73				k star	9.351		99% KM (Chebyshev) UCL	1.41				
74				Theta star	0.0855							
75				Nu star	336.6		**Potential UCLs to Use**					
76				AppChi2	295.1		95% KM (t) UCL	0.638				
77				95% Gamma Approximate UCL	0.912		95% KM (Percentile Bootstrap) UCL	0.799				
78				95% Adjusted Gamma UCL	0.924							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85				Number of Valid Observations	22		Number of Distinct Observations	19				
86												
87	**Raw Statistics**						**Log-transformed Statistics**					
88				Minimum	1.7		Minimum of Log Data	0.531				
89				Maximum	10.2		Maximum of Log Data	2.322				
90				Mean	3.688		Mean of log Data	1.214				
91				Median	3.53		SD of log Data	0.414				
92				SD	1.858							
93				Coefficient of Variation	0.504							
94				Skewness	2.265							
95												
96	**Relevant UCL Statistics**											
97	**Normal Distribution Test**						**Lognormal Distribution Test**					
98				Shapiro Wilk Test Statistic	0.782		Shapiro Wilk Test Statistic	0.952				
99				Shapiro Wilk Critical Value	0.911		Shapiro Wilk Critical Value	0.911				
100	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
101												
102	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
103				95% Student's-t UCL	4.37		95% H-UCL	4.362				
104	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	5.101				
105				95% Adjusted-CLT UCL	4.544		97.5% Chebyshev (MVUE) UCL	5.727				
106				95% Modified-t UCL	4.402		99% Chebyshev (MVUE) UCL	6.956				

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	4.927	**Data appear Gamma Distributed at 5% Significance Level**					
110					Theta Star	0.749						
111					nu star	216.8						
112					Approximate Chi Square Value (.05)	183.7	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0386				95% CLT UCL	4.34	
114					Adjusted Chi Square Value	181.4				95% Jackknife UCL	4.37	
115										95% Standard Bootstrap UCL	4.323	
116					Anderson-Darling Test Statistic	0.59				95% Bootstrap-t UCL	4.771	
117					Anderson-Darling 5% Critical Value	0.746				95% Hall's Bootstrap UCL	7.608	
118					Kolmogorov-Smirnov Test Statistic	0.162				95% Percentile Bootstrap UCL	4.329	
119					Kolmogorov-Smirnov 5% Critical Value	0.186				95% BCA Bootstrap UCL	4.65	
120	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	5.415	
121										97.5% Chebyshev(Mean, Sd) UCL	6.162	
122	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	7.629	
123					95% Approximate Gamma UCL	4.352						
124					95% Adjusted Gamma UCL	4.407						
125												
126	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	4.352	
127												
128												
129	**Benzo(a)anthracene**											
130												
131	**General Statistics**											
132					Number of Valid Observations	22				Number of Distinct Observations	19	
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	6.21				Minimum of Log Data	1.826	
136					Maximum	6500				Maximum of Log Data	8.78	
137					Mean	529.8				Mean of log Data	5.084	
138					Median	185				SD of log Data	1.555	
139					SD	1353						
140					Coefficient of Variation	2.555						
141					Skewness	4.474						
142												
143	**Relevant UCL Statistics**											
144	**Normal Distribution Test**						**Lognormal Distribution Test**					
145					Shapiro Wilk Test Statistic	0.353				Shapiro Wilk Test Statistic	0.93	
146					Shapiro Wilk Critical Value	0.911				Shapiro Wilk Critical Value	0.911	
147	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
148												
149	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
150					95% Student's-t UCL	1026				95% H-UCL	1696	
151	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	1343	
152					95% Adjusted-CLT UCL	1299				97.5% Chebyshev (MVUE) UCL	1714	
153					95% Modified-t UCL	1072				99% Chebyshev (MVUE) UCL	2443	
154												
155	**Gamma Distribution Test**						**Data Distribution**					
156					k star (bias corrected)	0.488	**Data appear Lognormal at 5% Significance Level**					
157					Theta Star	1086						
158					nu star	21.46						
159					Approximate Chi Square Value (.05)	11.93	**Nonparametric Statistics**					

160				Adjusted Level of Significance	0.0386					95% CLT UCL	1004
161				Adjusted Chi Square Value	11.4					95% Jackknife UCL	1026
162										95% Standard Bootstrap UCL	997
163				Anderson-Darling Test Statistic	1.471					95% Bootstrap-t UCL	3215
164				Anderson-Darling 5% Critical Value	0.802					95% Hall's Bootstrap UCL	2849
165				Kolmogorov-Smirnov Test Statistic	0.202					95% Percentile Bootstrap UCL	1088
166				Kolmogorov-Smirnov 5% Critical Value	0.195					95% BCA Bootstrap UCL	1457
167				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1788
168										97.5% Chebyshev(Mean, Sd) UCL	2332
169				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3401
170				95% Approximate Gamma UCL	952.8						
171				95% Adjusted Gamma UCL	997						
172											
173				**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL	1343
174											
175											
176	**Benzo(a)pyrene**										
177											
178				**General Statistics**							
179				Number of Valid Observations	22					Number of Distinct Observations	21
180											
181				**Raw Statistics**						**Log-transformed Statistics**	
182				Minimum	6.63					Minimum of Log Data	1.892
183				Maximum	9500					Maximum of Log Data	9.159
184				Mean	750.4					Mean of log Data	5.423
185				Median	325					SD of log Data	1.568
186				SD	1975						
187				Coefficient of Variation	2.632						
188				Skewness	4.533						
189											
190				**Relevant UCL Statistics**							
191				**Normal Distribution Test**						**Lognormal Distribution Test**	
192				Shapiro Wilk Test Statistic	0.336					Shapiro Wilk Test Statistic	0.925
193				Shapiro Wilk Critical Value	0.911					Shapiro Wilk Critical Value	0.911
194				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
195											
196				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
197				95% Student's-t UCL	1475					95% H-UCL	2466
198				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1929
199				95% Adjusted-CLT UCL	1878					97.5% Chebyshev (MVUE) UCL	2464
200				95% Modified-t UCL	1543					99% Chebyshev (MVUE) UCL	3514
201											
202				**Gamma Distribution Test**						**Data Distribution**	
203				k star (bias corrected)	0.485					**Data appear Lognormal at 5% Significance Level**	
204				Theta Star	1548						
205				nu star	21.32						
206				Approximate Chi Square Value (.05)	11.83					**Nonparametric Statistics**	
207				Adjusted Level of Significance	0.0386					95% CLT UCL	1443
208				Adjusted Chi Square Value	11.31					95% Jackknife UCL	1475
209										95% Standard Bootstrap UCL	1449
210				Anderson-Darling Test Statistic	1.554					95% Bootstrap-t UCL	4976
211				Anderson-Darling 5% Critical Value	0.802					95% Hall's Bootstrap UCL	3967
212				Kolmogorov-Smirnov Test Statistic	0.235					95% Percentile Bootstrap UCL	1574

213				Kolmogorov-Smirnov 5% Critical Value	0.196					95% BCA Bootstrap UCL	2003	
214				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2586	
215										97.5% Chebyshev(Mean, Sd) UCL	3380	
216				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	4940	
217				95% Approximate Gamma UCL	1352							
218				95% Adjusted Gamma UCL	1415							
219												
220				**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL	1929	
221												
222												
223	**Benzo(b)fluoranthene**											
224												
225				**General Statistics**								
226				Number of Valid Data	22					Number of Detected Data	21	
227				Number of Distinct Detected Data	18					Number of Non-Detect Data	1	
228										Percent Non-Detects	4.55%	
229												
230				**Raw Statistics**						**Log-transformed Statistics**		
231				Minimum Detected	18					Minimum Detected	2.89	
232				Maximum Detected	9100					Maximum Detected	9.116	
233				Mean of Detected	762.2					Mean of Detected	5.591	
234				SD of Detected	1935					SD of Detected	1.328	
235				Minimum Non-Detect	3.26					Minimum Non-Detect	1.182	
236				Maximum Non-Detect	3.26					Maximum Non-Detect	1.182	
237												
238												
239				**UCL Statistics**								
240				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
241				Shapiro Wilk Test Statistic	0.344					Shapiro Wilk Test Statistic	0.907	
242				5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value	0.908	
243				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
244												
245				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
246				DL/2 Substitution Method						DL/2 Substitution Method		
247				Mean	727.6					Mean	5.359	
248				SD	1895					SD	1.692	
249				95% DL/2 (t) UCL	1423					95% H-Stat (DL/2) UCL	2354	
250												
251				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
252				Mean	668.4					Mean in Log Scale	5.45	
253				SD	1907					SD in Log Scale	1.456	
254				95% MLE (t) UCL	1368					Mean in Original Scale	728.1	
255				95% MLE (Tiku) UCL	1298					SD in Original Scale	1895	
256										95% Percentile Bootstrap UCL	1515	
257										95% BCA Bootstrap UCL	2006	
258												
259				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
260				k star (bias corrected)	0.54					**Data do not follow a Discernable Distribution (0.05)**		
261				Theta Star	1413							
262				nu star	22.66							
263												
264				A-D Test Statistic	2.014					**Nonparametric Statistics**		
265				5% A-D Critical Value	0.797					Kaplan-Meier (KM) Method		

266					K-S Test Statistic	0.797					Mean	728.3
267					5% K-S Critical Value	0.199					SD	1852
268					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	404.5
269											95% KM (t) UCL	1424
270					**Assuming Gamma Distribution**						95% KM (z) UCL	1394
271					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1423
272					Minimum	1E-09					95% KM (bootstrap t) UCL	4451
273					Maximum	9100					95% KM (BCA) UCL	1523
274					Mean	727.5					95% KM (Percentile Bootstrap) UCL	1511
275					Median	270					95% KM (Chebyshev) UCL	2492
276					SD	1895					97.5% KM (Chebyshev) UCL	3254
277					k star	0.3					99% KM (Chebyshev) UCL	4753
278					Theta star	2426						
279					Nu star	13.2					**Potential UCLs to Use**	
280					AppChi2	6.025					97.5% KM (Chebyshev) UCL	3254
281					95% Gamma Approximate UCL	1593						
282					95% Adjusted Gamma UCL	1695						
283	**Note: DL/2 is not a recommended method.**											
284												
285												
286	**Benzo(k)fluoranthene**											
287												
288					**General Statistics**							
289					Number of Valid Data	16					Number of Detected Data	16
290					Number of Distinct Detected Data	15					Number of Non-Detect Data	0
291					Number of Missing Values	6					Percent Non-Detects	0.00%
292												
293					**Raw Statistics**						**Log-transformed Statistics**	
294					Minimum Detected	6					Minimum Detected	1.792
295					Maximum Detected	5400					Maximum Detected	8.594
296					Mean of Detected	461.2					Mean of Detected	4.703
297					SD of Detected	1322					SD of Detected	1.49
298					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
299					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
300												
301												
302					**UCL Statistics**							
303					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
304					Shapiro Wilk Test Statistic	0.341					Shapiro Wilk Test Statistic	0.888
305					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
306					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
307												
308					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
309					DL/2 Substitution Method						DL/2 Substitution Method	
310					Mean	461.2					Mean	4.703
311					SD	1322					SD	1.49
312					95% DL/2 (t) UCL	1041					95% H-Stat (DL/2) UCL	1299
313												
314					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
315					**MLE method failed to converge properly**						Mean in Log Scale	N/A
316											SD in Log Scale	N/A
317											Mean in Original Scale	N/A
318											SD in Original Scale	N/A

319											95% Percentile Bootstrap UCL	N/A
320											95% BCA Bootstrap UCL	N/A
321												
322				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
323						k star (bias corrected)	0.408				**Data appear Lognormal at 5% Significance Level**	
324						Theta Star	1130					
325						nu star	13.06					
326												
327						A-D Test Statistic	2.159				**Nonparametric Statistics**	
328						5% A-D Critical Value	0.806				Kaplan-Meier (KM) Method	
329						K-S Test Statistic	0.806				Mean	461.2
330						5% K-S Critical Value	0.229				SD	1280
331				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	330.6
332											95% KM (t) UCL	1041
333				**Assuming Gamma Distribution**							95% KM (z) UCL	1005
334						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	1041
335						Minimum	6				95% KM (bootstrap t) UCL	5987
336						Maximum	5400				95% KM (BCA) UCL	1134
337						Mean	461.2				95% KM (Percentile Bootstrap) UCL	1115
338						Median	91				95% KM (Chebyshev) UCL	1902
339						SD	1322				97.5% KM (Chebyshev) UCL	2526
340						k star	0.408				99% KM (Chebyshev) UCL	3750
341						Theta star	1130					
342						Nu star	13.06				**Potential UCLs to Use**	
343						AppChi2	5.935				97.5% KM (Chebyshev) UCL	2526
344						95% Gamma Approximate UCL	1015					
345						95% Adjusted Gamma UCL	1116					
346	**Note: DL/2 is not a recommended method.**											
347												
348												
349	**Bis(2-ethylhexyl) phthalate**											
350												
351							**General Statistics**					
352						Number of Valid Data	22				Number of Detected Data	8
353						Number of Distinct Detected Data	8				Number of Non-Detect Data	14
354											Percent Non-Detects	63.64%
355												
356				**Raw Statistics**							**Log-transformed Statistics**	
357						Minimum Detected	33				Minimum Detected	3.497
358						Maximum Detected	590				Maximum Detected	6.38
359						Mean of Detected	181.3				Mean of Detected	4.702
360						SD of Detected	196.1				SD of Detected	1.061
361						Minimum Non-Detect	9.3				Minimum Non-Detect	2.23
362						Maximum Non-Detect	190				Maximum Non-Detect	5.247
363												
364	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	19
365	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
366	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	86.36%
367												
368	**Warning: There are only 8 Detected Values in this data**											
369	**Note: It should be noted that even though bootstrap may be performed on this data set**											
370	**the resulting calculations may not be reliable enough tp draw conclusions**											
371												

372	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
373												
374												
375	UCL Statistics											
376	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
377				Shapiro Wilk Test Statistic	0.788					Shapiro Wilk Test Statistic	0.916	
378				5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818	
379	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
380												
381	Assuming Normal Distribution						Assuming Lognormal Distribution					
382				DL/2 Substitution Method						DL/2 Substitution Method		
383				Mean	81.64					Mean	3.427	
384				SD	139					SD	1.387	
385				95% DL/2 (t) UCL	132.6					95% H-Stat (DL/2) UCL	92.24	
386												
387				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
388				Mean	426.2					Mean in Log Scale	2.921	
389				SD	146.6					SD in Log Scale	1.551	
390				95% MLE (t) UCL	480					Mean in Original Scale	70.6	
391				95% MLE (Tiku) UCL	568.5					SD in Original Scale	142	
392										95% Percentile Bootstrap UCL	125.2	
393										95% BCA Bootstrap UCL	144	
394												
395	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
396				k star (bias corrected)	0.798		Data appear Gamma Distributed at 5% Significance Level					
397				Theta Star	227.3							
398				nu star	12.76							
399												
400				A-D Test Statistic	0.482		Nonparametric Statistics					
401				5% A-D Critical Value	0.733					Kaplan-Meier (KM) Method		
402				K-S Test Statistic	0.733					Mean	88.08	
403				5% K-S Critical Value	0.301					SD	131.3	
404	Data appear Gamma Distributed at 5% Significance Level									SE of Mean	29.97	
405										95% KM (t) UCL	139.7	
406	Assuming Gamma Distribution									95% KM (z) UCL	137.4	
407				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	135.2	
408				Minimum	1E-09					95% KM (bootstrap t) UCL	192.2	
409				Maximum	590					95% KM (BCA) UCL	160.1	
410				Mean	141.8					95% KM (Percentile Bootstrap) UCL	147.4	
411				Median	125					95% KM (Chebyshev) UCL	218.7	
412				SD	144.3					97.5% KM (Chebyshev) UCL	275.2	
413				k star	0.201					99% KM (Chebyshev) UCL	386.3	
414				Theta star	705.1							
415				Nu star	8.85		Potential UCLs to Use					
416				AppChi2	3.236					95% KM (t) UCL	139.7	
417				95% Gamma Approximate UCL	387.8							
418				95% Adjusted Gamma UCL	420.1							
419	Note: DL/2 is not a recommended method.											
420												
421												
422	Dibenzo(a,h)anthracene											
423												
424	General Statistics											

425					Number of Valid Data	22					Number of Detected Data	21
426					Number of Distinct Detected Data	21					Number of Non-Detect Data	1
427											Percent Non-Detects	4.55%
428												
429					**Raw Statistics**						**Log-transformed Statistics**	
430					Minimum Detected	2.3					Minimum Detected	0.833
431					Maximum Detected	880					Maximum Detected	6.78
432					Mean of Detected	100.2					Mean of Detected	3.707
433					SD of Detected	190.6					SD of Detected	1.376
434					Minimum Non-Detect	1.63					Minimum Non-Detect	0.489
435					Maximum Non-Detect	1.63					Maximum Non-Detect	0.489
436												
437												
438					**UCL Statistics**							
439					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
440					Shapiro Wilk Test Statistic	0.481					Shapiro Wilk Test Statistic	0.972
441					5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value	0.908
442					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
443												
444					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
445					DL/2 Substitution Method						DL/2 Substitution Method	
446					Mean	95.65					Mean	3.529
447					SD	187.2					SD	1.581
448					95% DL/2 (t) UCL	164.3					95% H-Stat (DL/2) UCL	290.8
449												
450					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
451					Mean	90.12					Mean in Log Scale	3.554
452					SD	188.6					SD in Log Scale	1.523
453					95% MLE (t) UCL	159.3					Mean in Original Scale	95.68
454					95% MLE (Tiku) UCL	153					SD in Original Scale	187.2
455											95% Percentile Bootstrap UCL	166.5
456											95% BCA Bootstrap UCL	206.2
457												
458					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
459					k star (bias corrected)	0.61					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
460					Theta Star	164.2						
461					nu star	25.63						
462												
463					A-D Test Statistic	0.845					**Nonparametric Statistics**	
464					5% A-D Critical Value	0.79					Kaplan-Meier (KM) Method	
465					K-S Test Statistic	0.79					Mean	95.72
466					5% K-S Critical Value	0.198					SD	182.9
467					**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean	39.95
468											95% KM (t) UCL	164.5
469					**Assuming Gamma Distribution**						95% KM (z) UCL	161.4
470					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	164.3
471					Minimum	1E-09					95% KM (bootstrap t) UCL	334.2
472					Maximum	880					95% KM (BCA) UCL	171.8
473					Mean	95.62					95% KM (Percentile Bootstrap) UCL	170.3
474					Median	40.5					95% KM (Chebyshev) UCL	269.9
475					SD	187.2					97.5% KM (Chebyshev) UCL	345.2
476					k star	0.327					99% KM (Chebyshev) UCL	493.2
477					Theta star	292.5						

478					Nu star	14.38	**Potential UCLs to Use**					
479					AppChi2	6.835				95% KM (Chebyshev) UCL		269.9
480				95% Gamma Approximate UCL		201.2						
481				95% Adjusted Gamma UCL		213.3						
482	**Note: DL/2 is not a recommended method.**											
483												
484												
485	**Indeno(1,2,3-cd)pyrene**											
486												
487	**General Statistics**											
488	Number of Valid Observations					22	Number of Distinct Observations					20
489												
490	**Raw Statistics**						**Log-transformed Statistics**					
491	Minimum					8.58	Minimum of Log Data					2.149
492	Maximum					4100	Maximum of Log Data					8.319
493	Mean					420.9	Mean of log Data					5.095
494	Median					210	SD of log Data					1.454
495	SD					858.7						
496	Coefficient of Variation					2.04						
497	Skewness					4.122						
498												
499	**Relevant UCL Statistics**											
500	**Normal Distribution Test**						**Lognormal Distribution Test**					
501	Shapiro Wilk Test Statistic					0.425	Shapiro Wilk Test Statistic					0.919
502	Shapiro Wilk Critical Value					0.911	Shapiro Wilk Critical Value					0.911
503	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
504												
505	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
506	95% Student's-t UCL					735.9	95% H-UCL					1298
507	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					1130
508	95% Adjusted-CLT UCL					893.9	97.5% Chebyshev (MVUE) UCL					1433
509	95% Modified-t UCL					762.7	99% Chebyshev (MVUE) UCL					2029
510												
511	**Gamma Distribution Test**						**Data Distribution**					
512	k star (bias corrected)					0.588	**Data appear Lognormal at 5% Significance Level**					
513	Theta Star					716						
514	nu star					25.87						
515	Approximate Chi Square Value (.05)					15.28	**Nonparametric Statistics**					
516	Adjusted Level of Significance					0.0386	95% CLT UCL					722
517	Adjusted Chi Square Value					14.67	95% Jackknife UCL					735.9
518							95% Standard Bootstrap UCL					716.2
519	Anderson-Darling Test Statistic					1.2	95% Bootstrap-t UCL					1965
520	Anderson-Darling 5% Critical Value					0.792	95% Hall's Bootstrap UCL					2141
521	Kolmogorov-Smirnov Test Statistic					0.253	95% Percentile Bootstrap UCL					776
522	Kolmogorov-Smirnov 5% Critical Value					0.194	95% BCA Bootstrap UCL					1082
523	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					1219
524							97.5% Chebyshev(Mean, Sd) UCL					1564
525	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					2243
526	95% Approximate Gamma UCL					712.7						
527	95% Adjusted Gamma UCL					742.2						
528												
529	**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL					1130
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531												
532	**Lead**											
533												
534						**General Statistics**							
535						Number of Valid Observations	22				Number of Distinct Observations	21
536												
537						**Raw Statistics**					**Log-transformed Statistics**	
538						Minimum	6.85				Minimum of Log Data	1.924
539						Maximum	36				Maximum of Log Data	3.584
540						Mean	19.28				Mean of log Data	2.863
541						Median	15.6				SD of log Data	0.451
542						SD	8.66					
543						Coefficient of Variation	0.449					
544						Skewness	0.632					
545												
546						**Relevant UCL Statistics**							
547						**Normal Distribution Test**					**Lognormal Distribution Test**	
548						Shapiro Wilk Test Statistic	0.897				Shapiro Wilk Test Statistic	0.939
549						Shapiro Wilk Critical Value	0.911				Shapiro Wilk Critical Value	0.911
550						**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
551												
552						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
553						95% Student's-t UCL	22.46				95% H-UCL	23.46
554						**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	27.63
555						95% Adjusted-CLT UCL	22.58				97.5% Chebyshev (MVUE) UCL	31.24
556						95% Modified-t UCL	22.5				99% Chebyshev (MVUE) UCL	38.33
557												
558						**Gamma Distribution Test**					**Data Distribution**	
559						k star (bias corrected)	4.669				**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
560						Theta Star	4.13					
561						nu star	205.4					
562						Approximate Chi Square Value (.05)	173.3				**Nonparametric Statistics**	
563						Adjusted Level of Significance	0.0386				95% CLT UCL	22.32
564						Adjusted Chi Square Value	171.1				95% Jackknife UCL	22.46
565											95% Standard Bootstrap UCL	22.32
566						Anderson-Darling Test Statistic	0.747				95% Bootstrap-t UCL	22.66
567						Anderson-Darling 5% Critical Value	0.746				95% Hall's Bootstrap UCL	22.42
568						Kolmogorov-Smirnov Test Statistic	0.176				95% Percentile Bootstrap UCL	22.1
569						Kolmogorov-Smirnov 5% Critical Value	0.186				95% BCA Bootstrap UCL	22.38
570						**Data follow Appr. Gamma Distribution at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	27.33
571											97.5% Chebyshev(Mean, Sd) UCL	30.81
572						**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	37.65
573						95% Approximate Gamma UCL	22.86					
574						95% Adjusted Gamma UCL	23.15					
575												
576						**Potential UCL to Use**					Use 95% Approximate Gamma UCL	22.86
577												
578												
579	**Mercury**											
580												
581						**General Statistics**						
582						Number of Valid Observations	22				Number of Distinct Observations	22
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584	**Raw Statistics**						**Log-transformed Statistics**					
585					Minimum	0.023					Minimum of Log Data	-3.772
586					Maximum	0.918					Maximum of Log Data	-0.0856
587					Mean	0.288					Mean of log Data	-1.604
588					Median	0.183					SD of log Data	0.91
589					SD	0.253						
590					Coefficient of Variation	0.879						
591					Skewness	1.465						
592												
593	**Relevant UCL Statistics**											
594	**Normal Distribution Test**						**Lognormal Distribution Test**					
595					Shapiro Wilk Test Statistic	0.822					Shapiro Wilk Test Statistic	0.977
596					Shapiro Wilk Critical Value	0.911					Shapiro Wilk Critical Value	0.911
597	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
598												
599	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
600					95% Student's-t UCL	0.381					95% H-UCL	0.493
601	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.575
602					95% Adjusted-CLT UCL	0.395					97.5% Chebyshev (MVUE) UCL	0.695
603					95% Modified-t UCL	0.384					99% Chebyshev (MVUE) UCL	0.932
604												
605	**Gamma Distribution Test**						**Data Distribution**					
606					k star (bias corrected)	1.355	**Data appear Gamma Distributed at 5% Significance Level**					
607					Theta Star	0.213						
608					nu star	59.62						
609					Approximate Chi Square Value (.05)	42.86	**Nonparametric Statistics**					
610					Adjusted Level of Significance	0.0386					95% CLT UCL	0.377
611					Adjusted Chi Square Value	41.8					95% Jackknife UCL	0.381
612											95% Standard Bootstrap UCL	0.377
613					Anderson-Darling Test Statistic	0.344					95% Bootstrap-t UCL	0.416
614					Anderson-Darling 5% Critical Value	0.759					95% Hall's Bootstrap UCL	0.412
615					Kolmogorov-Smirnov Test Statistic	0.134					95% Percentile Bootstrap UCL	0.378
616					Kolmogorov-Smirnov 5% Critical Value	0.188					95% BCA Bootstrap UCL	0.392
617	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.523
618											97.5% Chebyshev(Mean, Sd) UCL	0.625
619	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.825
620					95% Approximate Gamma UCL	0.401						
621					95% Adjusted Gamma UCL	0.411						
622												
623	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	0.401
624												
625												
626	**Naphthalene**											
627												
628	**General Statistics**											
629					Number of Valid Data	22					Number of Detected Data	20
630					Number of Distinct Detected Data	20					Number of Non-Detect Data	2
631											Percent Non-Detects	9.09%
632												
633	**Raw Statistics**						**Log-transformed Statistics**					
634					Minimum Detected	5.7					Minimum Detected	1.74
635					Maximum Detected	3000					Maximum Detected	8.006
636					Mean of Detected	272.4					Mean of Detected	4.32

637					SD of Detected	659.8					SD of Detected	1.562
638					Minimum Non-Detect	1.63					Minimum Non-Detect	0.489
639					Maximum Non-Detect	9.2					Maximum Non-Detect	2.219
640												
641	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	3
642	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	19
643	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	13.64%
644												
645	**UCL Statistics**											
646	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
647					Shapiro Wilk Test Statistic	0.409					Shapiro Wilk Test Statistic	0.977
648					5% Shapiro Wilk Critical Value	0.905					5% Shapiro Wilk Critical Value	0.905
649	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
650												
651	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
652					DL/2 Substitution Method						DL/2 Substitution Method	
653					Mean	247.9					Mean	3.987
654					SD	632.6					SD	1.854
655					95% DL/2 (t) UCL	480					95% H-Stat (DL/2) UCL	1023
656												
657					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
658					Mean	182.8					Mean in Log Scale	3.999
659					SD	678.3					SD in Log Scale	1.815
660					95% MLE (t) UCL	431.7					Mean in Original Scale	247.9
661					95% MLE (Tiku) UCL	416.8					SD in Original Scale	632.6
662											95% Percentile Bootstrap UCL	493.3
663											95% BCA Bootstrap UCL	648.5
664												
665	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
666					k star (bias corrected)	0.453	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
667					Theta Star	600.7						
668					nu star	18.14						
669												
670					A-D Test Statistic	1.087	**Nonparametric Statistics**					
671					5% A-D Critical Value	0.804					Kaplan-Meier (KM) Method	
672					K-S Test Statistic	0.804					Mean	248.2
673					5% K-S Critical Value	0.205					SD	617.9
674	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	135.2
675											95% KM (t) UCL	480.8
676	**Assuming Gamma Distribution**										95% KM (z) UCL	470.5
677					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	479.9
678					Minimum	1E-09					95% KM (bootstrap t) UCL	1174
679					Maximum	3000					95% KM (BCA) UCL	520.7
680					Mean	247.6					95% KM (Percentile Bootstrap) UCL	513.2
681					Median	53					95% KM (Chebyshev) UCL	837.3
682					SD	632.7					97.5% KM (Chebyshev) UCL	1092
683					k star	0.212					99% KM (Chebyshev) UCL	1593
684					Theta star	1168						
685					Nu star	9.331	**Potential UCLs to Use**					
686					AppChi2	3.528					95% KM (Chebyshev) UCL	837.3
687					95% Gamma Approximate UCL	655						
688					95% Adjusted Gamma UCL	707.6						
689	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
690												
691												
692	**Total Aroclors**											
693												
694						**General Statistics**							
695						Number of Valid Data	13				Number of Detected Data	13	
696						Number of Distinct Detected Data	13				Number of Non-Detect Data	0	
697						Number of Missing Values	1				Percent Non-Detects	0.00%	
698													
699						**Raw Statistics**					**Log-transformed Statistics**		
700						Minimum Detected	7.291				Minimum Detected	1.987	
701						Maximum Detected	243.3				Maximum Detected	5.494	
702						Mean of Detected	76.58				Mean of Detected	3.68	
703						SD of Detected	81.68				SD of Detected	1.27	
704						Minimum Non-Detect	N/A				Minimum Non-Detect	N/A	
705						Maximum Non-Detect	N/A				Maximum Non-Detect	N/A	
706													
707													
708						**UCL Statistics**							
709						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
710						Shapiro Wilk Test Statistic	0.813				Shapiro Wilk Test Statistic	0.909	
711						5% Shapiro Wilk Critical Value	0.866				5% Shapiro Wilk Critical Value	0.866	
712						**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
713													
714						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
715						DL/2 Substitution Method					DL/2 Substitution Method		
716						Mean	76.58				Mean	3.68	
717						SD	81.68				SD	1.27	
718						95% DL/2 (t) UCL	117				95% H-Stat (DL/2) UCL	301.8	
719													
720						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
721						**MLE method failed to converge properly**					Mean in Log Scale	N/A	
722											SD in Log Scale	N/A	
723											Mean in Original Scale	N/A	
724											SD in Original Scale	N/A	
725											95% Percentile Bootstrap UCL	N/A	
726											95% BCA Bootstrap UCL	N/A	
727													
728						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
729						k star (bias corrected)	0.736				**Data appear Gamma Distributed at 5% Significance Level**		
730						Theta Star	104.1						
731						nu star	19.13						
732													
733						A-D Test Statistic	0.57				**Nonparametric Statistics**		
734						5% A-D Critical Value	0.763				Kaplan-Meier (KM) Method		
735						K-S Test Statistic	0.763				Mean	76.58	
736						5% K-S Critical Value	0.244				SD	78.48	
737						**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean	22.65	
738											95% KM (t) UCL	117	
739						**Assuming Gamma Distribution**					95% KM (z) UCL	113.8	
740						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	117	
741						Minimum	7.291				95% KM (bootstrap t) UCL	127.9	
742						Maximum	243.3				95% KM (BCA) UCL	115	

743					Mean	76.58				95% KM (Percentile Bootstrap) UCL		112.1
744					Median	33.65				95% KM (Chebyshev) UCL		175.3
745					SD	81.68				97.5% KM (Chebyshev) UCL		218.1
746					k star	0.736				99% KM (Chebyshev) UCL		302
747					Theta star	104.1						
748					Nu star	19.13				**Potential UCLs to Use**		
749					AppChi2	10.21				95% KM (Chebyshev) UCL		175.3
750					95% Gamma Approximate UCL	143.4						
751					95% Adjusted Gamma UCL	157.6						
752	**Note: DL/2 is not a recommended method.**											
753												
754												
755	**Total DDT**											
756												
757						**General Statistics**						
758					Number of Valid Data	19				Number of Detected Data		14
759					Number of Distinct Detected Data	14				Number of Non-Detect Data		5
760					Number of Missing Values	3				Percent Non-Detects		26.32%
761												
762					**Raw Statistics**					**Log-transformed Statistics**		
763					Minimum Detected	1.012				Minimum Detected		0.0119
764					Maximum Detected	12.74				Maximum Detected		2.545
765					Mean of Detected	3.655				Mean of Detected		0.972
766					SD of Detected	3.356				SD of Detected		0.811
767					Minimum Non-Detect	0.36				Minimum Non-Detect		-1.022
768					Maximum Non-Detect	2.31				Maximum Non-Detect		0.837
769												
770	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		12
771	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		7
772	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		63.16%
773												
774						**UCL Statistics**						
775					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
776					Shapiro Wilk Test Statistic	0.785				Shapiro Wilk Test Statistic		0.934
777					5% Shapiro Wilk Critical Value	0.874				5% Shapiro Wilk Critical Value		0.874
778					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
779												
780					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
781					DL/2 Substitution Method					DL/2 Substitution Method		
782					Mean	2.923				Mean		0.635
783					SD	3.123				SD		0.974
784					95% DL/2 (t) UCL	4.166				95% H-Stat (DL/2) UCL		3.852
785												
786					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
787					Mean	0.328				Mean in Log Scale		0.692
788					SD	5.537				SD in Log Scale		0.876
789					95% MLE (t) UCL	2.531				Mean in Original Scale		2.955
790					95% MLE (Tiku) UCL	3.632				SD in Original Scale		3.1
791										95% Percentile Bootstrap UCL		4.132
792										95% BCA Bootstrap UCL		4.472
793												
794					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
795					k star (bias corrected)	1.377				**Data appear Gamma Distributed at 5% Significance Level**		

	A	B	C	D	E	F	G	H	I	J	K	L
796					Theta Star	2.655						
797					nu star	38.55						
798												
799					A-D Test Statistic	0.511	**Nonparametric Statistics**					
800					5% A-D Critical Value	0.749					Kaplan-Meier (KM) Method	
801					K-S Test Statistic	0.749					Mean	3.017
802					5% K-S Critical Value	0.232					SD	2.979
803			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.711
804											95% KM (t) UCL	4.25
805			**Assuming Gamma Distribution**								95% KM (z) UCL	4.187
806				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	4.238
807					Minimum	1E-09					95% KM (bootstrap t) UCL	4.959
808					Maximum	12.74					95% KM (BCA) UCL	4.285
809					Mean	3.293					95% KM (Percentile Bootstrap) UCL	4.249
810					Median	2.7					95% KM (Chebyshev) UCL	6.116
811					SD	2.984					97.5% KM (Chebyshev) UCL	7.456
812					k star	0.435					99% KM (Chebyshev) UCL	10.09
813					Theta star	7.566						
814					Nu star	16.54	**Potential UCLs to Use**					
815					AppChi2	8.345					95% KM (Percentile Bootstrap) UCL	4.249
816					95% Gamma Approximate UCL	6.527						
817					95% Adjusted Gamma UCL	6.949						
818	**Note: DL/2 is not a recommended method.**											
819												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM6.0W.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Aldrin											
10												
11					General Statistics							
12				Number of Valid Data	23			Number of Detected Data	7			
13				Number of Distinct Detected Data	7			Number of Non-Detect Data	16			
14				Number of Missing Values	17			Percent Non-Detects	69.57%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	0.59			Minimum Detected	-0.528			
18				Maximum Detected	7.9			Maximum Detected	2.067			
19				Mean of Detected	3.663			Mean of Detected	0.866			
20				SD of Detected	3.043			SD of Detected	1.1			
21				Minimum Non-Detect	0.0488			Minimum Non-Detect	-3.02			
22				Maximum Non-Detect	0.98			Maximum Non-Detect	-0.0202			
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect	18			
25	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected	5			
26	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage	78.26%			
27												
28				Warning: There are only 7 Detected Values in this data								
29				Note: It should be noted that even though bootstrap may be performed on this data set								
30				the resulting calculations may not be reliable enough tp draw conclusions								
31												
32				It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.								
33												
34												
35					UCL Statistics							
36				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
37				Shapiro Wilk Test Statistic	0.879			Shapiro Wilk Test Statistic	0.87			
38				5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value	0.803			
39				Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level				
40												
41				Assuming Normal Distribution				Assuming Lognormal Distribution				
42				DL/2 Substitution Method				DL/2 Substitution Method				
43				Mean	1.244			Mean	-1.128			
44				SD	2.284			SD	1.635			
45				95% DL/2 (t) UCL	2.061			95% H-Stat (DL/2) UCL	1.564			
46												
47				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
48				MLE yields a negative mean				Mean in Log Scale	-1.585			
49								SD in Log Scale	1.757			
50								Mean in Original Scale	1.164			
51								SD in Original Scale	2.32			
52								95% Percentile Bootstrap UCL	2.035			
53								95% BCA Bootstrap UCL	2.238			

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56	k star (bias corrected)				0.837		**Data appear Normal at 5% Significance Level**					
57	Theta Star				4.377							
58	nu star				11.72							
59												
60	A-D Test Statistic				0.454		**Nonparametric Statistics**					
61	5% A-D Critical Value				0.724		Kaplan-Meier (KM) Method					
62	K-S Test Statistic				0.724		Mean					1.527
63	5% K-S Critical Value				0.318		SD					2.101
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.473
65							95% KM (t) UCL					2.339
66	**Assuming Gamma Distribution**						95% KM (z) UCL					2.305
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.229
68	Minimum				1E-09		95% KM (bootstrap t) UCL					2.57
69	Maximum				7.9		95% KM (BCA) UCL					4.021
70	Mean				1.115		95% KM (Percentile Bootstrap) UCL					2.578
71	Median				1E-09		95% KM (Chebyshev) UCL					3.589
72	SD				2.344		97.5% KM (Chebyshev) UCL					4.481
73	k star				0.0814		99% KM (Chebyshev) UCL					6.234
74	Theta star				13.69							
75	Nu star				3.745		**Potential UCLs to Use**					
76	AppChi2				0.624		95% KM (t) UCL					2.339
77	95% Gamma Approximate UCL				6.695		95% KM (Percentile Bootstrap) UCL					2.578
78	95% Adjusted Gamma UCL				7.704							
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85	Number of Valid Data				43		Number of Detected Data					38
86	Number of Distinct Detected Data				37		Number of Non-Detect Data					5
87	Number of Missing Values				2		Percent Non-Detects					11.63%
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90	Minimum Detected				1.76		Minimum Detected					0.565
91	Maximum Detected				8.12		Maximum Detected					2.094
92	Mean of Detected				3.795		Mean of Detected					1.284
93	SD of Detected				1.294		SD of Detected					0.312
94	Minimum Non-Detect				5		Minimum Non-Detect					1.609
95	Maximum Non-Detect				6		Maximum Non-Detect					1.792
96												
97	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					40
98	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					3
99	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.02%
100												
101	**UCL Statistics**											
102	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
103	Shapiro Wilk Test Statistic				0.889		Shapiro Wilk Test Statistic					0.981
104	5% Shapiro Wilk Critical Value				0.938		5% Shapiro Wilk Critical Value					0.938
105	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
108	DL/2 Substitution Method						DL/2 Substitution Method					
109	Mean					3.656	Mean					1.246
110	SD					1.277	SD					0.313
111	95% DL/2 (t) UCL					3.984	95% H-Stat (DL/2) UCL					3.835
112												
113	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
114	Mean					2.303	Mean in Log Scale					1.278
115	SD					2.516	SD in Log Scale					0.299
116	95% MLE (t) UCL					2.949	Mean in Original Scale					3.758
117	95% MLE (Tiku) UCL					5.893	SD in Original Scale					1.234
118							95% Percentile Bootstrap UCL					4.078
119							95% BCA Bootstrap UCL					4.115
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122	k star (bias corrected)					9.488	**Data appear Gamma Distributed at 5% Significance Level**					
123	Theta Star					0.4						
124	nu star					721.1						
125												
126	A-D Test Statistic					0.486	**Nonparametric Statistics**					
127	5% A-D Critical Value					0.748	Kaplan-Meier (KM) Method					
128	K-S Test Statistic					0.748	Mean					3.757
129	5% K-S Critical Value					0.143	SD					1.234
130	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.196
131							95% KM (t) UCL					4.086
132	**Assuming Gamma Distribution**						95% KM (z) UCL					4.079
133	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.086
134	Minimum					1.76	95% KM (bootstrap t) UCL					4.141
135	Maximum					8.12	95% KM (BCA) UCL					4.086
136	Mean					3.808	95% KM (Percentile Bootstrap) UCL					4.072
137	Median					3.57	95% KM (Chebyshev) UCL					4.61
138	SD					1.228	97.5% KM (Chebyshev) UCL					4.979
139	k star					10.57	99% KM (Chebyshev) UCL					5.704
140	Theta star					0.36						
141	Nu star					908.7	**Potential UCLs to Use**					
142	AppChi2					839.7	95% KM (BCA) UCL					4.086
143	95% Gamma Approximate UCL					4.121						
144	95% Adjusted Gamma UCL					4.132						
145	**Note: DL/2 is not a recommended method.**											
146												
147												
148	**Benzo(a)anthracene**											
149												
150	**General Statistics**											
151	Number of Valid Data					44	Number of Detected Data					44
152	Number of Distinct Detected Data					38	Number of Non-Detect Data					0
153	Number of Missing Values					2	Percent Non-Detects					0.00%
154												
155	**Raw Statistics**						**Log-transformed Statistics**					
156	Minimum Detected					220	Minimum Detected					5.394
157	Maximum Detected					120000	Maximum Detected					11.7
158	Mean of Detected					25307	Mean of Detected					9.014
159	SD of Detected					33965	SD of Detected					1.769

	A	B	C	D	E	F	G	H	I	J	K	L
160					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
161					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
162												
163												
164	**UCL Statistics**											
165	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
166					Shapiro Wilk Test Statistic	0.727					Shapiro Wilk Test Statistic	0.949
167					5% Shapiro Wilk Critical Value	0.944					5% Shapiro Wilk Critical Value	0.944
168	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
169												
170	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
171					DL/2 Substitution Method						DL/2 Substitution Method	
172					Mean	25307					Mean	9.014
173					SD	33965					SD	1.769
174					95% DL/2 (t) UCL	33914					95% H-Stat (DL/2) UCL	95446
175												
176					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
177	**MLE method failed to converge properly**										Mean in Log Scale	N/A
178											SD in Log Scale	N/A
179											Mean in Original Scale	N/A
180											SD in Original Scale	N/A
181											95% Percentile Bootstrap UCL	N/A
182											95% BCA Bootstrap UCL	N/A
183												
184	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
185					k star (bias corrected)	0.533	**Data appear Gamma Distributed at 5% Significance Level**					
186					Theta Star	47492						
187					nu star	46.89						
188												
189					A-D Test Statistic	0.575	**Nonparametric Statistics**					
190					5% A-D Critical Value	0.808	Kaplan-Meier (KM) Method					
191					K-S Test Statistic	0.808					Mean	25307
192					5% K-S Critical Value	0.14					SD	33577
193	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	5120
194											95% KM (t) UCL	33914
195	**Assuming Gamma Distribution**										95% KM (z) UCL	33729
196					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	33914
197					Minimum	220					95% KM (bootstrap t) UCL	35578
198					Maximum	120000					95% KM (BCA) UCL	33840
199					Mean	25307					95% KM (Percentile Bootstrap) UCL	33969
200					Median	10650					95% KM (Chebyshev) UCL	47626
201					SD	33965					97.5% KM (Chebyshev) UCL	57284
202					k star	0.533					99% KM (Chebyshev) UCL	76254
203					Theta star	47492						
204					Nu star	46.89	**Potential UCLs to Use**					
205					AppChi2	32.18					95% KM (Chebyshev) UCL	47626
206					95% Gamma Approximate UCL	36878						
207					95% Adjusted Gamma UCL	37359						
208	**Note: DL/2 is not a recommended method.**											
209												
210												
211	**Benzo(a)pyrene**											
212												

213	**General Statistics**											
214					Number of Valid Data	44			Number of Detected Data	44		
215					Number of Distinct Detected Data	37			Number of Non-Detect Data	0		
216					Number of Missing Values	2			Percent Non-Detects	0.00%		
217												
218	**Raw Statistics**							**Log-transformed Statistics**				
219					Minimum Detected	330			Minimum Detected	5.799		
220					Maximum Detected	160000			Maximum Detected	11.98		
221					Mean of Detected	30998			Mean of Detected	9.259		
222					SD of Detected	40547			SD of Detected	1.761		
223					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
224					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
225												
226												
227	**UCL Statistics**											
228	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
229					Shapiro Wilk Test Statistic	0.745			Shapiro Wilk Test Statistic	0.941		
230					5% Shapiro Wilk Critical Value	0.944			5% Shapiro Wilk Critical Value	0.944		
231	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**				
232												
233	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
234					DL/2 Substitution Method				DL/2 Substitution Method			
235					Mean	30998			Mean	9.259		
236					SD	40547			SD	1.761		
237					95% DL/2 (t) UCL	41274			95% H-Stat (DL/2) UCL	119337		
238												
239					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
240	**MLE method failed to converge properly**								Mean in Log Scale	N/A		
241									SD in Log Scale	N/A		
242									Mean in Original Scale	N/A		
243									SD in Original Scale	N/A		
244									95% Percentile Bootstrap UCL	N/A		
245									95% BCA Bootstrap UCL	N/A		
246												
247	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
248					k star (bias corrected)	0.551		**Data appear Gamma Distributed at 5% Significance Level**				
249					Theta Star	56308						
250					nu star	48.45						
251												
252					A-D Test Statistic	0.439		**Nonparametric Statistics**				
253					5% A-D Critical Value	0.806			Kaplan-Meier (KM) Method			
254					K-S Test Statistic	0.806			Mean	30998		
255					5% K-S Critical Value	0.14			SD	40084		
256	**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	6113		
257									95% KM (t) UCL	41274		
258	**Assuming Gamma Distribution**								95% KM (z) UCL	41053		
259					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL	41274		
260					Minimum	330			95% KM (bootstrap t) UCL	43286		
261					Maximum	160000			95% KM (BCA) UCL	41307		
262					Mean	30998			95% KM (Percentile Bootstrap) UCL	41052		
263					Median	16000			95% KM (Chebyshev) UCL	57643		
264					SD	40547			97.5% KM (Chebyshev) UCL	69172		
265					k star	0.551			99% KM (Chebyshev) UCL	91819		

266					Theta star	56308						
267					Nu star	48.45			**Potential UCLs to Use**			
268					AppChi2	33.47					95% KM (Chebyshev) UCL	57643
269				95% Gamma Approximate UCL		44870						
270				95% Adjusted Gamma UCL		45444						
271	**Note: DL/2 is not a recommended method.**											
272												
273												
274	**Benzo(b)fluoranthene**											
275												
276					**General Statistics**							
277					Number of Valid Data	44					Number of Detected Data	44
278					Number of Distinct Detected Data	38					Number of Non-Detect Data	0
279					Number of Missing Values	2					Percent Non-Detects	0.00%
280												
281				**Raw Statistics**					**Log-transformed Statistics**			
282					Minimum Detected	250					Minimum Detected	5.521
283					Maximum Detected	130000					Maximum Detected	11.78
284					Mean of Detected	22236					Mean of Detected	8.958
285					SD of Detected	31067					SD of Detected	1.695
286					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
287					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
288												
289												
290					**UCL Statistics**							
291				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
292					Shapiro Wilk Test Statistic	0.694					Shapiro Wilk Test Statistic	0.954
293					5% Shapiro Wilk Critical Value	0.944					5% Shapiro Wilk Critical Value	0.944
294				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
295												
296				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
297					DL/2 Substitution Method						DL/2 Substitution Method	
298					Mean	22236					Mean	8.958
299					SD	31067					SD	1.695
300					95% DL/2 (t) UCL	30110					95% H-Stat (DL/2) UCL	74416
301												
302					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
303				**MLE method failed to converge properly**							Mean in Log Scale	N/A
304											SD in Log Scale	N/A
305											Mean in Original Scale	N/A
306											SD in Original Scale	N/A
307											95% Percentile Bootstrap UCL	N/A
308											95% BCA Bootstrap UCL	N/A
309												
310				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
311					k star (bias corrected)	0.564			**Data appear Gamma Distributed at 5% Significance Level**			
312					Theta Star	39407						
313					nu star	49.66						
314												
315					A-D Test Statistic	0.427			**Nonparametric Statistics**			
316					5% A-D Critical Value	0.805					Kaplan-Meier (KM) Method	
317					K-S Test Statistic	0.805					Mean	22236
318					5% K-S Critical Value	0.14					SD	30712

319	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	4684
320											95% KM (t) UCL	30110
321	Assuming Gamma Distribution										95% KM (z) UCL	29940
322	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	30110
323	Minimum	250									95% KM (bootstrap t) UCL	32492
324	Maximum	130000									95% KM (BCA) UCL	30430
325	Mean	22236									95% KM (Percentile Bootstrap) UCL	30632
326	Median	10650									95% KM (Chebyshev) UCL	42651
327	SD	31067									97.5% KM (Chebyshev) UCL	51485
328	k star	0.564									99% KM (Chebyshev) UCL	68837
329	Theta star	39407										
330	Nu star	49.66									Potential UCLs to Use	
331	AppChi2	34.48									95% KM (Chebyshev) UCL	42651
332	95% Gamma Approximate UCL	32026										
333	95% Adjusted Gamma UCL	32430										
334	Note: DL/2 is not a recommended method.											
335												
336												
337	Benzo(k)fluoranthene											
338												
339	General Statistics											
340	Number of Valid Data	44									Number of Detected Data	44
341	Number of Distinct Detected Data	38									Number of Non-Detect Data	0
342	Number of Missing Values	2									Percent Non-Detects	0.00%
343												
344	Raw Statistics										Log-transformed Statistics	
345	Minimum Detected	180									Minimum Detected	5.193
346	Maximum Detected	89000									Maximum Detected	11.4
347	Mean of Detected	14052									Mean of Detected	8.452
348	SD of Detected	19614									SD of Detected	1.719
349	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
350	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
351												
352												
353	UCL Statistics											
354	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
355	Shapiro Wilk Test Statistic	0.72									Shapiro Wilk Test Statistic	0.95
356	5% Shapiro Wilk Critical Value	0.944									5% Shapiro Wilk Critical Value	0.944
357	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
358												
359	Assuming Normal Distribution										Assuming Lognormal Distribution	
360	DL/2 Substitution Method										DL/2 Substitution Method	
361	Mean	14052									Mean	8.452
362	SD	19614									SD	1.719
363	95% DL/2 (t) UCL	19023									95% H-Stat (DL/2) UCL	47793
364												
365	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
366	MLE method failed to converge properly										Mean in Log Scale	N/A
367											SD in Log Scale	N/A
368											Mean in Original Scale	N/A
369											SD in Original Scale	N/A
370											95% Percentile Bootstrap UCL	N/A
371											95% BCA Bootstrap UCL	N/A

372												
373	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
374					k star (bias corrected)	0.544	**Data appear Gamma Distributed at 5% Significance Level**					
375					Theta Star	25839						
376					nu star	47.86						
377												
378					A-D Test Statistic	0.584	**Nonparametric Statistics**					
379					5% A-D Critical Value	0.807	Kaplan-Meier (KM) Method					
380					K-S Test Statistic	0.807	Mean	14052				
381					5% K-S Critical Value	0.14	SD	19390				
382	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	2957				
383							95% KM (t) UCL	19023				
384	**Assuming Gamma Distribution**						95% KM (z) UCL	18916				
385	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	19023				
386					Minimum	180	95% KM (bootstrap t) UCL	20483				
387					Maximum	89000	95% KM (BCA) UCL	19530				
388					Mean	14052	95% KM (Percentile Bootstrap) UCL	19051				
389					Median	5150	95% KM (Chebyshev) UCL	26941				
390					SD	19614	97.5% KM (Chebyshev) UCL	32518				
391					k star	0.544	99% KM (Chebyshev) UCL	43473				
392					Theta star	25839						
393					Nu star	47.86	**Potential UCLs to Use**					
394					AppChi2	32.98	95% KM (Chebyshev) UCL	26941				
395					95% Gamma Approximate UCL	20391						
396					95% Adjusted Gamma UCL	20654						
397	**Note: DL/2 is not a recommended method.**											
398												
399												
400	**Bis(2-ethylhexyl) phthalate**											
401												
402	**General Statistics**											
403					Number of Valid Data	38	Number of Detected Data	11				
404					Number of Distinct Detected Data	11	Number of Non-Detect Data	27				
405					Number of Missing Values	8	Percent Non-Detects	71.05%				
406												
407	**Raw Statistics**						**Log-transformed Statistics**					
408					Minimum Detected	72	Minimum Detected	4.277				
409					Maximum Detected	3200	Maximum Detected	8.071				
410					Mean of Detected	476.1	Mean of Detected	5.32				
411					SD of Detected	922.8	SD of Detected	1.134				
412					Minimum Non-Detect	52	Minimum Non-Detect	3.951				
413					Maximum Non-Detect	940	Maximum Non-Detect	6.846				
414												
415	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	37				
416	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	1				
417	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	97.37%				
418												
419	**UCL Statistics**											
420	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
421					Shapiro Wilk Test Statistic	0.484	Shapiro Wilk Test Statistic	0.826				
422					5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85				
423	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
426					DL/2 Substitution Method						DL/2 Substitution Method	
427					Mean	219.7					Mean	4.704
428					SD	514.7					SD	0.958
429					95% DL/2 (t) UCL	360.5					95% H-Stat (DL/2) UCL	246.6
430												
431					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
432	**MLE method failed to converge properly**										Mean in Log Scale	3.983
433											SD in Log Scale	1.115
434											Mean in Original Scale	162
435											SD in Original Scale	521.1
436											95% Percentile Bootstrap UCL	320.3
437											95% BCA Bootstrap UCL	428.8
438												
439	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
440					k star (bias corrected)	0.579	**Data do not follow a Discernable Distribution (0.05)**					
441					Theta Star	822						
442					nu star	12.74						
443												
444					A-D Test Statistic	1.436	**Nonparametric Statistics**					
445					5% A-D Critical Value	0.765					Kaplan-Meier (KM) Method	
446					K-S Test Statistic	0.765					Mean	198.5
447					5% K-S Critical Value	0.266					SD	506.6
448	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	86.42
449											95% KM (t) UCL	344.3
450	**Assuming Gamma Distribution**										95% KM (z) UCL	340.7
451					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	337.8
452					Minimum	72					95% KM (bootstrap t) UCL	1121
453					Maximum	3200					95% KM (BCA) UCL	375
454					Mean	475					95% KM (Percentile Bootstrap) UCL	357.3
455					Median	470.8					95% KM (Chebyshev) UCL	575.2
456					SD	479.8					97.5% KM (Chebyshev) UCL	738.2
457					k star	2.039					99% KM (Chebyshev) UCL	1058
458					Theta star	232.9						
459					Nu star	155	**Potential UCLs to Use**					
460					AppChi2	127.2					95% KM (BCA) UCL	375
461					95% Gamma Approximate UCL	578.7						
462					95% Adjusted Gamma UCL	583.5						
463	**Note: DL/2 is not a recommended method.**											
464												
465												
466	**Dibenzo(a,h)anthracene**											
467												
468							**General Statistics**					
469					Number of Valid Data	44					Number of Detected Data	44
470					Number of Distinct Detected Data	41					Number of Non-Detect Data	0
471					Number of Missing Values	2					Percent Non-Detects	0.00%
472												
473	**Raw Statistics**						**Log-transformed Statistics**					
474					Minimum Detected	37					Minimum Detected	3.611
475					Maximum Detected	15000					Maximum Detected	9.616
476					Mean of Detected	2916					Mean of Detected	7.008
477					SD of Detected	3711					SD of Detected	1.656

	A	B	C	D	E	F	G	H	I	J	K	L
478					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
479					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
480												
481												
482	**UCL Statistics**											
483	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
484					Shapiro Wilk Test Statistic	0.749					Shapiro Wilk Test Statistic	0.943
485					5% Shapiro Wilk Critical Value	0.944					5% Shapiro Wilk Critical Value	0.944
486	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
487												
488	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
489					DL/2 Substitution Method						DL/2 Substitution Method	
490					Mean	2916					Mean	7.008
491					SD	3711					SD	1.656
492					95% DL/2 (t) UCL	3857					95% H-Stat (DL/2) UCL	9600
493												
494					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
495	**MLE method failed to converge properly**										Mean in Log Scale	N/A
496											SD in Log Scale	N/A
497											Mean in Original Scale	N/A
498											SD in Original Scale	N/A
499											95% Percentile Bootstrap UCL	N/A
500											95% BCA Bootstrap UCL	N/A
501												
502	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
503					k star (bias corrected)	0.604	**Data appear Gamma Distributed at 5% Significance Level**					
504					Theta Star	4829						
505					nu star	53.15						
506												
507					A-D Test Statistic	0.317	**Nonparametric Statistics**					
508					5% A-D Critical Value	0.801					Kaplan-Meier (KM) Method	
509					K-S Test Statistic	0.801					Mean	2916
510					5% K-S Critical Value	0.14					SD	3668
511	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	559.4
512											95% KM (t) UCL	3857
513	**Assuming Gamma Distribution**										95% KM (z) UCL	3837
514					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3857
515					Minimum	37					95% KM (bootstrap t) UCL	4087
516					Maximum	15000					95% KM (BCA) UCL	3878
517					Mean	2916					95% KM (Percentile Bootstrap) UCL	3828
518					Median	1500					95% KM (Chebyshev) UCL	5355
519					SD	3711					97.5% KM (Chebyshev) UCL	6410
520					k star	0.604					99% KM (Chebyshev) UCL	8483
521					Theta star	4829						
522					Nu star	53.15	**Potential UCLs to Use**					
523					AppChi2	37.4					95% KM (Chebyshev) UCL	5355
524					95% Gamma Approximate UCL	4144						
525					95% Adjusted Gamma UCL	4195						
526	**Note: DL/2 is not a recommended method.**											
527												
528												
529	**Dieldrin**											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**General Statistics**											
532					Number of Valid Data	27			Number of Detected Data			7
533					Number of Distinct Detected Data	7			Number of Non-Detect Data			20
534					Number of Missing Values	13			Percent Non-Detects			74.07%
535												
536	**Raw Statistics**						**Log-transformed Statistics**					
537					Minimum Detected	0.21			Minimum Detected			-1.561
538					Maximum Detected	11.2			Maximum Detected			2.416
539					Mean of Detected	3.208			Mean of Detected			0.379
540					SD of Detected	4.072			SD of Detected			1.42
541					Minimum Non-Detect	0.0882			Minimum Non-Detect			-2.428
542					Maximum Non-Detect	5.4			Maximum Non-Detect			1.686
543												
544	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			25
545	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			2
546	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			92.59%
547												
548	**Warning: There are only 7 Detected Values in this data**											
549	**Note: It should be noted that even though bootstrap may be performed on this data set**											
550	**the resulting calculations may not be reliable enough tp draw conclusions**											
551												
552	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
553												
554												
555	**UCL Statistics**											
556	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
557					Shapiro Wilk Test Statistic	0.781			Shapiro Wilk Test Statistic			0.957
558					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value			0.803
559	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
560												
561	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
562					DL/2 Substitution Method				DL/2 Substitution Method			
563					Mean	1.119			Mean			-1.084
564					SD	2.383			SD			1.452
565					95% DL/2 (t) UCL	1.901			95% H-Stat (DL/2) UCL			1.512
566												
567					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
568	**MLE method failed to converge properly**								Mean in Log Scale			-2.615
569									SD in Log Scale			1.953
570									Mean in Original Scale			0.852
571									SD in Original Scale			2.417
572									95% Percentile Bootstrap UCL			1.688
573									95% BCA Bootstrap UCL			2.06
574												
575	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
576					k star (bias corrected)	0.53	**Data appear Gamma Distributed at 5% Significance Level**					
577					Theta Star	6.057						
578					nu star	7.414						
579												
580					A-D Test Statistic	0.354	**Nonparametric Statistics**					
581					5% A-D Critical Value	0.736			Kaplan-Meier (KM) Method			
582					K-S Test Statistic	0.736			Mean			1.005
583					5% K-S Critical Value	0.323			SD			2.324

584	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.484
585											95% KM (t) UCL	1.83
586	Assuming Gamma Distribution										95% KM (z) UCL	1.801
587	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	1.668
588	Minimum	0.21									95% KM (bootstrap t) UCL	3.432
589	Maximum	11.2									95% KM (BCA) UCL	2.616
590	Mean	3.116									95% KM (Percentile Bootstrap) UCL	2.051
591	Median	3.026									95% KM (Chebyshev) UCL	3.114
592	SD	1.996									97.5% KM (Chebyshev) UCL	4.027
593	k star	2.259									99% KM (Chebyshev) UCL	5.819
594	Theta star	1.379										
595	Nu star	122									Potential UCLs to Use	
596	AppChi2	97.5									95% KM (t) UCL	1.83
597	95% Gamma Approximate UCL	3.899										
598	95% Adjusted Gamma UCL	3.956										
599	Note: DL/2 is not a recommended method.											
600												
601												
602	Indeno(1,2,3-cd)pyrene											
603												
604	General Statistics											
605	Number of Valid Data	44									Number of Detected Data	44
606	Number of Distinct Detected Data	40									Number of Non-Detect Data	0
607	Number of Missing Values	2									Percent Non-Detects	0.00%
608												
609	Raw Statistics										Log-transformed Statistics	
610	Minimum Detected	190									Minimum Detected	5.247
611	Maximum Detected	130000									Maximum Detected	11.78
612	Mean of Detected	21202									Mean of Detected	8.889
613	SD of Detected	28900									SD of Detected	1.736
614	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
615	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
616												
617												
618	UCL Statistics											
619	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
620	Shapiro Wilk Test Statistic	0.727									Shapiro Wilk Test Statistic	0.95
621	5% Shapiro Wilk Critical Value	0.944									5% Shapiro Wilk Critical Value	0.944
622	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
623												
624	Assuming Normal Distribution										Assuming Lognormal Distribution	
625	DL/2 Substitution Method										DL/2 Substitution Method	
626	Mean	21202									Mean	8.889
627	SD	28900									SD	1.736
628	95% DL/2 (t) UCL	28526									95% H-Stat (DL/2) UCL	77265
629												
630	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
631	MLE method failed to converge properly										Mean in Log Scale	N/A
632											SD in Log Scale	N/A
633											Mean in Original Scale	N/A
634											SD in Original Scale	N/A
635											95% Percentile Bootstrap UCL	N/A
636											95% BCA Bootstrap UCL	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
639	k star (bias corrected)					0.555	**Data appear Gamma Distributed at 5% Significance Level**					
640	Theta Star					38233						
641	nu star					48.8						
642												
643	A-D Test Statistic					0.43	**Nonparametric Statistics**					
644	5% A-D Critical Value					0.806	Kaplan-Meier (KM) Method					
645	K-S Test Statistic					0.806	Mean					21202
646	5% K-S Critical Value					0.14	SD					28569
647	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					4357
648							95% KM (t) UCL					28526
649	**Assuming Gamma Distribution**						95% KM (z) UCL					28368
650	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					28526
651	Minimum					190	95% KM (bootstrap t) UCL					30784
652	Maximum					130000	95% KM (BCA) UCL					29341
653	Mean					21202	95% KM (Percentile Bootstrap) UCL					28526
654	Median					10500	95% KM (Chebyshev) UCL					40192
655	SD					28900	97.5% KM (Chebyshev) UCL					48410
656	k star					0.555	99% KM (Chebyshev) UCL					64551
657	Theta star					38233						
658	Nu star					48.8	**Potential UCLs to Use**					
659	AppChi2					33.76	95% KM (Chebyshev) UCL					40192
660	95% Gamma Approximate UCL					30644						
661	95% Adjusted Gamma UCL					31034						
662	**Note: DL/2 is not a recommended method.**											
663												
664												
665	**Lead**											
666												
667	**General Statistics**											
668	Number of Valid Data					45	Number of Detected Data					45
669	Number of Distinct Detected Data					40	Number of Non-Detect Data					0
670	Number of Missing Values					1	Percent Non-Detects					0.00%
671												
672	**Raw Statistics**						**Log-transformed Statistics**					
673	Minimum Detected					9.28	Minimum Detected					2.228
674	Maximum Detected					684	Maximum Detected					6.528
675	Mean of Detected					42.62	Mean of Detected					3.297
676	SD of Detected					98.69	SD of Detected					0.683
677	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
678	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
679												
680												
681	**UCL Statistics**											
682	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
683	Shapiro Wilk Test Statistic					0.252	Shapiro Wilk Test Statistic					0.824
684	5% Shapiro Wilk Critical Value					0.945	5% Shapiro Wilk Critical Value					0.945
685	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
686												
687	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
688	DL/2 Substitution Method						DL/2 Substitution Method					
689	Mean					42.62	Mean					3.297

690					SD	98.69					SD	0.683
691					95% DL/2 (t) UCL	67.33					95% H-Stat (DL/2) UCL	42.04
692												
693					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
694					**MLE method failed to converge properly**						Mean in Log Scale	N/A
695											SD in Log Scale	N/A
696											Mean in Original Scale	N/A
697											SD in Original Scale	N/A
698											95% Percentile Bootstrap UCL	N/A
699											95% BCA Bootstrap UCL	N/A
700												
701					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
702					k star (bias corrected)	1.17					**Data do not follow a Discernable Distribution (0.05)**	
703					Theta Star	36.43						
704					nu star	105.3						
705												
706					A-D Test Statistic	5.126					**Nonparametric Statistics**	
707					5% A-D Critical Value	0.773					Kaplan-Meier (KM) Method	
708					K-S Test Statistic	0.773					Mean	42.62
709					5% K-S Critical Value	0.135					SD	97.58
710					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	14.71
711											95% KM (t) UCL	67.33
712					**Assuming Gamma Distribution**						95% KM (z) UCL	66.81
713					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	67.33
714					Minimum	9.28					95% KM (bootstrap t) UCL	179.1
715					Maximum	684					95% KM (BCA) UCL	73.22
716					Mean	42.62					95% KM (Percentile Bootstrap) UCL	71.54
717					Median	25.4					95% KM (Chebyshev) UCL	106.7
718					SD	98.69					97.5% KM (Chebyshev) UCL	134.5
719					k star	1.17					99% KM (Chebyshev) UCL	189
720					Theta star	36.43						
721					Nu star	105.3					**Potential UCLs to Use**	
722					AppChi2	82.61					95% KM (Chebyshev) UCL	106.7
723					95% Gamma Approximate UCL	54.31						
724					95% Adjusted Gamma UCL	54.75						
725	**Note: DL/2 is not a recommended method.**											
726												
727												
728	**Mercury**											
729												
730							**General Statistics**					
731					Number of Valid Data	38					Number of Detected Data	36
732					Number of Distinct Detected Data	30					Number of Non-Detect Data	2
733					Number of Missing Values	8					Percent Non-Detects	5.26%
734												
735					**Raw Statistics**						**Log-transformed Statistics**	
736					Minimum Detected	0.036					Minimum Detected	-3.324
737					Maximum Detected	0.43					Maximum Detected	-0.844
738					Mean of Detected	0.118					Mean of Detected	-2.316
739					SD of Detected	0.0846					SD of Detected	0.566
740					Minimum Non-Detect	0.08					Minimum Non-Detect	-2.526
741					Maximum Non-Detect	0.09					Maximum Non-Detect	-2.408
742												

743	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	20
744	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	18
745	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	52.63%
746												
747	**UCL Statistics**											
748	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
749	Shapiro Wilk Test Statistic				0.745		Shapiro Wilk Test Statistic					0.953
750	5% Shapiro Wilk Critical Value				0.935		5% Shapiro Wilk Critical Value					0.935
751	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
752												
753	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
754	DL/2 Substitution Method						DL/2 Substitution Method					
755	Mean				0.114		Mean					-2.36
756	SD				0.084		SD					0.583
757	95% DL/2 (t) UCL				0.137		95% H-Stat (DL/2) UCL					0.131
758												
759	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
760	Mean				0.0706		Mean in Log Scale					-2.339
761	SD				0.127		SD in Log Scale					0.56
762	95% MLE (t) UCL				0.105		Mean in Original Scale					0.115
763	95% MLE (Tiku) UCL				0.115		SD in Original Scale					0.0832
764							95% Percentile Bootstrap UCL					0.137
765							95% BCA Bootstrap UCL					0.142
766												
767	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
768	k star (bias corrected)				2.768		**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
769	Theta Star				0.0425							
770	nu star				199.3							
771												
772	A-D Test Statistic				1.074		**Nonparametric Statistics**					
773	5% A-D Critical Value				0.754		Kaplan-Meier (KM) Method					
774	K-S Test Statistic				0.754		Mean					0.115
775	5% K-S Critical Value				0.148		SD					0.0822
776	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean					0.0135
777							95% KM (t) UCL					0.138
778	**Assuming Gamma Distribution**						95% KM (z) UCL					0.137
779	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.138
780	Minimum				0.036		95% KM (bootstrap t) UCL					0.148
781	Maximum				0.43		95% KM (BCA) UCL					0.138
782	Mean				0.115		95% KM (Percentile Bootstrap) UCL					0.137
783	Median				0.086		95% KM (Chebyshev) UCL					0.174
784	SD				0.083		97.5% KM (Chebyshev) UCL					0.199
785	k star				2.838		99% KM (Chebyshev) UCL					0.249
786	Theta star				0.0406							
787	Nu star				215.7		**Potential UCLs to Use**					
788	AppChi2				182.7		95% KM (BCA) UCL					0.138
789	95% Gamma Approximate UCL				0.136							
790	95% Adjusted Gamma UCL				0.137							
791	**Note: DL/2 is not a recommended method.**											
792												
793												
794	**Naphthalene**											
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	**General Statistics**											
797					Number of Valid Data	44				Number of Detected Data		44
798					Number of Distinct Detected Data	33				Number of Non-Detect Data		0
799					Number of Missing Values	2				Percent Non-Detects		0.00%
800												
801	**Raw Statistics**						**Log-transformed Statistics**					
802					Minimum Detected	0.89				Minimum Detected		-0.117
803					Maximum Detected	100000				Maximum Detected		11.51
804					Mean of Detected	10840				Mean of Detected		7.258
805					SD of Detected	22383				SD of Detected		2.445
806					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
807					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
808												
809												
810	**UCL Statistics**											
811	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
812					Shapiro Wilk Test Statistic	0.54				Shapiro Wilk Test Statistic		0.969
813					5% Shapiro Wilk Critical Value	0.944				5% Shapiro Wilk Critical Value		0.944
814	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
815												
816	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
817					DL/2 Substitution Method					DL/2 Substitution Method		
818					Mean	10840				Mean		7.258
819					SD	22383				SD		2.445
820					95% DL/2 (t) UCL	16512				95% H-Stat (DL/2) UCL		136894
821												
822					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
823	**MLE method failed to converge properly**									Mean in Log Scale		N/A
824										SD in Log Scale		N/A
825										Mean in Original Scale		N/A
826										SD in Original Scale		N/A
827										95% Percentile Bootstrap UCL		N/A
828										95% BCA Bootstrap UCL		N/A
829												
830	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
831					k star (bias corrected)	0.326	**Data appear Lognormal at 5% Significance Level**					
832					Theta Star	33270						
833					nu star	28.67						
834												
835					A-D Test Statistic	1.318	**Nonparametric Statistics**					
836					5% A-D Critical Value	0.853				Kaplan-Meier (KM) Method		
837					K-S Test Statistic	0.853				Mean		10840
838					5% K-S Critical Value	0.144				SD		22127
839	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		3374
840										95% KM (t) UCL		16512
841	**Assuming Gamma Distribution**									95% KM (z) UCL		16390
842					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		16512
843					Minimum	0.89				95% KM (bootstrap t) UCL		19262
844					Maximum	100000				95% KM (BCA) UCL		16694
845					Mean	10840				95% KM (Percentile Bootstrap) UCL		16617
846					Median	1800				95% KM (Chebyshev) UCL		25548
847					SD	22383				97.5% KM (Chebyshev) UCL		31913
848					k star	0.326				99% KM (Chebyshev) UCL		44414

849					Theta star	33270						
850					Nu star	28.67			Potential UCLs to Use			
851					AppChi2	17.45			99% KM (Chebyshev) UCL			44414
852				95% Gamma Approximate UCL		17809						
853				95% Adjusted Gamma UCL		18118						
854	Note: DL/2 is not a recommended method.											
855												
856												
857	Thallium											
858												
859					General Statistics							
860					Number of Valid Data	11			Number of Detected Data			9
861					Number of Distinct Detected Data	8			Number of Non-Detect Data			2
862					Number of Missing Values	34			Percent Non-Detects			18.18%
863												
864					Raw Statistics				Log-transformed Statistics			
865					Minimum Detected	0.0566			Minimum Detected			-2.872
866					Maximum Detected	6			Maximum Detected			1.792
867					Mean of Detected	1.847			Mean of Detected			-0.989
868					SD of Detected	2.631			SD of Detected			2.015
869					Minimum Non-Detect	5			Minimum Non-Detect			1.609
870					Maximum Non-Detect	5			Maximum Non-Detect			1.609
871												
872												
873					Warning: There are only 9 Detected Values in this data							
874					Note: It should be noted that even though bootstrap may be performed on this data set							
875					the resulting calculations may not be reliable enough tp draw conclusions							
876												
877					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
878												
879												
880					UCL Statistics							
881					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
882					Shapiro Wilk Test Statistic	0.665			Shapiro Wilk Test Statistic			0.74
883					5% Shapiro Wilk Critical Value	0.829			5% Shapiro Wilk Critical Value			0.829
884					Data not Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level			
885												
886					Assuming Normal Distribution				Assuming Lognormal Distribution			
887					DL/2 Substitution Method				DL/2 Substitution Method			
888					Mean	1.966			Mean			-0.642
889					SD	2.368			SD			1.96
890					95% DL/2 (t) UCL	3.26			95% H-Stat (DL/2) UCL			82.78
891												
892					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
893					Mean	4.535			Mean in Log Scale			-1.164
894					SD	0.699			SD in Log Scale			1.868
895					95% MLE (t) UCL	4.917			Mean in Original Scale			1.543
896					95% MLE (Tiku) UCL	5.266			SD in Original Scale			2.449
897									95% Percentile Bootstrap UCL			2.77
898									95% BCA Bootstrap UCL			3.048
899												
900					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
901					k star (bias corrected)	0.347			Data do not follow a Discernable Distribution (0.05)			

902					Theta Star	5.325						
903					nu star	6.243						
904												
905					A-D Test Statistic	1.369	**Nonparametric Statistics**					
906					5% A-D Critical Value	0.787				Kaplan-Meier (KM) Method		
907					K-S Test Statistic	0.787				Mean		1.53
908					5% K-S Critical Value	0.297				SD		2.342
909	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.749
910										95% KM (t) UCL		2.888
911	**Assuming Gamma Distribution**									95% KM (z) UCL		2.762
912					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		2.872
913					Minimum	0.0566				95% KM (bootstrap t) UCL		3.167
914					Maximum	6				95% KM (BCA) UCL		2.774
915					Mean	1.761				95% KM (Percentile Bootstrap) UCL		2.862
916					Median	0.155				95% KM (Chebyshev) UCL		4.795
917					SD	2.368				97.5% KM (Chebyshev) UCL		6.208
918					k star	0.411				99% KM (Chebyshev) UCL		8.983
919					Theta star	4.284						
920					Nu star	9.045	**Potential UCLs to Use**					
921					AppChi2	3.354				99% KM (Chebyshev) UCL		8.983
922					95% Gamma Approximate UCL	4.75						
923					95% Adjusted Gamma UCL	5.662						
924	**Warning: Recommended UCL exceeds the maximum observation**											
925	**Note: DL/2 is not a recommended method.**											
926												
927												
928	**Total Aroclors**											
929												
930	**General Statistics**											
931					Number of Valid Data	28				Number of Detected Data		15
932					Number of Distinct Detected Data	15				Number of Non-Detect Data		13
933					Number of Missing Values	13				Percent Non-Detects		46.43%
934												
935	**Raw Statistics**						**Log-transformed Statistics**					
936					Minimum Detected	14.9				Minimum Detected		2.701
937					Maximum Detected	208.8				Maximum Detected		5.341
938					Mean of Detected	68.15				Mean of Detected		3.885
939					SD of Detected	58.93				SD of Detected		0.861
940					Minimum Non-Detect	2.69				Minimum Non-Detect		0.99
941					Maximum Non-Detect	140				Maximum Non-Detect		4.942
942												
943	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		26
944	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
945	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		92.86%
946												
947	**UCL Statistics**											
948	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
949					Shapiro Wilk Test Statistic	0.835				Shapiro Wilk Test Statistic		0.945
950					5% Shapiro Wilk Critical Value	0.881				5% Shapiro Wilk Critical Value		0.881
951	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
952												
953	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
954					DL/2 Substitution Method					DL/2 Substitution Method		

955					Mean	42.53					Mean	2.865
956					SD	52.52					SD	1.553
957					95% DL/2 (t) UCL	59.43					95% H-Stat (DL/2) UCL	117.3
958												
959					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
960					**MLE method failed to converge properly**						Mean in Log Scale	3.059
961											SD in Log Scale	1.122
962											Mean in Original Scale	40.58
963											SD in Original Scale	52.12
964											95% Percentile Bootstrap UCL	56.95
965											95% BCA Bootstrap UCL	60.56
966												
967					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
968					k star (bias corrected)	1.349					**Data appear Gamma Distributed at 5% Significance Level**	
969					Theta Star	50.51						
970					nu star	40.48						
971												
972					A-D Test Statistic	0.362					**Nonparametric Statistics**	
973					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
974					K-S Test Statistic	0.752					Mean	44.56
975					5% K-S Critical Value	0.225					SD	49.28
976					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	9.722
977											95% KM (t) UCL	61.12
978					**Assuming Gamma Distribution**						95% KM (z) UCL	60.56
979					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	60.32
980					Minimum	14.9					95% KM (bootstrap t) UCL	68.34
981					Maximum	208.8					95% KM (BCA) UCL	64.25
982					Mean	57.81					95% KM (Percentile Bootstrap) UCL	60.85
983					Median	39.9					95% KM (Chebyshev) UCL	86.94
984					SD	48.02					97.5% KM (Chebyshev) UCL	105.3
985					k star	1.801					99% KM (Chebyshev) UCL	141.3
986					Theta star	32.1						
987					Nu star	100.9					**Potential UCLs to Use**	
988					AppChi2	78.69					95% KM (t) UCL	61.12
989					95% Gamma Approximate UCL	74.1						
990					95% Adjusted Gamma UCL	75.25						
991	**Note: DL/2 is not a recommended method.**											
992												
993												
994	**Total DDT**											
995												
996									**General Statistics**			
997					Number of Valid Data	27					Number of Detected Data	27
998					Number of Distinct Detected Data	27					Number of Non-Detect Data	0
999					Number of Missing Values	13					Percent Non-Detects	0.00%
1000												
1001					**Raw Statistics**						**Log-transformed Statistics**	
1002					Minimum Detected	1.617					Minimum Detected	0.48
1003					Maximum Detected	231.2					Maximum Detected	5.443
1004					Mean of Detected	35.79					Mean of Detected	2.851
1005					SD of Detected	54.41					SD of Detected	1.222
1006					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1007					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A

1008												
1009												
1010	**UCL Statistics**											
1011	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1012	Shapiro Wilk Test Statistic				0.587		Shapiro Wilk Test Statistic				0.973	
1013	5% Shapiro Wilk Critical Value				0.923		5% Shapiro Wilk Critical Value				0.923	
1014	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1015												
1016	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1017	DL/2 Substitution Method						DL/2 Substitution Method					
1018	Mean				35.79		Mean				2.851	
1019	SD				54.41		SD				1.222	
1020	95% DL/2 (t) UCL				53.65		95% H-Stat (DL/2) UCL				70.68	
1021												
1022	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
1023	**MLE method failed to converge properly**						Mean in Log Scale				N/A	
1024							SD in Log Scale				N/A	
1025							Mean in Original Scale				N/A	
1026							SD in Original Scale				N/A	
1027							95% Percentile Bootstrap UCL				N/A	
1028							95% BCA Bootstrap UCL				N/A	
1029												
1030	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1031	k star (bias corrected)				0.749		**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
1032	Theta Star				47.8							
1033	nu star				40.44							
1034												
1035	A-D Test Statistic				0.909		**Nonparametric Statistics**					
1036	5% A-D Critical Value				0.781		Kaplan-Meier (KM) Method					
1037	K-S Test Statistic				0.781		Mean				35.79	
1038	5% K-S Critical Value				0.174		SD				53.39	
1039	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean				10.47	
1040							95% KM (t) UCL				53.65	
1041	**Assuming Gamma Distribution**						95% KM (z) UCL				53.02	
1042	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				53.65	
1043	Minimum				1.617		95% KM (bootstrap t) UCL				82.94	
1044	Maximum				231.2		95% KM (BCA) UCL				55.25	
1045	Mean				35.79		95% KM (Percentile Bootstrap) UCL				54.18	
1046	Median				18.57		95% KM (Chebyshev) UCL				81.44	
1047	SD				54.41		97.5% KM (Chebyshev) UCL				101.2	
1048	k star				0.749		99% KM (Chebyshev) UCL				140	
1049	Theta star				47.8							
1050	Nu star				40.44		**Potential UCLs to Use**					
1051	AppChi2				26.86		95% KM (Chebyshev) UCL				81.44	
1052	95% Gamma Approximate UCL				53.87							
1053	95% Adjusted Gamma UCL				55.33							
1054	**Note: DL/2 is not a recommended method.**											
1055												
1056												
1057	**Tributyltin ion**											
1058												
1059	**General Statistics**											
1060	Number of Valid Data				8		Number of Detected Data				8	

1061					Number of Distinct Detected Data	8					Number of Non-Detect Data	0
1062					Number of Missing Values	33					Percent Non-Detects	0.00%
1063												
1064					**Raw Statistics**						**Log-transformed Statistics**	
1065					Minimum Detected	2.6					Minimum Detected	0.956
1066					Maximum Detected	33					Maximum Detected	3.497
1067					Mean of Detected	12.84					Mean of Detected	2.248
1068					SD of Detected	10.39					SD of Detected	0.87
1069					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1070					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1071												
1072												
1073					**Warning: There are only 8 Detected Values in this data**							
1074					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1075					**the resulting calculations may not be reliable enough tp draw conclusions**							
1076												
1077					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1078												
1079												
1080					**UCL Statistics**							
1081					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1082					Shapiro Wilk Test Statistic	0.883					Shapiro Wilk Test Statistic	0.969
1083					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
1084					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1085												
1086					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1087					DL/2 Substitution Method						DL/2 Substitution Method	
1088					Mean	12.84					Mean	2.248
1089					SD	10.39					SD	0.87
1090					95% DL/2 (t) UCL	19.8					95% H-Stat (DL/2) UCL	38.47
1091												
1092					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1093					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1094											SD in Log Scale	N/A
1095											Mean in Original Scale	N/A
1096											SD in Original Scale	N/A
1097											95% Percentile Bootstrap UCL	N/A
1098											95% BCA Bootstrap UCL	N/A
1099												
1100					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1101					k star (bias corrected)	1.2					**Data appear Normal at 5% Significance Level**	
1102					Theta Star	10.7						
1103					nu star	19.21						
1104												
1105					A-D Test Statistic	0.193					**Nonparametric Statistics**	
1106					5% A-D Critical Value	0.726					Kaplan-Meier (KM) Method	
1107					K-S Test Statistic	0.726					Mean	12.84
1108					5% K-S Critical Value	0.298					SD	9.715
1109					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	3.672
1110											95% KM (t) UCL	19.8
1111					**Assuming Gamma Distribution**						95% KM (z) UCL	18.88
1112					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	19.8
1113					Minimum	2.6					95% KM (bootstrap t) UCL	24.96

	A	B	C	D	E	F	G	H	I	J	K	L
1114					Maximum	33				95% KM (BCA) UCL		18.95
1115					Mean	12.84				95% KM (Percentile Bootstrap) UCL		18.6
1116					Median	10.4				95% KM (Chebyshev) UCL		28.85
1117					SD	10.39				97.5% KM (Chebyshev) UCL		35.77
1118					k star	1.2				99% KM (Chebyshev) UCL		49.38
1119					Theta star	10.7						
1120					Nu star	19.21			**Potential UCLs to Use**			
1121					AppChi2	10.27				95% KM (t) UCL		19.8
1122				95% Gamma Approximate UCL		24.02				95% KM (Percentile Bootstrap) UCL		18.6
1123				95% Adjusted Gamma UCL		28.47						
1124	**Note: DL/2 is not a recommended method.**											
1125												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM6.5E.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12				Number of Valid Data	37			Number of Detected Data	34			
13				Number of Distinct Detected Data	32			Number of Non-Detect Data	3			
14				Number of Missing Values	4			Percent Non-Detects	8.11%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	2.19			Minimum Detected	0.784			
18				Maximum Detected	15.8			Maximum Detected	2.76			
19				Mean of Detected	4.284			Mean of Detected	1.383			
20				SD of Detected	2.248			SD of Detected	0.344			
21				Minimum Non-Detect	5			Minimum Non-Detect	1.609			
22				Maximum Non-Detect	6			Maximum Non-Detect	1.792			
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect	34			
25	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected	3			
26	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage	91.89%			
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
30				Shapiro Wilk Test Statistic	0.568			Shapiro Wilk Test Statistic	0.871			
31				5% Shapiro Wilk Critical Value	0.933			5% Shapiro Wilk Critical Value	0.933			
32				Data not Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level				
33												
34				Assuming Normal Distribution				Assuming Lognormal Distribution				
35				DL/2 Substitution Method				DL/2 Substitution Method				
36				Mean	4.166			Mean	1.355			
37				SD	2.191			SD	0.343			
38				95% DL/2 (t) UCL	4.774			95% H-Stat (DL/2) UCL	4.339			
39												
40				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
41				MLE yields a negative mean				Mean in Log Scale	1.378			
42								SD in Log Scale	0.331			
43								Mean in Original Scale	4.244			
44								SD in Original Scale	2.16			
45								95% Percentile Bootstrap UCL	4.904			
46								95% BCA Bootstrap UCL	5.145			
47												
48				Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only				
49				k star (bias corrected)	6.466			Data do not follow a Discernable Distribution (0.05)				
50				Theta Star	0.663							
51				nu star	439.7							
52												
53				A-D Test Statistic	1.68			Nonparametric Statistics				

54					5% A-D Critical Value	0.749				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	0.749				Mean		4.239
56					5% K-S Critical Value	0.151				SD		2.139
57	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.359
58										95% KM (t) UCL		4.845
59	**Assuming Gamma Distribution**									95% KM (z) UCL		4.829
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		4.845
61					Minimum	2.19				95% KM (bootstrap t) UCL		5.446
62					Maximum	15.8				95% KM (BCA) UCL		4.888
63					Mean	4.295				95% KM (Percentile Bootstrap) UCL		4.849
64					Median	3.958				95% KM (Chebyshev) UCL		5.803
65					SD	2.156				97.5% KM (Chebyshev) UCL		6.48
66					k star	7.039				99% KM (Chebyshev) UCL		7.809
67					Theta star	0.61						
68					Nu star	520.9				**Potential UCLs to Use**		
69					AppChi2	468.9				95% KM (Chebyshev) UCL		5.803
70					95% Gamma Approximate UCL	4.77						
71					95% Adjusted Gamma UCL	4.792						
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Benzo(a)anthracene**											
76												
77					**General Statistics**							
78					Number of Valid Data	39				Number of Detected Data		38
79					Number of Distinct Detected Data	32				Number of Non-Detect Data		1
80					Number of Missing Values	2				Percent Non-Detects		2.56%
81												
82	**Raw Statistics**									**Log-transformed Statistics**		
83					Minimum Detected	2.1				Minimum Detected		0.742
84					Maximum Detected	1100				Maximum Detected		7.003
85					Mean of Detected	111.4				Mean of Detected		4.087
86					SD of Detected	180.6				SD of Detected		1.15
87					Minimum Non-Detect	10				Minimum Non-Detect		2.303
88					Maximum Non-Detect	10				Maximum Non-Detect		2.303
89												
90												
91					**UCL Statistics**							
92	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
93					Shapiro Wilk Test Statistic	0.498				Shapiro Wilk Test Statistic		0.98
94					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
95	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
96												
97	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
98					DL/2 Substitution Method					DL/2 Substitution Method		
99					Mean	108.6				Mean		4.024
100					SD	179.1				SD		1.202
101					95% DL/2 (t) UCL	157				95% H-Stat (DL/2) UCL		175.5
102												
103					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
104					Mean	99.8				Mean in Log Scale		4.03
105					SD	186.4				SD in Log Scale		1.19
106					95% MLE (t) UCL	150.1				Mean in Original Scale		108.7

107					95% MLE (Tiku) UCL	146.4				SD in Original Scale		179
108										95% Percentile Bootstrap UCL		162
109										95% BCA Bootstrap UCL		195.8
110												
111	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
112					k star (bias corrected)	0.875	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
113					Theta Star	127.3						
114					nu star	66.47						
115												
116					A-D Test Statistic	0.799	**Nonparametric Statistics**					
117					5% A-D Critical Value	0.781				Kaplan-Meier (KM) Method		
118					K-S Test Statistic	0.781				Mean		108.6
119					5% K-S Critical Value	0.148				SD		176.8
120	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		28.69
121										95% KM (t) UCL		157
122	**Assuming Gamma Distribution**									95% KM (z) UCL		155.8
123					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		157
124					Minimum	1E-09				95% KM (bootstrap t) UCL		219.2
125					Maximum	1100				95% KM (BCA) UCL		161.8
126					Mean	108.5				95% KM (Percentile Bootstrap) UCL		160.1
127					Median	62				95% KM (Chebyshev) UCL		233.7
128					SD	179.1				97.5% KM (Chebyshev) UCL		287.8
129					k star	0.49				99% KM (Chebyshev) UCL		394
130					Theta star	221.6						
131					Nu star	38.2	**Potential UCLs to Use**					
132					AppChi2	25.05				95% KM (Chebyshev) UCL		233.7
133					95% Gamma Approximate UCL	165.5						
134					95% Adjusted Gamma UCL	168.3						
135	**Note: DL/2 is not a recommended method.**											
136												
137												
138	**Benzo(a)pyrene**											
139												
140	**General Statistics**											
141					Number of Valid Data	39				Number of Detected Data		38
142					Number of Distinct Detected Data	33				Number of Non-Detect Data		1
143					Number of Missing Values	2				Percent Non-Detects		2.56%
144												
145	**Raw Statistics**						**Log-transformed Statistics**					
146					Minimum Detected	1.7				Minimum Detected		0.531
147					Maximum Detected	440				Maximum Detected		6.087
148					Mean of Detected	88.12				Mean of Detected		4.022
149					SD of Detected	88.85				SD of Detected		1.072
150					Minimum Non-Detect	10				Minimum Non-Detect		2.303
151					Maximum Non-Detect	10				Maximum Non-Detect		2.303
152												
153												
154	**UCL Statistics**											
155	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
156					Shapiro Wilk Test Statistic	0.775				Shapiro Wilk Test Statistic		0.962
157					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
158	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
161	DL/2 Substitution Method						DL/2 Substitution Method					
162	Mean					85.99	Mean					3.96
163	SD					88.68	SD					1.126
164	95% DL/2 (t) UCL					109.9	95% H-Stat (DL/2) UCL					144.6
165												
166	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
167	Mean					82.35	Mean in Log Scale					3.968
168	SD					92.54	SD in Log Scale					1.109
169	95% MLE (t) UCL					107.3	Mean in Original Scale					86.04
170	95% MLE (Tiku) UCL					106.2	SD in Original Scale					88.63
171							95% Percentile Bootstrap UCL					110.6
172							95% BCA Bootstrap UCL					115.6
173												
174	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
175	k star (bias corrected)					1.154	**Data appear Gamma Distributed at 5% Significance Level**					
176	Theta Star					76.35						
177	nu star					87.72						
178												
179	A-D Test Statistic					0.289	**Nonparametric Statistics**					
180	5% A-D Critical Value					0.772	Kaplan-Meier (KM) Method					
181	K-S Test Statistic					0.772	Mean					85.97
182	5% K-S Critical Value					0.147	SD					87.55
183	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					14.21
184							95% KM (t) UCL					109.9
185	**Assuming Gamma Distribution**						95% KM (z) UCL					109.3
186	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					109.9
187	Minimum					1E-09	95% KM (bootstrap t) UCL					119.5
188	Maximum					440	95% KM (BCA) UCL					111.1
189	Mean					85.86	95% KM (Percentile Bootstrap) UCL					111.6
190	Median					55	95% KM (Chebyshev) UCL					147.9
191	SD					88.8	97.5% KM (Chebyshev) UCL					174.7
192	k star					0.555	99% KM (Chebyshev) UCL					227.3
193	Theta star					154.8						
194	Nu star					43.27	**Potential UCLs to Use**					
195	AppChi2					29.19	95% KM (Chebyshev) UCL					147.9
196	95% Gamma Approximate UCL					127.3						
197	95% Adjusted Gamma UCL					129.3						
198	**Note: DL/2 is not a recommended method.**											
199												
200												
201	**Benzo(b)fluoranthene**											
202												
203	**General Statistics**											
204	Number of Valid Data					39	Number of Detected Data					38
205	Number of Distinct Detected Data					32	Number of Non-Detect Data					1
206	Number of Missing Values					2	Percent Non-Detects					2.56%
207												
208	**Raw Statistics**						**Log-transformed Statistics**					
209	Minimum Detected					3	Minimum Detected					1.099
210	Maximum Detected					530	Maximum Detected					6.273
211	Mean of Detected					115.8	Mean of Detected					4.3
212	SD of Detected					121	SD of Detected					1.027

213				Minimum Non-Detect	10					Minimum Non-Detect	2.303	
214				Maximum Non-Detect	10					Maximum Non-Detect	2.303	
215												
216												
217	**UCL Statistics**											
218	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
219				Shapiro Wilk Test Statistic	0.725					Shapiro Wilk Test Statistic	0.955	
220				5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value	0.938	
221	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
222												
223	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
224				DL/2 Substitution Method						DL/2 Substitution Method		
225				Mean	113					Mean	4.231	
226				SD	120.7					SD	1.101	
227				95% DL/2 (t) UCL	145.6					95% H-Stat (DL/2) UCL	178	
228												
229				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
230				Mean	109.7					Mean in Log Scale	4.244	
231				SD	123.6					SD in Log Scale	1.073	
232				95% MLE (t) UCL	143.1					Mean in Original Scale	113.1	
233				95% MLE (Tiku) UCL	141.2					SD in Original Scale	120.6	
234										95% Percentile Bootstrap UCL	144.9	
235										95% BCA Bootstrap UCL	149.2	
236												
237	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
238				k star (bias corrected)	1.166					**Data appear Lognormal at 5% Significance Level**		
239				Theta Star	99.34							
240				nu star	88.62							
241												
242				A-D Test Statistic	0.902					**Nonparametric Statistics**		
243				5% A-D Critical Value	0.772					Kaplan-Meier (KM) Method		
244				K-S Test Statistic	0.772					Mean	112.9	
245				5% K-S Critical Value	0.147					SD	119.2	
246	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean	19.34	
247										95% KM (t) UCL	145.6	
248	**Assuming Gamma Distribution**									95% KM (z) UCL	144.8	
249				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	145.4	
250				Minimum	1E-09					95% KM (bootstrap t) UCL	158.7	
251				Maximum	530					95% KM (BCA) UCL	147.6	
252				Mean	112.9					95% KM (Percentile Bootstrap) UCL	145.3	
253				Median	88					95% KM (Chebyshev) UCL	197.3	
254				SD	120.8					97.5% KM (Chebyshev) UCL	233.7	
255				k star	0.554					99% KM (Chebyshev) UCL	305.4	
256				Theta star	203.8							
257				Nu star	43.2					**Potential UCLs to Use**		
258				AppChi2	29.13					97.5% KM (Chebyshev) UCL	233.7	
259				95% Gamma Approximate UCL	167.4							
260				95% Adjusted Gamma UCL	170.1							
261	**Note: DL/2 is not a recommended method.**											
262												
263												
264	**Benzo(k)fluoranthene**											
265												

266	**General Statistics**											
267					Number of Valid Data	39			Number of Detected Data	37		
268					Number of Distinct Detected Data	27			Number of Non-Detect Data	2		
269					Number of Missing Values	2			Percent Non-Detects	5.13%		
270												
271	**Raw Statistics**						**Log-transformed Statistics**					
272					Minimum Detected	0.95			Minimum Detected	-0.0513		
273					Maximum Detected	390			Maximum Detected	5.966		
274					Mean of Detected	63.89			Mean of Detected	3.529		
275					SD of Detected	86.93			SD of Detected	1.183		
276					Minimum Non-Detect	10			Minimum Non-Detect	2.303		
277					Maximum Non-Detect	10			Maximum Non-Detect	2.303		
278												
279												
280	**UCL Statistics**											
281	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
282					Shapiro Wilk Test Statistic	0.626			Shapiro Wilk Test Statistic	0.96		
283					5% Shapiro Wilk Critical Value	0.936			5% Shapiro Wilk Critical Value	0.936		
284	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
285												
286	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
287					DL/2 Substitution Method				DL/2 Substitution Method			
288					Mean	60.87			Mean	3.43		
289					SD	85.63			SD	1.229		
290					95% DL/2 (t) UCL	83.99			95% H-Stat (DL/2) UCL	97.06		
291												
292					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
293					Mean	53.89			Mean in Log Scale	3.421		
294					SD	92.52			SD in Log Scale	1.245		
295					95% MLE (t) UCL	78.87			Mean in Original Scale	60.83		
296					95% MLE (Tiku) UCL	77.66			SD in Original Scale	85.65		
297									95% Percentile Bootstrap UCL	84.38		
298									95% BCA Bootstrap UCL	90.79		
299												
300	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
301					k star (bias corrected)	0.87	**Data appear Lognormal at 5% Significance Level**					
302					Theta Star	73.47						
303					nu star	64.35						
304												
305					A-D Test Statistic	1.155	**Nonparametric Statistics**					
306					5% A-D Critical Value	0.78			Kaplan-Meier (KM) Method			
307					K-S Test Statistic	0.78			Mean	60.83		
308					5% K-S Critical Value	0.15			SD	84.55		
309	**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	13.73		
310									95% KM (t) UCL	83.97		
311	**Assuming Gamma Distribution**								95% KM (z) UCL	83.4		
312					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL	83.95		
313					Minimum	1E-09			95% KM (bootstrap t) UCL	101.1		
314					Maximum	390			95% KM (BCA) UCL	88.06		
315					Mean	60.61			95% KM (Percentile Bootstrap) UCL	84.57		
316					Median	34			95% KM (Chebyshev) UCL	120.7		
317					SD	85.81			97.5% KM (Chebyshev) UCL	146.6		
318					k star	0.356			99% KM (Chebyshev) UCL	197.4		

319					Theta star	170.4						
320					Nu star	27.74	**Potential UCLs to Use**					
321					AppChi2	16.73				97.5% KM (Chebyshev) UCL		146.6
322				95% Gamma Approximate UCL		100.5						
323				95% Adjusted Gamma UCL		102.6						
324	**Note: DL/2 is not a recommended method.**											
325												
326												
327	**Bis(2-ethylhexyl) phthalate**											
328												
329	**General Statistics**											
330					Number of Valid Data	33				Number of Detected Data		17
331					Number of Distinct Detected Data	14				Number of Non-Detect Data		16
332					Number of Missing Values	8				Percent Non-Detects		48.48%
333												
334	**Raw Statistics**						**Log-transformed Statistics**					
335					Minimum Detected	23				Minimum Detected		3.135
336					Maximum Detected	612				Maximum Detected		6.417
337					Mean of Detected	137.5				Mean of Detected		4.591
338					SD of Detected	140.9				SD of Detected		0.812
339					Minimum Non-Detect	37				Minimum Non-Detect		3.611
340					Maximum Non-Detect	350				Maximum Non-Detect		5.858
341												
342	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		32
343	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
344	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		96.97%
345												
346	**UCL Statistics**											
347	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
348					Shapiro Wilk Test Statistic	0.673				Shapiro Wilk Test Statistic		0.966
349					5% Shapiro Wilk Critical Value	0.892				5% Shapiro Wilk Critical Value		0.892
350	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
351												
352	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
353					DL/2 Substitution Method					DL/2 Substitution Method		
354					Mean	93.21				Mean		4.092
355					SD	114				SD		0.904
356					95% DL/2 (t) UCL	126.8				95% H-Stat (DL/2) UCL		121.9
357												
358					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
359	**MLE method failed to converge properly**									Mean in Log Scale		4.072
360										SD in Log Scale		0.814
361										Mean in Original Scale		87.87
362										SD in Original Scale		112.6
363										95% Percentile Bootstrap UCL		123.5
364										95% BCA Bootstrap UCL		137.9
365												
366	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
367					k star (bias corrected)	1.399	**Data appear Gamma Distributed at 5% Significance Level**					
368					Theta Star	98.29						
369					nu star	47.55						
370												
371					A-D Test Statistic	0.571	**Nonparametric Statistics**					

372				5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method		
373				K-S Test Statistic	0.754					Mean	89.2	
374				5% K-S Critical Value	0.213					SD	111.5	
375	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	20.28	
376										95% KM (t) UCL	123.5	
377	**Assuming Gamma Distribution**									95% KM (z) UCL	122.6	
378	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL	123.2	
379				Minimum	23					95% KM (bootstrap t) UCL	159.2	
380				Maximum	612					95% KM (BCA) UCL	132.9	
381				Mean	135.9					95% KM (Percentile Bootstrap) UCL	124.9	
382				Median	99.15					95% KM (Chebyshev) UCL	177.6	
383				SD	112.1					97.5% KM (Chebyshev) UCL	215.8	
384				k star	1.947					99% KM (Chebyshev) UCL	291	
385				Theta star	69.82							
386				Nu star	128.5					**Potential UCLs to Use**		
387				AppChi2	103.3					95% KM (t) UCL	123.5	
388				95% Gamma Approximate UCL	169.1							
389				95% Adjusted Gamma UCL	171							
390	**Note: DL/2 is not a recommended method.**											
391												
392												
393	**Dibenzo(a,h)anthracene**											
394												
395	**General Statistics**											
396				Number of Valid Data	39					Number of Detected Data	33	
397				Number of Distinct Detected Data	28					Number of Non-Detect Data	6	
398				Number of Missing Values	2					Percent Non-Detects	15.38%	
399												
400	**Raw Statistics**									**Log-transformed Statistics**		
401				Minimum Detected	0.4					Minimum Detected	-0.916	
402				Maximum Detected	71					Maximum Detected	4.263	
403				Mean of Detected	16.32					Mean of Detected	2.309	
404				SD of Detected	16.27					SD of Detected	1.11	
405				Minimum Non-Detect	10					Minimum Non-Detect	2.303	
406				Maximum Non-Detect	20					Maximum Non-Detect	2.996	
407												
408	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	30	
409	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	9	
410	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	76.92%	
411												
412	**UCL Statistics**											
413	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
414				Shapiro Wilk Test Statistic	0.793					Shapiro Wilk Test Statistic	0.953	
415				5% Shapiro Wilk Critical Value	0.931					5% Shapiro Wilk Critical Value	0.931	
416	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
417												
418	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
419				DL/2 Substitution Method						DL/2 Substitution Method		
420				Mean	14.84					Mean	2.237	
421				SD	15.37					SD	1.041	
422				95% DL/2 (t) UCL	18.98					95% H-Stat (DL/2) UCL	20.32	
423												
424				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		

425					Mean	41.93				Mean in Log Scale		2.202
426					SD	14.64				SD in Log Scale		1.066
427					95% MLE (t) UCL	45.89				Mean in Original Scale		14.67
428					95% MLE (Tiku) UCL	49.92				SD in Original Scale		15.47
429										95% Percentile Bootstrap UCL		18.7
430										95% BCA Bootstrap UCL		19.86
431												
432				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
433					k star (bias corrected)	1.087				Data appear Gamma Distributed at 5% Significance Level		
434					Theta Star	15.02						
435					nu star	71.73						
436												
437					A-D Test Statistic	0.438				Nonparametric Statistics		
438					5% A-D Critical Value	0.772				Kaplan-Meier (KM) Method		
439					K-S Test Statistic	0.772				Mean		14.8
440					5% K-S Critical Value	0.157				SD		15.22
441				Data appear Gamma Distributed at 5% Significance Level						SE of Mean		2.487
442										95% KM (t) UCL		18.99
443				Assuming Gamma Distribution						95% KM (z) UCL		18.89
444					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		18.98
445					Minimum	0.0577				95% KM (bootstrap t) UCL		20.35
446					Maximum	71				95% KM (BCA) UCL		18.91
447					Mean	15.51				95% KM (Percentile Bootstrap) UCL		18.97
448					Median	9.8				95% KM (Chebyshev) UCL		25.64
449					SD	15.32				97.5% KM (Chebyshev) UCL		30.33
450					k star	0.993				99% KM (Chebyshev) UCL		39.54
451					Theta star	15.63						
452					Nu star	77.42				Potential UCLs to Use		
453					AppChi2	58.15				95% KM (BCA) UCL		18.91
454					95% Gamma Approximate UCL	20.66						
455					95% Adjusted Gamma UCL	20.89						
456	Note: DL/2 is not a recommended method.											
457												
458												
459	Dieldrin											
460												
461						General Statistics						
462					Number of Valid Data	26				Number of Detected Data		5
463					Number of Distinct Detected Data	5				Number of Non-Detect Data		21
464					Number of Missing Values	7				Percent Non-Detects		80.77%
465												
466				Raw Statistics						Log-transformed Statistics		
467					Minimum Detected	0.097				Minimum Detected		-2.333
468					Maximum Detected	0.966				Maximum Detected		-0.0346
469					Mean of Detected	0.281				Mean of Detected		-1.779
470					SD of Detected	0.383				SD of Detected		0.978
471					Minimum Non-Detect	0.0568				Minimum Non-Detect		-2.868
472					Maximum Non-Detect	0.73				Maximum Non-Detect		-0.315
473												
474	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		25
475	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
476	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		96.15%
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478	**Warning: There are only 5 Detected Values in this data**											
479	**Note: It should be noted that even though bootstrap may be performed on this data set**											
480	**the resulting calculations may not be reliable enough tp draw conclusions**											
481												
482	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
483												
484												
485	**UCL Statistics**											
486	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
487	Shapiro Wilk Test Statistic					0.573	Shapiro Wilk Test Statistic					0.629
488	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
489	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
490												
491	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
492	DL/2 Substitution Method						DL/2 Substitution Method					
493	Mean					0.15	Mean					-2.376
494	SD					0.195	SD					0.928
495	95% DL/2 (t) UCL					0.216	95% H-Stat (DL/2) UCL					0.217
496												
497	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
498	**MLE method failed to converge properly**						Mean in Log Scale					-3.648
499							SD in Log Scale					1.055
500							Mean in Original Scale					0.0684
501							SD in Original Scale					0.186
502							95% Percentile Bootstrap UCL					0.14
503							95% BCA Bootstrap UCL					0.172
504												
505	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
506	k star (bias corrected)					0.581	**Data do not follow a Discernable Distribution (0.05)**					
507	Theta Star					0.483						
508	nu star					5.815						
509												
510	A-D Test Statistic					1.178	**Nonparametric Statistics**					
511	5% A-D Critical Value					0.69	Kaplan-Meier (KM) Method					
512	K-S Test Statistic					0.69	Mean					0.134
513	5% K-S Critical Value					0.364	SD					0.167
514	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0366
515							95% KM (t) UCL					0.196
516	**Assuming Gamma Distribution**						95% KM (z) UCL					0.194
517	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.184
518	Minimum					0.097	95% KM (bootstrap t) UCL					1.106
519	Maximum					0.966	95% KM (BCA) UCL					0.966
520	Mean					0.281	95% KM (Percentile Bootstrap) UCL					0.202
521	Median					0.281	95% KM (Chebyshev) UCL					0.293
522	SD					0.153	97.5% KM (Chebyshev) UCL					0.362
523	k star					4.69	99% KM (Chebyshev) UCL					0.497
524	Theta star					0.0599						
525	Nu star					243.9	**Potential UCLs to Use**					
526	AppChi2					208.7	95% KM (t) UCL					0.196
527	95% Gamma Approximate UCL					0.328	95% KM (% Bootstrap) UCL					0.202
528	95% Adjusted Gamma UCL					0.331						
529	**Note: DL/2 is not a recommended method.**											
530												

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	39	Number of Detected Data	36
Number of Distinct Detected Data	34	Number of Non-Detect Data	3
Number of Missing Values	2	Percent Non-Detects	7.69%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	300	Maximum Detected	5.704
Mean of Detected	62.85	Mean of Detected	3.688
SD of Detected	63.81	SD of Detected	1.066
Minimum Non-Detect	10	Minimum Non-Detect	2.303
Maximum Non-Detect	20	Maximum Non-Detect	2.996

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	29
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	25.64%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.762	Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.935	5% Shapiro Wilk Critical Value	0.935
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	58.53	Mean	3.546
SD	63.09	SD	1.142
95% DL/2 (t) UCL	75.56	95% H-Stat (DL/2) UCL	86.59
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	48.21	Mean in Log Scale	3.545
SD	74.86	SD in Log Scale	1.144
95% MLE (t) UCL	68.42	Mean in Original Scale	58.51
95% MLE (Tiku) UCL	68.86	SD in Original Scale	63.1
		95% Percentile Bootstrap UCL	75.4
		95% BCA Bootstrap UCL	80.69

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.16	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	54.16		
nu star	83.56		
A-D Test Statistic	0.281	**Nonparametric Statistics**	
5% A-D Critical Value	0.771	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.771	Mean	58.43
5% K-S Critical Value	0.15	SD	62.37
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	10.13
		95% KM (t) UCL	75.51
Assuming Gamma Distribution		95% KM (z) UCL	75.09
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	75.49

584					Minimum	1E-09				95% KM (bootstrap t) UCL		81.13
585					Maximum	300				95% KM (BCA) UCL		75.74
586					Mean	58.01				95% KM (Percentile Bootstrap) UCL		75.67
587					Median	40				95% KM (Chebyshev) UCL		102.6
588					SD	63.55				97.5% KM (Chebyshev) UCL		121.7
589					k star	0.299				99% KM (Chebyshev) UCL		159.2
590					Theta star	193.9						
591					Nu star	23.33				**Potential UCLs to Use**		
592					AppChi2	13.34				95% KM (Chebyshev) UCL		102.6
593					95% Gamma Approximate UCL	101.5						
594					95% Adjusted Gamma UCL	103.8						
595	**Note: DL/2 is not a recommended method.**											
596												
597												
598	**Lead**											
599												
600					**General Statistics**							
601					Number of Valid Data	33				Number of Detected Data		33
602					Number of Distinct Detected Data	31				Number of Non-Detect Data		0
603					Number of Missing Values	8				Percent Non-Detects		0.00%
604												
605					**Raw Statistics**					**Log-transformed Statistics**		
606					Minimum Detected	4				Minimum Detected		1.386
607					Maximum Detected	13400				Maximum Detected		9.503
608					Mean of Detected	429.8				Mean of Detected		3.147
609					SD of Detected	2328				SD of Detected		1.35
610					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
611					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
612												
613												
614					**UCL Statistics**							
615					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
616					Shapiro Wilk Test Statistic	0.183				Shapiro Wilk Test Statistic		0.693
617					5% Shapiro Wilk Critical Value	0.931				5% Shapiro Wilk Critical Value		0.931
618					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
619												
620					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
621					DL/2 Substitution Method					DL/2 Substitution Method		
622					Mean	429.8				Mean		3.147
623					SD	2328				SD		1.35
624					95% DL/2 (t) UCL	1116				95% H-Stat (DL/2) UCL		114.1
625												
626					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
627					**MLE method failed to converge properly**					Mean in Log Scale		N/A
628										SD in Log Scale		N/A
629										Mean in Original Scale		N/A
630										SD in Original Scale		N/A
631										95% Percentile Bootstrap UCL		N/A
632										95% BCA Bootstrap UCL		N/A
633												
634					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
635					k star (bias corrected)	0.242				**Data do not follow a Discernable Distribution (0.05)**		
636					Theta Star	1773						

637					nu star	16						
638												
639					A-D Test Statistic	9.248	**Nonparametric Statistics**					
640					5% A-D Critical Value	0.879				Kaplan-Meier (KM) Method		
641					K-S Test Statistic	0.879				Mean		429.8
642					5% K-S Critical Value	0.168				SD		2293
643	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		405.3
644										95% KM (t) UCL		1116
645	**Assuming Gamma Distribution**									95% KM (z) UCL		1097
646					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1116
647					Minimum	4				95% KM (bootstrap t) UCL		64269
648					Maximum	13400				95% KM (BCA) UCL		1243
649					Mean	429.8				95% KM (Percentile Bootstrap) UCL		1239
650					Median	17.6				95% KM (Chebyshev) UCL		2197
651					SD	2328				97.5% KM (Chebyshev) UCL		2961
652					k star	0.242				99% KM (Chebyshev) UCL		4463
653					Theta star	1773						
654					Nu star	16	**Potential UCLs to Use**					
655					AppChi2	7.963				97.5% KM (Chebyshev) UCL		2961
656					95% Gamma Approximate UCL	863.7						
657					95% Adjusted Gamma UCL	896.5						
658	**Note: DL/2 is not a recommended method.**											
659												
660												
661	**Mercury**											
662												
663	**General Statistics**											
664					Number of Valid Data	33				Number of Detected Data		32
665					Number of Distinct Detected Data	31				Number of Non-Detect Data		1
666					Number of Missing Values	8				Percent Non-Detects		3.03%
667												
668	**Raw Statistics**						**Log-transformed Statistics**					
669					Minimum Detected	0.017				Minimum Detected		-4.075
670					Maximum Detected	65.2				Maximum Detected		4.177
671					Mean of Detected	2.23				Mean of Detected		-1.905
672					SD of Detected	11.49				SD of Detected		1.484
673					Minimum Non-Detect	0.05				Minimum Non-Detect		-2.996
674					Maximum Non-Detect	0.05				Maximum Non-Detect		-2.996
675												
676												
677	**UCL Statistics**											
678	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
679					Shapiro Wilk Test Statistic	0.193				Shapiro Wilk Test Statistic		0.824
680					5% Shapiro Wilk Critical Value	0.93				5% Shapiro Wilk Critical Value		0.93
681	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
682												
683	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
684					DL/2 Substitution Method					DL/2 Substitution Method		
685					Mean	2.163				Mean		-1.959
686					SD	11.32				SD		1.494
687					95% DL/2 (t) UCL	5.501				95% H-Stat (DL/2) UCL		0.878
688												
689					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		

690					Mean	0.723					Mean in Log Scale	-1.97
691					SD	12.25					SD in Log Scale	1.507
692					95% MLE (t) UCL	4.334					Mean in Original Scale	2.163
693					95% MLE (Tiku) UCL	4.133					SD in Original Scale	11.32
694											95% Percentile Bootstrap UCL	6.098
695											95% BCA Bootstrap UCL	8.124
696												
697				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
698					k star (bias corrected)	0.257					**Data do not follow a Discernable Distribution (0.05)**	
699					Theta Star	8.676						
700					nu star	16.45						
701												
702					A-D Test Statistic	7.242					**Nonparametric Statistics**	
703					5% A-D Critical Value	0.872					Kaplan-Meier (KM) Method	
704					K-S Test Statistic	0.872					Mean	2.163
705					5% K-S Critical Value	0.17					SD	11.15
706				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	1.971
707											95% KM (t) UCL	5.502
708				**Assuming Gamma Distribution**							95% KM (z) UCL	5.405
709				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	5.501
710					Minimum	1E-09					95% KM (bootstrap t) UCL	145.5
711					Maximum	65.2					95% KM (BCA) UCL	6.061
712					Mean	2.162					95% KM (Percentile Bootstrap) UCL	6.098
713					Median	0.12					95% KM (Chebyshev) UCL	10.76
714					SD	11.32					97.5% KM (Chebyshev) UCL	14.47
715					k star	0.223					99% KM (Chebyshev) UCL	21.78
716					Theta star	9.706						
717					Nu star	14.7					**Potential UCLs to Use**	
718					AppChi2	7.056					97.5% KM (Chebyshev) UCL	14.47
719					95% Gamma Approximate UCL	4.506						
720					95% Adjusted Gamma UCL	4.687						
721	**Note: DL/2 is not a recommended method.**											
722												
723												
724	**Naphthalene**											
725												
726							**General Statistics**					
727					Number of Valid Data	39					Number of Detected Data	33
728					Number of Distinct Detected Data	31					Number of Non-Detect Data	6
729					Number of Missing Values	2					Percent Non-Detects	15.38%
730												
731				**Raw Statistics**							**Log-transformed Statistics**	
732					Minimum Detected	1.9					Minimum Detected	0.642
733					Maximum Detected	350					Maximum Detected	5.858
734					Mean of Detected	75.4					Mean of Detected	3.68
735					SD of Detected	86.12					SD of Detected	1.236
736					Minimum Non-Detect	10					Minimum Non-Detect	2.303
737					Maximum Non-Detect	16					Maximum Non-Detect	2.773
738												
739	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
740	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	25
741	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	35.90%
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**UCL Statistics**											
744	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
745					Shapiro Wilk Test Statistic	0.775				Shapiro Wilk Test Statistic		0.979
746					5% Shapiro Wilk Critical Value	0.931				5% Shapiro Wilk Critical Value		0.931
747	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
748												
749	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
750					DL/2 Substitution Method					DL/2 Substitution Method		
751					Mean	64.66				Mean		3.376
752					SD	83.05				SD		1.347
753					95% DL/2 (t) UCL	87.08				95% H-Stat (DL/2) UCL		96.68
754												
755					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
756					Mean	38.67				Mean in Log Scale		3.376
757					SD	110.9				SD in Log Scale		1.353
758					95% MLE (t) UCL	68.61				Mean in Original Scale		64.7
759					95% MLE (Tiku) UCL	71.28				SD in Original Scale		83.02
760										95% Percentile Bootstrap UCL		88
761										95% BCA Bootstrap UCL		89.82
762												
763	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
764					k star (bias corrected)	0.846	**Data appear Gamma Distributed at 5% Significance Level**					
765					Theta Star	89.11						
766					nu star	55.84						
767												
768					A-D Test Statistic	0.509	**Nonparametric Statistics**					
769					5% A-D Critical Value	0.78				Kaplan-Meier (KM) Method		
770					K-S Test Statistic	0.78				Mean		64.83
771					5% K-S Critical Value	0.158				SD		81.86
772	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		13.31
773										95% KM (t) UCL		87.28
774	**Assuming Gamma Distribution**									95% KM (z) UCL		86.73
775					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		87.23
776					Minimum	1E-09				95% KM (bootstrap t) UCL		92.48
777					Maximum	350				95% KM (BCA) UCL		87.54
778					Mean	63.92				95% KM (Percentile Bootstrap) UCL		86.06
779					Median	31				95% KM (Chebyshev) UCL		122.9
780					SD	83.61				97.5% KM (Chebyshev) UCL		148
781					k star	0.227				99% KM (Chebyshev) UCL		197.3
782					Theta star	282						
783					Nu star	17.68				**Potential UCLs to Use**		
784					AppChi2	9.16				95% KM (Chebyshev) UCL		122.9
785					95% Gamma Approximate UCL	123.4						
786					95% Adjusted Gamma UCL	126.7						
787	**Note: DL/2 is not a recommended method.**											
788												
789												
790	**Total Aroclors**											
791												
792	**General Statistics**											
793					Number of Valid Data	30				Number of Detected Data		21
794					Number of Distinct Detected Data	21				Number of Non-Detect Data		9
795					Number of Missing Values	11				Percent Non-Detects		30.00%

796												
797	**Raw Statistics**						**Log-transformed Statistics**					
798					Minimum Detected	8.71					Minimum Detected	2.164
799					Maximum Detected	3252					Maximum Detected	8.087
800					Mean of Detected	284.5					Mean of Detected	4.279
801					SD of Detected	717					SD of Detected	1.507
802					Minimum Non-Detect	1.3					Minimum Non-Detect	0.262
803					Maximum Non-Detect	75					Maximum Non-Detect	4.317
804												
805	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	21
806	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	9
807	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	70.00%
808												
809	**UCL Statistics**											
810	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
811					Shapiro Wilk Test Statistic	0.406					Shapiro Wilk Test Statistic	0.94
812					5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value	0.908
813	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
814												
815	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
816					DL/2 Substitution Method						DL/2 Substitution Method	
817					Mean	202.3					Mean	3.498
818					SD	609					SD	1.887
819					95% DL/2 (t) UCL	391.3					95% H-Stat (DL/2) UCL	281.3
820												
821					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
822	**MLE yields a negative mean**										Mean in Log Scale	3.427
823											SD in Log Scale	1.865
824											Mean in Original Scale	200.8
825											SD in Original Scale	609.5
826											95% Percentile Bootstrap UCL	402.9
827											95% BCA Bootstrap UCL	534.7
828												
829	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
830					k star (bias corrected)	0.433	**Data appear Lognormal at 5% Significance Level**					
831					Theta Star	657.5						
832					nu star	18.17						
833												
834					A-D Test Statistic	1.763	**Nonparametric Statistics**					
835					5% A-D Critical Value	0.812	Kaplan-Meier (KM) Method					
836					K-S Test Statistic	0.812					Mean	202.7
837					5% K-S Critical Value	0.201					SD	598.6
838	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	112
839											95% KM (t) UCL	393
840	**Assuming Gamma Distribution**										95% KM (z) UCL	386.9
841					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	390.9
842					Minimum	8.71					95% KM (bootstrap t) UCL	1341
843					Maximum	3252					95% KM (BCA) UCL	413.4
844					Mean	256.1					95% KM (Percentile Bootstrap) UCL	409.4
845					Median	122.3					95% KM (Chebyshev) UCL	690.9
846					SD	597.3					97.5% KM (Chebyshev) UCL	902.1
847					k star	0.586					99% KM (Chebyshev) UCL	1317
848					Theta star	436.8						

849					Nu star	35.18	**Potential UCLs to Use**					
850					AppChi2	22.61				99% KM (Chebyshev) UCL		1317
851				95% Gamma Approximate UCL		398.5						
852				95% Adjusted Gamma UCL		409						
853	**Note: DL/2 is not a recommended method.**											
854												
855												
856	**Total DDT**											
857												
858						**General Statistics**						
859					Number of Valid Data	28				Number of Detected Data		23
860					Number of Distinct Detected Data	23				Number of Non-Detect Data		5
861					Number of Missing Values	13				Percent Non-Detects		17.86%
862												
863				**Raw Statistics**						**Log-transformed Statistics**		
864					Minimum Detected	0.292				Minimum Detected		-1.231
865					Maximum Detected	320				Maximum Detected		5.768
866					Mean of Detected	17.9				Mean of Detected		0.935
867					SD of Detected	66.2				SD of Detected		1.551
868					Minimum Non-Detect	0.2				Minimum Non-Detect		-1.609
869					Maximum Non-Detect	8.9				Maximum Non-Detect		2.186
870												
871	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		26
872	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
873	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		92.86%
874												
875						**UCL Statistics**							
876				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
877					Shapiro Wilk Test Statistic	0.272				Shapiro Wilk Test Statistic		0.9
878					5% Shapiro Wilk Critical Value	0.914				5% Shapiro Wilk Critical Value		0.914
879				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
880												
881				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
882					DL/2 Substitution Method					DL/2 Substitution Method		
883					Mean	15.04				Mean		0.718
884					SD	60.09				SD		1.644
885					95% DL/2 (t) UCL	34.38				95% H-Stat (DL/2) UCL		15.09
886												
887					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
888				**MLE method failed to converge properly**						Mean in Log Scale		0.611
889										SD in Log Scale		1.668
890										Mean in Original Scale		14.84
891										SD in Original Scale		60.13
892										95% Percentile Bootstrap UCL		37.38
893										95% BCA Bootstrap UCL		50.23
894												
895				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
896					k star (bias corrected)	0.329				**Data do not follow a Discernable Distribution (0.05)**		
897					Theta Star	54.32						
898					nu star	15.16						
899												
900					A-D Test Statistic	3.343				**Nonparametric Statistics**		
901					5% A-D Critical Value	0.839				Kaplan-Meier (KM) Method		

	A	B	C	D	E	F	G	H	I	J	K	L
902					K-S Test Statistic	0.839					Mean	14.92
903					5% K-S Critical Value	0.196					SD	59.03
904	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	11.41
905											95% KM (t) UCL	34.35
906	**Assuming Gamma Distribution**										95% KM (z) UCL	33.68
907				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	34.26
908					Minimum	1E-09					95% KM (bootstrap t) UCL	323.5
909					Maximum	320					95% KM (BCA) UCL	36.72
910					Mean	14.98					95% KM (Percentile Bootstrap) UCL	37.6
911					Median	1.687					95% KM (Chebyshev) UCL	64.64
912					SD	60.11					97.5% KM (Chebyshev) UCL	86.16
913					k star	0.186					99% KM (Chebyshev) UCL	128.4
914					Theta star	80.63						
915					Nu star	10.4	**Potential UCLs to Use**					
916					AppChi2	4.194					99% KM (Chebyshev) UCL	128.4
917				95% Gamma Approximate UCL		37.14						
918				95% Adjusted Gamma UCL		39.41						
919	**Note: DL/2 is not a recommended method.**											
920												
921												
922	**Total Dioxin/Furan TEQ**											
923												
924	**General Statistics**											
925					Number of Valid Data	12					Number of Detected Data	12
926					Number of Distinct Detected Data	12					Number of Non-Detect Data	0
927					Number of Missing Values	24					Percent Non-Detects	0.00%
928												
929	**Raw Statistics**						**Log-transformed Statistics**					
930					Minimum Detected	0.368					Minimum Detected	-0.999
931					Maximum Detected	88.75					Maximum Detected	4.486
932					Mean of Detected	20.06					Mean of Detected	1.465
933					SD of Detected	28.73					SD of Detected	2.06
934					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
935					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
936												
937												
938	**UCL Statistics**											
939	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
940					Shapiro Wilk Test Statistic	0.74					Shapiro Wilk Test Statistic	0.873
941					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
942	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
943												
944	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
945					DL/2 Substitution Method						DL/2 Substitution Method	
946					Mean	20.06					Mean	1.465
947					SD	28.73					SD	2.06
948					95% DL/2 (t) UCL	34.96					95% H-Stat (DL/2) UCL	853.2
949												
950				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
951	**MLE method failed to converge properly**										Mean in Log Scale	N/A
952											SD in Log Scale	N/A
953											Mean in Original Scale	N/A
954											SD in Original Scale	N/A

955											95% Percentile Bootstrap UCL	N/A
956											95% BCA Bootstrap UCL	N/A
957												
958	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
959					k star (bias corrected)	0.374	**Data appear Lognormal at 5% Significance Level**					
960					Theta Star	53.61						
961					nu star	8.982						
962												
963					A-D Test Statistic	0.855	**Nonparametric Statistics**					
964					5% A-D Critical Value	0.8					Kaplan-Meier (KM) Method	
965					K-S Test Statistic	0.8					Mean	20.06
966					5% K-S Critical Value	0.261					SD	27.51
967	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	8.294
968											95% KM (t) UCL	34.96
969	**Assuming Gamma Distribution**										95% KM (z) UCL	33.71
970					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	34.96
971					Minimum	0.368					95% KM (bootstrap t) UCL	43.29
972					Maximum	88.75					95% KM (BCA) UCL	35.34
973					Mean	20.06					95% KM (Percentile Bootstrap) UCL	33.72
974					Median	1.794					95% KM (Chebyshev) UCL	56.22
975					SD	28.73					97.5% KM (Chebyshev) UCL	71.86
976					k star	0.374					99% KM (Chebyshev) UCL	102.6
977					Theta star	53.61						
978					Nu star	8.982	**Potential UCLs to Use**					
979					AppChi2	3.316					99% KM (Chebyshev) UCL	102.6
980					95% Gamma Approximate UCL	54.35						
981					95% Adjusted Gamma UCL	64.09						
982	**Warning: Recommended UCL exceeds the maximum observation**											
983	**Note: DL/2 is not a recommended method.**											
984												
985												
986	**Total Dioxin-like PCBs**											
987												
988	**General Statistics**											
989					Number of Valid Data	22					Number of Detected Data	22
990					Number of Distinct Detected Data	22					Number of Non-Detect Data	0
991					Number of Missing Values	11					Percent Non-Detects	0.00%
992												
993	**Raw Statistics**						**Log-transformed Statistics**					
994					Minimum Detected	65.67					Minimum Detected	4.185
995					Maximum Detected	85853					Maximum Detected	11.36
996					Mean of Detected	6777					Mean of Detected	7.115
997					SD of Detected	18764					SD of Detected	1.796
998					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
999					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1000												
1001												
1002	**UCL Statistics**											
1003	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1004					Shapiro Wilk Test Statistic	0.378					Shapiro Wilk Test Statistic	0.945
1005					5% Shapiro Wilk Critical Value	0.911					5% Shapiro Wilk Critical Value	0.911
1006	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1007												

1008	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1009	DL/2 Substitution Method						DL/2 Substitution Method					
1010	Mean					6777	Mean					7.115
1011	SD					18764	SD					1.796
1012	95% DL/2 (t) UCL					13660	95% H-Stat (DL/2) UCL					26872
1013												
1014	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1015	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1016							SD in Log Scale					N/A
1017							Mean in Original Scale					N/A
1018							SD in Original Scale					N/A
1019							95% Percentile Bootstrap UCL					N/A
1020							95% BCA Bootstrap UCL					N/A
1021												
1022	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1023	k star (bias corrected)					0.365	**Data appear Lognormal at 5% Significance Level**					
1024	Theta Star					18560						
1025	nu star					16.07						
1026												
1027	A-D Test Statistic					1.87	**Nonparametric Statistics**					
1028	5% A-D Critical Value					0.829	Kaplan-Meier (KM) Method					
1029	K-S Test Statistic					0.829	Mean					6777
1030	5% K-S Critical Value					0.199	SD					18332
1031	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					4000
1032							95% KM (t) UCL					13660
1033	**Assuming Gamma Distribution**						95% KM (z) UCL					13357
1034	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					13660
1035	Minimum					65.67	95% KM (bootstrap t) UCL					63928
1036	Maximum					85853	95% KM (BCA) UCL					13953
1037	Mean					6777	95% KM (Percentile Bootstrap) UCL					14389
1038	Median					1348	95% KM (Chebyshev) UCL					24214
1039	SD					18764	97.5% KM (Chebyshev) UCL					31759
1040	k star					0.365	99% KM (Chebyshev) UCL					46581
1041	Theta star					18560						
1042	Nu star					16.07	**Potential UCLs to Use**					
1043	AppChi2					8.008	99% KM (Chebyshev) UCL					46581
1044	95% Gamma Approximate UCL					13594						
1045	95% Adjusted Gamma UCL					14352						
1046	**Note: DL/2 is not a recommended method.**											
1047												
1048												
1049	**Total PCB TEQ**											
1050												
1051	**General Statistics**											
1052	Number of Valid Data					22	Number of Detected Data					22
1053	Number of Distinct Detected Data					22	Number of Non-Detect Data					0
1054	Number of Missing Values					11	Percent Non-Detects					0.00%
1055												
1056	**Raw Statistics**						**Log-transformed Statistics**					
1057	Minimum Detected					0.125	Minimum Detected					-2.083
1058	Maximum Detected					34.15	Maximum Detected					3.531
1059	Mean of Detected					3.015	Mean of Detected					-0.267
1060	SD of Detected					7.737	SD of Detected					1.41

	A	B	C	D	E	F	G	H	I	J	K	L
1061					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1062					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1063												
1064												
1065					UCL Statistics							
1066				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
1067					Shapiro Wilk Test Statistic	0.399					Shapiro Wilk Test Statistic	0.898
1068					5% Shapiro Wilk Critical Value	0.911					5% Shapiro Wilk Critical Value	0.911
1069				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
1070												
1071				Assuming Normal Distribution						Assuming Lognormal Distribution		
1072					DL/2 Substitution Method						DL/2 Substitution Method	
1073					Mean	3.015					Mean	-0.267
1074					SD	7.737					SD	1.41
1075					95% DL/2 (t) UCL	5.854					95% H-Stat (DL/2) UCL	5.438
1076												
1077					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1078				MLE method failed to converge properly							Mean in Log Scale	N/A
1079											SD in Log Scale	N/A
1080											Mean in Original Scale	N/A
1081											SD in Original Scale	N/A
1082											95% Percentile Bootstrap UCL	N/A
1083											95% BCA Bootstrap UCL	N/A
1084												
1085				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
1086					k star (bias corrected)	0.435				Data do not follow a Discernable Distribution (0.05)		
1087					Theta Star	6.936						
1088					nu star	19.13						
1089												
1090					A-D Test Statistic	2.568				Nonparametric Statistics		
1091					5% A-D Critical Value	0.811					Kaplan-Meier (KM) Method	
1092					K-S Test Statistic	0.811					Mean	3.015
1093					5% K-S Critical Value	0.197					SD	7.559
1094				Data not Gamma Distributed at 5% Significance Level							SE of Mean	1.65
1095											95% KM (t) UCL	5.854
1096				Assuming Gamma Distribution							95% KM (z) UCL	5.729
1097					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5.854
1098					Minimum	0.125					95% KM (bootstrap t) UCL	29.68
1099					Maximum	34.15					95% KM (BCA) UCL	5.954
1100					Mean	3.015					95% KM (Percentile Bootstrap) UCL	6.015
1101					Median	0.613					95% KM (Chebyshev) UCL	10.21
1102					SD	7.737					97.5% KM (Chebyshev) UCL	13.32
1103					k star	0.435					99% KM (Chebyshev) UCL	19.43
1104					Theta star	6.936						
1105					Nu star	19.13				Potential UCLs to Use		
1106					AppChi2	10.21					97.5% KM (Chebyshev) UCL	13.32
1107					95% Gamma Approximate UCL	5.648						
1108					95% Adjusted Gamma UCL	5.93						
1109	Note: DL/2 is not a recommended method.											
1110												
1111												
1112	Total PCB_Congeners											
1113												

	A	B	C	D	E	F	G	H	I	J	K	L
1114	**General Statistics**											
1115	Number of Valid Data					22	Number of Detected Data					22
1116	Number of Distinct Detected Data					22	Number of Non-Detect Data					0
1117	Number of Missing Values					11	Percent Non-Detects					0.00%
1118												
1119	**Raw Statistics**						**Log-transformed Statistics**					
1120	Minimum Detected					1834	Minimum Detected					7.514
1121	Maximum Detected					5874410	Maximum Detected					15.59
1122	Mean of Detected					386098	Mean of Detected					10.6
1123	SD of Detected					1270388	SD of Detected					1.952
1124	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
1125	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
1126												
1127												
1128	**UCL Statistics**											
1129	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1130	Shapiro Wilk Test Statistic					0.325	Shapiro Wilk Test Statistic					0.932
1131	5% Shapiro Wilk Critical Value					0.911	5% Shapiro Wilk Critical Value					0.911
1132	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1133												
1134	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1135	DL/2 Substitution Method						DL/2 Substitution Method					
1136	Mean					386098	Mean					10.6
1137	SD					1270388	SD					1.952
1138	95% DL/2 (t) UCL					852157	95% H-Stat (DL/2) UCL					1486389
1139												
1140	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1141	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1142							SD in Log Scale					N/A
1143							Mean in Original Scale					N/A
1144							SD in Original Scale					N/A
1145							95% Percentile Bootstrap UCL					N/A
1146							95% BCA Bootstrap UCL					N/A
1147												
1148	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1149	k star (bias corrected)					0.293	**Data appear Lognormal at 5% Significance Level**					
1150	Theta Star					1319961						
1151	nu star					12.87						
1152												
1153	A-D Test Statistic					2.59	**Nonparametric Statistics**					
1154	5% A-D Critical Value					0.847	Kaplan-Meier (KM) Method					
1155	K-S Test Statistic					0.847	Mean					386098
1156	5% K-S Critical Value					0.201	SD					1241180
1157	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					270848
1158							95% KM (t) UCL					852157
1159	**Assuming Gamma Distribution**						95% KM (z) UCL					831603
1160	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					852157
1161	Minimum					1834	95% KM (bootstrap t) UCL					10201550
1162	Maximum					5874410	95% KM (BCA) UCL					854600
1163	Mean					386098	95% KM (Percentile Bootstrap) UCL					901242
1164	Median					44613	95% KM (Chebyshev) UCL					1566696
1165	SD					1270388	97.5% KM (Chebyshev) UCL					2077542
1166	k star					0.293	99% KM (Chebyshev) UCL					3080999

1167					Theta star	1319961						
1168					Nu star	12.87			**Potential UCLs to Use**			
1169					AppChi2	5.806					99% KM (Chebyshev) UCL	3080999
1170				95% Gamma Approximate UCL		855933						
1171				95% Adjusted Gamma UCL		911138						
1172	**Note: DL/2 is not a recommended method.**											
1173												
1174												
1175	**Total PCBs, Adjusted**											
1176												
1177						**General Statistics**						
1178					Number of Valid Data	22					Number of Detected Data	22
1179					Number of Distinct Detected Data	22					Number of Non-Detect Data	0
1180					Number of Missing Values	11					Percent Non-Detects	0.00%
1181												
1182				**Raw Statistics**					**Log-transformed Statistics**			
1183					Minimum Detected	1768					Minimum Detected	7.478
1184					Maximum Detected	5788558					Maximum Detected	15.57
1185					Mean of Detected	379322					Mean of Detected	10.56
1186					SD of Detected	1251706					SD of Detected	1.957
1187					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1188					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1189												
1190												
1191						**UCL Statistics**						
1192				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
1193					Shapiro Wilk Test Statistic	0.324					Shapiro Wilk Test Statistic	0.932
1194					5% Shapiro Wilk Critical Value	0.911					5% Shapiro Wilk Critical Value	0.911
1195				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
1196												
1197				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
1198					DL/2 Substitution Method						DL/2 Substitution Method	
1199					Mean	379322					Mean	10.56
1200					SD	1251706					SD	1.957
1201					95% DL/2 (t) UCL	838527					95% H-Stat (DL/2) UCL	1465573
1202												
1203					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1204				**MLE method failed to converge properly**							Mean in Log Scale	N/A
1205											SD in Log Scale	N/A
1206											Mean in Original Scale	N/A
1207											SD in Original Scale	N/A
1208											95% Percentile Bootstrap UCL	N/A
1209											95% BCA Bootstrap UCL	N/A
1210												
1211				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
1212					k star (bias corrected)	0.291			**Data appear Lognormal at 5% Significance Level**			
1213					Theta Star	1304081						
1214					nu star	12.8						
1215												
1216					A-D Test Statistic	2.598			**Nonparametric Statistics**			
1217					5% A-D Critical Value	0.847					Kaplan-Meier (KM) Method	
1218					K-S Test Statistic	0.847					Mean	379322
1219					5% K-S Critical Value	0.201					SD	1222928

1220	Data not Gamma Distributed at 5% Significance Level										SE of Mean	266865
1221											95% KM (t) UCL	838527
1222	Assuming Gamma Distribution										95% KM (z) UCL	818275
1223	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	838527
1224	Minimum	1768									95% KM (bootstrap t) UCL	9234339
1225	Maximum	5788558									95% KM (BCA) UCL	835480
1226	Mean	379322									95% KM (Percentile Bootstrap) UCL	845072
1227	Median	43074									95% KM (Chebyshev) UCL	1542558
1228	SD	1251706									97.5% KM (Chebyshev) UCL	2045891
1229	k star	0.291									99% KM (Chebyshev) UCL	3034592
1230	Theta star	1304081										
1231	Nu star	12.8									Potential UCLs to Use	
1232	AppChi2	5.757									99% KM (Chebyshev) UCL	3034592
1233	95% Gamma Approximate UCL	843213										
1234	95% Adjusted Gamma UCL	897800										
1235	Note: DL/2 is not a recommended method.											
1236												
1237												
1238	Total TEQ											
1239												
1240	General Statistics											
1241	Number of Valid Data	10									Number of Detected Data	10
1242	Number of Distinct Detected Data	10									Number of Non-Detect Data	0
1243	Number of Missing Values	23									Percent Non-Detects	0.00%
1244												
1245	Raw Statistics										Log-transformed Statistics	
1246	Minimum Detected	0.511									Minimum Detected	-0.672
1247	Maximum Detected	89.06									Maximum Detected	4.489
1248	Mean of Detected	26.55									Mean of Detected	2.058
1249	SD of Detected	30.16									SD of Detected	1.993
1250	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
1251	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
1252												
1253												
1254	UCL Statistics											
1255	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
1256	Shapiro Wilk Test Statistic	0.825									Shapiro Wilk Test Statistic	0.851
1257	5% Shapiro Wilk Critical Value	0.842									5% Shapiro Wilk Critical Value	0.842
1258	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
1259												
1260	Assuming Normal Distribution										Assuming Lognormal Distribution	
1261	DL/2 Substitution Method										DL/2 Substitution Method	
1262	Mean	26.55									Mean	2.058
1263	SD	30.16									SD	1.993
1264	95% DL/2 (t) UCL	44.03									95% H-Stat (DL/2) UCL	2033
1265												
1266	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
1267	MLE method failed to converge properly										Mean in Log Scale	N/A
1268											SD in Log Scale	N/A
1269											Mean in Original Scale	N/A
1270											SD in Original Scale	N/A
1271											95% Percentile Bootstrap UCL	N/A
1272											95% BCA Bootstrap UCL	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
1273												
1274	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1275	k star (bias corrected)					0.429	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
1276	Theta Star					61.88						
1277	nu star					8.58						
1278												
1279	A-D Test Statistic					0.776	**Nonparametric Statistics**					
1280	5% A-D Critical Value					0.776	Kaplan-Meier (KM) Method					
1281	K-S Test Statistic					0.776	Mean					26.55
1282	5% K-S Critical Value					0.281	SD					28.61
1283	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean					9.536
1284							95% KM (t) UCL					44.03
1285	**Assuming Gamma Distribution**						95% KM (z) UCL					42.23
1286	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					44.03
1287	Minimum					0.511	95% KM (bootstrap t) UCL					49.02
1288	Maximum					89.06	95% KM (BCA) UCL					42.23
1289	Mean					26.55	95% KM (Percentile Bootstrap) UCL					41.57
1290	Median					19.2	95% KM (Chebyshev) UCL					68.11
1291	SD					30.16	97.5% KM (Chebyshev) UCL					86.1
1292	k star					0.429	99% KM (Chebyshev) UCL					121.4
1293	Theta star					61.88						
1294	Nu star					8.58	**Potential UCLs to Use**					
1295	AppChi2					3.075	95% KM (Chebyshev) UCL					68.11
1296	95% Gamma Approximate UCL					74.07						
1297	95% Adjusted Gamma UCL					89.99						
1298	**Note: DL/2 is not a recommended method.**											
1299												
1300												
1301	**Tributyltin ion**											
1302												
1303	**General Statistics**											
1304	Number of Valid Data					12	Number of Detected Data					11
1305	Number of Distinct Detected Data					11	Number of Non-Detect Data					1
1306	Number of Missing Values					29	Percent Non-Detects					8.33%
1307												
1308	**Raw Statistics**						**Log-transformed Statistics**					
1309	Minimum Detected					4.4	Minimum Detected					1.482
1310	Maximum Detected					180	Maximum Detected					5.193
1311	Mean of Detected					46.74	Mean of Detected					3.38
1312	SD of Detected					49.64	SD of Detected					1.066
1313	Minimum Non-Detect					0.079	Minimum Non-Detect					-2.538
1314	Maximum Non-Detect					0.079	Maximum Non-Detect					-2.538
1315												
1316												
1317	**UCL Statistics**											
1318	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1319	Shapiro Wilk Test Statistic					0.761	Shapiro Wilk Test Statistic					0.977
1320	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85
1321	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1322												
1323	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1324	DL/2 Substitution Method						DL/2 Substitution Method					
1325	Mean					42.84	Mean					2.829

	A	B	C	D	E	F	G	H	I	J	K	L
1326					SD	49.21					SD	2.162
1327					95% DL/2 (t) UCL	68.36					95% H-Stat (DL/2) UCL	2115
1328												
1329					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1330					Mean	40.47					Mean in Log Scale	3.163
1331					SD	50.33					SD in Log Scale	1.264
1332					95% MLE (t) UCL	66.56					Mean in Original Scale	43.02
1333					95% MLE (Tiku) UCL	65.49					SD in Original Scale	49.05
1334											95% Percentile Bootstrap UCL	66.74
1335											95% BCA Bootstrap UCL	79
1336												
1337	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1338					k star (bias corrected)	0.945	**Data appear Gamma Distributed at 5% Significance Level**					
1339					Theta Star	49.45						
1340					nu star	20.79						
1341												
1342					A-D Test Statistic	0.199	**Nonparametric Statistics**					
1343					5% A-D Critical Value	0.748					Kaplan-Meier (KM) Method	
1344					K-S Test Statistic	0.748					Mean	43.21
1345					5% K-S Critical Value	0.261					SD	46.8
1346	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	14.17
1347											95% KM (t) UCL	68.66
1348	**Assuming Gamma Distribution**										95% KM (z) UCL	66.52
1349					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	68.45
1350					Minimum	1E-09					95% KM (bootstrap t) UCL	91.59
1351					Maximum	180					95% KM (BCA) UCL	72.08
1352					Mean	42.84					95% KM (Percentile Bootstrap) UCL	67.39
1353					Median	29					95% KM (Chebyshev) UCL	105
1354					SD	49.22					97.5% KM (Chebyshev) UCL	131.7
1355					k star	0.273					99% KM (Chebyshev) UCL	184.2
1356					Theta star	156.7						
1357					Nu star	6.563	**Potential UCLs to Use**					
1358					AppChi2	1.934					95% KM (Chebyshev) UCL	105
1359					95% Gamma Approximate UCL	145.4						
1360					95% Adjusted Gamma UCL	178.5						
1361	**Note: DL/2 is not a recommended method.**											
1362												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM6.5W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Aldrin											
10												
11						General Statistics						
12					Number of Valid Data	42			Number of Detected Data	12		
13					Number of Distinct Detected Data	12			Number of Non-Detect Data	30		
14					Number of Missing Values	4			Percent Non-Detects	71.43%		
15												
16				Raw Statistics					Log-transformed Statistics			
17					Minimum Detected	0.047			Minimum Detected	-3.058		
18					Maximum Detected	25.9			Maximum Detected	3.254		
19					Mean of Detected	4.391			Mean of Detected	0.374		
20					SD of Detected	7.377			SD of Detected	1.699		
21					Minimum Non-Detect	0.0298			Minimum Non-Detect	-3.513		
22					Maximum Non-Detect	19			Maximum Non-Detect	2.944		
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	41		
25	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	1		
26	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	97.62%		
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only			
30					Shapiro Wilk Test Statistic	0.615			Shapiro Wilk Test Statistic	0.986		
31					5% Shapiro Wilk Critical Value	0.859			5% Shapiro Wilk Critical Value	0.859		
32				Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
33												
34				Assuming Normal Distribution					Assuming Lognormal Distribution			
35					DL/2 Substitution Method				DL/2 Substitution Method			
36					Mean	1.741			Mean	-1.037		
37					SD	4.423			SD	1.814		
38					95% DL/2 (t) UCL	2.889			95% H-Stat (DL/2) UCL	2.475		
39												
40					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
41				MLE method failed to converge properly					Mean in Log Scale	-2.597		
42									SD in Log Scale	2.152		
43									Mean in Original Scale	1.273		
44									SD in Original Scale	4.311		
45									95% Percentile Bootstrap UCL	2.49		
46									95% BCA Bootstrap UCL	3.135		
47												
48				Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only			
49					k star (bias corrected)	0.479			Data appear Gamma Distributed at 5% Significance Level			
50					Theta Star	9.176						
51					nu star	11.48						
52												
53					A-D Test Statistic	0.345			Nonparametric Statistics			

54					5% A-D Critical Value	0.78				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	0.78				Mean		1.345
56					5% K-S Critical Value	0.258				SD		4.254
57	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.688
58										95% KM (t) UCL		2.503
59	**Assuming Gamma Distribution**									95% KM (z) UCL		2.477
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		2.343
61					Minimum	0.047				95% KM (bootstrap t) UCL		5.04
62					Maximum	25.9				95% KM (BCA) UCL		3.113
63					Mean	4.36				95% KM (Percentile Bootstrap) UCL		2.691
64					Median	4.282				95% KM (Chebyshev) UCL		4.344
65					SD	3.822				97.5% KM (Chebyshev) UCL		5.642
66					k star	1.621				99% KM (Chebyshev) UCL		8.191
67					Theta star	2.689						
68					Nu star	136.2				**Potential UCLs to Use**		
69					AppChi2	110.2				95% KM (t) UCL		2.503
70					95% Gamma Approximate UCL	5.387						
71					95% Adjusted Gamma UCL	5.427						
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Arsenic**											
76												
77						**General Statistics**						
78					Number of Valid Data	48				Number of Detected Data		41
79					Number of Distinct Detected Data	40				Number of Non-Detect Data		7
80					Number of Missing Values	1				Percent Non-Detects		14.58%
81												
82	**Raw Statistics**									**Log-transformed Statistics**		
83					Minimum Detected	1.72				Minimum Detected		0.542
84					Maximum Detected	53.7				Maximum Detected		3.983
85					Mean of Detected	7.986				Mean of Detected		1.607
86					SD of Detected	11.42				SD of Detected		0.815
87					Minimum Non-Detect	5				Minimum Non-Detect		1.609
88					Maximum Non-Detect	10				Maximum Non-Detect		2.303
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		42
91	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		6
92	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		87.50%
93												
94						**UCL Statistics**						
95	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
96					Shapiro Wilk Test Statistic	0.515				Shapiro Wilk Test Statistic		0.773
97					5% Shapiro Wilk Critical Value	0.941				5% Shapiro Wilk Critical Value		0.941
98	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
99												
100	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
101					DL/2 Substitution Method					DL/2 Substitution Method		
102					Mean	7.415				Mean		1.574
103					SD	10.63				SD		0.76
104					95% DL/2 (t) UCL	9.989				95% H-Stat (DL/2) UCL		6.747
105												
106					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		

107	MLE yields a negative mean									Mean in Log Scale		1.579
108										SD in Log Scale		0.762
109										Mean in Original Scale		7.445
110										SD in Original Scale		10.63
111										95% Percentile Bootstrap UCL		10.15
112										95% BCA Bootstrap UCL		10.84
113												
114	Gamma Distribution Test with Detected Values Only									Data Distribution Test with Detected Values Only		
115				k star (bias corrected)		1.13				Data do not follow a Discernable Distribution (0.05)		
116				Theta Star		7.069						
117				nu star		92.63						
118												
119				A-D Test Statistic		5.753				Nonparametric Statistics		
120				5% A-D Critical Value		0.773				Kaplan-Meier (KM) Method		
121				K-S Test Statistic		0.773				Mean		7.366
122				5% K-S Critical Value		0.141				SD		10.54
123	Data not Gamma Distributed at 5% Significance Level									SE of Mean		1.541
124										95% KM (t) UCL		9.952
125	Assuming Gamma Distribution									95% KM (z) UCL		9.901
126				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		9.948
127				Minimum		1.72				95% KM (bootstrap t) UCL		12
128				Maximum		53.7				95% KM (BCA) UCL		10.41
129				Mean		7.975				95% KM (Percentile Bootstrap) UCL		9.925
130				Median		4.055				95% KM (Chebyshev) UCL		14.08
131				SD		10.54				97.5% KM (Chebyshev) UCL		16.99
132				k star		1.308				99% KM (Chebyshev) UCL		22.7
133				Theta star		6.096						
134				Nu star		125.6				Potential UCLs to Use		
135				AppChi2		100.7				95% KM (Chebyshev) UCL		14.08
136				95% Gamma Approximate UCL		9.946						
137				95% Adjusted Gamma UCL		10.01						
138	Note: DL/2 is not a recommended method.											
139												
140												
141	Benzo(a)anthracene											
142												
143	General Statistics											
144				Number of Valid Observations		49				Number of Distinct Observations		41
145												
146	Raw Statistics									Log-transformed Statistics		
147				Minimum		9.1				Minimum of Log Data		2.208
148				Maximum		7050				Maximum of Log Data		8.861
149				Mean		743.2				Mean of log Data		5.78
150				Median		350				SD of log Data		1.407
151				SD		1164						
152				Coefficient of Variation		1.566						
153				Skewness		3.878						
154												
155	Relevant UCL Statistics											
156	Normal Distribution Test									Lognormal Distribution Test		
157				Shapiro Wilk Test Statistic		0.59				Shapiro Wilk Test Statistic		0.98
158				Shapiro Wilk Critical Value		0.947				Shapiro Wilk Critical Value		0.947
159	Data not Normal at 5% Significance Level									Data appear Lognormal at 5% Significance Level		

160												
161	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
162					95% Student's-t UCL	1022					95% H-UCL	1532
163	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1792
164					95% Adjusted-CLT UCL	1115					97.5% Chebyshev (MVUE) UCL	2205
165					95% Modified-t UCL	1037					99% Chebyshev (MVUE) UCL	3015
166												
167	**Gamma Distribution Test**						**Data Distribution**					
168					k star (bias corrected)	0.694	**Data appear Gamma Distributed at 5% Significance Level**					
169					Theta Star	1072						
170					nu star	67.96						
171					Approximate Chi Square Value (.05)	49.99	**Nonparametric Statistics**					
172					Adjusted Level of Significance	0.0451					95% CLT UCL	1017
173					Adjusted Chi Square Value	49.52					95% Jackknife UCL	1022
174											95% Standard Bootstrap UCL	1011
175					Anderson-Darling Test Statistic	0.507					95% Bootstrap-t UCL	1254
176					Anderson-Darling 5% Critical Value	0.795					95% Hall's Bootstrap UCL	2257
177					Kolmogorov-Smirnov Test Statistic	0.0969					95% Percentile Bootstrap UCL	1045
178					Kolmogorov-Smirnov 5% Critical Value	0.132					95% BCA Bootstrap UCL	1156
179	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	1468
180											97.5% Chebyshev(Mean, Sd) UCL	1782
181	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	2398
182					95% Approximate Gamma UCL	1010						
183					95% Adjusted Gamma UCL	1020						
184												
185	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	1010
186												
187												
188	**Benzo(a)pyrene**											
189												
190	**General Statistics**											
191					Number of Valid Observations	49					Number of Distinct Observations	43
192												
193	**Raw Statistics**						**Log-transformed Statistics**					
194					Minimum	13					Minimum of Log Data	2.565
195					Maximum	8220					Maximum of Log Data	9.014
196					Mean	911.6					Mean of log Data	6.057
197					Median	410					SD of log Data	1.34
198					SD	1365						
199					Coefficient of Variation	1.497						
200					Skewness	3.821						
201												
202	**Relevant UCL Statistics**											
203	**Normal Distribution Test**						**Lognormal Distribution Test**					
204					Shapiro Wilk Test Statistic	0.597					Shapiro Wilk Test Statistic	0.976
205					Shapiro Wilk Critical Value	0.947					Shapiro Wilk Critical Value	0.947
206	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
207												
208	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
209					95% Student's-t UCL	1239					95% H-UCL	1767
210	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	2096
211					95% Adjusted-CLT UCL	1346					97.5% Chebyshev (MVUE) UCL	2564
212					95% Modified-t UCL	1256					99% Chebyshev (MVUE) UCL	3484

213												
214	**Gamma Distribution Test**						**Data Distribution**					
215					k star (bias corrected)	0.75	**Data appear Gamma Distributed at 5% Significance Level**					
216					Theta Star	1215						
217					nu star	73.51						
218					Approximate Chi Square Value (.05)	54.76	**Nonparametric Statistics**					
219					Adjusted Level of Significance	0.0451				95% CLT UCL	1232	
220					Adjusted Chi Square Value	54.27				95% Jackknife UCL	1239	
221										95% Standard Bootstrap UCL	1228	
222					Anderson-Darling Test Statistic	0.563				95% Bootstrap-t UCL	1522	
223					Anderson-Darling 5% Critical Value	0.791				95% Hall's Bootstrap UCL	2804	
224					Kolmogorov-Smirnov Test Statistic	0.1				95% Percentile Bootstrap UCL	1258	
225					Kolmogorov-Smirnov 5% Critical Value	0.132				95% BCA Bootstrap UCL	1381	
226	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	1762	
227										97.5% Chebyshev(Mean, Sd) UCL	2129	
228	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	2852	
229					95% Approximate Gamma UCL	1224						
230					95% Adjusted Gamma UCL	1235						
231												
232	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	1224	
233												
234												
235	**Benzo(b)fluoranthene**											
236												
237	**General Statistics**											
238					Number of Valid Observations	49				Number of Distinct Observations	40	
239												
240	**Raw Statistics**						**Log-transformed Statistics**					
241					Minimum	11				Minimum of Log Data	2.398	
242					Maximum	13300				Maximum of Log Data	9.496	
243					Mean	1014				Mean of log Data	6.055	
244					Median	400				SD of log Data	1.355	
245					SD	1984						
246					Coefficient of Variation	1.958						
247					Skewness	5.243						
248												
249	**Relevant UCL Statistics**											
250	**Normal Distribution Test**						**Lognormal Distribution Test**					
251					Shapiro Wilk Test Statistic	0.459				Shapiro Wilk Test Statistic	0.991	
252					Shapiro Wilk Critical Value	0.947				Shapiro Wilk Critical Value	0.947	
253	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
254												
255	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
256					95% Student's-t UCL	1489				95% H-UCL	1815	
257	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	2147	
258					95% Adjusted-CLT UCL	1707				97.5% Chebyshev (MVUE) UCL	2629	
259					95% Modified-t UCL	1524				99% Chebyshev (MVUE) UCL	3577	
260												
261	**Gamma Distribution Test**						**Data Distribution**					
262					k star (bias corrected)	0.669	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
263					Theta Star	1516						
264					nu star	65.54						
265					Approximate Chi Square Value (.05)	47.91	**Nonparametric Statistics**					

266					Adjusted Level of Significance	0.0451					95% CLT UCL	1480
267					Adjusted Chi Square Value	47.45					95% Jackknife UCL	1489
268											95% Standard Bootstrap UCL	1480
269					Anderson-Darling Test Statistic	1.03					95% Bootstrap-t UCL	2184
270					Anderson-Darling 5% Critical Value	0.797					95% Hall's Bootstrap UCL	3367
271					Kolmogorov-Smirnov Test Statistic	0.129					95% Percentile Bootstrap UCL	1532
272					Kolmogorov-Smirnov 5% Critical Value	0.132					95% BCA Bootstrap UCL	1815
273					**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2249
274											97.5% Chebyshev(Mean, Sd) UCL	2784
275					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3834
276					95% Approximate Gamma UCL	1386						
277					95% Adjusted Gamma UCL	1400						
278												
279					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	1386
280												
281												
282	**Benzo(k)fluoranthene**											
283												
284					**General Statistics**							
285					Number of Valid Data	41					Number of Detected Data	41
286					Number of Distinct Detected Data	39					Number of Non-Detect Data	0
287					Number of Missing Values	8					Percent Non-Detects	0.00%
288												
289					**Raw Statistics**						**Log-transformed Statistics**	
290					Minimum Detected	10					Minimum Detected	2.303
291					Maximum Detected	1400					Maximum Detected	7.244
292					Mean of Detected	404.3					Mean of Detected	5.453
293					SD of Detected	372.9					SD of Detected	1.228
294					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
295					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
296												
297												
298					**UCL Statistics**							
299					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
300					Shapiro Wilk Test Statistic	0.861					Shapiro Wilk Test Statistic	0.944
301					5% Shapiro Wilk Critical Value	0.941					5% Shapiro Wilk Critical Value	0.941
302					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
303												
304					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
305					DL/2 Substitution Method						DL/2 Substitution Method	
306					Mean	404.3					Mean	5.453
307					SD	372.9					SD	1.228
308					95% DL/2 (t) UCL	502.4					95% H-Stat (DL/2) UCL	824
309												
310					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
311					**MLE method failed to converge properly**						Mean in Log Scale	N/A
312											SD in Log Scale	N/A
313											Mean in Original Scale	N/A
314											SD in Original Scale	N/A
315											95% Percentile Bootstrap UCL	N/A
316											95% BCA Bootstrap UCL	N/A
317												
318					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	

319					k star (bias corrected)	0.985	**Data appear Gamma Distributed at 5% Significance Level**					
320					Theta Star	410.4						
321					nu star	80.77						
322												
323					A-D Test Statistic	0.217	**Nonparametric Statistics**					
324					5% A-D Critical Value	0.777				Kaplan-Meier (KM) Method		
325					K-S Test Statistic	0.777				Mean		404.3
326					5% K-S Critical Value	0.142				SD		368.4
327	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		58.24
328										95% KM (t) UCL		502.4
329	**Assuming Gamma Distribution**									95% KM (z) UCL		500.1
330					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		502.4
331					Minimum	10				95% KM (bootstrap t) UCL		519
332					Maximum	1400				95% KM (BCA) UCL		500.8
333					Mean	404.3				95% KM (Percentile Bootstrap) UCL		499.7
334					Median	280				95% KM (Chebyshev) UCL		658.2
335					SD	372.9				97.5% KM (Chebyshev) UCL		768
336					k star	0.985				99% KM (Chebyshev) UCL		983.8
337					Theta star	410.4						
338					Nu star	80.77	**Potential UCLs to Use**					
339					AppChi2	61.07				95% KM (Chebyshev) UCL		658.2
340					95% Gamma Approximate UCL	534.8						
341					95% Adjusted Gamma UCL	540.3						
342	**Note: DL/2 is not a recommended method.**											
343												
344												
345	**Bis(2-ethylhexyl) phthalate**											
346												
347	**General Statistics**											
348					Number of Valid Data	48				Number of Detected Data		19
349					Number of Distinct Detected Data	16				Number of Non-Detect Data		29
350					Number of Missing Values	1				Percent Non-Detects		60.42%
351												
352	**Raw Statistics**						**Log-transformed Statistics**					
353					Minimum Detected	22				Minimum Detected		3.091
354					Maximum Detected	700				Maximum Detected		6.551
355					Mean of Detected	152.8				Mean of Detected		4.678
356					SD of Detected	153.8				SD of Detected		0.847
357					Minimum Non-Detect	12				Minimum Non-Detect		2.485
358					Maximum Non-Detect	341				Maximum Non-Detect		5.832
359												
360	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		47
361	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
362	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		97.92%
363												
364	**UCL Statistics**											
365	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
366					Shapiro Wilk Test Statistic	0.696				Shapiro Wilk Test Statistic		0.964
367					5% Shapiro Wilk Critical Value	0.901				5% Shapiro Wilk Critical Value		0.901
368	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
369												
370	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
371					DL/2 Substitution Method					DL/2 Substitution Method		

372					Mean	81.06					Mean	3.748
373					SD	115.2					SD	1.145
374					95% DL/2 (t) UCL	109					95% H-Stat (DL/2) UCL	109.6
375												
376					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
377					**MLE method failed to converge properly**						Mean in Log Scale	3.542
378											SD in Log Scale	1.107
379											Mean in Original Scale	71.12
380											SD in Original Scale	116.4
381											95% Percentile Bootstrap UCL	100.3
382											95% BCA Bootstrap UCL	112
383												
384					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
385					k star (bias corrected)	1.356					**Data appear Gamma Distributed at 5% Significance Level**	
386					Theta Star	112.7						
387					nu star	51.51						
388												
389					A-D Test Statistic	0.568					**Nonparametric Statistics**	
390					5% A-D Critical Value	0.756					Kaplan-Meier (KM) Method	
391					K-S Test Statistic	0.756					Mean	77.69
392					5% K-S Critical Value	0.202					SD	113.2
393					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	16.95
394											95% KM (t) UCL	106.1
395					**Assuming Gamma Distribution**						95% KM (z) UCL	105.6
396					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	101.5
397					Minimum	22					95% KM (bootstrap t) UCL	119.5
398					Maximum	700					95% KM (BCA) UCL	123.8
399					Mean	153.5					95% KM (Percentile Bootstrap) UCL	112.7
400					Median	135					95% KM (Chebyshev) UCL	151.6
401					SD	99.27					97.5% KM (Chebyshev) UCL	183.5
402					k star	3.161					99% KM (Chebyshev) UCL	246.3
403					Theta star	48.56						
404					Nu star	303.4					**Potential UCLs to Use**	
405					AppChi2	264.1					95% KM (t) UCL	106.1
406					95% Gamma Approximate UCL	176.4						
407					95% Adjusted Gamma UCL	177.1						
408	**Note: DL/2 is not a recommended method.**											
409												
410												
411	**Dibenzo(a,h)anthracene**											
412												
413											**General Statistics**	
414					Number of Valid Data	49					Number of Detected Data	48
415					Number of Distinct Detected Data	41					Number of Non-Detect Data	1
416											Percent Non-Detects	2.04%
417												
418					**Raw Statistics**						**Log-transformed Statistics**	
419					Minimum Detected	1.9					Minimum Detected	0.642
420					Maximum Detected	2850					Maximum Detected	7.955
421					Mean of Detected	171.8					Mean of Detected	4.222
422					SD of Detected	411.4					SD of Detected	1.35
423					Minimum Non-Detect	20					Minimum Non-Detect	2.996
424					Maximum Non-Detect	20					Maximum Non-Detect	2.996

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426												
427	**UCL Statistics**											
428	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
429	Shapiro Wilk Test Statistic					0.356	Shapiro Wilk Test Statistic					0.984
430	5% Shapiro Wilk Critical Value					0.947	5% Shapiro Wilk Critical Value					0.947
431	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
432												
433	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
434	DL/2 Substitution Method						DL/2 Substitution Method					
435	Mean					168.5	Mean					4.183
436	SD					407.8	SD					1.364
437	95% DL/2 (t) UCL					266.2	95% H-Stat (DL/2) UCL					255.9
438												
439	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
440	Mean					124.6	Mean in Log Scale					4.178
441	SD					444.3	SD in Log Scale					1.37
442	95% MLE (t) UCL					231	Mean in Original Scale					168.5
443	95% MLE (Tiku) UCL					225	SD in Original Scale					407.8
444							95% Percentile Bootstrap UCL					280.2
445							95% BCA Bootstrap UCL					351.3
446												
447	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
448	k star (bias corrected)					0.632	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
449	Theta Star					272						
450	nu star					60.65						
451												
452	A-D Test Statistic					1.403	**Nonparametric Statistics**					
453	5% A-D Critical Value					0.8	Kaplan-Meier (KM) Method					
454	K-S Test Statistic					0.8	Mean					168.5
455	5% K-S Critical Value					0.134	SD					403.6
456	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean					58.27
457							95% KM (t) UCL					266.2
458	**Assuming Gamma Distribution**						95% KM (z) UCL					264.3
459	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					266.2
460	Minimum					1E-09	95% KM (bootstrap t) UCL					471.1
461	Maximum					2850	95% KM (BCA) UCL					283.7
462	Mean					168.3	95% KM (Percentile Bootstrap) UCL					279.1
463	Median					65.7	95% KM (Chebyshev) UCL					422.5
464	SD					407.9	97.5% KM (Chebyshev) UCL					532.4
465	k star					0.442	99% KM (Chebyshev) UCL					748.3
466	Theta star					381.1						
467	Nu star					43.29	**Potential UCLs to Use**					
468	AppChi2					29.2	95% KM (Chebyshev) UCL					422.5
469	95% Gamma Approximate UCL					249.5						
470	95% Adjusted Gamma UCL					252.6						
471	**Note: DL/2 is not a recommended method.**											
472												
473												
474	**Dieldrin**											
475												
476	**General Statistics**											
477	Number of Valid Data					41	Number of Detected Data					7

478					Number of Distinct Detected Data	7				Number of Non-Detect Data		34
479					Number of Missing Values	4				Percent Non-Detects		82.93%
480												
481					**Raw Statistics**					**Log-transformed Statistics**		
482					Minimum Detected	0.14				Minimum Detected		-1.966
483					Maximum Detected	3.9				Maximum Detected		1.361
484					Mean of Detected	1.39				Mean of Detected		-0.256
485					SD of Detected	1.439				SD of Detected		1.256
486					Minimum Non-Detect	0.0513				Minimum Non-Detect		-2.97
487					Maximum Non-Detect	2.83				Maximum Non-Detect		1.04
488												
489	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		40
490	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
491	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		97.56%
492												
493	**Warning: There are only 7 Detected Values in this data**											
494	**Note: It should be noted that even though bootstrap may be performed on this data set**											
495	**the resulting calculations may not be reliable enough tp draw conclusions**											
496												
497	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
498												
499												
500	**UCL Statistics**											
501	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
502					Shapiro Wilk Test Statistic	0.854				Shapiro Wilk Test Statistic		0.947
503					5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value		0.803
504	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
505												
506	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
507					DL/2 Substitution Method					DL/2 Substitution Method		
508					Mean	0.542				Mean		-1.331
509					SD	0.751				SD		1.283
510					95% DL/2 (t) UCL	0.74				95% H-Stat (DL/2) UCL		0.899
511												
512					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
513	**MLE method failed to converge properly**									Mean in Log Scale		-2.962
514										SD in Log Scale		1.426
515										Mean in Original Scale		0.267
516										SD in Original Scale		0.76
517										95% Percentile Bootstrap UCL		0.467
518										95% BCA Bootstrap UCL		0.549
519												
520	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
521					k star (bias corrected)	0.66				**Data appear Normal at 5% Significance Level**		
522					Theta Star	2.105						
523					nu star	9.241						
524												
525					A-D Test Statistic	0.276				**Nonparametric Statistics**		
526					5% A-D Critical Value	0.728				Kaplan-Meier (KM) Method		
527					K-S Test Statistic	0.728				Mean		0.381
528					5% K-S Critical Value	0.32				SD		0.729
529	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.126
530										95% KM (t) UCL		0.592

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Assuming Gamma Distribution**										95% KM (z) UCL	0.587
532	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.548
533	Minimum	0.14									95% KM (bootstrap t) UCL	0.716
534	Maximum	3.9									95% KM (BCA) UCL	1.41
535	Mean	1.632									95% KM (Percentile Bootstrap) UCL	0.936
536	Median	1.649									95% KM (Chebyshev) UCL	0.929
537	SD	0.641									97.5% KM (Chebyshev) UCL	1.166
538	k star	4.154									99% KM (Chebyshev) UCL	1.632
539	Theta star	0.393										
540	Nu star	340.7					**Potential UCLs to Use**					
541	AppChi2	298.9									95% KM (t) UCL	0.592
542	95% Gamma Approximate UCL	1.86									95% KM (Percentile Bootstrap) UCL	0.936
543	95% Adjusted Gamma UCL	1.869										
544	**Note: DL/2 is not a recommended method.**											
545												
546												
547	**Indeno(1,2,3-cd)pyrene**											
548												
549	**General Statistics**											
550	Number of Valid Observations	49					Number of Distinct Observations	41				
551												
552	**Raw Statistics**						**Log-transformed Statistics**					
553	Minimum	12					Minimum of Log Data	2.485				
554	Maximum	5120					Maximum of Log Data	8.541				
555	Mean	622.3					Mean of log Data	5.714				
556	Median	310					SD of log Data	1.286				
557	SD	883.7										
558	Coefficient of Variation	1.42										
559	Skewness	3.415										
560												
561	**Relevant UCL Statistics**											
562	**Normal Distribution Test**						**Lognormal Distribution Test**					
563	Shapiro Wilk Test Statistic	0.636					Shapiro Wilk Test Statistic	0.982				
564	Shapiro Wilk Critical Value	0.947					Shapiro Wilk Critical Value	0.947				
565	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
566												
567	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
568	95% Student's-t UCL	834					95% H-UCL	1130				
569	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1352				
570	95% Adjusted-CLT UCL	895.7					97.5% Chebyshev (MVUE) UCL	1646				
571	95% Modified-t UCL	844.3					99% Chebyshev (MVUE) UCL	2224				
572												
573	**Gamma Distribution Test**						**Data Distribution**					
574	k star (bias corrected)	0.785					**Data appear Gamma Distributed at 5% Significance Level**					
575	Theta Star	792.9										
576	nu star	76.91										
577	Approximate Chi Square Value (.05)	57.71					**Nonparametric Statistics**					
578	Adjusted Level of Significance	0.0451					95% CLT UCL	829.9				
579	Adjusted Chi Square Value	57.21					95% Jackknife UCL	834				
580							95% Standard Bootstrap UCL	826				
581	Anderson-Darling Test Statistic	0.533					95% Bootstrap-t UCL	998.5				
582	Anderson-Darling 5% Critical Value	0.789					95% Hall's Bootstrap UCL	1752				
583	Kolmogorov-Smirnov Test Statistic	0.0813					95% Percentile Bootstrap UCL	843.1				

	A	B	C	D	E	F	G	H	I	J	K	L
584	Kolmogorov-Smirnov 5% Critical Value					0.131	95% BCA Bootstrap UCL					908.2
585	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					1173
586							97.5% Chebyshev(Mean, Sd) UCL					1411
587	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					1878
588	95% Approximate Gamma UCL					829.4						
589	95% Adjusted Gamma UCL					836.7						
590												
591	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					829.4
592												
593												
594	**Lead**											
595												
596	**General Statistics**											
597	Number of Valid Data					48	Number of Detected Data					48
598	Number of Distinct Detected Data					45	Number of Non-Detect Data					0
599	Number of Missing Values					1	Percent Non-Detects					0.00%
600												
601	**Raw Statistics**						**Log-transformed Statistics**					
602	Minimum Detected					3.32	Minimum Detected					1.2
603	Maximum Detected					266	Maximum Detected					5.583
604	Mean of Detected					40.16	Mean of Detected					3.253
605	SD of Detected					52.4	SD of Detected					0.842
606	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
607	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
608												
609												
610	**UCL Statistics**											
611	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
612	Shapiro Wilk Test Statistic					0.573	Shapiro Wilk Test Statistic					0.9
613	5% Shapiro Wilk Critical Value					0.947	5% Shapiro Wilk Critical Value					0.947
614	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
615												
616	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
617	DL/2 Substitution Method						DL/2 Substitution Method					
618	Mean					40.16	Mean					3.253
619	SD					52.4	SD					0.842
620	95% DL/2 (t) UCL					52.85	95% H-Stat (DL/2) UCL					48.08
621												
622	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
623	**MLE method failed to converge properly**						Mean in Log Scale					N/A
624							SD in Log Scale					N/A
625							Mean in Original Scale					N/A
626							SD in Original Scale					N/A
627							95% Percentile Bootstrap UCL					N/A
628							95% BCA Bootstrap UCL					N/A
629												
630	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
631	k star (bias corrected)					1.212	**Data do not follow a Discernable Distribution (0.05)**					
632	Theta Star					33.12						
633	nu star					116.4						
634												
635	A-D Test Statistic					4.125	**Nonparametric Statistics**					
636	5% A-D Critical Value					0.772	Kaplan-Meier (KM) Method					

	A	B	C	D	E	F	G	H	I	J	K	L
637					K-S Test Statistic	0.772					Mean	40.16
638					5% K-S Critical Value	0.131					SD	51.85
639				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	7.563
640											95% KM (t) UCL	52.85
641				**Assuming Gamma Distribution**							95% KM (z) UCL	52.6
642				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	52.85
643					Minimum	3.32					95% KM (bootstrap t) UCL	60.31
644					Maximum	266					95% KM (BCA) UCL	54.97
645					Mean	40.16					95% KM (Percentile Bootstrap) UCL	53.62
646					Median	21.95					95% KM (Chebyshev) UCL	73.13
647					SD	52.4					97.5% KM (Chebyshev) UCL	87.39
648					k star	1.212					99% KM (Chebyshev) UCL	115.4
649					Theta star	33.12						
650					Nu star	116.4				**Potential UCLs to Use**		
651					AppChi2	92.48					95% KM (Chebyshev) UCL	73.13
652					95% Gamma Approximate UCL	50.54						
653					95% Adjusted Gamma UCL	50.91						
654	**Note: DL/2 is not a recommended method.**											
655												
656												
657	**Mercury**											
658												
659						**General Statistics**							
660					Number of Valid Data	48					Number of Detected Data	46
661					Number of Distinct Detected Data	38					Number of Non-Detect Data	2
662					Number of Missing Values	1					Percent Non-Detects	4.17%
663												
664				**Raw Statistics**						**Log-transformed Statistics**		
665					Minimum Detected	0.012					Minimum Detected	-4.423
666					Maximum Detected	0.722					Maximum Detected	-0.326
667					Mean of Detected	0.113					Mean of Detected	-2.725
668					SD of Detected	0.15					SD of Detected	0.997
669					Minimum Non-Detect	0.0372					Minimum Non-Detect	-3.291
670					Maximum Non-Detect	0.05					Maximum Non-Detect	-2.996
671												
672	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
673	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	30
674	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	37.50%
675												
676						**UCL Statistics**							
677				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
678					Shapiro Wilk Test Statistic	0.629					Shapiro Wilk Test Statistic	0.957
679					5% Shapiro Wilk Critical Value	0.945					5% Shapiro Wilk Critical Value	0.945
680				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
681												
682				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
683					DL/2 Substitution Method						DL/2 Substitution Method	
684					Mean	0.109					Mean	-2.772
685					SD	0.148					SD	1.002
686					95% DL/2 (t) UCL	0.145					95% H-Stat (DL/2) UCL	0.14
687												
688					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
689					Mean	0.0607					Mean in Log Scale	-2.771

	A	B	C	D	E	F	G	H	I	J	K	L
690					SD	0.196				SD in Log Scale		1.001
691					95% MLE (t) UCL	0.108				Mean in Original Scale		0.109
692					95% MLE (Tiku) UCL	0.113				SD in Original Scale		0.148
693										95% Percentile Bootstrap UCL		0.144
694										95% BCA Bootstrap UCL		0.153
695												
696	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
697					k star (bias corrected)	0.999	**Data appear Lognormal at 5% Significance Level**					
698					Theta Star	0.113						
699					nu star	91.92						
700												
701					A-D Test Statistic	1.88	**Nonparametric Statistics**					
702					5% A-D Critical Value	0.776				Kaplan-Meier (KM) Method		
703					K-S Test Statistic	0.776				Mean		0.109
704					5% K-S Critical Value	0.134				SD		0.147
705	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0214
706										95% KM (t) UCL		0.145
707	**Assuming Gamma Distribution**									95% KM (z) UCL		0.144
708					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.145
709					Minimum	1E-09				95% KM (bootstrap t) UCL		0.162
710					Maximum	0.722				95% KM (BCA) UCL		0.148
711					Mean	0.108				95% KM (Percentile Bootstrap) UCL		0.147
712					Median	0.057				95% KM (Chebyshev) UCL		0.203
713					SD	0.149				97.5% KM (Chebyshev) UCL		0.243
714					k star	0.489				99% KM (Chebyshev) UCL		0.322
715					Theta star	0.222						
716					Nu star	46.9	**Potential UCLs to Use**					
717					AppChi2	32.19				95% KM (Chebyshev) UCL		0.203
718					95% Gamma Approximate UCL	0.158						
719					95% Adjusted Gamma UCL	0.16						
720	**Note: DL/2 is not a recommended method.**											
721												
722												
723	**Naphthalene**											
724												
725	**General Statistics**											
726					Number of Valid Data	49				Number of Detected Data		44
727					Number of Distinct Detected Data	40				Number of Non-Detect Data		5
728										Percent Non-Detects		10.20%
729												
730	**Raw Statistics**						**Log-transformed Statistics**					
731					Minimum Detected	10.4				Minimum Detected		2.342
732					Maximum Detected	685				Maximum Detected		6.529
733					Mean of Detected	117.3				Mean of Detected		4.26
734					SD of Detected	132.3				SD of Detected		1.021
735					Minimum Non-Detect	0.47				Minimum Non-Detect		-0.755
736					Maximum Non-Detect	20				Maximum Non-Detect		2.996
737												
738	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		11
739	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		38
740	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		22.45%
741												
742	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
743	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
744	Shapiro Wilk Test Statistic					0.739	Shapiro Wilk Test Statistic					0.975
745	5% Shapiro Wilk Critical Value					0.944	5% Shapiro Wilk Critical Value					0.944
746	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
747												
748	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
749	DL/2 Substitution Method						DL/2 Substitution Method					
750	Mean					105.5	Mean					3.774
751	SD					130.1	SD					1.806
752	95% DL/2 (t) UCL					136.7	95% H-Stat (DL/2) UCL					337.2
753												
754	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
755	Mean					85.15	Mean in Log Scale					4.033
756	SD					152.9	SD in Log Scale					1.185
757	95% MLE (t) UCL					121.8	Mean in Original Scale					106.1
758	95% MLE (Tiku) UCL					122	SD in Original Scale					129.6
759							95% Percentile Bootstrap UCL					138.7
760							95% BCA Bootstrap UCL					147.5
761												
762	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
763	k star (bias corrected)					1.067	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
764	Theta Star					109.9						
765	nu star					93.93						
766												
767	A-D Test Statistic					0.78	**Nonparametric Statistics**					
768	5% A-D Critical Value					0.775	Kaplan-Meier (KM) Method					
769	K-S Test Statistic					0.775	Mean					106.4
770	5% K-S Critical Value					0.137	SD					128.1
771	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean					18.51
772							95% KM (t) UCL					137.5
773	**Assuming Gamma Distribution**						95% KM (z) UCL					136.9
774	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					137.2
775	Minimum					1E-09	95% KM (bootstrap t) UCL					147.6
776	Maximum					685	95% KM (BCA) UCL					139.2
777	Mean					105.3	95% KM (Percentile Bootstrap) UCL					139.1
778	Median					58	95% KM (Chebyshev) UCL					187.1
779	SD					130.3	97.5% KM (Chebyshev) UCL					222
780	k star					0.241	99% KM (Chebyshev) UCL					290.6
781	Theta star					436.7						
782	Nu star					23.63	**Potential UCLs to Use**					
783	AppChi2					13.57	95% KM (BCA) UCL					139.2
784	95% Gamma Approximate UCL					183.4						
785	95% Adjusted Gamma UCL					186.6						
786	**Note: DL/2 is not a recommended method.**											
787												
788												
789	**Thallium**											
790												
791	**General Statistics**											
792	Number of Valid Data					5	Number of Detected Data					5
793	Number of Distinct Detected Data					5	Number of Non-Detect Data					0
794	Number of Missing Values					23	Percent Non-Detects					0.00%
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	**Raw Statistics**						**Log-transformed Statistics**					
797					Minimum Detected	0.055					Minimum Detected	-2.9
798					Maximum Detected	0.126					Maximum Detected	-2.071
799					Mean of Detected	0.09					Mean of Detected	-2.446
800					SD of Detected	0.027					SD of Detected	0.314
801					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
802					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
803												
804												
805	**Warning: There are only 5 Detected Values in this data**											
806	**Note: It should be noted that even though bootstrap may be performed on this data set**											
807	**the resulting calculations may not be reliable enough tp draw conclusions**											
808												
809	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
810												
811												
812	**UCL Statistics**											
813	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
814					Shapiro Wilk Test Statistic	0.969					Shapiro Wilk Test Statistic	0.96
815					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
816	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
817												
818	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
819					DL/2 Substitution Method						DL/2 Substitution Method	
820					Mean	0.09					Mean	-2.446
821					SD	0.027					SD	0.314
822					95% DL/2 (t) UCL	0.116					95% H-Stat (DL/2) UCL	0.133
823												
824					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
825	**MLE method failed to converge properly**										Mean in Log Scale	N/A
826											SD in Log Scale	N/A
827											Mean in Original Scale	N/A
828											SD in Original Scale	N/A
829											95% Percentile Bootstrap UCL	N/A
830											95% BCA Bootstrap UCL	N/A
831												
832	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
833					k star (bias corrected)	5.44	**Data appear Normal at 5% Significance Level**					
834					Theta Star	0.0165						
835					nu star	54.4						
836												
837					A-D Test Statistic	0.248	**Nonparametric Statistics**					
838					5% A-D Critical Value	0.679					Kaplan-Meier (KM) Method	
839					K-S Test Statistic	0.679					Mean	0.09
840					5% K-S Critical Value	0.357					SD	0.0242
841	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0121
842											95% KM (t) UCL	0.116
843	**Assuming Gamma Distribution**										95% KM (z) UCL	0.11
844					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.116
845					Minimum	0.055					95% KM (bootstrap t) UCL	0.124
846					Maximum	0.126					95% KM (BCA) UCL	0.108
847					Mean	0.09					95% KM (Percentile Bootstrap) UCL	0.108
848					Median	0.082					95% KM (Chebyshev) UCL	0.143

	A	B	C	D	E	F	G	H	I	J	K	L
849					SD	0.027				97.5% KM (Chebyshev) UCL		0.165
850					k star	5.44				99% KM (Chebyshev) UCL		0.21
851					Theta star	0.0165						
852					Nu star	54.4	**Potential UCLs to Use**					
853					AppChi2	38.45				95% KM (t) UCL		0.116
854					95% Gamma Approximate UCL	0.127				95% KM (Percentile Bootstrap) UCL		0.108
855					95% Adjusted Gamma UCL	0.15						
856	**Note: DL/2 is not a recommended method.**											
857												
858												
859	**Total Aroclors**											
860												
861					**General Statistics**							
862					Number of Valid Data	30				Number of Detected Data		19
863					Number of Distinct Detected Data	19				Number of Non-Detect Data		11
864					Number of Missing Values	14				Percent Non-Detects		36.67%
865												
866				**Raw Statistics**					**Log-transformed Statistics**			
867					Minimum Detected	6.418				Minimum Detected		1.859
868					Maximum Detected	326.8				Maximum Detected		5.789
869					Mean of Detected	86.6				Mean of Detected		3.961
870					SD of Detected	90.57				SD of Detected		1.054
871					Minimum Non-Detect	2.43				Minimum Non-Detect		0.888
872					Maximum Non-Detect	140				Maximum Non-Detect		4.942
873												
874	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		26
875	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
876	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		86.67%
877												
878					**UCL Statistics**							
879				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
880					Shapiro Wilk Test Statistic	0.793				Shapiro Wilk Test Statistic		0.97
881					5% Shapiro Wilk Critical Value	0.901				5% Shapiro Wilk Critical Value		0.901
882				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
883												
884				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
885					DL/2 Substitution Method					DL/2 Substitution Method		
886					Mean	63.51				Mean		3.393
887					SD	78.93				SD		1.435
888					95% DL/2 (t) UCL	88				95% H-Stat (DL/2) UCL		124.7
889												
890					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
891				**MLE yields a negative mean**						Mean in Log Scale		3.374
892										SD in Log Scale		1.203
893										Mean in Original Scale		59.44
894										SD in Original Scale		80.16
895										95% Percentile Bootstrap UCL		84.38
896										95% BCA Bootstrap UCL		88.86
897												
898				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
899					k star (bias corrected)	0.992			**Data appear Gamma Distributed at 5% Significance Level**			
900					Theta Star	87.26						
901					nu star	37.71						

	A	B	C	D	E	F	G	H	I	J	K	L
902												
903					A-D Test Statistic	0.535	**Nonparametric Statistics**					
904					5% A-D Critical Value	0.766					Kaplan-Meier (KM) Method	
905					K-S Test Statistic	0.766					Mean	60.89
906					5% K-S Critical Value	0.204					SD	78.54
907	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	14.84
908											95% KM (t) UCL	86.1
909	**Assuming Gamma Distribution**										95% KM (z) UCL	85.29
910				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	84.42
911					Minimum	6.418					95% KM (bootstrap t) UCL	96.53
912					Maximum	326.8					95% KM (BCA) UCL	91.45
913					Mean	76.81					95% KM (Percentile Bootstrap) UCL	85.38
914					Median	55.85					95% KM (Chebyshev) UCL	125.6
915					SD	75.58					97.5% KM (Chebyshev) UCL	153.5
916					k star	1.217					99% KM (Chebyshev) UCL	208.5
917					Theta star	63.13						
918					Nu star	73	**Potential UCLs to Use**					
919					AppChi2	54.33					95% KM (BCA) UCL	91.45
920					95% Gamma Approximate UCL	103.2						
921					95% Adjusted Gamma UCL	105						
922	**Note: DL/2 is not a recommended method.**											
923												
924												
925	**Total DDT**											
926												
927							**General Statistics**					
928					Number of Valid Data	46					Number of Detected Data	45
929					Number of Distinct Detected Data	45					Number of Non-Detect Data	1
930					Number of Missing Values	3					Percent Non-Detects	2.17%
931												
932				**Raw Statistics**						**Log-transformed Statistics**		
933					Minimum Detected	1.43					Minimum Detected	0.358
934					Maximum Detected	490					Maximum Detected	6.194
935					Mean of Detected	94.09					Mean of Detected	3.673
936					SD of Detected	118.8					SD of Detected	1.557
937					Minimum Non-Detect	8.62					Minimum Non-Detect	2.154
938					Maximum Non-Detect	8.62					Maximum Non-Detect	2.154
939												
940												
941							**UCL Statistics**					
942				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
943					Shapiro Wilk Test Statistic	0.737					Shapiro Wilk Test Statistic	0.942
944					5% Shapiro Wilk Critical Value	0.945					5% Shapiro Wilk Critical Value	0.945
945				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
946												
947				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
948					DL/2 Substitution Method						DL/2 Substitution Method	
949					Mean	92.13					Mean	3.625
950					SD	118.2					SD	1.574
951					95% DL/2 (t) UCL	121.4					95% H-Stat (DL/2) UCL	244.4
952												
953				Maximum Likelihood Estimate(MLE) Method							Log ROS Method	
954					Mean	78.32					Mean in Log Scale	3.624

955					SD	133.6					SD in Log Scale	1.575
956					95% MLE (t) UCL	111.4					Mean in Original Scale	92.13
957					95% MLE (Tiku) UCL	110.8					SD in Original Scale	118.2
958											95% Percentile Bootstrap UCL	118.9
959											95% BCA Bootstrap UCL	126
960												
961	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
962					k star (bias corrected)	0.663	**Data appear Gamma Distributed at 5% Significance Level**					
963					Theta Star	141.9						
964					nu star	59.69						
965												
966					A-D Test Statistic	0.332	**Nonparametric Statistics**					
967					5% A-D Critical Value	0.795	Kaplan-Meier (KM) Method					
968					K-S Test Statistic	0.795	Mean	92.11				
969					5% K-S Critical Value	0.138	SD	116.9				
970	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	17.43				
971							95% KM (t) UCL	121.4				
972	**Assuming Gamma Distribution**						95% KM (z) UCL	120.8				
973					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	121.4				
974					Minimum	1E-09	95% KM (bootstrap t) UCL	128.1				
975					Maximum	490	95% KM (BCA) UCL	120.6				
976					Mean	92.04	95% KM (Percentile Bootstrap) UCL	120.9				
977					Median	49	95% KM (Chebyshev) UCL	168.1				
978					SD	118.3	97.5% KM (Chebyshev) UCL	201				
979					k star	0.45	99% KM (Chebyshev) UCL	265.6				
980					Theta star	204.6						
981					Nu star	41.38	**Potential UCLs to Use**					
982					AppChi2	27.64	95% KM (Chebyshev) UCL	168.1				
983					95% Gamma Approximate UCL	137.8						
984					95% Adjusted Gamma UCL	139.7						
985	**Note: DL/2 is not a recommended method.**											
986												
987												
988	**Total Dioxin/Furan TEQ**											
989												
990	**General Statistics**											
991					Number of Valid Data	24	Number of Detected Data	24				
992					Number of Distinct Detected Data	24	Number of Non-Detect Data	0				
993					Number of Missing Values	10	Percent Non-Detects	0.00%				
994												
995	**Raw Statistics**						**Log-transformed Statistics**					
996					Minimum Detected	0.236	Minimum Detected	-1.445				
997					Maximum Detected	223.4	Maximum Detected	5.409				
998					Mean of Detected	20.86	Mean of Detected	1.911				
999					SD of Detected	45.52	SD of Detected	1.504				
1000					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
1001					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1002												
1003												
1004	**UCL Statistics**											
1005	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1006					Shapiro Wilk Test Statistic	0.446	Shapiro Wilk Test Statistic	0.985				
1007					5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916				

	A	B	C	D	E	F	G	H	I	J	K	L
1008	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1009												
1010	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1011	DL/2 Substitution Method						DL/2 Substitution Method					
1012	Mean					20.86	Mean					1.911
1013	SD					45.52	SD					1.504
1014	95% DL/2 (t) UCL					36.78	95% H-Stat (DL/2) UCL					57.58
1015												
1016	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1017	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1018							SD in Log Scale					N/A
1019							Mean in Original Scale					N/A
1020							SD in Original Scale					N/A
1021							95% Percentile Bootstrap UCL					N/A
1022							95% BCA Bootstrap UCL					N/A
1023												
1024	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1025	k star (bias corrected)					0.513	**Data appear Lognormal at 5% Significance Level**					
1026	Theta Star					40.65						
1027	nu star					24.63						
1028												
1029	A-D Test Statistic					1.086	**Nonparametric Statistics**					
1030	5% A-D Critical Value					0.801	Kaplan-Meier (KM) Method					
1031	K-S Test Statistic					0.801	Mean					20.86
1032	5% K-S Critical Value					0.187	SD					44.56
1033	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					9.292
1034							95% KM (t) UCL					36.78
1035	**Assuming Gamma Distribution**						95% KM (z) UCL					36.14
1036	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					36.78
1037	Minimum					0.236	95% KM (bootstrap t) UCL					70.86
1038	Maximum					223.4	95% KM (BCA) UCL					39.94
1039	Mean					20.86	95% KM (Percentile Bootstrap) UCL					38.53
1040	Median					6.458	95% KM (Chebyshev) UCL					61.36
1041	SD					45.52	97.5% KM (Chebyshev) UCL					78.88
1042	k star					0.513	99% KM (Chebyshev) UCL					113.3
1043	Theta star					40.65						
1044	Nu star					24.63	**Potential UCLs to Use**					
1045	AppChi2					14.33	99% KM (Chebyshev) UCL					113.3
1046	95% Gamma Approximate UCL					35.85						
1047	95% Adjusted Gamma UCL					37.29						
1048	**Note: DL/2 is not a recommended method.**											
1049												
1050												
1051	**Total Dioxin-like PCBs**											
1052												
1053	**General Statistics**											
1054	Number of Valid Data					6	Number of Detected Data					6
1055	Number of Distinct Detected Data					6	Number of Non-Detect Data					0
1056	Number of Missing Values					17	Percent Non-Detects					0.00%
1057												
1058	**Raw Statistics**						**Log-transformed Statistics**					
1059	Minimum Detected					1203	Minimum Detected					7.092
1060	Maximum Detected					15880	Maximum Detected					9.673

	A	B	C	D	E	F	G	H	I	J	K	L
1061					Mean of Detected	6615					Mean of Detected	8.469
1062					SD of Detected	5431					SD of Detected	0.944
1063					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1064					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1065												
1066												
1067					**Warning: There are only 6 Detected Values in this data**							
1068					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1069					**the resulting calculations may not be reliable enough tp draw conclusions**							
1070												
1071					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1072												
1073												
1074					**UCL Statistics**							
1075					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1076					Shapiro Wilk Test Statistic	0.921					Shapiro Wilk Test Statistic	0.983
1077					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
1078					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1079												
1080					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1081					DL/2 Substitution Method						DL/2 Substitution Method	
1082					Mean	6615					Mean	8.469
1083					SD	5431					SD	0.944
1084					95% DL/2 (t) UCL	11083					95% H-Stat (DL/2) UCL	38892
1085												
1086					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1087					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1088											SD in Log Scale	N/A
1089											Mean in Original Scale	N/A
1090											SD in Original Scale	N/A
1091											95% Percentile Bootstrap UCL	N/A
1092											95% BCA Bootstrap UCL	N/A
1093												
1094					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1095					k star (bias corrected)	0.945					**Data appear Normal at 5% Significance Level**	
1096					Theta Star	6997						
1097					nu star	11.35						
1098												
1099					A-D Test Statistic	0.155					**Nonparametric Statistics**	
1100					5% A-D Critical Value	0.707					Kaplan-Meier (KM) Method	
1101					K-S Test Statistic	0.707					Mean	6615
1102					5% K-S Critical Value	0.337					SD	4957
1103					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	2217
1104											95% KM (t) UCL	11083
1105					**Assuming Gamma Distribution**						95% KM (z) UCL	10262
1106					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	11083
1107					Minimum	1203					95% KM (bootstrap t) UCL	13214
1108					Maximum	15880					95% KM (BCA) UCL	10143
1109					Mean	6615					95% KM (Percentile Bootstrap) UCL	10236
1110					Median	5438					95% KM (Chebyshev) UCL	16279
1111					SD	5431					97.5% KM (Chebyshev) UCL	20461
1112					k star	0.945					99% KM (Chebyshev) UCL	28675
1113					Theta star	6997						

1114					Nu star	11.35	**Potential UCLs to Use**					
1115					AppChi2	4.799					95% KM (t) UCL	11083
1116					95% Gamma Approximate UCL	15639					95% KM (Percentile Bootstrap) UCL	10236
1117					95% Adjusted Gamma UCL	22166						
1118	**Note: DL/2 is not a recommended method.**											
1119												
1120												
1121	**Total PCB TEQ**											
1122												
1123	**General Statistics**											
1124					Number of Valid Data	6					Number of Detected Data	6
1125					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
1126					Number of Missing Values	17					Percent Non-Detects	0.00%
1127												
1128	**Raw Statistics**						**Log-transformed Statistics**					
1129					Minimum Detected	0.413					Minimum Detected	-0.885
1130					Maximum Detected	3.564					Maximum Detected	1.271
1131					Mean of Detected	1.796					Mean of Detected	0.267
1132					SD of Detected	1.41					SD of Detected	0.917
1133					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1134					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1135												
1136												
1137	**Warning: There are only 6 Detected Values in this data**											
1138	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1139	**the resulting calculations may not be reliable enough tp draw conclusions**											
1140												
1141	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1142												
1143												
1144	**UCL Statistics**											
1145	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1146					Shapiro Wilk Test Statistic	0.848					Shapiro Wilk Test Statistic	0.895
1147					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
1148	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1149												
1150	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1151					DL/2 Substitution Method						DL/2 Substitution Method	
1152					Mean	1.796					Mean	0.267
1153					SD	1.41					SD	0.917
1154					95% DL/2 (t) UCL	2.957					95% H-Stat (DL/2) UCL	9.529
1155												
1156					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1157	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1158											SD in Log Scale	N/A
1159											Mean in Original Scale	N/A
1160											SD in Original Scale	N/A
1161											95% Percentile Bootstrap UCL	N/A
1162											95% BCA Bootstrap UCL	N/A
1163												
1164	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1165					k star (bias corrected)	0.97	**Data appear Normal at 5% Significance Level**					
1166					Theta Star	1.852						

1167					nu star	11.64						
1168												
1169					A-D Test Statistic	0.423	**Nonparametric Statistics**					
1170					5% A-D Critical Value	0.706	Kaplan-Meier (KM) Method					
1171					K-S Test Statistic	0.706	Mean	1.796				
1172					5% K-S Critical Value	0.337	SD	1.288				
1173	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.576				
1174							95% KM (t) UCL	2.957				
1175	**Assuming Gamma Distribution**						95% KM (z) UCL	2.744				
1176	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.957				
1177					Minimum	0.413	95% KM (bootstrap t) UCL	3.221				
1178					Maximum	3.564	95% KM (BCA) UCL	2.685				
1179					Mean	1.796	95% KM (Percentile Bootstrap) UCL	2.719				
1180					Median	1.398	95% KM (Chebyshev) UCL	4.306				
1181					SD	1.41	97.5% KM (Chebyshev) UCL	5.392				
1182					k star	0.97	99% KM (Chebyshev) UCL	7.526				
1183					Theta star	1.852						
1184					Nu star	11.64	**Potential UCLs to Use**					
1185					AppChi2	4.989	95% KM (t) UCL	2.957				
1186					95% Gamma Approximate UCL	4.19	95% KM (Percentile Bootstrap) UCL	2.719				
1187					95% Adjusted Gamma UCL	5.904						
1188	**Note: DL/2 is not a recommended method.**											
1189												
1190												
1191	**Total PCB_Congeners**											
1192												
1193	**General Statistics**											
1194					Number of Valid Data	6	Number of Detected Data	6				
1195					Number of Distinct Detected Data	6	Number of Non-Detect Data	0				
1196					Number of Missing Values	17	Percent Non-Detects	0.00%				
1197												
1198	**Raw Statistics**						**Log-transformed Statistics**					
1199					Minimum Detected	46986	Minimum Detected	10.76				
1200					Maximum Detected	480023	Maximum Detected	13.08				
1201					Mean of Detected	186309	Mean of Detected	11.71				
1202					SD of Detected	174078	SD of Detected	1.043				
1203					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
1204					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1205												
1206												
1207	**Warning: There are only 6 Detected Values in this data**											
1208	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1209	**the resulting calculations may not be reliable enough tp draw conclusions**											
1210												
1211	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1212												
1213												
1214	**UCL Statistics**											
1215	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1216					Shapiro Wilk Test Statistic	0.835	Shapiro Wilk Test Statistic	0.819				
1217					5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788				
1218	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1219												

	A	B	C	D	E	F	G	H	I	J	K	L
1220	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1221					DL/2 Substitution Method						DL/2 Substitution Method	
1222					Mean	186309					Mean	11.71
1223					SD	174078					SD	1.043
1224					95% DL/2 (t) UCL	329513					95% H-Stat (DL/2) UCL	1544489
1225												
1226					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1227	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1228											SD in Log Scale	N/A
1229											Mean in Original Scale	N/A
1230											SD in Original Scale	N/A
1231											95% Percentile Bootstrap UCL	N/A
1232											95% BCA Bootstrap UCL	N/A
1233												
1234	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1235					k star (bias corrected)	0.77	**Data appear Normal at 5% Significance Level**					
1236					Theta Star	241804						
1237					nu star	9.246						
1238												
1239					A-D Test Statistic	0.585	**Nonparametric Statistics**					
1240					5% A-D Critical Value	0.71					Kaplan-Meier (KM) Method	
1241					K-S Test Statistic	0.71					Mean	186309
1242					5% K-S Critical Value	0.339					SD	158911
1243	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	71067
1244											95% KM (t) UCL	329513
1245	**Assuming Gamma Distribution**										95% KM (z) UCL	303204
1246					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	329513
1247					Minimum	46986					95% KM (bootstrap t) UCL	382838
1248					Maximum	480023					95% KM (BCA) UCL	293647
1249					Mean	186309					95% KM (Percentile Bootstrap) UCL	296312
1250					Median	137414					95% KM (Chebyshev) UCL	496084
1251					SD	174078					97.5% KM (Chebyshev) UCL	630124
1252					k star	0.77					99% KM (Chebyshev) UCL	893419
1253					Theta star	241804						
1254					Nu star	9.246	**Potential UCLs to Use**					
1255					AppChi2	3.476					95% KM (t) UCL	329513
1256					95% Gamma Approximate UCL	495543					95% KM (Percentile Bootstrap) UCL	296312
1257					95% Adjusted Gamma UCL	740262						
1258	**Note: DL/2 is not a recommended method.**											
1259												
1260												
1261	**Total PCBs, Adjusted**											
1262												
1263	**General Statistics**											
1264					Number of Valid Data	6					Number of Detected Data	6
1265					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
1266					Number of Missing Values	17					Percent Non-Detects	0.00%
1267												
1268	**Raw Statistics**						**Log-transformed Statistics**					
1269					Minimum Detected	42890					Minimum Detected	10.67
1270					Maximum Detected	473244					Maximum Detected	13.07
1271					Mean of Detected	179694					Mean of Detected	11.66
1272					SD of Detected	171491					SD of Detected	1.055

	A	B	C	D	E	F	G	H	I	J	K	L
1273					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1274					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1275												
1276												
1277					Warning: There are only 6 Detected Values in this data							
1278					Note: It should be noted that even though bootstrap may be performed on this data set							
1279					the resulting calculations may not be reliable enough tp draw conclusions							
1280												
1281					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
1282												
1283												
1284					UCL Statistics							
1285					Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only		
1286					Shapiro Wilk Test Statistic	0.835				Shapiro Wilk Test Statistic		0.834
1287					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
1288					Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level		
1289												
1290					Assuming Normal Distribution					Assuming Lognormal Distribution		
1291					DL/2 Substitution Method					DL/2 Substitution Method		
1292					Mean	179694				Mean		11.66
1293					SD	171491				SD		1.055
1294					95% DL/2 (t) UCL	320769				95% H-Stat (DL/2) UCL		1555274
1295												
1296					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1297					MLE method failed to converge properly					Mean in Log Scale		N/A
1298										SD in Log Scale		N/A
1299										Mean in Original Scale		N/A
1300										SD in Original Scale		N/A
1301										95% Percentile Bootstrap UCL		N/A
1302										95% BCA Bootstrap UCL		N/A
1303												
1304					Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only		
1305					k star (bias corrected)	0.754				Data appear Normal at 5% Significance Level		
1306					Theta Star	238221						
1307					nu star	9.052						
1308												
1309					A-D Test Statistic	0.55				Nonparametric Statistics		
1310					5% A-D Critical Value	0.711				Kaplan-Meier (KM) Method		
1311					K-S Test Statistic	0.711				Mean		179694
1312					5% K-S Critical Value	0.339				SD		156549
1313					Data appear Gamma Distributed at 5% Significance Level					SE of Mean		70011
1314										95% KM (t) UCL		320769
1315					Assuming Gamma Distribution					95% KM (z) UCL		294851
1316					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		320769
1317					Minimum	42890				95% KM (bootstrap t) UCL		454828
1318					Maximum	473244				95% KM (BCA) UCL		287126
1319					Mean	179694				95% KM (Percentile Bootstrap) UCL		287428
1320					Median	128303				95% KM (Chebyshev) UCL		484864
1321					SD	171491				97.5% KM (Chebyshev) UCL		616911
1322					k star	0.754				99% KM (Chebyshev) UCL		876293
1323					Theta star	238221						
1324					Nu star	9.052				Potential UCLs to Use		
1325					AppChi2	3.358				95% KM (t) UCL		320769

	A	B	C	D	E	F	G	H	I	J	K	L
1326					95% Gamma Approximate UCL	484342				95% KM (Percentile Bootstrap) UCL		287428
1327					95% Adjusted Gamma UCL	727868						
1328	**Note: DL/2 is not a recommended method.**											
1329												
1330												
1331	**Total TEQ**											
1332												
1333						**General Statistics**						
1334					Number of Valid Data	5			Number of Detected Data			5
1335					Number of Distinct Detected Data	5			Number of Non-Detect Data			0
1336					Number of Missing Values	18			Percent Non-Detects			0.00%
1337												
1338				**Raw Statistics**					**Log-transformed Statistics**			
1339					Minimum Detected	4.627			Minimum Detected			1.532
1340					Maximum Detected	225.4			Maximum Detected			5.418
1341					Mean of Detected	56.9			Mean of Detected			2.872
1342					SD of Detected	95.47			SD of Detected			1.671
1343					Minimum Non-Detect	N/A			Minimum Non-Detect			N/A
1344					Maximum Non-Detect	N/A			Maximum Non-Detect			N/A
1345												
1346												
1347						**Warning: There are only 5 Detected Values in this data**							
1348						**Note: It should be noted that even though bootstrap may be performed on this data set**						
1349						**the resulting calculations may not be reliable enough tp draw conclusions**						
1350												
1351						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
1352												
1353												
1354						**UCL Statistics**						
1355				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
1356					Shapiro Wilk Test Statistic	0.662			Shapiro Wilk Test Statistic			0.838
1357					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value			0.762
1358				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
1359												
1360				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
1361					DL/2 Substitution Method				DL/2 Substitution Method			
1362					Mean	56.9			Mean			2.872
1363					SD	95.47			SD			1.671
1364					95% DL/2 (t) UCL	147.9			95% H-Stat (DL/2) UCL			52187
1365												
1366					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1367				**MLE method failed to converge properly**					Mean in Log Scale			N/A
1368									SD in Log Scale			N/A
1369									Mean in Original Scale			N/A
1370									SD in Original Scale			N/A
1371									95% Percentile Bootstrap UCL			N/A
1372									95% BCA Bootstrap UCL			N/A
1373												
1374				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
1375					k star (bias corrected)	0.348			**Data appear Gamma Distributed at 5% Significance Level**			
1376					Theta Star	163.4						
1377					nu star	3.483						
1378												

1379					A-D Test Statistic	0.618	**Nonparametric Statistics**					
1380					5% A-D Critical Value	0.709				Kaplan-Meier (KM) Method		
1381					K-S Test Statistic	0.709				Mean		56.9
1382					5% K-S Critical Value	0.371				SD		85.39
1383			**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean		42.7
1384										95% KM (t) UCL		147.9
1385			**Assuming Gamma Distribution**							95% KM (z) UCL		127.1
1386			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		147.9
1387					Minimum	4.627				95% KM (bootstrap t) UCL		5094
1388					Maximum	225.4				95% KM (BCA) UCL		137.5
1389					Mean	56.9				95% KM (Percentile Bootstrap) UCL		137.3
1390					Median	6.8				95% KM (Chebyshev) UCL		243
1391					SD	95.47				97.5% KM (Chebyshev) UCL		323.5
1392					k star	0.348				99% KM (Chebyshev) UCL		481.7
1393					Theta star	163.4						
1394					Nu star	3.483	**Potential UCLs to Use**					
1395					AppChi2	0.529				95% KM (Chebyshev) UCL		243
1396					95% Gamma Approximate UCL	374.8						
1397					95% Adjusted Gamma UCL	968.7						
1398			**Warning: Recommended UCL exceeds the maximum observation**									
1399	**Note: DL/2 is not a recommended method.**											
1400												
1401												
1402	**Tributyltin ion**											
1403												
1404						**General Statistics**						
1405					Number of Valid Data	5				Number of Detected Data		5
1406					Number of Distinct Detected Data	5				Number of Non-Detect Data		0
1407					Number of Missing Values	41				Percent Non-Detects		0.00%
1408												
1409			**Raw Statistics**				**Log-transformed Statistics**					
1410					Minimum Detected	8.4				Minimum Detected		2.128
1411					Maximum Detected	54				Maximum Detected		3.989
1412					Mean of Detected	26.28				Mean of Detected		2.982
1413					SD of Detected	21.18				SD of Detected		0.855
1414					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1415					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1416												
1417												
1418						**Warning: There are only 5 Detected Values in this data**						
1419						**Note: It should be noted that even though bootstrap may be performed on this data set**						
1420						**the resulting calculations may not be reliable enough tp draw conclusions**						
1421												
1422						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
1423												
1424												
1425						**UCL Statistics**						
1426			**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**					
1427					Shapiro Wilk Test Statistic	0.826				Shapiro Wilk Test Statistic		0.869
1428					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
1429			**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
1430												
1431			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					

	A	B	C	D	E	F	G	H	I	J	K	L
1432					DL/2 Substitution Method						DL/2 Substitution Method	
1433					Mean	26.28					Mean	2.982
1434					SD	21.18					SD	0.855
1435					95% DL/2 (t) UCL	46.47					95% H-Stat (DL/2) UCL	177.8
1436												
1437					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1438	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1439											SD in Log Scale	N/A
1440											Mean in Original Scale	N/A
1441											SD in Original Scale	N/A
1442											95% Percentile Bootstrap UCL	N/A
1443											95% BCA Bootstrap UCL	N/A
1444												
1445	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1446					k star (bias corrected)	0.892	**Data appear Normal at 5% Significance Level**					
1447					Theta Star	29.48						
1448					nu star	8.915						
1449												
1450					A-D Test Statistic	0.483	**Nonparametric Statistics**					
1451					5% A-D Critical Value	0.685					Kaplan-Meier (KM) Method	
1452					K-S Test Statistic	0.685					Mean	26.28
1453					5% K-S Critical Value	0.361					SD	18.94
1454	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	9.472
1455											95% KM (t) UCL	46.47
1456	**Assuming Gamma Distribution**										95% KM (z) UCL	41.86
1457					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	46.47
1458					Minimum	8.4					95% KM (bootstrap t) UCL	126
1459					Maximum	54					95% KM (BCA) UCL	40.88
1460					Mean	26.28					95% KM (Percentile Bootstrap) UCL	41.2
1461					Median	15					95% KM (Chebyshev) UCL	67.57
1462					SD	21.18					97.5% KM (Chebyshev) UCL	85.43
1463					k star	0.892					99% KM (Chebyshev) UCL	120.5
1464					Theta star	29.48						
1465					Nu star	8.915	**Potential UCLs to Use**					
1466					AppChi2	3.276					95% KM (t) UCL	46.47
1467					95% Gamma Approximate UCL	71.52					95% KM (Percentile Bootstrap) UCL	41.2
1468					95% Adjusted Gamma UCL	118.8						
1469	**Note: DL/2 is not a recommended method.**											
1470												

1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM7.0E.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Arsenic											
10												
11	General Statistics											
12	Number of Valid Data			40		Number of Detected Data				32		
13	Number of Distinct Detected Data			30		Number of Non-Detect Data				8		
14						Percent Non-Detects				20.00%		
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected			1.94		Minimum Detected				0.663		
18	Maximum Detected			75.6		Maximum Detected				4.325		
19	Mean of Detected			11.95		Mean of Detected				1.818		
20	SD of Detected			18.92		SD of Detected				0.973		
21	Minimum Non-Detect			5		Minimum Non-Detect				1.609		
22	Maximum Non-Detect			5		Maximum Non-Detect				1.609		
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic			0.522		Shapiro Wilk Test Statistic				0.732		
28	5% Shapiro Wilk Critical Value			0.93		5% Shapiro Wilk Critical Value				0.93		
29	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method					DL/2 Substitution Method						
33	Mean			10.06		Mean				1.638		
34	SD			17.29		SD				0.941		
35	95% DL/2 (t) UCL			14.67		95% H-Stat (DL/2) UCL				7.902		
36												
37	Maximum Likelihood Estimate(MLE) Method			N/A		Log ROS Method						
38	MLE yields a negative mean					Mean in Log Scale				1.721		
39						SD in Log Scale				0.914		
40						Mean in Original Scale				10.4		
41						SD in Original Scale				17.18		
42						95% Percentile Bootstrap UCL				15.13		
43						95% BCA Bootstrap UCL				16.09		
44												
45	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
46	k star (bias corrected)			0.822		Data do not follow a Discernable Distribution (0.05)						
47	Theta Star			14.55								
48	nu star			52.6								
49												
50	A-D Test Statistic			5.297		Nonparametric Statistics						
51	5% A-D Critical Value			0.781		Kaplan-Meier (KM) Method						
52	K-S Test Statistic			0.781		Mean				10.3		
53	5% K-S Critical Value			0.161		SD				16.98		

54	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	2.729
55											95% KM (t) UCL	14.9
56	**Assuming Gamma Distribution**										95% KM (z) UCL	14.79
57	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	14.88
58	Minimum	1E-09									95% KM (bootstrap t) UCL	18.42
59	Maximum	75.6									95% KM (BCA) UCL	14.74
60	Mean	11.51									95% KM (Percentile Bootstrap) UCL	15.09
61	Median	4.39									95% KM (Chebyshev) UCL	22.19
62	SD	17.36									97.5% KM (Chebyshev) UCL	27.34
63	k star	0.379									99% KM (Chebyshev) UCL	37.45
64	Theta star	30.34										
65	Nu star	30.34									**Potential UCLs to Use**	
66	AppChi2	18.76									95% KM (BCA) UCL	14.74
67	95% Gamma Approximate UCL	18.61										
68	95% Adjusted Gamma UCL	18.96										
69	**Note: DL/2 is not a recommended method.**											
70												
71												
72	**Benzo(a)anthracene**											
73												
74	**General Statistics**											
75	Number of Valid Data	40									Number of Detected Data	34
76	Number of Distinct Detected Data	30									Number of Non-Detect Data	6
77											Percent Non-Detects	15.00%
78												
79	**Raw Statistics**										**Log-transformed Statistics**	
80	Minimum Detected	4.1									Minimum Detected	1.411
81	Maximum Detected	2700									Maximum Detected	7.901
82	Mean of Detected	143.8									Mean of Detected	3.756
83	SD of Detected	458.8									SD of Detected	1.279
84	Minimum Non-Detect	10									Minimum Non-Detect	2.303
85	Maximum Non-Detect	20									Maximum Non-Detect	2.996
86												
87	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
88	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	25
89	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	37.50%
90												
91	**UCL Statistics**											
92	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
93	Shapiro Wilk Test Statistic	0.289									Shapiro Wilk Test Statistic	0.945
94	5% Shapiro Wilk Critical Value	0.933									5% Shapiro Wilk Critical Value	0.933
95	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
96												
97	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
98	DL/2 Substitution Method										DL/2 Substitution Method	
99	Mean	123.6									Mean	3.515
100	SD	424.9									SD	1.315
101	95% DL/2 (t) UCL	236.8									95% H-Stat (DL/2) UCL	100.2
102												
103	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
104	**MLE yields a negative mean**										Mean in Log Scale	3.478
105											SD in Log Scale	1.367
106											Mean in Original Scale	123.4

107											SD in Original Scale	424.9
108											95% Percentile Bootstrap UCL	250.7
109											95% BCA Bootstrap UCL	342
110												
111	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
112					k star (bias corrected)	0.494					**Data appear Lognormal at 5% Significance Level**	
113					Theta Star	291						
114					nu star	33.61						
115												
116					A-D Test Statistic	3.171					**Nonparametric Statistics**	
117					5% A-D Critical Value	0.81					Kaplan-Meier (KM) Method	
118					K-S Test Statistic	0.81					Mean	123.7
119					5% K-S Critical Value	0.159					SD	419.5
120	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	67.33
121											95% KM (t) UCL	237.2
122	**Assuming Gamma Distribution**										95% KM (z) UCL	234.5
123					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	236.9
124					Minimum	1E-09					95% KM (bootstrap t) UCL	751.8
125					Maximum	2700					95% KM (BCA) UCL	263.4
126					Mean	122.2					95% KM (Percentile Bootstrap) UCL	256.8
127					Median	28					95% KM (Chebyshev) UCL	417.2
128					SD	425.3					97.5% KM (Chebyshev) UCL	544.2
129					k star	0.166					99% KM (Chebyshev) UCL	793.6
130					Theta star	737.9						
131					Nu star	13.25					**Potential UCLs to Use**	
132					AppChi2	6.063					95% KM (Chebyshev) UCL	417.2
133					95% Gamma Approximate UCL	267.2						
134					95% Adjusted Gamma UCL	275.5						
135	**Note: DL/2 is not a recommended method.**											
136												
137												
138	**Benzo(a)pyrene**											
139												
140	**General Statistics**											
141					Number of Valid Data	40					Number of Detected Data	34
142					Number of Distinct Detected Data	28					Number of Non-Detect Data	6
143											Percent Non-Detects	15.00%
144												
145	**Raw Statistics**										**Log-transformed Statistics**	
146					Minimum Detected	3.4					Minimum Detected	1.224
147					Maximum Detected	3900					Maximum Detected	8.269
148					Mean of Detected	184.3					Mean of Detected	3.76
149					SD of Detected	665.7					SD of Detected	1.32
150					Minimum Non-Detect	10					Minimum Non-Detect	2.303
151					Maximum Non-Detect	20					Maximum Non-Detect	2.996
152												
153	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
154	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	26
155	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	35.00%
156												
157	**UCL Statistics**											
158	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
159					Shapiro Wilk Test Statistic	0.267					Shapiro Wilk Test Statistic	0.904

160					5% Shapiro Wilk Critical Value	0.933					5% Shapiro Wilk Critical Value	0.933
161	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
162												
163	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
164					DL/2 Substitution Method						DL/2 Substitution Method	
165					Mean	158					Mean	3.519
166					SD	615.7					SD	1.349
167					95% DL/2 (t) UCL	322					95% H-Stat (DL/2) UCL	108.5
168												
169					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
170	**MLE yields a negative mean**										Mean in Log Scale	3.478
171											SD in Log Scale	1.404
172											Mean in Original Scale	157.8
173											SD in Original Scale	615.7
174											95% Percentile Bootstrap UCL	344.5
175											95% BCA Bootstrap UCL	451.8
176												
177	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
178					k star (bias corrected)	0.425	**Data do not follow a Discernable Distribution (0.05)**					
179					Theta Star	434						
180					nu star	28.88						
181												
182					A-D Test Statistic	4.507	**Nonparametric Statistics**					
183					5% A-D Critical Value	0.824					Kaplan-Meier (KM) Method	
184					K-S Test Statistic	0.824					Mean	158.2
185					5% K-S Critical Value	0.161					SD	607.9
186	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	97.56
187											95% KM (t) UCL	322.6
188	**Assuming Gamma Distribution**										95% KM (z) UCL	318.7
189					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	322.2
190					Minimum	1E-09					95% KM (bootstrap t) UCL	1198
191					Maximum	3900					95% KM (BCA) UCL	348.7
192					Mean	156.7					95% KM (Percentile Bootstrap) UCL	352.2
193					Median	26.5					95% KM (Chebyshev) UCL	583.5
194					SD	616					97.5% KM (Chebyshev) UCL	767.5
195					k star	0.159					99% KM (Chebyshev) UCL	1129
196					Theta star	983.7						
197					Nu star	12.74	**Potential UCLs to Use**					
198					AppChi2	5.718					95% KM (Chebyshev) UCL	583.5
199					95% Gamma Approximate UCL	349						
200					95% Adjusted Gamma UCL	360.1						
201	**Note: DL/2 is not a recommended method.**											
202												
203												
204	**Benzo(b)fluoranthene**											
205												
206	**General Statistics**											
207					Number of Valid Data	40					Number of Detected Data	35
208					Number of Distinct Detected Data	32					Number of Non-Detect Data	5
209											Percent Non-Detects	12.50%
210												
211	**Raw Statistics**						**Log-transformed Statistics**					
212					Minimum Detected	5.1					Minimum Detected	1.629

213					Maximum Detected	4100					Maximum Detected	8.319
214					Mean of Detected	238.7					Mean of Detected	4.184
215					SD of Detected	705.4					SD of Detected	1.356
216					Minimum Non-Detect	10					Minimum Non-Detect	2.303
217					Maximum Non-Detect	20					Maximum Non-Detect	2.996
218												
219	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
220	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	30
221	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	25.00%
222												
223	**UCL Statistics**											
224	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
225					Shapiro Wilk Test Statistic	0.334					Shapiro Wilk Test Statistic	0.933
226					5% Shapiro Wilk Critical Value	0.934					5% Shapiro Wilk Critical Value	0.934
227	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
228												
229	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
230					DL/2 Substitution Method						DL/2 Substitution Method	
231					Mean	210					Mean	3.928
232					SD	663.1					SD	1.444
233					95% DL/2 (t) UCL	386.6					95% H-Stat (DL/2) UCL	201.2
234												
235					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
236					Mean	60.04					Mean in Log Scale	3.898
237					SD	780.7					SD in Log Scale	1.49
238					95% MLE (t) UCL	268					Mean in Original Scale	209.8
239					95% MLE (Tiku) UCL	268.9					SD in Original Scale	663.2
240											95% Percentile Bootstrap UCL	401.5
241											95% BCA Bootstrap UCL	566.3
242												
243	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
244					k star (bias corrected)	0.47	**Data do not follow a Discernable Distribution (0.05)**					
245					Theta Star	508.1						
246					nu star	32.89						
247												
248					A-D Test Statistic	3.415	**Nonparametric Statistics**					
249					5% A-D Critical Value	0.814					Kaplan-Meier (KM) Method	
250					K-S Test Statistic	0.814					Mean	210.2
251					5% K-S Critical Value	0.157					SD	654.7
252	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	105
253											95% KM (t) UCL	387.2
254	**Assuming Gamma Distribution**										95% KM (z) UCL	383
255					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	386.6
256					Minimum	1E-09					95% KM (bootstrap t) UCL	1099
257					Maximum	4100					95% KM (BCA) UCL	413
258					Mean	208.9					95% KM (Percentile Bootstrap) UCL	400.8
259					Median	38					95% KM (Chebyshev) UCL	668.1
260					SD	663.5					97.5% KM (Chebyshev) UCL	866.2
261					k star	0.179					99% KM (Chebyshev) UCL	1255
262					Theta star	1165						
263					Nu star	14.34	**Potential UCLs to Use**					
264					AppChi2	6.805					95% KM (Chebyshev) UCL	668.1
265					95% Gamma Approximate UCL	440.2						

	A	B	C	D	E	F	G	H	I	J	K	L
266					95% Adjusted Gamma UCL	453.2						
267	**Note: DL/2 is not a recommended method.**											
268												
269												
270	**Benzo(k)fluoranthene**											
271												
272						**General Statistics**						
273					Number of Valid Data	35			Number of Detected Data		27	
274					Number of Distinct Detected Data	25			Number of Non-Detect Data		8	
275					Number of Missing Values	5			Percent Non-Detects		22.86%	
276												
277				**Raw Statistics**					**Log-transformed Statistics**			
278					Minimum Detected	1.6			Minimum Detected		0.47	
279					Maximum Detected	3000			Maximum Detected		8.006	
280					Mean of Detected	145.1			Mean of Detected		3.137	
281					SD of Detected	572.9			SD of Detected		1.454	
282					Minimum Non-Detect	10			Minimum Non-Detect		2.303	
283					Maximum Non-Detect	20			Maximum Non-Detect		2.996	
284												
285	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect		21	
286	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected		14	
287	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage		60.00%	
288												
289						**UCL Statistics**						
290				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
291					Shapiro Wilk Test Statistic	0.249			Shapiro Wilk Test Statistic		0.909	
292					5% Shapiro Wilk Critical Value	0.923			5% Shapiro Wilk Critical Value		0.923	
293				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
294												
295				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
296					DL/2 Substitution Method				DL/2 Substitution Method			
297					Mean	113.8			Mean		2.881	
298					SD	504.4			SD		1.367	
299					95% DL/2 (t) UCL	257.9			95% H-Stat (DL/2) UCL		65.93	
300												
301					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
302				**MLE yields a negative mean**					Mean in Log Scale		2.809	
303									SD in Log Scale		1.442	
304									Mean in Original Scale		113.5	
305									SD in Original Scale		504.4	
306									95% Percentile Bootstrap UCL		279.4	
307									95% BCA Bootstrap UCL		375.1	
308												
309				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
310					k star (bias corrected)	0.348			**Data do not follow a Discernable Distribution (0.05)**			
311					Theta Star	417.7						
312					nu star	18.77						
313												
314					A-D Test Statistic	4.105			**Nonparametric Statistics**			
315					5% A-D Critical Value	0.839			Kaplan-Meier (KM) Method			
316					K-S Test Statistic	0.839			Mean		113.7	
317					5% K-S Critical Value	0.181			SD		497.1	
318				**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		85.63	

319											95% KM (t) UCL	258.5
320	**Assuming Gamma Distribution**										95% KM (z) UCL	254.6
321	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	257.9
322	Minimum	1E-09									95% KM (bootstrap t) UCL	2227
323	Maximum	3000									95% KM (BCA) UCL	283.8
324	Mean	116.1									95% KM (Percentile Bootstrap) UCL	280.6
325	Median	13									95% KM (Chebyshev) UCL	487
326	SD	504.4									97.5% KM (Chebyshev) UCL	648.5
327	k star	0.133									99% KM (Chebyshev) UCL	965.7
328	Theta star	873.9										
329	Nu star	9.302									**Potential UCLs to Use**	
330	AppChi2	3.511									97.5% KM (Chebyshev) UCL	648.5
331	95% Gamma Approximate UCL	307.7										
332	95% Adjusted Gamma UCL	323.2										
333	**Note: DL/2 is not a recommended method.**											
334												
335												
336	**Bis(2-ethylhexyl) phthalate**											
337												
338	**General Statistics**											
339	Number of Valid Data	32									Number of Detected Data	20
340	Number of Distinct Detected Data	19									Number of Non-Detect Data	12
341	Number of Missing Values	8									Percent Non-Detects	37.50%
342												
343	**Raw Statistics**										**Log-transformed Statistics**	
344	Minimum Detected	17									Minimum Detected	2.833
345	Maximum Detected	5150									Maximum Detected	8.547
346	Mean of Detected	453.9									Mean of Detected	5.08
347	SD of Detected	1125									SD of Detected	1.252
348	Minimum Non-Detect	13.2									Minimum Non-Detect	2.58
349	Maximum Non-Detect	310									Maximum Non-Detect	5.737
350												
351	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	28
352	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
353	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	87.50%
354												
355	**UCL Statistics**											
356	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
357	Shapiro Wilk Test Statistic	0.373									Shapiro Wilk Test Statistic	0.944
358	5% Shapiro Wilk Critical Value	0.905									5% Shapiro Wilk Critical Value	0.905
359	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
360												
361	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
362	DL/2 Substitution Method										DL/2 Substitution Method	
363	Mean	303.2									Mean	4.55
364	SD	903.1									SD	1.315
365	95% DL/2 (t) UCL	573.9									95% H-Stat (DL/2) UCL	291.4
366												
367	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
368	**MLE yields a negative mean**										Mean in Log Scale	4.386
369											SD in Log Scale	1.397
370											Mean in Original Scale	295
371											SD in Original Scale	905.3

372											95% Percentile Bootstrap UCL	604.5
373											95% BCA Bootstrap UCL	894.4
374												
375	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
376					k star (bias corrected)	0.54					**Data appear Lognormal at 5% Significance Level**	
377					Theta Star	840.4						
378					nu star	21.6						
379												
380					A-D Test Statistic	1.837					**Nonparametric Statistics**	
381					5% A-D Critical Value	0.794					Kaplan-Meier (KM) Method	
382					K-S Test Statistic	0.794					Mean	300.2
383					5% K-S Critical Value	0.204					SD	889.7
384	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	161.4
385											95% KM (t) UCL	573.9
386	**Assuming Gamma Distribution**										95% KM (z) UCL	565.7
387					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	569
388					Minimum	17					95% KM (bootstrap t) UCL	1701
389					Maximum	5150					95% KM (BCA) UCL	628.3
390					Mean	442.6					95% KM (Percentile Bootstrap) UCL	618.7
391					Median	337.6					95% KM (Chebyshev) UCL	1004
392					SD	881.4					97.5% KM (Chebyshev) UCL	1308
393					k star	0.836					99% KM (Chebyshev) UCL	1906
394					Theta star	529.7						
395					Nu star	53.47					**Potential UCLs to Use**	
396					AppChi2	37.67					97.5% KM (Chebyshev) UCL	1308
397					95% Gamma Approximate UCL	628.2						
398					95% Adjusted Gamma UCL	640.3						
399	**Note: DL/2 is not a recommended method.**											
400												
401												
402	**Dibenzo(a,h)anthracene**											
403												
404	**General Statistics**											
405					Number of Valid Data	40					Number of Detected Data	22
406					Number of Distinct Detected Data	22					Number of Non-Detect Data	18
407											Percent Non-Detects	45.00%
408												
409	**Raw Statistics**										**Log-transformed Statistics**	
410					Minimum Detected	0.51					Minimum Detected	-0.673
411					Maximum Detected	860					Maximum Detected	6.757
412					Mean of Detected	72.22					Mean of Detected	2.331
413					SD of Detected	193.7					SD of Detected	1.894
414					Minimum Non-Detect	1.67					Minimum Non-Detect	0.513
415					Maximum Non-Detect	20					Maximum Non-Detect	2.996
416												
417	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	32
418	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	8
419	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	80.00%
420												
421	**UCL Statistics**											
422	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
423					Shapiro Wilk Test Statistic	0.41					Shapiro Wilk Test Statistic	0.949
424					5% Shapiro Wilk Critical Value	0.911					5% Shapiro Wilk Critical Value	0.911

	A	B	C	D	E	F	G	H	I	J	K	L
425	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
426												
427	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
428	DL/2 Substitution Method						DL/2 Substitution Method					
429	Mean					42.59	Mean					2.055
430	SD					146	SD					1.479
431	95% DL/2 (t) UCL					81.48	95% H-Stat (DL/2) UCL					31.06
432												
433	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
434	**MLE yields a negative mean**						Mean in Log Scale					1.706
435							SD in Log Scale					1.705
436							Mean in Original Scale					41.55
437							SD in Original Scale					146.3
438							95% Percentile Bootstrap UCL					84.02
439							95% BCA Bootstrap UCL					113.1
440												
441	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
442	k star (bias corrected)					0.329	**Data appear Lognormal at 5% Significance Level**					
443	Theta Star					219.6						
444	nu star					14.47						
445												
446	A-D Test Statistic					1.911	**Nonparametric Statistics**					
447	5% A-D Critical Value					0.838	Kaplan-Meier (KM) Method					
448	K-S Test Statistic					0.838	Mean					41.16
449	5% K-S Critical Value					0.2	SD					144.5
450	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					23.39
451							95% KM (t) UCL					80.58
452	**Assuming Gamma Distribution**						95% KM (z) UCL					79.64
453	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					80.16
454	Minimum					0.51	95% KM (bootstrap t) UCL					291.4
455	Maximum					860	95% KM (BCA) UCL					84.85
456	Mean					72.13	95% KM (Percentile Bootstrap) UCL					84.33
457	Median					63.38	95% KM (Chebyshev) UCL					143.1
458	SD					142.3	97.5% KM (Chebyshev) UCL					187.2
459	k star					0.551	99% KM (Chebyshev) UCL					273.9
460	Theta star					130.9						
461	Nu star					44.08	**Potential UCLs to Use**					
462	AppChi2					29.85	97.5% KM (Chebyshev) UCL					187.2
463	95% Gamma Approximate UCL					106.5						
464	95% Adjusted Gamma UCL					108.1						
465	**Note: DL/2 is not a recommended method.**											
466												
467												
468	**Dieldrin**											
469												
470	**General Statistics**											
471	Number of Valid Data					16	Number of Detected Data					5
472	Number of Distinct Detected Data					5	Number of Non-Detect Data					11
473							Percent Non-Detects					68.75%
474												
475	**Raw Statistics**						**Log-transformed Statistics**					
476	Minimum Detected					0.038	Minimum Detected					-3.27
477	Maximum Detected					0.35	Maximum Detected					-1.05

	A	B	C	D	E	F	G	H	I	J	K	L
478					Mean of Detected	0.144					Mean of Detected	-2.207
479					SD of Detected	0.122					SD of Detected	0.817
480					Minimum Non-Detect	0.032					Minimum Non-Detect	-3.442
481					Maximum Non-Detect	0.26					Maximum Non-Detect	-1.347
482												
483	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
484	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
485	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.75%
486												
487	**Warning: There are only 5 Detected Values in this data**											
488	**Note: It should be noted that even though bootstrap may be performed on this data set**											
489	**the resulting calculations may not be reliable enough tp draw conclusions**											
490												
491	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
492												
493												
494	**UCL Statistics**											
495	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
496					Shapiro Wilk Test Statistic	0.842					Shapiro Wilk Test Statistic	0.989
497					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
498	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
499												
500	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
501					DL/2 Substitution Method						DL/2 Substitution Method	
502					Mean	0.0816					Mean	-2.875
503					SD	0.083					SD	0.873
504					95% DL/2 (t) UCL	0.118					95% H-Stat (DL/2) UCL	0.147
505												
506					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
507	**MLE method failed to converge properly**										Mean in Log Scale	-3.435
508											SD in Log Scale	0.995
509											Mean in Original Scale	0.0583
510											SD in Original Scale	0.0869
511											95% Percentile Bootstrap UCL	0.0949
512											95% BCA Bootstrap UCL	0.118
513												
514	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
515					k star (bias corrected)	0.941	**Data appear Normal at 5% Significance Level**					
516					Theta Star	0.153						
517					nu star	9.414						
518												
519					A-D Test Statistic	0.253	**Nonparametric Statistics**					
520					5% A-D Critical Value	0.684					Kaplan-Meier (KM) Method	
521					K-S Test Statistic	0.684					Mean	0.0753
522					5% K-S Critical Value	0.36					SD	0.0784
523	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0225
524											95% KM (t) UCL	0.115
525	**Assuming Gamma Distribution**										95% KM (z) UCL	0.112
526					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.112
527					Minimum	0.038					95% KM (bootstrap t) UCL	0.135
528					Maximum	0.35					95% KM (BCA) UCL	0.17
529					Mean	0.147					95% KM (Percentile Bootstrap) UCL	0.147
530					Median	0.143					95% KM (Chebyshev) UCL	0.173

531					SD	0.0652				97.5% KM (Chebyshev) UCL		0.216
532					k star	4.686				99% KM (Chebyshev) UCL		0.299
533					Theta star	0.0313						
534					Nu star	150				**Potential UCLs to Use**		
535					AppChi2	122.7				95% KM (t) UCL		0.115
536					95% Gamma Approximate UCL	0.179				95% KM (Percentile Bootstrap) UCL		0.147
537					95% Adjusted Gamma UCL	0.183						
538	**Note: DL/2 is not a recommended method.**											
539												
540												
541	**Indeno(1,2,3-cd)pyrene**											
542												
543					**General Statistics**							
544					Number of Valid Data	40				Number of Detected Data		29
545					Number of Distinct Detected Data	27				Number of Non-Detect Data		11
546										Percent Non-Detects		27.50%
547												
548					**Raw Statistics**					**Log-transformed Statistics**		
549					Minimum Detected	2.7				Minimum Detected		0.993
550					Maximum Detected	2600				Maximum Detected		7.863
551					Mean of Detected	143.1				Mean of Detected		3.483
552					SD of Detected	480.2				SD of Detected		1.375
553					Minimum Non-Detect	10				Minimum Non-Detect		2.303
554					Maximum Non-Detect	20				Maximum Non-Detect		2.996
555												
556	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		24
557	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		16
558	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		60.00%
559												
560					**UCL Statistics**							
561					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
562					Shapiro Wilk Test Statistic	0.292				Shapiro Wilk Test Statistic		0.902
563					5% Shapiro Wilk Critical Value	0.926				5% Shapiro Wilk Critical Value		0.926
564					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
565												
566					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
567					DL/2 Substitution Method					DL/2 Substitution Method		
568					Mean	106				Mean		3.081
569					SD	411.4				SD		1.35
570					95% DL/2 (t) UCL	215.6				95% H-Stat (DL/2) UCL		59.67
571												
572					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
573					**MLE yields a negative mean**					Mean in Log Scale		3.04
574										SD in Log Scale		1.424
575										Mean in Original Scale		106
576										SD in Original Scale		411.4
577										95% Percentile Bootstrap UCL		231.4
578										95% BCA Bootstrap UCL		355.4
579												
580					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
581					k star (bias corrected)	0.416				**Data do not follow a Discernable Distribution (0.05)**		
582					Theta Star	344.5						
583					nu star	24.1						

	A	B	C	D	E	F	G	H	I	J	K	L
584												
585					A-D Test Statistic	3.696	**Nonparametric Statistics**					
586					5% A-D Critical Value	0.825					Kaplan-Meier (KM) Method	
587					K-S Test Statistic	0.825					Mean	106.5
588					5% K-S Critical Value	0.174					SD	406.1
589			**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	65.35
590											95% KM (t) UCL	216.7
591			**Assuming Gamma Distribution**								95% KM (z) UCL	214
592				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	216.1
593					Minimum	1E-09					95% KM (bootstrap t) UCL	775.6
594					Maximum	2600					95% KM (BCA) UCL	240.5
595					Mean	114.9					95% KM (Percentile Bootstrap) UCL	228.1
596					Median	18					95% KM (Chebyshev) UCL	391.4
597					SD	411.9					97.5% KM (Chebyshev) UCL	514.7
598					k star	0.137					99% KM (Chebyshev) UCL	756.8
599					Theta star	837.1						
600					Nu star	10.98	**Potential UCLs to Use**					
601					AppChi2	4.565					95% KM (Chebyshev) UCL	391.4
602					95% Gamma Approximate UCL	276.5						
603					95% Adjusted Gamma UCL	286.2						
604	**Note: DL/2 is not a recommended method.**											
605												
606												
607	**Lead**											
608												
609						**General Statistics**							
610					Number of Valid Data	32					Number of Detected Data	30
611					Number of Distinct Detected Data	24					Number of Non-Detect Data	2
612					Number of Missing Values	8					Percent Non-Detects	6.25%
613												
614				**Raw Statistics**					**Log-transformed Statistics**			
615					Minimum Detected	3.67					Minimum Detected	1.3
616					Maximum Detected	516					Maximum Detected	6.246
617					Mean of Detected	37.54					Mean of Detected	2.917
618					SD of Detected	92.56					SD of Detected	0.892
619					Minimum Non-Detect	10					Minimum Non-Detect	2.303
620					Maximum Non-Detect	10					Maximum Non-Detect	2.303
621												
622												
623						**UCL Statistics**							
624				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
625					Shapiro Wilk Test Statistic	0.314					Shapiro Wilk Test Statistic	0.816
626					5% Shapiro Wilk Critical Value	0.927					5% Shapiro Wilk Critical Value	0.927
627				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
628												
629				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
630					DL/2 Substitution Method						DL/2 Substitution Method	
631					Mean	35.51					Mean	2.835
632					SD	89.88					SD	0.921
633					95% DL/2 (t) UCL	62.45					95% H-Stat (DL/2) UCL	36.4
634												
635					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
636					Mean	15.64					Mean in Log Scale	2.849

637					SD	105.4					SD in Log Scale	0.904
638					95% MLE (t) UCL	47.22					Mean in Original Scale	35.59
639					95% MLE (Tiku) UCL	47.36					SD in Original Scale	89.85
640											95% Percentile Bootstrap UCL	66.23
641											95% BCA Bootstrap UCL	85.99
642												
643	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
644					k star (bias corrected)	0.772	**Data do not follow a Discernable Distribution (0.05)**					
645					Theta Star	48.61						
646					nu star	46.34						
647												
648					A-D Test Statistic	4.358	**Nonparametric Statistics**					
649					5% A-D Critical Value	0.784					Kaplan-Meier (KM) Method	
650					K-S Test Statistic	0.784					Mean	35.71
651					5% K-S Critical Value	0.166					SD	88.4
652	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	15.89
653											95% KM (t) UCL	62.66
654	**Assuming Gamma Distribution**										95% KM (z) UCL	61.85
655					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	62.63
656					Minimum	1E-09					95% KM (bootstrap t) UCL	194.4
657					Maximum	516					95% KM (BCA) UCL	69.78
658					Mean	35.19					95% KM (Percentile Bootstrap) UCL	64.75
659					Median	14.5					95% KM (Chebyshev) UCL	105
660					SD	90					97.5% KM (Chebyshev) UCL	135
661					k star	0.312					99% KM (Chebyshev) UCL	193.9
662					Theta star	112.8						
663					Nu star	19.98	**Potential UCLs to Use**					
664					AppChi2	10.83					95% KM (Chebyshev) UCL	105
665					95% Gamma Approximate UCL	64.9						
666					95% Adjusted Gamma UCL	67.13						
667	**Note: DL/2 is not a recommended method.**											
668												
669												
670	**Mercury**											
671												
672							**General Statistics**					
673					Number of Valid Data	32					Number of Detected Data	28
674					Number of Distinct Detected Data	21					Number of Non-Detect Data	4
675					Number of Missing Values	8					Percent Non-Detects	12.50%
676												
677	**Raw Statistics**						**Log-transformed Statistics**					
678					Minimum Detected	0.0113					Minimum Detected	-4.483
679					Maximum Detected	0.147					Maximum Detected	-1.917
680					Mean of Detected	0.0628					Mean of Detected	-2.887
681					SD of Detected	0.0287					SD of Detected	0.546
682					Minimum Non-Detect	0.00887					Minimum Non-Detect	-4.725
683					Maximum Non-Detect	0.06					Maximum Non-Detect	-2.813
684												
685	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
686	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	14
687	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	56.25%
688												
689	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
690	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
691	Shapiro Wilk Test Statistic					0.948	Shapiro Wilk Test Statistic					0.904
692	5% Shapiro Wilk Critical Value					0.924	5% Shapiro Wilk Critical Value					0.924
693	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
694												
695	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
696	DL/2 Substitution Method						DL/2 Substitution Method					
697	Mean					0.0576	Mean					-3.036
698	SD					0.0304	SD					0.705
699	95% DL/2 (t) UCL					0.0667	95% H-Stat (DL/2) UCL					0.0723
700												
701	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
702	Mean					0.053	Mean in Log Scale					-2.985
703	SD					0.0351	SD in Log Scale					0.585
704	95% MLE (t) UCL					0.0635	Mean in Original Scale					0.0583
705	95% MLE (Tiku) UCL					0.067	SD in Original Scale					0.0295
706							95% Percentile Bootstrap UCL					0.067
707							95% BCA Bootstrap UCL					0.0674
708												
709	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
710	k star (bias corrected)					3.885	**Data appear Normal at 5% Significance Level**					
711	Theta Star					0.0162						
712	nu star					217.6						
713												
714	A-D Test Statistic					0.604	**Nonparametric Statistics**					
715	5% A-D Critical Value					0.749	Kaplan-Meier (KM) Method					
716	K-S Test Statistic					0.749	Mean					0.0583
717	5% K-S Critical Value					0.166	SD					0.0295
718	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.00539
719							95% KM (t) UCL					0.0675
720	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0672
721	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0673
722	Minimum					1E-09	95% KM (bootstrap t) UCL					0.0681
723	Maximum					0.147	95% KM (BCA) UCL					0.0674
724	Mean					0.059	95% KM (Percentile Bootstrap) UCL					0.0671
725	Median					0.057	95% KM (Chebyshev) UCL					0.0818
726	SD					0.0296	97.5% KM (Chebyshev) UCL					0.092
727	k star					0.845	99% KM (Chebyshev) UCL					0.112
728	Theta star					0.0698						
729	Nu star					54.05	**Potential UCLs to Use**					
730	AppChi2					38.16	95% KM (t) UCL					0.0675
731	95% Gamma Approximate UCL					0.0835	95% KM (Percentile Bootstrap) UCL					0.0671
732	95% Adjusted Gamma UCL					0.0851						
733	**Note: DL/2 is not a recommended method.**											
734												
735												
736	**Naphthalene**											
737												
738	**General Statistics**											
739	Number of Valid Data					40	Number of Detected Data					26
740	Number of Distinct Detected Data					23	Number of Non-Detect Data					14
741							Percent Non-Detects					35.00%
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**Raw Statistics**						**Log-transformed Statistics**					
744					Minimum Detected	1.68					Minimum Detected	0.519
745					Maximum Detected	156					Maximum Detected	5.05
746					Mean of Detected	29.59					Mean of Detected	2.831
747					SD of Detected	39.83					SD of Detected	1.036
748					Minimum Non-Detect	6.5					Minimum Non-Detect	1.872
749					Maximum Non-Detect	20					Maximum Non-Detect	2.996
750												
751	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	29
752	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	11
753	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	72.50%
754												
755	**UCL Statistics**											
756	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
757					Shapiro Wilk Test Statistic	0.603					Shapiro Wilk Test Statistic	0.967
758					5% Shapiro Wilk Critical Value	0.92					5% Shapiro Wilk Critical Value	0.92
759	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
760												
761	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
762					DL/2 Substitution Method						DL/2 Substitution Method	
763					Mean	21.77					Mean	2.512
764					SD	33.7					SD	0.965
765					95% DL/2 (t) UCL	30.75					95% H-Stat (DL/2) UCL	22.96
766												
767					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
768	**MLE yields a negative mean**										Mean in Log Scale	2.418
769											SD in Log Scale	1.052
770											Mean in Original Scale	21.32
771											SD in Original Scale	33.92
772											95% Percentile Bootstrap UCL	30.68
773											95% BCA Bootstrap UCL	33.08
774												
775	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
776					k star (bias corrected)	0.941	**Data appear Lognormal at 5% Significance Level**					
777					Theta Star	31.45						
778					nu star	48.92						
779												
780					A-D Test Statistic	1.182	**Nonparametric Statistics**					
781					5% A-D Critical Value	0.773					Kaplan-Meier (KM) Method	
782					K-S Test Statistic	0.773					Mean	21.55
783					5% K-S Critical Value	0.176					SD	33.43
784	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	5.409
785											95% KM (t) UCL	30.66
786	**Assuming Gamma Distribution**										95% KM (z) UCL	30.44
787					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	30.6
788					Minimum	1.68					95% KM (bootstrap t) UCL	40.24
789					Maximum	156					95% KM (BCA) UCL	30.92
790					Mean	27.78					95% KM (Percentile Bootstrap) UCL	31.73
791					Median	19.78					95% KM (Chebyshev) UCL	45.12
792					SD	32.58					97.5% KM (Chebyshev) UCL	55.33
793					k star	1.316					99% KM (Chebyshev) UCL	75.37
794					Theta star	21.12						
795					Nu star	105.2	**Potential UCLs to Use**					

796					AppChi2	82.57				95% KM (Chebyshev) UCL		45.12
797					95% Gamma Approximate UCL	35.41						
798					95% Adjusted Gamma UCL	35.73						
799	**Note: DL/2 is not a recommended method.**											
800												
801												
802	**Thallium**											
803												
804	**General Statistics**											
805					Number of Valid Data	9				Number of Detected Data		9
806					Number of Distinct Detected Data	6				Number of Non-Detect Data		0
807					Number of Missing Values	31				Percent Non-Detects		0.00%
808												
809	**Raw Statistics**						**Log-transformed Statistics**					
810					Minimum Detected	0.0976				Minimum Detected		-2.327
811					Maximum Detected	17				Maximum Detected		2.833
812					Mean of Detected	12.34				Mean of Detected		2.052
813					SD of Detected	5.473				SD of Detected		1.664
814					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
815					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
816												
817												
818	**Warning: There are only 9 Detected Values in this data**											
819	**Note: It should be noted that even though bootstrap may be performed on this data set**											
820	**the resulting calculations may not be reliable enough tp draw conclusions**											
821												
822	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
823												
824												
825	**UCL Statistics**											
826	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
827					Shapiro Wilk Test Statistic	0.793				Shapiro Wilk Test Statistic		0.512
828					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
829	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
830												
831	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
832					DL/2 Substitution Method					DL/2 Substitution Method		
833					Mean	12.34				Mean		2.052
834					SD	5.473				SD		1.664
835					95% DL/2 (t) UCL	15.74				95% H-Stat (DL/2) UCL		538.3
836												
837					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
838	**MLE method failed to converge properly**									Mean in Log Scale		N/A
839										SD in Log Scale		N/A
840										Mean in Original Scale		N/A
841										SD in Original Scale		N/A
842										95% Percentile Bootstrap UCL		N/A
843										95% BCA Bootstrap UCL		N/A
844												
845	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
846					k star (bias corrected)	0.89	**Data do not follow a Discernable Distribution (0.05)**					
847					Theta Star	13.86						
848					nu star	16.03						

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850					A-D Test Statistic	1.838	**Nonparametric Statistics**					
851					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
852					K-S Test Statistic	0.739					Mean	12.34
853					5% K-S Critical Value	0.286					SD	5.16
854			**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	1.824
855											95% KM (t) UCL	15.74
856			**Assuming Gamma Distribution**								95% KM (z) UCL	15.34
857				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	15.74
858					Minimum	0.0976					95% KM (bootstrap t) UCL	14.74
859					Maximum	17					95% KM (BCA) UCL	14.78
860					Mean	12.34					95% KM (Percentile Bootstrap) UCL	14.78
861					Median	14					95% KM (Chebyshev) UCL	20.3
862					SD	5.473					97.5% KM (Chebyshev) UCL	23.74
863					k star	0.89					99% KM (Chebyshev) UCL	30.49
864					Theta star	13.86						
865					Nu star	16.03	**Potential UCLs to Use**					
866					AppChi2	7.983					99% KM (Chebyshev) UCL	30.49
867					95% Gamma Approximate UCL	24.79						
868					95% Adjusted Gamma UCL	29.01						
869					**Warning: Recommended UCL exceeds the maximum observation**							
870	**Note: DL/2 is not a recommended method.**											
871												
872												
873	**Total Aroclors**											
874												
875					**General Statistics**							
876					Number of Valid Data	19					Number of Detected Data	15
877					Number of Distinct Detected Data	14					Number of Non-Detect Data	4
878					Number of Missing Values	19					Percent Non-Detects	21.05%
879												
880					**Raw Statistics**						**Log-transformed Statistics**	
881					Minimum Detected	9.781					Minimum Detected	2.28
882					Maximum Detected	274					Maximum Detected	5.613
883					Mean of Detected	50.06					Mean of Detected	3.468
884					SD of Detected	66.94					SD of Detected	0.861
885					Minimum Non-Detect	2.4					Minimum Non-Detect	0.875
886					Maximum Non-Detect	40					Maximum Non-Detect	3.689
887												
888	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
889	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
890	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	73.68%
891												
892					**UCL Statistics**							
893					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
894					Shapiro Wilk Test Statistic	0.576					Shapiro Wilk Test Statistic	0.915
895					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
896					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
897												
898					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
899					DL/2 Substitution Method						DL/2 Substitution Method	
900					Mean	41.94					Mean	3.146
901					SD	61.34					SD	1.136

902					95% DL/2 (t) UCL	66.35				95% H-Stat (DL/2) UCL		66.29
903												
904					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
905					**MLE yields a negative mean**					Mean in Log Scale		3.2
906										SD in Log Scale		0.981
907										Mean in Original Scale		41.9
908										SD in Original Scale		61.34
909										95% Percentile Bootstrap UCL		66.93
910										95% BCA Bootstrap UCL		84
911												
912					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
913					k star (bias corrected)	1.055				**Data appear Lognormal at 5% Significance Level**		
914					Theta Star	47.43						
915					nu star	31.66						
916												
917					A-D Test Statistic	1.092				**Nonparametric Statistics**		
918					5% A-D Critical Value	0.758				Kaplan-Meier (KM) Method		
919					K-S Test Statistic	0.758				Mean		42.53
920					5% K-S Critical Value	0.227				SD		59.36
921					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		14.11
922										95% KM (t) UCL		66.99
923					**Assuming Gamma Distribution**					95% KM (z) UCL		65.73
924					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		66.39
925					Minimum	1E-09				95% KM (bootstrap t) UCL		121.6
926					Maximum	274				95% KM (BCA) UCL		70.32
927					Mean	44.29				95% KM (Percentile Bootstrap) UCL		67.82
928					Median	23.58				95% KM (Chebyshev) UCL		104
929					SD	61.53				97.5% KM (Chebyshev) UCL		130.6
930					k star	0.245				99% KM (Chebyshev) UCL		182.9
931					Theta star	180.6						
932					Nu star	9.318				**Potential UCLs to Use**		
933					AppChi2	3.52				95% KM (BCA) UCL		70.32
934					95% Gamma Approximate UCL	117.2						
935					95% Adjusted Gamma UCL	128.4						
936	**Note: DL/2 is not a recommended method.**											
937												
938												
939	**Total DDT**											
940												
941										**General Statistics**		
942					Number of Valid Data	23				Number of Detected Data		15
943					Number of Distinct Detected Data	15				Number of Non-Detect Data		8
944					Number of Missing Values	15				Percent Non-Detects		34.78%
945												
946					**Raw Statistics**					**Log-transformed Statistics**		
947					Minimum Detected	0.201				Minimum Detected		-1.604
948					Maximum Detected	27.28				Maximum Detected		3.306
949					Mean of Detected	4.981				Mean of Detected		0.59
950					SD of Detected	8.451				SD of Detected		1.423
951					Minimum Non-Detect	0.0716				Minimum Non-Detect		-2.637
952					Maximum Non-Detect	5.3				Maximum Non-Detect		1.668
953												
954	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		20

	A	B	C	D	E	F	G	H	I	J	K	L
955	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
956	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	86.96%
957												
958	**UCL Statistics**											
959	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
960					Shapiro Wilk Test Statistic	0.58					Shapiro Wilk Test Statistic	0.945
961					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
962	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
963												
964	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
965					DL/2 Substitution Method						DL/2 Substitution Method	
966					Mean	3.556					Mean	0.144
967					SD	7.047					SD	1.505
968					95% DL/2 (t) UCL	6.08					95% H-Stat (DL/2) UCL	7.147
969												
970					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
971	**MLE yields a negative mean**										Mean in Log Scale	-0.037
972											SD in Log Scale	1.519
973											Mean in Original Scale	3.383
974											SD in Original Scale	7.105
975											95% Percentile Bootstrap UCL	6.006
976											95% BCA Bootstrap UCL	6.998
977												
978	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
979					k star (bias corrected)	0.53	**Data appear Lognormal at 5% Significance Level**					
980					Theta Star	9.391						
981					nu star	15.91						
982												
983					A-D Test Statistic	1.031	**Nonparametric Statistics**					
984					5% A-D Critical Value	0.785					Kaplan-Meier (KM) Method	
985					K-S Test Statistic	0.785					Mean	3.448
986					5% K-S Critical Value	0.232					SD	6.93
987	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	1.498
988											95% KM (t) UCL	6.019
989	**Assuming Gamma Distribution**										95% KM (z) UCL	5.911
990					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5.981
991					Minimum	0.201					95% KM (bootstrap t) UCL	13.42
992					Maximum	27.28					95% KM (BCA) UCL	6.378
993					Mean	4.178					95% KM (Percentile Bootstrap) UCL	6.036
994					Median	1.463					95% KM (Chebyshev) UCL	9.976
995					SD	6.908					97.5% KM (Chebyshev) UCL	12.8
996					k star	0.665					99% KM (Chebyshev) UCL	18.35
997					Theta star	6.282						
998					Nu star	30.59	**Potential UCLs to Use**					
999					AppChi2	18.96					97.5% KM (Chebyshev) UCL	12.8
1000					95% Gamma Approximate UCL	6.742						
1001					95% Adjusted Gamma UCL	6.986						
1002	**Note: DL/2 is not a recommended method.**											
1003												
1004												
1005	**Total Dioxin-like PCBs**											
1006												
1007	**General Statistics**											

1008	Number of Valid Data				9	Number of Detected Data						9
1009	Number of Distinct Detected Data				9	Number of Non-Detect Data						0
1010	Number of Missing Values				7	Percent Non-Detects						0.00%
1011												
1012	**Raw Statistics**					**Log-transformed Statistics**						
1013	Minimum Detected				274.3	Minimum Detected						5.614
1014	Maximum Detected				2388	Maximum Detected						7.778
1015	Mean of Detected				1026	Mean of Detected						6.757
1016	SD of Detected				652.2	SD of Detected						0.643
1017	Minimum Non-Detect				N/A	Minimum Non-Detect						N/A
1018	Maximum Non-Detect				N/A	Maximum Non-Detect						N/A
1019												
1020												
1021	**Warning: There are only 9 Detected Values in this data**											
1022	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1023	**the resulting calculations may not be reliable enough tp draw conclusions**											
1024												
1025	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1026												
1027												
1028	**UCL Statistics**											
1029	**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**						
1030	Shapiro Wilk Test Statistic				0.902	Shapiro Wilk Test Statistic						0.982
1031	5% Shapiro Wilk Critical Value				0.829	5% Shapiro Wilk Critical Value						0.829
1032	**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**						
1033												
1034	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
1035	DL/2 Substitution Method					DL/2 Substitution Method						
1036	Mean				1026	Mean						6.757
1037	SD				652.2	SD						0.643
1038	95% DL/2 (t) UCL				1430	95% H-Stat (DL/2) UCL						1875
1039												
1040	Maximum Likelihood Estimate(MLE) Method				N/A	Log ROS Method						
1041	**MLE method failed to converge properly**					Mean in Log Scale						N/A
1042						SD in Log Scale						N/A
1043						Mean in Original Scale						N/A
1044						SD in Original Scale						N/A
1045						95% Percentile Bootstrap UCL						N/A
1046						95% BCA Bootstrap UCL						N/A
1047												
1048	**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**						
1049	k star (bias corrected)				2.066	**Data appear Normal at 5% Significance Level**						
1050	Theta Star				496.7							
1051	nu star				37.19							
1052												
1053	A-D Test Statistic				0.201	**Nonparametric Statistics**						
1054	5% A-D Critical Value				0.727	Kaplan-Meier (KM) Method						
1055	K-S Test Statistic				0.727	Mean						1026
1056	5% K-S Critical Value				0.281	SD						614.9
1057	**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean						217.4
1058						95% KM (t) UCL						1430
1059	**Assuming Gamma Distribution**					95% KM (z) UCL						1384
1060	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL						1430

1061					Minimum	274.3				95% KM (bootstrap t) UCL		1629
1062					Maximum	2388				95% KM (BCA) UCL		1387
1063					Mean	1026				95% KM (Percentile Bootstrap) UCL		1375
1064					Median	779.8				95% KM (Chebyshev) UCL		1974
1065					SD	652.2				97.5% KM (Chebyshev) UCL		2384
1066					k star	2.066				99% KM (Chebyshev) UCL		3189
1067					Theta star	496.7						
1068					Nu star	37.19				**Potential UCLs to Use**		
1069					AppChi2	24.23				95% KM (t) UCL		1430
1070				95% Gamma Approximate UCL		1575				95% KM (Percentile Bootstrap) UCL		1375
1071				95% Adjusted Gamma UCL		1731						
1072	**Note: DL/2 is not a recommended method.**											
1073												
1074												
1075	**Total PCB TEQ**											
1076												
1077	**General Statistics**											
1078					Number of Valid Data	9				Number of Detected Data		9
1079					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
1080					Number of Missing Values	7				Percent Non-Detects		0.00%
1081												
1082	**Raw Statistics**						**Log-transformed Statistics**					
1083					Minimum Detected	0.238				Minimum Detected		-1.434
1084					Maximum Detected	1.209				Maximum Detected		0.19
1085					Mean of Detected	0.552				Mean of Detected		-0.713
1086					SD of Detected	0.303				SD of Detected		0.505
1087					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1088					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1089												
1090												
1091	**Warning: There are only 9 Detected Values in this data**											
1092	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1093	**the resulting calculations may not be reliable enough tp draw conclusions**											
1094												
1095	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1096												
1097												
1098	**UCL Statistics**											
1099	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1100					Shapiro Wilk Test Statistic	0.875				Shapiro Wilk Test Statistic		0.977
1101					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
1102	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1103												
1104	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1105					DL/2 Substitution Method					DL/2 Substitution Method		
1106					Mean	0.552				Mean		-0.713
1107					SD	0.303				SD		0.505
1108					95% DL/2 (t) UCL	0.74				95% H-Stat (DL/2) UCL		0.83
1109												
1110					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1111	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1112										SD in Log Scale		N/A
1113										Mean in Original Scale		N/A

1114											SD in Original Scale	N/A
1115											95% Percentile Bootstrap UCL	N/A
1116											95% BCA Bootstrap UCL	N/A
1117												
1118	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1119					k star (bias corrected)	3.003	**Data appear Normal at 5% Significance Level**					
1120					Theta Star	0.184						
1121					nu star	54.06						
1122												
1123					A-D Test Statistic	0.26	**Nonparametric Statistics**					
1124					5% A-D Critical Value	0.724					Kaplan-Meier (KM) Method	
1125					K-S Test Statistic	0.724					Mean	0.552
1126					5% K-S Critical Value	0.28					SD	0.286
1127	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.101
1128											95% KM (t) UCL	0.74
1129	**Assuming Gamma Distribution**										95% KM (z) UCL	0.718
1130					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.74
1131					Minimum	0.238					95% KM (bootstrap t) UCL	0.86
1132					Maximum	1.209					95% KM (BCA) UCL	0.719
1133					Mean	0.552					95% KM (Percentile Bootstrap) UCL	0.72
1134					Median	0.462					95% KM (Chebyshev) UCL	0.992
1135					SD	0.303					97.5% KM (Chebyshev) UCL	1.183
1136					k star	3.003					99% KM (Chebyshev) UCL	1.557
1137					Theta star	0.184						
1138					Nu star	54.06	**Potential UCLs to Use**					
1139					AppChi2	38.16					95% KM (t) UCL	0.74
1140					95% Gamma Approximate UCL	0.782					95% KM (Percentile Bootstrap) UCL	0.72
1141					95% Adjusted Gamma UCL	0.843						
1142	**Note: DL/2 is not a recommended method.**											
1143												
1144												
1145	**Total PCB_Congeners**											
1146												
1147	**General Statistics**											
1148					Number of Valid Data	9					Number of Detected Data	9
1149					Number of Distinct Detected Data	9					Number of Non-Detect Data	0
1150					Number of Missing Values	7					Percent Non-Detects	0.00%
1151												
1152	**Raw Statistics**						**Log-transformed Statistics**					
1153					Minimum Detected	5749					Minimum Detected	8.657
1154					Maximum Detected	49585					Maximum Detected	10.81
1155					Mean of Detected	20757					Mean of Detected	9.723
1156					SD of Detected	14360					SD of Detected	0.718
1157					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1158					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1159												
1160												
1161	**Warning: There are only 9 Detected Values in this data**											
1162	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1163	**the resulting calculations may not be reliable enough tp draw conclusions**											
1164												
1165	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1166												

	A	B	C	D	E	F	G	H	I	J	K	L
1167												
1168	**UCL Statistics**											
1169	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1170	Shapiro Wilk Test Statistic					0.903	Shapiro Wilk Test Statistic					0.971
1171	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
1172	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1173												
1174	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1175	DL/2 Substitution Method						DL/2 Substitution Method					
1176	Mean					20757	Mean					9.723
1177	SD					14360	SD					0.718
1178	95% DL/2 (t) UCL					29657	95% H-Stat (DL/2) UCL					42314
1179												
1180	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1181	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1182							SD in Log Scale					N/A
1183							Mean in Original Scale					N/A
1184							SD in Original Scale					N/A
1185							95% Percentile Bootstrap UCL					N/A
1186							95% BCA Bootstrap UCL					N/A
1187												
1188	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1189	k star (bias corrected)					1.705	**Data appear Normal at 5% Significance Level**					
1190	Theta Star					12171						
1191	nu star					30.7						
1192												
1193	A-D Test Statistic					0.188	**Nonparametric Statistics**					
1194	5% A-D Critical Value					0.728	Kaplan-Meier (KM) Method					
1195	K-S Test Statistic					0.728	Mean					20757
1196	5% K-S Critical Value					0.282	SD					13538
1197	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					4787
1198							95% KM (t) UCL					29657
1199	**Assuming Gamma Distribution**						95% KM (z) UCL					28630
1200	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					29657
1201	Minimum					5749	95% KM (bootstrap t) UCL					34122
1202	Maximum					49585	95% KM (BCA) UCL					28579
1203	Mean					20757	95% KM (Percentile Bootstrap) UCL					28177
1204	Median					17050	95% KM (Chebyshev) UCL					41621
1205	SD					14360	97.5% KM (Chebyshev) UCL					50648
1206	k star					1.705	99% KM (Chebyshev) UCL					68382
1207	Theta star					12171						
1208	Nu star					30.7	**Potential UCLs to Use**					
1209	AppChi2					19.04	95% KM (t) UCL					29657
1210	95% Gamma Approximate UCL					33462	95% KM (Percentile Bootstrap) UCL					28177
1211	95% Adjusted Gamma UCL					37191						
1212	**Note: DL/2 is not a recommended method.**											
1213												
1214												
1215	**Total PCBs, Adjusted**											
1216												
1217	**General Statistics**											
1218	Number of Valid Data					9	Number of Detected Data					9
1219	Number of Distinct Detected Data					9	Number of Non-Detect Data					0

1220					Number of Missing Values	7					Percent Non-Detects	0.00%
1221												
1222				**Raw Statistics**						**Log-transformed Statistics**		
1223					Minimum Detected	5475					Minimum Detected	8.608
1224					Maximum Detected	47196					Maximum Detected	10.76
1225					Mean of Detected	19730					Mean of Detected	9.668
1226					SD of Detected	13718					SD of Detected	0.725
1227					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1228					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1229												
1230												
1231						**Warning: There are only 9 Detected Values in this data**							
1232						**Note: It should be noted that even though bootstrap may be performed on this data set**						
1233						**the resulting calculations may not be reliable enough tp draw conclusions**						
1234												
1235						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
1236												
1237												
1238						**UCL Statistics**							
1239				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1240					Shapiro Wilk Test Statistic	0.903					Shapiro Wilk Test Statistic	0.967
1241					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
1242				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1243												
1244				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1245					DL/2 Substitution Method						DL/2 Substitution Method	
1246					Mean	19730					Mean	9.668
1247					SD	13718					SD	0.725
1248					95% DL/2 (t) UCL	28234					95% H-Stat (DL/2) UCL	40674
1249												
1250					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1251				**MLE method failed to converge properly**							Mean in Log Scale	N/A
1252											SD in Log Scale	N/A
1253											Mean in Original Scale	N/A
1254											SD in Original Scale	N/A
1255											95% Percentile Bootstrap UCL	N/A
1256											95% BCA Bootstrap UCL	N/A
1257												
1258				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1259					k star (bias corrected)	1.681				**Data appear Normal at 5% Significance Level**		
1260					Theta Star	11736						
1261					nu star	30.26						
1262												
1263					A-D Test Statistic	0.194				**Nonparametric Statistics**		
1264					5% A-D Critical Value	0.729					Kaplan-Meier (KM) Method	
1265					K-S Test Statistic	0.729					Mean	19730
1266					5% K-S Critical Value	0.282					SD	12934
1267				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	4573
1268											95% KM (t) UCL	28234
1269				**Assuming Gamma Distribution**							95% KM (z) UCL	27252
1270					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	28234
1271					Minimum	5475					95% KM (bootstrap t) UCL	32416
1272					Maximum	47196					95% KM (BCA) UCL	27176

1273					Mean	19730				95% KM (Percentile Bootstrap) UCL		26896
1274					Median	16034				95% KM (Chebyshev) UCL		39663
1275					SD	13718				97.5% KM (Chebyshev) UCL		48287
1276					k star	1.681				99% KM (Chebyshev) UCL		65228
1277					Theta star	11736						
1278					Nu star	30.26				**Potential UCLs to Use**		
1279					AppChi2	18.7				95% KM (t) UCL		28234
1280					95% Gamma Approximate UCL	31932				95% KM (Percentile Bootstrap) UCL		26896
1281					95% Adjusted Gamma UCL	35522						
1282	**Note: DL/2 is not a recommended method.**											
1283												
1284												
1285	**Tributyltin ion**											
1286												
1287					**General Statistics**							
1288					Number of Valid Data	12				Number of Detected Data		12
1289					Number of Distinct Detected Data	10				Number of Non-Detect Data		0
1290					Number of Missing Values	28				Percent Non-Detects		0.00%
1291												
1292					**Raw Statistics**					**Log-transformed Statistics**		
1293					Minimum Detected	29				Minimum Detected		3.367
1294					Maximum Detected	1600				Maximum Detected		7.378
1295					Mean of Detected	264.7				Mean of Detected		4.956
1296					SD of Detected	428.6				SD of Detected		1.066
1297					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1298					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1299												
1300												
1301					**UCL Statistics**							
1302					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1303					Shapiro Wilk Test Statistic	0.507				Shapiro Wilk Test Statistic		0.926
1304					5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value		0.859
1305					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1306												
1307					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1308					DL/2 Substitution Method					DL/2 Substitution Method		
1309					Mean	264.7				Mean		4.956
1310					SD	428.6				SD		1.066
1311					95% DL/2 (t) UCL	486.9				95% H-Stat (DL/2) UCL		665.5
1312												
1313					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1314					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1315										SD in Log Scale		N/A
1316										Mean in Original Scale		N/A
1317										SD in Original Scale		N/A
1318										95% Percentile Bootstrap UCL		N/A
1319										95% BCA Bootstrap UCL		N/A
1320												
1321					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1322					k star (bias corrected)	0.757				**Data appear Lognormal at 5% Significance Level**		
1323					Theta Star	349.7						
1324					nu star	18.16						
1325												

	A	B	C	D	E	F	G	H	I	J	K	L
1326					A-D Test Statistic	0.891	**Nonparametric Statistics**					
1327					5% A-D Critical Value	0.759					Kaplan-Meier (KM) Method	
1328					K-S Test Statistic	0.759					Mean	264.7
1329					5% K-S Critical Value	0.253					SD	410.4
1330			**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	123.7
1331											95% KM (t) UCL	486.9
1332			**Assuming Gamma Distribution**								95% KM (z) UCL	468.2
1333			Gamma ROS Statistics using Extrapolated Data								95% KM (jackknife) UCL	486.9
1334					Minimum	29					95% KM (bootstrap t) UCL	1154
1335					Maximum	1600					95% KM (BCA) UCL	513.9
1336					Mean	264.7					95% KM (Percentile Bootstrap) UCL	493.8
1337					Median	155					95% KM (Chebyshev) UCL	804
1338					SD	428.6					97.5% KM (Chebyshev) UCL	1037
1339					k star	0.757					99% KM (Chebyshev) UCL	1496
1340					Theta star	349.7						
1341					Nu star	18.16	**Potential UCLs to Use**					
1342					AppChi2	9.51					97.5% KM (Chebyshev) UCL	1037
1343				95% Gamma Approximate UCL		505.5						
1344				95% Adjusted Gamma UCL		561						
1345	**Note: DL/2 is not a recommended method.**											
1346												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM7.0W.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Aldrin											
10												
11					General Statistics							
12				Number of Valid Data	41			Number of Detected Data	14			
13				Number of Distinct Detected Data	14			Number of Non-Detect Data	27			
14				Number of Missing Values	7			Percent Non-Detects	65.85%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	0.0811			Minimum Detected	-2.512			
18				Maximum Detected	691			Maximum Detected	6.538			
19				Mean of Detected	57.43			Mean of Detected	1.771			
20				SD of Detected	182.5			SD of Detected	2.077			
21				Minimum Non-Detect	0.0519			Minimum Non-Detect	-2.958			
22				Maximum Non-Detect	99			Maximum Non-Detect	4.595			
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect	40			
25	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected	1			
26	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage	97.56%			
27												
28					UCL Statistics							
29				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
30				Shapiro Wilk Test Statistic	0.335			Shapiro Wilk Test Statistic	0.951			
31				5% Shapiro Wilk Critical Value	0.874			5% Shapiro Wilk Critical Value	0.874			
32				Data not Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level				
33												
34				Assuming Normal Distribution				Assuming Lognormal Distribution				
35				DL/2 Substitution Method				DL/2 Substitution Method				
36				Mean	26.67			Mean	0.9			
37				SD	107.3			SD	2.361			
38				95% DL/2 (t) UCL	54.89			95% H-Stat (DL/2) UCL	84.47			
39												
40				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
41				MLE method failed to converge properly				Mean in Log Scale	-0.713			
42								SD in Log Scale	2.303			
43								Mean in Original Scale	19.75			
44								SD in Original Scale	107.6			
45								95% Percentile Bootstrap UCL	53.43			
46								95% BCA Bootstrap UCL	85.89			
47												
48				Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only				
49				k star (bias corrected)	0.285			Data appear Lognormal at 5% Significance Level				
50				Theta Star	201.5							
51				nu star	7.981							
52												
53				A-D Test Statistic	1.638			Nonparametric Statistics				

54					5% A-D Critical Value	0.832				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	0.832				Mean		20.5
56					5% K-S Critical Value	0.248				SD		106.2
57	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		17.22
58										95% KM (t) UCL		49.5
59	**Assuming Gamma Distribution**									95% KM (z) UCL		48.83
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		48.53
61					Minimum	1E-09				95% KM (bootstrap t) UCL		379.1
62					Maximum	691				95% KM (BCA) UCL		54.97
63					Mean	55.18				95% KM (Percentile Bootstrap) UCL		54.07
64					Median	10.6				95% KM (Chebyshev) UCL		95.57
65					SD	123.8				97.5% KM (Chebyshev) UCL		128.1
66					k star	0.124				99% KM (Chebyshev) UCL		191.9
67					Theta star	446.5						
68					Nu star	10.13				**Potential UCLs to Use**		
69					AppChi2	4.025				99% KM (Chebyshev) UCL		191.9
70					95% Gamma Approximate UCL	138.9						
71					95% Adjusted Gamma UCL	143.9						
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Arsenic**											
76												
77							**General Statistics**					
78					Number of Valid Data	41				Number of Detected Data		33
79					Number of Distinct Detected Data	31				Number of Non-Detect Data		8
80					Number of Missing Values	7				Percent Non-Detects		19.51%
81												
82	**Raw Statistics**									**Log-transformed Statistics**		
83					Minimum Detected	3.09				Minimum Detected		1.128
84					Maximum Detected	8.37				Maximum Detected		2.125
85					Mean of Detected	4.554				Mean of Detected		1.482
86					SD of Detected	1.311				SD of Detected		0.254
87					Minimum Non-Detect	4				Minimum Non-Detect		1.386
88					Maximum Non-Detect	6				Maximum Non-Detect		1.792
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		37
91	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
92	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		90.24%
93												
94							**UCL Statistics**					
95	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
96					Shapiro Wilk Test Statistic	0.832				Shapiro Wilk Test Statistic		0.91
97					5% Shapiro Wilk Critical Value	0.931				5% Shapiro Wilk Critical Value		0.931
98	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
99												
100	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
101					DL/2 Substitution Method					DL/2 Substitution Method		
102					Mean	4.153				Mean		1.371
103					SD	1.437				SD		0.326
104					95% DL/2 (t) UCL	4.531				95% H-Stat (DL/2) UCL		4.204
105												
106					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		

107					Mean	2.411				Mean in Log Scale		1.461
108					SD	2.79				SD in Log Scale		0.239
109					95% MLE (t) UCL	3.145				Mean in Original Scale		4.441
110					95% MLE (Tiku) UCL	5.552				SD in Original Scale		1.217
111										95% Percentile Bootstrap UCL		4.757
112										95% BCA Bootstrap UCL		4.822
113												
114	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
115					k star (bias corrected)	13.61				**Data do not follow a Discernable Distribution (0.05)**		
116					Theta Star	0.335						
117					nu star	898.2						
118												
119					A-D Test Statistic	1.2				**Nonparametric Statistics**		
120					5% A-D Critical Value	0.746				Kaplan-Meier (KM) Method		
121					K-S Test Statistic	0.746				Mean		4.426
122					5% K-S Critical Value	0.153				SD		1.21
123	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.196
124										95% KM (t) UCL		4.756
125	**Assuming Gamma Distribution**									95% KM (z) UCL		4.748
126	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		4.755
127					Minimum	3.09				95% KM (bootstrap t) UCL		4.826
128					Maximum	8.37				95% KM (BCA) UCL		4.764
129					Mean	4.551				95% KM (Percentile Bootstrap) UCL		4.753
130					Median	4.24				95% KM (Chebyshev) UCL		5.28
131					SD	1.196				97.5% KM (Chebyshev) UCL		5.649
132					k star	16.38				99% KM (Chebyshev) UCL		6.375
133					Theta star	0.278						
134					Nu star	1343				**Potential UCLs to Use**		
135					AppChi2	1259				95% KM (Chebyshev) UCL		5.28
136					95% Gamma Approximate UCL	4.855						
137					95% Adjusted Gamma UCL	4.867						
138	**Note: DL/2 is not a recommended method.**											
139												
140												
141	**Benzo(a)anthracene**											
142												
143	**General Statistics**											
144					Number of Valid Data	42				Number of Detected Data		42
145					Number of Distinct Detected Data	39				Number of Non-Detect Data		0
146					Number of Missing Values	6				Percent Non-Detects		0.00%
147												
148	**Raw Statistics**									**Log-transformed Statistics**		
149					Minimum Detected	8.8				Minimum Detected		2.175
150					Maximum Detected	16000				Maximum Detected		9.68
151					Mean of Detected	563.9				Mean of Detected		4.643
152					SD of Detected	2455				SD of Detected		1.412
153					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
154					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
155												
156												
157	**UCL Statistics**											
158	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
159					Shapiro Wilk Test Statistic	0.218				Shapiro Wilk Test Statistic		0.901

160	5% Shapiro Wilk Critical Value					0.942	5% Shapiro Wilk Critical Value					0.942
161	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
162												
163	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
164	DL/2 Substitution Method						DL/2 Substitution Method					
165	Mean					563.9	Mean					4.643
166	SD					2455	SD					1.412
167	95% DL/2 (t) UCL					1201	95% H-Stat (DL/2) UCL					526
168												
169	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
170	**MLE method failed to converge properly**						Mean in Log Scale					N/A
171							SD in Log Scale					N/A
172							Mean in Original Scale					N/A
173							SD in Original Scale					N/A
174							95% Percentile Bootstrap UCL					N/A
175							95% BCA Bootstrap UCL					N/A
176												
177	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
178	k star (bias corrected)					0.378	**Data do not follow a Discernable Distribution (0.05)**					
179	Theta Star					1490						
180	nu star					31.79						
181												
182	A-D Test Statistic					5.276	**Nonparametric Statistics**					
183	5% A-D Critical Value					0.839	Kaplan-Meier (KM) Method					
184	K-S Test Statistic					0.839	Mean					563.9
185	5% K-S Critical Value					0.146	SD					2426
186	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					378.9
187							95% KM (t) UCL					1201
188	**Assuming Gamma Distribution**						95% KM (z) UCL					1187
189	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1201
190	Minimum					8.8	95% KM (bootstrap t) UCL					5780
191	Maximum					16000	95% KM (BCA) UCL					1347
192	Mean					563.9	95% KM (Percentile Bootstrap) UCL					1310
193	Median					89.5	95% KM (Chebyshev) UCL					2215
194	SD					2455	97.5% KM (Chebyshev) UCL					2930
195	k star					0.378	99% KM (Chebyshev) UCL					4333
196	Theta star					1490						
197	Nu star					31.79	**Potential UCLs to Use**					
198	AppChi2					19.9	95% KM (Chebyshev) UCL					2215
199	95% Gamma Approximate UCL					900.6						
200	95% Adjusted Gamma UCL					916						
201	**Note: DL/2 is not a recommended method.**											
202												
203												
204	**Benzo(a)pyrene**											
205												
206	**General Statistics**											
207	Number of Valid Data					42	Number of Detected Data					42
208	Number of Distinct Detected Data					32	Number of Non-Detect Data					0
209	Number of Missing Values					6	Percent Non-Detects					0.00%
210												
211	**Raw Statistics**						**Log-transformed Statistics**					
212	Minimum Detected					11	Minimum Detected					2.398

	A	B	C	D	E	F	G	H	I	J	K	L
213					Maximum Detected	12000					Maximum Detected	9.393
214					Mean of Detected	465.9					Mean of Detected	4.73
215					SD of Detected	1840					SD of Detected	1.301
216					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
217					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
218												
219												
220	**UCL Statistics**											
221	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
222					Shapiro Wilk Test Statistic	0.234					Shapiro Wilk Test Statistic	0.906
223					5% Shapiro Wilk Critical Value	0.942					5% Shapiro Wilk Critical Value	0.942
224	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
225												
226	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
227					DL/2 Substitution Method						DL/2 Substitution Method	
228					Mean	465.9					Mean	4.73
229					SD	1840					SD	1.301
230					95% DL/2 (t) UCL	943.8					95% H-Stat (DL/2) UCL	456.5
231												
232					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
233	**MLE method failed to converge properly**										Mean in Log Scale	N/A
234											SD in Log Scale	N/A
235											Mean in Original Scale	N/A
236											SD in Original Scale	N/A
237											95% Percentile Bootstrap UCL	N/A
238											95% BCA Bootstrap UCL	N/A
239												
240	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
241					k star (bias corrected)	0.439	**Data do not follow a Discernable Distribution (0.05)**					
242					Theta Star	1061						
243					nu star	36.89						
244												
245					A-D Test Statistic	4.877	**Nonparametric Statistics**					
246					5% A-D Critical Value	0.823					Kaplan-Meier (KM) Method	
247					K-S Test Statistic	0.823					Mean	465.9
248					5% K-S Critical Value	0.145					SD	1818
249	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	284
250											95% KM (t) UCL	943.8
251	**Assuming Gamma Distribution**										95% KM (z) UCL	933
252					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	943.8
253					Minimum	11					95% KM (bootstrap t) UCL	3713
254					Maximum	12000					95% KM (BCA) UCL	1022
255					Mean	465.9					95% KM (Percentile Bootstrap) UCL	1016
256					Median	97.5					95% KM (Chebyshev) UCL	1704
257					SD	1840					97.5% KM (Chebyshev) UCL	2239
258					k star	0.439					99% KM (Chebyshev) UCL	3291
259					Theta star	1061						
260					Nu star	36.89	**Potential UCLs to Use**					
261					AppChi2	23.99					95% KM (Chebyshev) UCL	1704
262					95% Gamma Approximate UCL	716.5						
263					95% Adjusted Gamma UCL	727.8						
264	**Note: DL/2 is not a recommended method.**											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267	**Benzo(b)fluoranthene**											
268												
269						**General Statistics**							
270						Number of Valid Data	42				Number of Detected Data	42
271						Number of Distinct Detected Data	37				Number of Non-Detect Data	0
272						Number of Missing Values	6				Percent Non-Detects	0.00%
273												
274						**Raw Statistics**					**Log-transformed Statistics**	
275						Minimum Detected	11				Minimum Detected	2.398
276						Maximum Detected	33000				Maximum Detected	10.4
277						Mean of Detected	1069				Mean of Detected	4.99
278						SD of Detected	5077				SD of Detected	1.461
279						Minimum Non-Detect	N/A				Minimum Non-Detect	N/A
280						Maximum Non-Detect	N/A				Maximum Non-Detect	N/A
281												
282												
283						**UCL Statistics**							
284						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
285						Shapiro Wilk Test Statistic	0.207				Shapiro Wilk Test Statistic	0.889
286						5% Shapiro Wilk Critical Value	0.942				5% Shapiro Wilk Critical Value	0.942
287						**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
288												
289						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
290						DL/2 Substitution Method					DL/2 Substitution Method	
291						Mean	1069				Mean	4.99
292						SD	5077				SD	1.461
293						95% DL/2 (t) UCL	2388				95% H-Stat (DL/2) UCL	827.6
294												
295						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
296						**MLE method failed to converge properly**					Mean in Log Scale	N/A
297											SD in Log Scale	N/A
298											Mean in Original Scale	N/A
299											SD in Original Scale	N/A
300											95% Percentile Bootstrap UCL	N/A
301											95% BCA Bootstrap UCL	N/A
302												
303						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
304						k star (bias corrected)	0.332				**Data do not follow a Discernable Distribution (0.05)**	
305						Theta Star	3221					
306						nu star	27.88					
307												
308						A-D Test Statistic	6.469				**Nonparametric Statistics**	
309						5% A-D Critical Value	0.85				Kaplan-Meier (KM) Method	
310						K-S Test Statistic	0.85				Mean	1069
311						5% K-S Critical Value	0.147				SD	5016
312						**Data not Gamma Distributed at 5% Significance Level**					SE of Mean	783.4
313											95% KM (t) UCL	2388
314						**Assuming Gamma Distribution**					95% KM (z) UCL	2358
315						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	2388
316						Minimum	11				95% KM (bootstrap t) UCL	17030
317						Maximum	33000				95% KM (BCA) UCL	2606
318						Mean	1069				95% KM (Percentile Bootstrap) UCL	2610

319					Median	135				95% KM (Chebyshev) UCL		4484
320					SD	5077				97.5% KM (Chebyshev) UCL		5961
321					k star	0.332				99% KM (Chebyshev) UCL		8864
322					Theta star	3221						
323					Nu star	27.88				**Potential UCLs to Use**		
324					AppChi2	16.84				95% KM (Chebyshev) UCL		4484
325					95% Gamma Approximate UCL	1771						
326					95% Adjusted Gamma UCL	1804						
327	**Note: DL/2 is not a recommended method.**											
328												
329												
330	**Benzo(k)fluoranthene**											
331												
332						**General Statistics**						
333					Number of Valid Data	42				Number of Detected Data		42
334					Number of Distinct Detected Data	38				Number of Non-Detect Data		0
335					Number of Missing Values	6				Percent Non-Detects		0.00%
336												
337					**Raw Statistics**					**Log-transformed Statistics**		
338					Minimum Detected	7				Minimum Detected		1.946
339					Maximum Detected	10000				Maximum Detected		9.21
340					Mean of Detected	390.2				Mean of Detected		4.355
341					SD of Detected	1542				SD of Detected		1.457
342					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
343					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
344												
345												
346						**UCL Statistics**						
347					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
348					Shapiro Wilk Test Statistic	0.245				Shapiro Wilk Test Statistic		0.912
349					5% Shapiro Wilk Critical Value	0.942				5% Shapiro Wilk Critical Value		0.942
350					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
351												
352					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
353					DL/2 Substitution Method					DL/2 Substitution Method		
354					Mean	390.2				Mean		4.355
355					SD	1542				SD		1.457
356					95% DL/2 (t) UCL	790.8				95% H-Stat (DL/2) UCL		434.8
357												
358					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
359					**MLE method failed to converge properly**					Mean in Log Scale		N/A
360										SD in Log Scale		N/A
361										Mean in Original Scale		N/A
362										SD in Original Scale		N/A
363										95% Percentile Bootstrap UCL		N/A
364										95% BCA Bootstrap UCL		N/A
365												
366					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
367					k star (bias corrected)	0.394				**Data do not follow a Discernable Distribution (0.05)**		
368					Theta Star	990.5						
369					nu star	33.09						
370												
371					A-D Test Statistic	4.39				**Nonparametric Statistics**		

372				5% A-D Critical Value	0.835					Kaplan-Meier (KM) Method		
373				K-S Test Statistic	0.835					Mean	390.2	
374				5% K-S Critical Value	0.146					SD	1524	
375				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	238	
376										95% KM (t) UCL	790.8	
377				**Assuming Gamma Distribution**						95% KM (z) UCL	781.7	
378				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	790.8	
379				Minimum	7					95% KM (bootstrap t) UCL	2819	
380				Maximum	10000					95% KM (BCA) UCL	862.1	
381				Mean	390.2					95% KM (Percentile Bootstrap) UCL	847.4	
382				Median	78.5					95% KM (Chebyshev) UCL	1428	
383				SD	1542					97.5% KM (Chebyshev) UCL	1877	
384				k star	0.394					99% KM (Chebyshev) UCL	2758	
385				Theta star	990.5							
386				Nu star	33.09					**Potential UCLs to Use**		
387				AppChi2	20.94					95% KM (Chebyshev) UCL	1428	
388				95% Gamma Approximate UCL	616.7							
389				95% Adjusted Gamma UCL	627							
390	**Note: DL/2 is not a recommended method.**											
391												
392												
393	**Bis(2-ethylhexyl) phthalate**											
394												
395										**General Statistics**		
396				Number of Valid Data	41					Number of Detected Data	30	
397				Number of Distinct Detected Data	24					Number of Non-Detect Data	11	
398				Number of Missing Values	7					Percent Non-Detects	26.83%	
399												
400				**Raw Statistics**						**Log-transformed Statistics**		
401				Minimum Detected	26.5					Minimum Detected	3.277	
402				Maximum Detected	830					Maximum Detected	6.721	
403				Mean of Detected	263.5					Mean of Detected	5.302	
404				SD of Detected	207					SD of Detected	0.762	
405				Minimum Non-Detect	29					Minimum Non-Detect	3.367	
406				Maximum Non-Detect	330					Maximum Non-Detect	5.799	
407												
408	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	33	
409	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	8	
410	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	80.49%	
411												
412										**UCL Statistics**		
413				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
414				Shapiro Wilk Test Statistic	0.82					Shapiro Wilk Test Statistic	0.96	
415				5% Shapiro Wilk Critical Value	0.927					5% Shapiro Wilk Critical Value	0.927	
416				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
417												
418				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
419				DL/2 Substitution Method						DL/2 Substitution Method		
420				Mean	208.4					Mean	4.882	
421				SD	200.6					SD	1.042	
422				95% DL/2 (t) UCL	261.1					95% H-Stat (DL/2) UCL	303.3	
423												
424				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		

425	**MLE yields a negative mean**									Mean in Log Scale		4.956
426										SD in Log Scale		0.89
427										Mean in Original Scale		208.7
428										SD in Original Scale		199.1
429										95% Percentile Bootstrap UCL		260.3
430										95% BCA Bootstrap UCL		265.8
431												
432	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
433				k star (bias corrected)	1.815					**Data appear Lognormal at 5% Significance Level**		
434				Theta Star	145.2							
435				nu star	108.9							
436												
437				A-D Test Statistic	0.768					**Nonparametric Statistics**		
438				5% A-D Critical Value	0.759					Kaplan-Meier (KM) Method		
439				K-S Test Statistic	0.759					Mean		206.3
440				5% K-S Critical Value	0.162					SD		199.8
441	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		31.89
442										95% KM (t) UCL		260
443	**Assuming Gamma Distribution**									95% KM (z) UCL		258.8
444				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		254.4
445				Minimum	26.5					95% KM (bootstrap t) UCL		272.8
446				Maximum	830					95% KM (BCA) UCL		274.2
447				Mean	220.6					95% KM (Percentile Bootstrap) UCL		263.8
448				Median	150					95% KM (Chebyshev) UCL		345.3
449				SD	197.2					97.5% KM (Chebyshev) UCL		405.5
450				k star	1.367					99% KM (Chebyshev) UCL		523.6
451				Theta star	161.3							
452				Nu star	112.1					**Potential UCLs to Use**		
453				AppChi2	88.66					95% KM (BCA) UCL		274.2
454				95% Gamma Approximate UCL	278.9							
455				95% Adjusted Gamma UCL	281.3							
456	**Note: DL/2 is not a recommended method.**											
457												
458												
459	**Dibenzo(a,h)anthracene**											
460												
461	**General Statistics**											
462				Number of Valid Data	42					Number of Detected Data		35
463				Number of Distinct Detected Data	29					Number of Non-Detect Data		7
464				Number of Missing Values	6					Percent Non-Detects		16.67%
465												
466	**Raw Statistics**									**Log-transformed Statistics**		
467				Minimum Detected	1.3					Minimum Detected		0.262
468				Maximum Detected	3900					Maximum Detected		8.269
469				Mean of Detected	151.7					Mean of Detected		2.877
470				SD of Detected	659.4					SD of Detected		1.588
471				Minimum Non-Detect	19					Minimum Non-Detect		2.944
472				Maximum Non-Detect	20					Maximum Non-Detect		2.996
473												
474	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		28
475	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		14
476	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		66.67%
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478	**UCL Statistics**											
479	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
480					Shapiro Wilk Test Statistic	0.235					Shapiro Wilk Test Statistic	0.919
481					5% Shapiro Wilk Critical Value	0.934					5% Shapiro Wilk Critical Value	0.934
482	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
483												
484	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
485					DL/2 Substitution Method						DL/2 Substitution Method	
486					Mean	128					Mean	2.777
487					SD	602.8					SD	1.464
488					95% DL/2 (t) UCL	284.6					95% H-Stat (DL/2) UCL	63.4
489												
490					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
491	**MLE yields a negative mean**										Mean in Log Scale	2.72
492											SD in Log Scale	1.513
493											Mean in Original Scale	127.8
494											SD in Original Scale	602.9
495											95% Percentile Bootstrap UCL	310.6
496											95% BCA Bootstrap UCL	505.6
497												
498	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
499					k star (bias corrected)	0.31	**Data do not follow a Discernable Distribution (0.05)**					
500					Theta Star	489.1						
501					nu star	21.71						
502												
503					A-D Test Statistic	5.263	**Nonparametric Statistics**					
504					5% A-D Critical Value	0.852					Kaplan-Meier (KM) Method	
505					K-S Test Statistic	0.852					Mean	127.8
506					5% K-S Critical Value	0.161					SD	595.7
507	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	93.26
508											95% KM (t) UCL	284.7
509	**Assuming Gamma Distribution**										95% KM (z) UCL	281.2
510					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	284.4
511					Minimum	1E-09					95% KM (bootstrap t) UCL	2477
512					Maximum	3900					95% KM (BCA) UCL	312.8
513					Mean	132					95% KM (Percentile Bootstrap) UCL	308.4
514					Median	13					95% KM (Chebyshev) UCL	534.3
515					SD	602.6					97.5% KM (Chebyshev) UCL	710.2
516					k star	0.165					99% KM (Chebyshev) UCL	1056
517					Theta star	798.5						
518					Nu star	13.88	**Potential UCLs to Use**					
519					AppChi2	6.49					97.5% KM (Chebyshev) UCL	710.2
520					95% Gamma Approximate UCL	282.2						
521					95% Adjusted Gamma UCL	290.3						
522	**Note: DL/2 is not a recommended method.**											
523												
524												
525	**Dieldrin**											
526												
527	**General Statistics**											
528					Number of Valid Data	31					Number of Detected Data	7
529					Number of Distinct Detected Data	7					Number of Non-Detect Data	24
530					Number of Missing Values	9					Percent Non-Detects	77.42%

531												
532	**Raw Statistics**						**Log-transformed Statistics**					
533					Minimum Detected	0.109					Minimum Detected	-2.216
534					Maximum Detected	13					Maximum Detected	2.565
535					Mean of Detected	4.229					Mean of Detected	0.177
536					SD of Detected	5.459					SD of Detected	2.014
537					Minimum Non-Detect	0.0743					Minimum Non-Detect	-2.6
538					Maximum Non-Detect	3.5					Maximum Non-Detect	1.253
539												
540	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	29
541	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
542	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.55%
543												
544	**Warning: There are only 7 Detected Values in this data**											
545	**Note: It should be noted that even though bootstrap may be performed on this data set**											
546	**the resulting calculations may not be reliable enough tp draw conclusions**											
547												
548	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
549												
550												
551	**UCL Statistics**											
552	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
553					Shapiro Wilk Test Statistic	0.77					Shapiro Wilk Test Statistic	0.88
554					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
555	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
556												
557	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
558					DL/2 Substitution Method						DL/2 Substitution Method	
559					Mean	1.273					Mean	-1.006
560					SD	2.954					SD	1.435
561					95% DL/2 (t) UCL	2.173					95% H-Stat (DL/2) UCL	1.731
562												
563					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
564	**MLE method failed to converge properly**										Mean in Log Scale	-2.856
565											SD in Log Scale	1.981
566											Mean in Original Scale	0.977
567											SD in Original Scale	3.024
568											95% Percentile Bootstrap UCL	1.877
569											95% BCA Bootstrap UCL	2.43
570												
571	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
572					k star (bias corrected)	0.382	**Data appear Gamma Distributed at 5% Significance Level**					
573					Theta Star	11.07						
574					nu star	5.349						
575												
576					A-D Test Statistic	0.436	**Nonparametric Statistics**					
577					5% A-D Critical Value	0.751					Kaplan-Meier (KM) Method	
578					K-S Test Statistic	0.751					Mean	1.065
579					5% K-S Critical Value	0.327					SD	2.951
580	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.573
581											95% KM (t) UCL	2.038
582	**Assuming Gamma Distribution**										95% KM (z) UCL	2.008
583	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	1.955

584					Minimum	0.109				95% KM (bootstrap t) UCL		4.274
585					Maximum	13				95% KM (BCA) UCL		2.615
586					Mean	2.788				95% KM (Percentile Bootstrap) UCL		2.264
587					Median	2.61				95% KM (Chebyshev) UCL		3.565
588					SD	2.756				97.5% KM (Chebyshev) UCL		4.646
589					k star	1.116				99% KM (Chebyshev) UCL		6.771
590					Theta star	2.498						
591					Nu star	69.19				**Potential UCLs to Use**		
592					AppChi2	51.05				95% KM (t) UCL		2.038
593					95% Gamma Approximate UCL	3.779						
594					95% Adjusted Gamma UCL	3.844						
595	**Note: DL/2 is not a recommended method.**											
596												
597												
598	**Indeno(1,2,3-cd)pyrene**											
599												
600					**General Statistics**							
601					Number of Valid Data	42				Number of Detected Data		42
602					Number of Distinct Detected Data	37				Number of Non-Detect Data		0
603					Number of Missing Values	6				Percent Non-Detects		0.00%
604												
605					**Raw Statistics**					**Log-transformed Statistics**		
606					Minimum Detected	8				Minimum Detected		2.079
607					Maximum Detected	9900				Maximum Detected		9.2
608					Mean of Detected	367.6				Mean of Detected		4.449
609					SD of Detected	1520				SD of Detected		1.272
610					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
611					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
612												
613												
614					**UCL Statistics**							
615					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
616					Shapiro Wilk Test Statistic	0.224				Shapiro Wilk Test Statistic		0.896
617					5% Shapiro Wilk Critical Value	0.942				5% Shapiro Wilk Critical Value		0.942
618					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
619												
620					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
621					DL/2 Substitution Method					DL/2 Substitution Method		
622					Mean	367.6				Mean		4.449
623					SD	1520				SD		1.272
624					95% DL/2 (t) UCL	762.4				95% H-Stat (DL/2) UCL		325.8
625												
626					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
627					**MLE method failed to converge properly**					Mean in Log Scale		N/A
628										SD in Log Scale		N/A
629										Mean in Original Scale		N/A
630										SD in Original Scale		N/A
631										95% Percentile Bootstrap UCL		N/A
632										95% BCA Bootstrap UCL		N/A
633												
634					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
635					k star (bias corrected)	0.428				**Data do not follow a Discernable Distribution (0.05)**		
636					Theta Star	858.8						

637					nu star	35.95						
638												
639					A-D Test Statistic	5.587	**Nonparametric Statistics**					
640					5% A-D Critical Value	0.826				Kaplan-Meier (KM) Method		
641					K-S Test Statistic	0.826				Mean		367.6
642					5% K-S Critical Value	0.145				SD		1502
643	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		234.6
644										95% KM (t) UCL		762.4
645	**Assuming Gamma Distribution**									95% KM (z) UCL		753.4
646					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		762.4
647					Minimum	8				95% KM (bootstrap t) UCL		4148
648					Maximum	9900				95% KM (BCA) UCL		829.1
649					Mean	367.6				95% KM (Percentile Bootstrap) UCL		827.4
650					Median	80				95% KM (Chebyshev) UCL		1390
651					SD	1520				97.5% KM (Chebyshev) UCL		1833
652					k star	0.428				99% KM (Chebyshev) UCL		2702
653					Theta star	858.8						
654					Nu star	35.95	**Potential UCLs to Use**					
655					AppChi2	23.23				95% KM (Chebyshev) UCL		1390
656					95% Gamma Approximate UCL	568.9						
657					95% Adjusted Gamma UCL	578						
658	**Note: DL/2 is not a recommended method.**											
659												
660												
661	**Lead**											
662												
663	**General Statistics**											
664					Number of Valid Data	41				Number of Detected Data		41
665					Number of Distinct Detected Data	39				Number of Non-Detect Data		0
666					Number of Missing Values	7				Percent Non-Detects		0.00%
667												
668	**Raw Statistics**						**Log-transformed Statistics**					
669					Minimum Detected	11				Minimum Detected		2.398
670					Maximum Detected	1290				Maximum Detected		7.162
671					Mean of Detected	69.45				Mean of Detected		3.349
672					SD of Detected	203				SD of Detected		0.968
673					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
674					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
675												
676												
677	**UCL Statistics**											
678	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
679					Shapiro Wilk Test Statistic	0.292				Shapiro Wilk Test Statistic		0.758
680					5% Shapiro Wilk Critical Value	0.941				5% Shapiro Wilk Critical Value		0.941
681	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
682												
683	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
684					DL/2 Substitution Method					DL/2 Substitution Method		
685					Mean	69.45				Mean		3.349
686					SD	203				SD		0.968
687					95% DL/2 (t) UCL	122.8				95% H-Stat (DL/2) UCL		64.86
688												
689					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		

690	MLE method failed to converge properly									Mean in Log Scale		N/A
691										SD in Log Scale		N/A
692										Mean in Original Scale		N/A
693										SD in Original Scale		N/A
694										95% Percentile Bootstrap UCL		N/A
695										95% BCA Bootstrap UCL		N/A
696												
697	Gamma Distribution Test with Detected Values Only									Data Distribution Test with Detected Values Only		
698					k star (bias corrected)	0.647				Data do not follow a Discernable Distribution (0.05)		
699					Theta Star	107.4						
700					nu star	53.03						
701												
702					A-D Test Statistic	6.414				Nonparametric Statistics		
703					5% A-D Critical Value	0.796				Kaplan-Meier (KM) Method		
704					K-S Test Statistic	0.796				Mean		69.45
705					5% K-S Critical Value	0.144				SD		200.5
706	Data not Gamma Distributed at 5% Significance Level									SE of Mean		31.7
707										95% KM (t) UCL		122.8
708	Assuming Gamma Distribution									95% KM (z) UCL		121.6
709					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		122.8
710					Minimum	11				95% KM (bootstrap t) UCL		355.2
711					Maximum	1290				95% KM (BCA) UCL		133.7
712					Mean	69.45				95% KM (Percentile Bootstrap) UCL		130
713					Median	20				95% KM (Chebyshev) UCL		207.6
714					SD	203				97.5% KM (Chebyshev) UCL		267.4
715					k star	0.647				99% KM (Chebyshev) UCL		384.8
716					Theta star	107.4						
717					Nu star	53.03				Potential UCLs to Use		
718					AppChi2	37.3				95% KM (Chebyshev) UCL		207.6
719					95% Gamma Approximate UCL	98.74						
720					95% Adjusted Gamma UCL	100						
721	Note: DL/2 is not a recommended method.											
722												
723												
724	Mercury											
725												
726	General Statistics											
727					Number of Valid Data	41				Number of Detected Data		40
728					Number of Distinct Detected Data	31				Number of Non-Detect Data		1
729					Number of Missing Values	7				Percent Non-Detects		2.44%
730												
731	Raw Statistics									Log-transformed Statistics		
732					Minimum Detected	0.036				Minimum Detected		-3.324
733					Maximum Detected	0.313				Maximum Detected		-1.162
734					Mean of Detected	0.0825				Mean of Detected		-2.574
735					SD of Detected	0.0444				SD of Detected		0.364
736					Minimum Non-Detect	0.07				Minimum Non-Detect		-2.659
737					Maximum Non-Detect	0.07				Maximum Non-Detect		-2.659
738												
739												
740	UCL Statistics											
741	Normal Distribution Test with Detected Values Only									Lognormal Distribution Test with Detected Values Only		
742					Shapiro Wilk Test Statistic	0.609				Shapiro Wilk Test Statistic		0.886

	A	B	C	D	E	F	G	H	I	J	K	L
743					5% Shapiro Wilk Critical Value	0.94					5% Shapiro Wilk Critical Value	0.94
744	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
745												
746	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
747					DL/2 Substitution Method						DL/2 Substitution Method	
748					Mean	0.0814					Mean	-2.593
749					SD	0.0444					SD	0.379
750					95% DL/2 (t) UCL	0.0931					95% H-Stat (DL/2) UCL	0.0896
751												
752					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
753					Mean	0.0648					Mean in Log Scale	-2.581
754					SD	0.0602					SD in Log Scale	0.362
755					95% MLE (t) UCL	0.0806					Mean in Original Scale	0.0819
756					95% MLE (Tiku) UCL	0.0833					SD in Original Scale	0.044
757											95% Percentile Bootstrap UCL	0.095
758											95% BCA Bootstrap UCL	0.0989
759												
760	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
761					k star (bias corrected)	5.957	**Data do not follow a Discernable Distribution (0.05)**					
762					Theta Star	0.0139						
763					nu star	476.6						
764												
765					A-D Test Statistic	2.248	**Nonparametric Statistics**					
766					5% A-D Critical Value	0.751					Kaplan-Meier (KM) Method	
767					K-S Test Statistic	0.751					Mean	0.082
768					5% K-S Critical Value	0.14					SD	0.0434
769	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.00688
770											95% KM (t) UCL	0.0935
771	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0933
772					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0935
773					Minimum	0.036					95% KM (bootstrap t) UCL	0.105
774					Maximum	0.313					95% KM (BCA) UCL	0.0953
775					Mean	0.082					95% KM (Percentile Bootstrap) UCL	0.0945
776					Median	0.071					95% KM (Chebyshev) UCL	0.112
777					SD	0.0439					97.5% KM (Chebyshev) UCL	0.125
778					k star	6.051					99% KM (Chebyshev) UCL	0.15
779					Theta star	0.0136						
780					Nu star	496.2	**Potential UCLs to Use**					
781					AppChi2	445.5					95% KM (Chebyshev) UCL	0.112
782					95% Gamma Approximate UCL	0.0914						
783					95% Adjusted Gamma UCL	0.0917						
784	**Note: DL/2 is not a recommended method.**											
785												
786												
787	**Naphthalene**											
788												
789	**General Statistics**											
790					Number of Valid Data	46					Number of Detected Data	22
791					Number of Distinct Detected Data	18					Number of Non-Detect Data	24
792					Number of Missing Values	2					Percent Non-Detects	52.17%
793												
794	**Raw Statistics**						**Log-transformed Statistics**					
795					Minimum Detected	1.4					Minimum Detected	0.336

796				Maximum Detected	40					Maximum Detected	3.689	
797				Mean of Detected	15.31					Mean of Detected	2.561	
798				SD of Detected	8.425					SD of Detected	0.668	
799				Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693	
800				Maximum Non-Detect	20					Maximum Non-Detect	2.996	
801												
802	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	41	
803	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	5	
804	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	89.13%	
805												
806	**UCL Statistics**											
807	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
808				Shapiro Wilk Test Statistic	0.919					Shapiro Wilk Test Statistic	0.879	
809				5% Shapiro Wilk Critical Value	0.911					5% Shapiro Wilk Critical Value	0.911	
810	**Data appear Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
811												
812	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
813				DL/2 Substitution Method						DL/2 Substitution Method		
814				Mean	8.786					Mean	1.226	
815				SD	8.999					SD	1.706	
816				95% DL/2 (t) UCL	11.01					95% H-Stat (DL/2) UCL	15.83	
817												
818				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
819				Mean	30					Mean in Log Scale	1.893	
820				SD	6.693					SD in Log Scale	0.826	
821				95% MLE (t) UCL	31.66					Mean in Original Scale	9.327	
822				95% MLE (Tiku) UCL	34.89					SD in Original Scale	8.264	
823										95% Percentile Bootstrap UCL	11.3	
824										95% BCA Bootstrap UCL	11.7	
825												
826	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
827				k star (bias corrected)	2.745					**Data appear Normal at 5% Significance Level**		
828				Theta Star	5.577							
829				nu star	120.8							
830												
831				A-D Test Statistic	0.331					**Nonparametric Statistics**		
832				5% A-D Critical Value	0.749					Kaplan-Meier (KM) Method		
833				K-S Test Statistic	0.749					Mean	8.642	
834				5% K-S Critical Value	0.187					SD	8.911	
835	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	1.384	
836										95% KM (t) UCL	10.97	
837	**Assuming Gamma Distribution**									95% KM (z) UCL	10.92	
838				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	11.12	
839				Minimum	1.4					95% KM (bootstrap t) UCL	11.04	
840				Maximum	40					95% KM (BCA) UCL	13.47	
841				Mean	15.21					95% KM (Percentile Bootstrap) UCL	12.84	
842				Median	12.83					95% KM (Chebyshev) UCL	14.68	
843				SD	7.267					97.5% KM (Chebyshev) UCL	17.29	
844				k star	4.222					99% KM (Chebyshev) UCL	22.41	
845				Theta star	3.603							
846				Nu star	388.5					**Potential UCLs to Use**		
847				AppChi2	343.8					95% KM (t) UCL	10.97	
848				95% Gamma Approximate UCL	17.19					95% KM (Percentile Bootstrap) UCL	12.84	

	A	B	C	D	E	F	G	H	I	J	K	L
849					95% Adjusted Gamma UCL	17.26						
850	**Note: DL/2 is not a recommended method.**											
851												
852												
853	**Thallium**											
854												
855						**General Statistics**							
856						Number of Valid Data	17				Number of Detected Data	16
857						Number of Distinct Detected Data	13				Number of Non-Detect Data	1
858						Number of Missing Values	31				Percent Non-Detects	5.88%
859												
860				**Raw Statistics**						**Log-transformed Statistics**		
861						Minimum Detected	0.059				Minimum Detected	-2.83
862						Maximum Detected	11				Maximum Detected	2.398
863						Mean of Detected	3.766				Mean of Detected	-0.24
864						SD of Detected	4.354				SD of Detected	2.177
865						Minimum Non-Detect	4				Minimum Non-Detect	1.386
866						Maximum Non-Detect	4				Maximum Non-Detect	1.386
867												
868												
869						**UCL Statistics**							
870				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
871						Shapiro Wilk Test Statistic	0.744				Shapiro Wilk Test Statistic	0.754
872						5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value	0.887
873				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
874												
875				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
876						DL/2 Substitution Method					DL/2 Substitution Method	
877						Mean	3.662				Mean	-0.185
878						SD	4.237				SD	2.12
879						95% DL/2 (t) UCL	5.456				95% H-Stat (DL/2) UCL	83.51
880												
881						Maximum Likelihood Estimate(MLE) Method					Log ROS Method	
882						Mean	3.365				Mean in Log Scale	-0.314
883						SD	4.938				SD in Log Scale	2.13
884						95% MLE (t) UCL	5.456				Mean in Original Scale	3.557
885						95% MLE (Tiku) UCL	6.226				SD in Original Scale	4.302
886											95% Percentile Bootstrap UCL	5.289
887											95% BCA Bootstrap UCL	5.468
888												
889				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
890						k star (bias corrected)	0.381			**Data do not follow a Discernable Distribution (0.05)**		
891						Theta Star	9.889					
892						nu star	12.19					
893												
894						A-D Test Statistic	1.993			**Nonparametric Statistics**		
895						5% A-D Critical Value	0.813			Kaplan-Meier (KM) Method		
896						K-S Test Statistic	0.813				Mean	3.552
897						5% K-S Critical Value	0.23				SD	4.178
898				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	1.046
899											95% KM (t) UCL	5.379
900				**Assuming Gamma Distribution**							95% KM (z) UCL	5.274
901						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	5.376

902					Minimum	0.059				95% KM (bootstrap t) UCL		5.485
903					Maximum	11				95% KM (BCA) UCL		5.166
904					Mean	3.595				95% KM (Percentile Bootstrap) UCL		5.282
905					Median	0.329				95% KM (Chebyshev) UCL		8.114
906					SD	4.274				97.5% KM (Chebyshev) UCL		10.09
907					k star	0.393				99% KM (Chebyshev) UCL		13.96
908					Theta star	9.146						
909					Nu star	13.36				**Potential UCLs to Use**		
910					AppChi2	6.138				99% KM (Chebyshev) UCL		13.96
911					95% Gamma Approximate UCL	7.827						
912					95% Adjusted Gamma UCL	8.531						
913	**Warning: Recommended UCL exceeds the maximum observation**											
914	**Note: DL/2 is not a recommended method.**											
915												
916												
917	**Total Aroclors**											
918												
919	**General Statistics**											
920					Number of Valid Data	22				Number of Detected Data		13
921					Number of Distinct Detected Data	13				Number of Non-Detect Data		9
922					Number of Missing Values	18				Percent Non-Detects		40.91%
923												
924	**Raw Statistics**									**Log-transformed Statistics**		
925					Minimum Detected	11.57				Minimum Detected		2.448
926					Maximum Detected	330.9				Maximum Detected		5.802
927					Mean of Detected	88.91				Mean of Detected		4.048
928					SD of Detected	90.48				SD of Detected		0.99
929					Minimum Non-Detect	4.38				Minimum Non-Detect		1.477
930					Maximum Non-Detect	330				Maximum Non-Detect		5.799
931												
932	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		21
933	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
934	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		95.45%
935												
936	**UCL Statistics**											
937	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
938					Shapiro Wilk Test Statistic	0.798				Shapiro Wilk Test Statistic		0.978
939					5% Shapiro Wilk Critical Value	0.866				5% Shapiro Wilk Critical Value		0.866
940	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
941												
942	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
943					DL/2 Substitution Method					DL/2 Substitution Method		
944					Mean	70.82				Mean		3.753
945					SD	77.68				SD		1.101
946					95% DL/2 (t) UCL	99.31				95% H-Stat (DL/2) UCL		113.8
947												
948					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
949	**MLE method failed to converge properly**									Mean in Log Scale		3.609
950										SD in Log Scale		0.979
951										Mean in Original Scale		61.36
952										SD in Original Scale		76.48
953										95% Percentile Bootstrap UCL		89.78
954										95% BCA Bootstrap UCL		100.3

	A	B	C	D	E	F	G	H	I	J	K	L
955												
956	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
957	k star (bias corrected)					1.034	**Data appear Gamma Distributed at 5% Significance Level**					
958	Theta Star					86.01						
959	nu star					26.87						
960												
961	A-D Test Statistic					0.304	**Nonparametric Statistics**					
962	5% A-D Critical Value					0.753	Kaplan-Meier (KM) Method					
963	K-S Test Statistic					0.753	Mean					63.53
964	5% K-S Critical Value					0.242	SD					74.89
965	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					16.94
966							95% KM (t) UCL					92.67
967	**Assuming Gamma Distribution**						95% KM (z) UCL					91.39
968	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					91.78
969	Minimum					1E-09	95% KM (bootstrap t) UCL					111.9
970	Maximum					330.9	95% KM (BCA) UCL					94.66
971	Mean					82.23	95% KM (Percentile Bootstrap) UCL					92.63
972	Median					79.07	95% KM (Chebyshev) UCL					137.4
973	SD					71.92	97.5% KM (Chebyshev) UCL					169.3
974	k star					0.435	99% KM (Chebyshev) UCL					232
975	Theta star					189.1						
976	Nu star					19.13	**Potential UCLs to Use**					
977	AppChi2					10.21	95% KM (t) UCL					92.67
978	95% Gamma Approximate UCL					154						
979	95% Adjusted Gamma UCL					161.7						
980	**Note: DL/2 is not a recommended method.**											
981												
982												
983	**Total DDT**											
984												
985	**General Statistics**											
986	Number of Valid Data					45	Number of Detected Data					45
987	Number of Distinct Detected Data					43	Number of Non-Detect Data					0
988	Number of Missing Values					3	Percent Non-Detects					0.00%
989												
990	**Raw Statistics**						**Log-transformed Statistics**					
991	Minimum Detected					3.88	Minimum Detected					1.356
992	Maximum Detected					23000	Maximum Detected					10.04
993	Mean of Detected					2347	Mean of Detected					6.449
994	SD of Detected					4236	SD of Detected					1.876
995	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
996	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
997												
998												
999	**UCL Statistics**											
1000	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1001	Shapiro Wilk Test Statistic					0.585	Shapiro Wilk Test Statistic					0.976
1002	5% Shapiro Wilk Critical Value					0.945	5% Shapiro Wilk Critical Value					0.945
1003	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1004												
1005	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1006	DL/2 Substitution Method						DL/2 Substitution Method					
1007	Mean					2347	Mean					6.449

1008					SD	4236					SD	1.876
1009					95% DL/2 (t) UCL	3408					95% H-Stat (DL/2) UCL	9674
1010												
1011					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1012					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1013											SD in Log Scale	N/A
1014											Mean in Original Scale	N/A
1015											SD in Original Scale	N/A
1016											95% Percentile Bootstrap UCL	N/A
1017											95% BCA Bootstrap UCL	N/A
1018												
1019					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1020					k star (bias corrected)	0.469					**Data appear Lognormal at 5% Significance Level**	
1021					Theta Star	5006						
1022					nu star	42.19						
1023												
1024					A-D Test Statistic	0.836					**Nonparametric Statistics**	
1025					5% A-D Critical Value	0.817					Kaplan-Meier (KM) Method	
1026					K-S Test Statistic	0.817					Mean	2347
1027					5% K-S Critical Value	0.14					SD	4189
1028					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	631.5
1029											95% KM (t) UCL	3408
1030					**Assuming Gamma Distribution**						95% KM (z) UCL	3385
1031					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3408
1032					Minimum	3.88					95% KM (bootstrap t) UCL	4039
1033					Maximum	23000					95% KM (BCA) UCL	3559
1034					Mean	2347					95% KM (Percentile Bootstrap) UCL	3354
1035					Median	720					95% KM (Chebyshev) UCL	5099
1036					SD	4236					97.5% KM (Chebyshev) UCL	6290
1037					k star	0.469					99% KM (Chebyshev) UCL	8629
1038					Theta star	5006						
1039					Nu star	42.19					**Potential UCLs to Use**	
1040					AppChi2	28.3					97.5% KM (Chebyshev) UCL	6290
1041					95% Gamma Approximate UCL	3498						
1042					95% Adjusted Gamma UCL	3546						
1043	**Note: DL/2 is not a recommended method.**											
1044												
1045												
1046	**Total Dioxin/Furan TEQ**											
1047												
1048											**General Statistics**	
1049					Number of Valid Data	9					Number of Detected Data	9
1050					Number of Distinct Detected Data	9					Number of Non-Detect Data	0
1051					Number of Missing Values	31					Percent Non-Detects	0.00%
1052												
1053					**Raw Statistics**						**Log-transformed Statistics**	
1054					Minimum Detected	3.011					Minimum Detected	1.102
1055					Maximum Detected	14114					Maximum Detected	9.555
1056					Mean of Detected	1657					Mean of Detected	4.486
1057					SD of Detected	4672					SD of Detected	2.419
1058					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1059					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1060												

	A	B	C	D	E	F	G	H	I	J	K	L
1061												
1062	**Warning: There are only 9 Detected Values in this data**											
1063	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1064	**the resulting calculations may not be reliable enough tp draw conclusions**											
1065												
1066	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1067												
1068												
1069	**UCL Statistics**											
1070	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1071	Shapiro Wilk Test Statistic					0.407	Shapiro Wilk Test Statistic					0.922
1072	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
1073	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1074												
1075	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1076	DL/2 Substitution Method						DL/2 Substitution Method					
1077	Mean					1657	Mean					4.486
1078	SD					4672	SD					2.419
1079	95% DL/2 (t) UCL					4553	95% H-Stat (DL/2) UCL					557047
1080												
1081	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1082	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1083							SD in Log Scale					N/A
1084							Mean in Original Scale					N/A
1085							SD in Original Scale					N/A
1086							95% Percentile Bootstrap UCL					N/A
1087							95% BCA Bootstrap UCL					N/A
1088												
1089	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1090	k star (bias corrected)					0.237	**Data appear Lognormal at 5% Significance Level**					
1091	Theta Star					7006						
1092	nu star					4.257						
1093												
1094	A-D Test Statistic					1.266	**Nonparametric Statistics**					
1095	5% A-D Critical Value					0.829	Kaplan-Meier (KM) Method					
1096	K-S Test Statistic					0.829	Mean					1657
1097	5% K-S Critical Value					0.305	SD					4405
1098	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1557
1099							95% KM (t) UCL					4553
1100	**Assuming Gamma Distribution**						95% KM (z) UCL					4219
1101	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4553
1102	Minimum					3.011	95% KM (bootstrap t) UCL					100986
1103	Maximum					14114	95% KM (BCA) UCL					4773
1104	Mean					1657	95% KM (Percentile Bootstrap) UCL					4752
1105	Median					106.8	95% KM (Chebyshev) UCL					8446
1106	SD					4672	97.5% KM (Chebyshev) UCL					11383
1107	k star					0.237	99% KM (Chebyshev) UCL					17153
1108	Theta star					7006						
1109	Nu star					4.257	**Potential UCLs to Use**					
1110	AppChi2					0.826	99% KM (Chebyshev) UCL					17153
1111	95% Gamma Approximate UCL					8541						
1112	95% Adjusted Gamma UCL					12602						
1113	**Warning: Recommended UCL exceeds the maximum observation**											

	A	B	C	D	E	F	G	H	I	J	K	L
1114	**Note: DL/2 is not a recommended method.**											
1115												
1116												
1117	**Total Dioxin-like PCBs**											
1118												
1119						**General Statistics**						
1120					Number of Valid Data	7			Number of Detected Data	7		
1121					Number of Distinct Detected Data	7			Number of Non-Detect Data	0		
1122					Number of Missing Values	15			Percent Non-Detects	0.00%		
1123												
1124					**Raw Statistics**				**Log-transformed Statistics**			
1125					Minimum Detected	1574			Minimum Detected	7.361		
1126					Maximum Detected	50779			Maximum Detected	10.84		
1127					Mean of Detected	14973			Mean of Detected	8.999		
1128					SD of Detected	18203			SD of Detected	1.205		
1129					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
1130					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
1131												
1132												
1133					**Warning: There are only 7 Detected Values in this data**							
1134					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1135					**the resulting calculations may not be reliable enough tp draw conclusions**							
1136												
1137					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1138												
1139												
1140						**UCL Statistics**						
1141					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
1142					Shapiro Wilk Test Statistic	0.755			Shapiro Wilk Test Statistic	0.956		
1143					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value	0.803		
1144					**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
1145												
1146					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
1147					DL/2 Substitution Method				DL/2 Substitution Method			
1148					Mean	14973			Mean	8.999		
1149					SD	18203			SD	1.205		
1150					95% DL/2 (t) UCL	28342			95% H-Stat (DL/2) UCL	137980		
1151												
1152					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1153					**MLE method failed to converge properly**				Mean in Log Scale	N/A		
1154									SD in Log Scale	N/A		
1155									Mean in Original Scale	N/A		
1156									SD in Original Scale	N/A		
1157									95% Percentile Bootstrap UCL	N/A		
1158									95% BCA Bootstrap UCL	N/A		
1159												
1160					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
1161					k star (bias corrected)	0.635			**Data appear Gamma Distributed at 5% Significance Level**			
1162					Theta Star	23586						
1163					nu star	8.887						
1164												
1165					A-D Test Statistic	0.428			**Nonparametric Statistics**			
1166					5% A-D Critical Value	0.729			Kaplan-Meier (KM) Method			

1167					K-S Test Statistic	0.729					Mean	14973
1168					5% K-S Critical Value	0.32					SD	16853
1169					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	6880
1170											95% KM (t) UCL	28342
1171					**Assuming Gamma Distribution**						95% KM (z) UCL	26290
1172					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	28342
1173					Minimum	1574					95% KM (bootstrap t) UCL	91247
1174					Maximum	50779					95% KM (BCA) UCL	27577
1175					Mean	14973					95% KM (Percentile Bootstrap) UCL	27356
1176					Median	6685					95% KM (Chebyshev) UCL	44963
1177					SD	18203					97.5% KM (Chebyshev) UCL	57940
1178					k star	0.635					99% KM (Chebyshev) UCL	83430
1179					Theta star	23586						
1180					Nu star	8.887					**Potential UCLs to Use**	
1181					AppChi2	3.259					95% KM (Chebyshev) UCL	44963
1182					95% Gamma Approximate UCL	40830						
1183					95% Adjusted Gamma UCL	57372						
1184	**Note: DL/2 is not a recommended method.**											
1185												
1186												
1187	**Total PCB TEQ**											
1188												
1189					**General Statistics**							
1190					Number of Valid Data	7					Number of Detected Data	7
1191					Number of Distinct Detected Data	7					Number of Non-Detect Data	0
1192					Number of Missing Values	15					Percent Non-Detects	0.00%
1193												
1194					**Raw Statistics**						**Log-transformed Statistics**	
1195					Minimum Detected	0.78					Minimum Detected	-0.249
1196					Maximum Detected	33.2					Maximum Detected	3.502
1197					Mean of Detected	7.65					Mean of Detected	1.346
1198					SD of Detected	11.51					SD of Detected	1.183
1199					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1200					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1201												
1202												
1203					**Warning: There are only 7 Detected Values in this data**							
1204					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1205					**the resulting calculations may not be reliable enough tp draw conclusions**							
1206												
1207					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1208												
1209												
1210					**UCL Statistics**							
1211					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1212					Shapiro Wilk Test Statistic	0.622					Shapiro Wilk Test Statistic	0.935
1213					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
1214					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1215												
1216					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1217					DL/2 Substitution Method						DL/2 Substitution Method	
1218					Mean	7.65					Mean	1.346
1219					SD	11.51					SD	1.183

1220					95% DL/2 (t) UCL	16.11				95% H-Stat (DL/2) UCL		59.64
1221												
1222					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1223					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1224										SD in Log Scale		N/A
1225										Mean in Original Scale		N/A
1226										SD in Original Scale		N/A
1227										95% Percentile Bootstrap UCL		N/A
1228										95% BCA Bootstrap UCL		N/A
1229												
1230					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1231					k star (bias corrected)	0.584				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
1232					Theta Star	13.11						
1233					nu star	8.172						
1234												
1235					A-D Test Statistic	0.642				**Nonparametric Statistics**		
1236					5% A-D Critical Value	0.733				Kaplan-Meier (KM) Method		
1237					K-S Test Statistic	0.733				Mean		7.65
1238					5% K-S Critical Value	0.321				SD		10.66
1239					**Data follow Appr. Gamma Distribution at 5% Significance Level**					SE of Mean		4.352
1240										95% KM (t) UCL		16.11
1241					**Assuming Gamma Distribution**					95% KM (z) UCL		14.81
1242					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		16.11
1243					Minimum	0.78				95% KM (bootstrap t) UCL		73.02
1244					Maximum	33.2				95% KM (BCA) UCL		16.09
1245					Mean	7.65				95% KM (Percentile Bootstrap) UCL		15.94
1246					Median	3.11				95% KM (Chebyshev) UCL		26.62
1247					SD	11.51				97.5% KM (Chebyshev) UCL		34.83
1248					k star	0.584				99% KM (Chebyshev) UCL		50.95
1249					Theta star	13.11						
1250					Nu star	8.172				**Potential UCLs to Use**		
1251					AppChi2	2.835				95% KM (Chebyshev) UCL		26.62
1252					95% Gamma Approximate UCL	22.05						
1253					95% Adjusted Gamma UCL	31.63						
1254	**Note: DL/2 is not a recommended method.**											
1255												
1256												
1257	**Total PCB_Congeners**											
1258												
1259						**General Statistics**						
1260					Number of Valid Data	7				Number of Detected Data		7
1261					Number of Distinct Detected Data	7				Number of Non-Detect Data		0
1262					Number of Missing Values	15				Percent Non-Detects		0.00%
1263												
1264					**Raw Statistics**					**Log-transformed Statistics**		
1265					Minimum Detected	34030				Minimum Detected		10.44
1266					Maximum Detected	972238				Maximum Detected		13.79
1267					Mean of Detected	274023				Mean of Detected		11.87
1268					SD of Detected	345535				SD of Detected		1.23
1269					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1270					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1271												
1272												

	A	B	C	D	E	F	G	H	I	J	K	L
1273	**Warning: There are only 7 Detected Values in this data**											
1274	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1275	**the resulting calculations may not be reliable enough tp draw conclusions**											
1276												
1277	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1278												
1279												
1280	**UCL Statistics**											
1281	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1282	Shapiro Wilk Test Statistic					0.74	Shapiro Wilk Test Statistic					0.926
1283	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
1284	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1285												
1286	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1287	DL/2 Substitution Method						DL/2 Substitution Method					
1288	Mean					274023	Mean					11.87
1289	SD					345535	SD					1.23
1290	95% DL/2 (t) UCL					527802	95% H-Stat (DL/2) UCL					2734008
1291												
1292	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1293	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1294							SD in Log Scale					N/A
1295							Mean in Original Scale					N/A
1296							SD in Original Scale					N/A
1297							95% Percentile Bootstrap UCL					N/A
1298							95% BCA Bootstrap UCL					N/A
1299												
1300	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1301	k star (bias corrected)					0.61	**Data appear Gamma Distributed at 5% Significance Level**					
1302	Theta Star					448905						
1303	nu star					8.546						
1304												
1305	A-D Test Statistic					0.467	**Nonparametric Statistics**					
1306	5% A-D Critical Value					0.731	Kaplan-Meier (KM) Method					
1307	K-S Test Statistic					0.731	Mean					274023
1308	5% K-S Critical Value					0.321	SD					319903
1309	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					130600
1310							95% KM (t) UCL					527802
1311	**Assuming Gamma Distribution**						95% KM (z) UCL					488840
1312	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					527802
1313	Minimum					34030	95% KM (bootstrap t) UCL					1652241
1314	Maximum					972238	95% KM (BCA) UCL					474559
1315	Mean					274023	95% KM (Percentile Bootstrap) UCL					491082
1316	Median					121879	95% KM (Chebyshev) UCL					843294
1317	SD					345535	97.5% KM (Chebyshev) UCL					1089618
1318	k star					0.61	99% KM (Chebyshev) UCL					1573474
1319	Theta star					448905						
1320	Nu star					8.546	**Potential UCLs to Use**					
1321	AppChi2					3.055	95% KM (Chebyshev) UCL					843294
1322	95% Gamma Approximate UCL					766515						
1323	95% Adjusted Gamma UCL					1087237						
1324	**Note: DL/2 is not a recommended method.**											
1325												

	A	B	C	D	E	F	G	H	I	J	K	L
1326												
1327	**Total PCBs, Adjusted**											
1328												
1329						**General Statistics**						
1330					Number of Valid Data	7			Number of Detected Data			7
1331					Number of Distinct Detected Data	7			Number of Non-Detect Data			0
1332					Number of Missing Values	15			Percent Non-Detects			0.00%
1333												
1334					**Raw Statistics**				**Log-transformed Statistics**			
1335					Minimum Detected	32457			Minimum Detected			10.39
1336					Maximum Detected	921459			Maximum Detected			13.73
1337					Mean of Detected	259050			Mean of Detected			11.81
1338					SD of Detected	327366			SD of Detected			1.233
1339					Minimum Non-Detect	N/A			Minimum Non-Detect			N/A
1340					Maximum Non-Detect	N/A			Maximum Non-Detect			N/A
1341												
1342												
1343					**Warning: There are only 7 Detected Values in this data**							
1344					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1345					**the resulting calculations may not be reliable enough tp draw conclusions**							
1346												
1347					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1348												
1349												
1350						**UCL Statistics**						
1351					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
1352					Shapiro Wilk Test Statistic	0.739			Shapiro Wilk Test Statistic			0.923
1353					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value			0.803
1354					**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
1355												
1356					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
1357					DL/2 Substitution Method				DL/2 Substitution Method			
1358					Mean	259050			Mean			11.81
1359					SD	327366			SD			1.233
1360					95% DL/2 (t) UCL	499485			95% H-Stat (DL/2) UCL			2616853
1361												
1362					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1363					**MLE method failed to converge properly**				Mean in Log Scale			N/A
1364									SD in Log Scale			N/A
1365									Mean in Original Scale			N/A
1366									SD in Original Scale			N/A
1367									95% Percentile Bootstrap UCL			N/A
1368									95% BCA Bootstrap UCL			N/A
1369												
1370					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
1371					k star (bias corrected)	0.608			**Data appear Gamma Distributed at 5% Significance Level**			
1372					Theta Star	425811						
1373					nu star	8.517						
1374												
1375					A-D Test Statistic	0.469			**Nonparametric Statistics**			
1376					5% A-D Critical Value	0.731			Kaplan-Meier (KM) Method			
1377					K-S Test Statistic	0.731			Mean			259050
1378					5% K-S Critical Value	0.321			SD			303082

	A	B	C	D	E	F	G	H	I	J	K	L
1379	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	123733
1380											95% KM (t) UCL	499485
1381	**Assuming Gamma Distribution**										95% KM (z) UCL	462572
1382				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	499485
1383					Minimum	32457					95% KM (bootstrap t) UCL	1532168
1384					Maximum	921459					95% KM (BCA) UCL	450540
1385					Mean	259050					95% KM (Percentile Bootstrap) UCL	454885
1386					Median	116073					95% KM (Chebyshev) UCL	798388
1387					SD	327366					97.5% KM (Chebyshev) UCL	1031760
1388					k star	0.608					99% KM (Chebyshev) UCL	1490174
1389					Theta star	425811						
1390					Nu star	8.517				**Potential UCLs to Use**		
1391					AppChi2	3.038					95% KM (Chebyshev) UCL	798388
1392				95% Gamma Approximate UCL		726249						
1393				95% Adjusted Gamma UCL		1030972						
1394	**Note: DL/2 is not a recommended method.**											
1395												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM7.5E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12						Number of Valid Data	15			Number of Detected Data	8	
13						Number of Distinct Detected Data	8			Number of Non-Detect Data	7	
14										Percent Non-Detects	46.67%	
15												
16						Raw Statistics				Log-transformed Statistics		
17						Minimum Detected	3.1			Minimum Detected	1.131	
18						Maximum Detected	5.3			Maximum Detected	1.668	
19						Mean of Detected	3.97			Mean of Detected	1.367	
20						SD of Detected	0.668			SD of Detected	0.162	
21						Minimum Non-Detect	5			Minimum Non-Detect	1.609	
22						Maximum Non-Detect	5			Maximum Non-Detect	1.609	
23												
24												
25						Warning: There are only 8 Detected Values in this data						
26						Note: It should be noted that even though bootstrap may be performed on this data set						
27						the resulting calculations may not be reliable enough tp draw conclusions						
28												
29						It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.						
30												
31												
32						UCL Statistics						
33						Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only		
34						Shapiro Wilk Test Statistic	0.927			Shapiro Wilk Test Statistic	0.958	
35						5% Shapiro Wilk Critical Value	0.818			5% Shapiro Wilk Critical Value	0.818	
36						Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
37												
38						Assuming Normal Distribution				Assuming Lognormal Distribution		
39						DL/2 Substitution Method				DL/2 Substitution Method		
40						Mean	3.284			Mean	1.157	
41						SD	0.894			SD	0.26	
42						95% DL/2 (t) UCL	3.691			95% H-Stat (DL/2) UCL	3.705	
43												
44						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
45						MLE method failed to converge properly				Mean in Log Scale	1.348	
46										SD in Log Scale	0.141	
47										Mean in Original Scale	3.887	
48										SD in Original Scale	0.566	
49										95% Percentile Bootstrap UCL	4.132	
50										95% BCA Bootstrap UCL	4.159	
51												
52						Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only		
53						k star (bias corrected)	26.71			Data appear Normal at 5% Significance Level		

54					Theta Star	0.149						
55					nu star	427.4						
56												
57					A-D Test Statistic	0.292	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.715				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.715				Mean		3.881
60					5% K-S Critical Value	0.294				SD		0.539
61	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.183
62										95% KM (t) UCL		4.203
63	**Assuming Gamma Distribution**									95% KM (z) UCL		4.182
64				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		4.21
65					Minimum	3.1				95% KM (bootstrap t) UCL		4.241
66					Maximum	5.3				95% KM (BCA) UCL		4.146
67					Mean	3.973				95% KM (Percentile Bootstrap) UCL		4.175
68					Median	3.969				95% KM (Chebyshev) UCL		4.677
69					SD	0.473				97.5% KM (Chebyshev) UCL		5.021
70					k star	63.72				99% KM (Chebyshev) UCL		5.698
71					Theta star	0.0624						
72					Nu star	1912	**Potential UCLs to Use**					
73					AppChi2	1811				95% KM (t) UCL		4.203
74					95% Gamma Approximate UCL	4.194				95% KM (Percentile Bootstrap) UCL		4.175
75					95% Adjusted Gamma UCL	4.222						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Benzo(a)anthracene**											
80												
81	**General Statistics**											
82					Number of Valid Data	15				Number of Detected Data		11
83					Number of Distinct Detected Data	8				Number of Non-Detect Data		4
84										Percent Non-Detects		26.67%
85												
86	**Raw Statistics**						**Log-transformed Statistics**					
87					Minimum Detected	13				Minimum Detected		2.565
88					Maximum Detected	120				Maximum Detected		4.787
89					Mean of Detected	31.27				Mean of Detected		3.177
90					SD of Detected	31.24				SD of Detected		0.676
91					Minimum Non-Detect	19				Minimum Non-Detect		2.944
92					Maximum Non-Detect	20				Maximum Non-Detect		2.996
93												
94	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		9
95	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		6
96	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		60.00%
97												
98	**UCL Statistics**											
99	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
100					Shapiro Wilk Test Statistic	0.619				Shapiro Wilk Test Statistic		0.85
101					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
102	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
103												
104	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
105					DL/2 Substitution Method					DL/2 Substitution Method		
106					Mean	25.53				Mean		2.937

107					SD	28.18					SD	0.705
108					95% DL/2 (t) UCL	38.35					95% H-Stat (DL/2) UCL	33.55
109												
110					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
111					Mean	3.21					Mean in Log Scale	3.021
112					SD	47.45					SD in Log Scale	0.64
113					95% MLE (t) UCL	24.79					Mean in Original Scale	26.56
114					95% MLE (Tiku) UCL	34.25					SD in Original Scale	27.65
115											95% Percentile Bootstrap UCL	39.23
116											95% BCA Bootstrap UCL	49.69
117												
118					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
119					k star (bias corrected)	1.541					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
120					Theta Star	20.29						
121					nu star	33.9						
122												
123					A-D Test Statistic	0.943					**Nonparametric Statistics**	
124					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
125					K-S Test Statistic	0.739					Mean	26.7
126					5% K-S Critical Value	0.258					SD	26.63
127					**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean	7.217
128											95% KM (t) UCL	39.41
129					**Assuming Gamma Distribution**						95% KM (z) UCL	38.57
130					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	39.25
131					Minimum	9.741					95% KM (bootstrap t) UCL	64.76
132					Maximum	120					95% KM (BCA) UCL	39.6
133					Mean	28.87					95% KM (Percentile Bootstrap) UCL	39.6
134					Median	21					95% KM (Chebyshev) UCL	58.16
135					SD	27.36					97.5% KM (Chebyshev) UCL	71.77
136					k star	1.817					99% KM (Chebyshev) UCL	98.51
137					Theta star	15.89						
138					Nu star	54.51					**Potential UCLs to Use**	
139					AppChi2	38.54					95% KM (Percentile Bootstrap) UCL	39.6
140					95% Gamma Approximate UCL	40.83						
141					95% Adjusted Gamma UCL	42.66						
142	**Note: DL/2 is not a recommended method.**											
143												
144												
145	**Benzo(a)pyrene**											
146												
147											**General Statistics**	
148					Number of Valid Data	15					Number of Detected Data	12
149					Number of Distinct Detected Data	9					Number of Non-Detect Data	3
150											Percent Non-Detects	20.00%
151												
152					**Raw Statistics**						**Log-transformed Statistics**	
153					Minimum Detected	14					Minimum Detected	2.639
154					Maximum Detected	82					Maximum Detected	4.407
155					Mean of Detected	29.77					Mean of Detected	3.239
156					SD of Detected	19.61					SD of Detected	0.551
157					Minimum Non-Detect	19					Minimum Non-Detect	2.944
158					Maximum Non-Detect	20					Maximum Non-Detect	2.996
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
161	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	7
162	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	53.33%
163												
164	**UCL Statistics**											
165	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
166					Shapiro Wilk Test Statistic	0.779					Shapiro Wilk Test Statistic	0.907
167					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
168	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
169												
170	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
171					DL/2 Substitution Method						DL/2 Substitution Method	
172					Mean	25.75					Mean	3.045
173					SD	19.27					SD	0.633
174					95% DL/2 (t) UCL	34.51					95% H-Stat (DL/2) UCL	32.32
175												
176					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
177					Mean	16.32					Mean in Log Scale	3.13
178					SD	28.72					SD in Log Scale	0.542
179					95% MLE (t) UCL	29.38					Mean in Original Scale	26.79
180					95% MLE (Tiku) UCL	33.11					SD in Original Scale	18.46
181											95% Percentile Bootstrap UCL	34.48
182											95% BCA Bootstrap UCL	37.59
183												
184	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
185					k star (bias corrected)	2.609	**Data appear Gamma Distributed at 5% Significance Level**					
186					Theta Star	11.41						
187					nu star	62.61						
188												
189					A-D Test Statistic	0.558	**Nonparametric Statistics**					
190					5% A-D Critical Value	0.738					Kaplan-Meier (KM) Method	
191					K-S Test Statistic	0.738					Mean	26.8
192					5% K-S Critical Value	0.247					SD	17.81
193	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	4.805
194											95% KM (t) UCL	35.27
195	**Assuming Gamma Distribution**										95% KM (z) UCL	34.71
196					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	35.19
197					Minimum	11.78					95% KM (bootstrap t) UCL	41.59
198					Maximum	82					95% KM (BCA) UCL	35.21
199					Mean	27.75					95% KM (Percentile Bootstrap) UCL	34.79
200					Median	23					95% KM (Chebyshev) UCL	47.75
201					SD	18.07					97.5% KM (Chebyshev) UCL	56.81
202					k star	2.914					99% KM (Chebyshev) UCL	74.61
203					Theta star	9.525						
204					Nu star	87.41	**Potential UCLs to Use**					
205					AppChi2	66.85					95% KM (BCA) UCL	35.21
206					95% Gamma Approximate UCL	36.28						
207					95% Adjusted Gamma UCL	37.52						
208	**Note: DL/2 is not a recommended method.**											
209												
210												
211	**Benzo(b)fluoranthene**											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	**General Statistics**											
214					Number of Valid Data	15				Number of Detected Data		12
215					Number of Distinct Detected Data	10				Number of Non-Detect Data		3
216										Percent Non-Detects		20.00%
217												
218	**Raw Statistics**						**Log-transformed Statistics**					
219					Minimum Detected	17				Minimum Detected		2.833
220					Maximum Detected	100				Maximum Detected		4.605
221					Mean of Detected	37.95				Mean of Detected		3.456
222					SD of Detected	25.92				SD of Detected		0.602
223					Minimum Non-Detect	19				Minimum Non-Detect		2.944
224					Maximum Non-Detect	20				Maximum Non-Detect		2.996
225												
226	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		5
227	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		10
228	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		33.33%
229												
230	**UCL Statistics**											
231	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
232					Shapiro Wilk Test Statistic	0.785				Shapiro Wilk Test Statistic		0.843
233					5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value		0.859
234	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
235												
236	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
237					DL/2 Substitution Method					DL/2 Substitution Method		
238					Mean	32.29				Mean		3.218
239					SD	25.79				SD		0.726
240					95% DL/2 (t) UCL	44.02				95% H-Stat (DL/2) UCL		43.79
241												
242					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
243					Mean	27.16				Mean in Log Scale		3.254
244					SD	31.11				SD in Log Scale		0.681
245					95% MLE (t) UCL	41.31				Mean in Original Scale		32.7
246					95% MLE (Tiku) UCL	42.29				SD in Original Scale		25.43
247										95% Percentile Bootstrap UCL		43.6
248										95% BCA Bootstrap UCL		46.83
249												
250	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
251					k star (bias corrected)	2.251	**Data do not follow a Discernable Distribution (0.05)**					
252					Theta Star	16.86						
253					nu star	54.03						
254												
255					A-D Test Statistic	0.99	**Nonparametric Statistics**					
256					5% A-D Critical Value	0.739				Kaplan-Meier (KM) Method		
257					K-S Test Statistic	0.739				Mean		33.79
258					5% K-S Critical Value	0.247				SD		23.7
259	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		6.393
260										95% KM (t) UCL		45.05
261	**Assuming Gamma Distribution**									95% KM (z) UCL		44.31
262					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		44.73
263					Minimum	4.878				95% KM (bootstrap t) UCL		51.35
264					Maximum	100				95% KM (BCA) UCL		44.33
265					Mean	32.97				95% KM (Percentile Bootstrap) UCL		44.09

266					Median	21				95% KM (Chebyshev) UCL		61.66
267					SD	25.32				97.5% KM (Chebyshev) UCL		73.72
268					k star	1.79				99% KM (Chebyshev) UCL		97.4
269					Theta star	18.42						
270					Nu star	53.69				**Potential UCLs to Use**		
271					AppChi2	37.85				95% KM (BCA) UCL		44.33
272					95% Gamma Approximate UCL	46.76						
273					95% Adjusted Gamma UCL	48.87						
274	**Note: DL/2 is not a recommended method.**											
275												
276												
277	**Benzo(k)fluoranthene**											
278												
279					**General Statistics**							
280					Number of Valid Data	15				Number of Detected Data		11
281					Number of Distinct Detected Data	9				Number of Non-Detect Data		4
282										Percent Non-Detects		26.67%
283												
284					**Raw Statistics**					**Log-transformed Statistics**		
285					Minimum Detected	6.6				Minimum Detected		1.887
286					Maximum Detected	100				Maximum Detected		4.605
287					Mean of Detected	23.61				Mean of Detected		2.834
288					SD of Detected	26.29				SD of Detected		0.771
289					Minimum Non-Detect	19				Minimum Non-Detect		2.944
290					Maximum Non-Detect	20				Maximum Non-Detect		2.996
291												
292	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		10
293	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
294	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		66.67%
295												
296					**UCL Statistics**							
297					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
298					Shapiro Wilk Test Statistic	0.596				Shapiro Wilk Test Statistic		0.898
299					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
300					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
301												
302					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
303					DL/2 Substitution Method					DL/2 Substitution Method		
304					Mean	19.91				Mean		2.685
305					SD	23.11				SD		0.7
306					95% DL/2 (t) UCL	30.42				95% H-Stat (DL/2) UCL		27.92
307												
308					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
309					**MLE yields a negative mean**					Mean in Log Scale		2.699
310										SD in Log Scale		0.704
311										Mean in Original Scale		20.13
312										SD in Original Scale		23.05
313										95% Percentile Bootstrap UCL		31.12
314										95% BCA Bootstrap UCL		37.12
315												
316					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
317					k star (bias corrected)	1.278				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
318					Theta Star	18.48						

319					nu star	28.11						
320												
321					A-D Test Statistic	0.778	**Nonparametric Statistics**					
322					5% A-D Critical Value	0.741	Kaplan-Meier (KM) Method					
323					K-S Test Statistic	0.741	Mean					20.3
324					5% K-S Critical Value	0.259	SD					22.27
325	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean					6.08
326							95% KM (t) UCL					31.01
327	**Assuming Gamma Distribution**						95% KM (z) UCL					30.31
328					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL					30.91
329					Minimum	6.6	95% KM (bootstrap t) UCL					46.93
330					Maximum	100	95% KM (BCA) UCL					31.76
331					Mean	22.81	95% KM (Percentile Bootstrap) UCL					31.03
332					Median	18	95% KM (Chebyshev) UCL					46.81
333					SD	23.02	97.5% KM (Chebyshev) UCL					58.28
334					k star	1.561	99% KM (Chebyshev) UCL					80.8
335					Theta star	14.61						
336					Nu star	46.83	**Potential UCLs to Use**					
337					AppChi2	32.13	95% KM (Percentile Bootstrap) UCL					31.03
338					95% Gamma Approximate UCL	33.24						
339					95% Adjusted Gamma UCL	34.87						
340	**Note: DL/2 is not a recommended method.**											
341												
342												
343	**Bis(2-ethylhexyl) phthalate**											
344												
345	**General Statistics**											
346					Number of Valid Data	15	Number of Detected Data					11
347					Number of Distinct Detected Data	9	Number of Non-Detect Data					4
348							Percent Non-Detects					26.67%
349												
350	**Raw Statistics**						**Log-transformed Statistics**					
351					Minimum Detected	100	Minimum Detected					4.605
352					Maximum Detected	7330	Maximum Detected					8.9
353					Mean of Detected	806.4	Mean of Detected					5.357
354					SD of Detected	2164	SD of Detected					1.203
355					Minimum Non-Detect	85	Minimum Non-Detect					4.443
356					Maximum Non-Detect	180	Maximum Non-Detect					5.193
357												
358	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					11
359	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					4
360	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					73.33%
361												
362	**UCL Statistics**											
363	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
364					Shapiro Wilk Test Statistic	0.362	Shapiro Wilk Test Statistic					0.55
365					5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value					0.85
366	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
367												
368	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
369					DL/2 Substitution Method		DL/2 Substitution Method					
370					Mean	609.8	Mean					5.05
371					SD	1860	SD					1.155

	A	B	C	D	E	F	G	H	I	J	K	L
372					95% DL/2 (t) UCL	1456				95% H-Stat (DL/2) UCL		785.5
373												
374					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
375					**MLE yields a negative mean**					Mean in Log Scale		5.058
376										SD in Log Scale		1.174
377										Mean in Original Scale		612.1
378										SD in Original Scale		1859
379										95% Percentile Bootstrap UCL		1568
380										95% BCA Bootstrap UCL		2053
381												
382					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
383					k star (bias corrected)	0.409				**Data do not follow a Discernable Distribution (0.05)**		
384					Theta Star	1972						
385					nu star	8.996						
386												
387					A-D Test Statistic	2.991				**Nonparametric Statistics**		
388					5% A-D Critical Value	0.785				Kaplan-Meier (KM) Method		
389					K-S Test Statistic	0.785				Mean		621.9
390					5% K-S Critical Value	0.27				SD		1793
391					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		485.6
392										95% KM (t) UCL		1477
393					**Assuming Gamma Distribution**					95% KM (z) UCL		1421
394					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1465
395					Minimum	100				95% KM (bootstrap t) UCL		29163
396					Maximum	7330				95% KM (BCA) UCL		1589
397					Mean	833.4				95% KM (Percentile Bootstrap) UCL		1580
398					Median	190				95% KM (Chebyshev) UCL		2739
399					SD	1830				97.5% KM (Chebyshev) UCL		3655
400					k star	0.545				99% KM (Chebyshev) UCL		5454
401					Theta star	1528						
402					Nu star	16.36				**Potential UCLs to Use**		
403					AppChi2	8.216				97.5% KM (Chebyshev) UCL		3655
404					95% Gamma Approximate UCL	1659						
405					95% Adjusted Gamma UCL	1814						
406	**Note: DL/2 is not a recommended method.**											
407												
408												
409	**Dibenzo(a,h)anthracene**											
410												
411									**General Statistics**			
412					Number of Valid Data	15				Number of Detected Data		9
413					Number of Distinct Detected Data	9				Number of Non-Detect Data		6
414										Percent Non-Detects		40.00%
415												
416					**Raw Statistics**					**Log-transformed Statistics**		
417					Minimum Detected	2				Minimum Detected		0.693
418					Maximum Detected	29.5				Maximum Detected		3.384
419					Mean of Detected	8.8				Mean of Detected		1.692
420					SD of Detected	9.824				SD of Detected		1.003
421					Minimum Non-Detect	19				Minimum Non-Detect		2.944
422					Maximum Non-Detect	20				Maximum Non-Detect		2.996
423												
424	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		13

	A	B	C	D	E	F	G	H	I	J	K	L
425	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
426	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		86.67%
427												
428	**Warning: There are only 9 Detected Values in this data**											
429	**Note: It should be noted that even though bootstrap may be performed on this data set**											
430	**the resulting calculations may not be reliable enough tp draw conclusions**											
431												
432	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
433												
434												
435	**UCL Statistics**											
436	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
437	Shapiro Wilk Test Statistic					0.737	Shapiro Wilk Test Statistic					0.87
438	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
439	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
440												
441	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
442	DL/2 Substitution Method						DL/2 Substitution Method					
443	Mean					9.18	Mean					1.926
444	SD					7.444	SD					0.814
445	95% DL/2 (t) UCL					12.57	95% H-Stat (DL/2) UCL					15.49
446												
447	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
448	**MLE method failed to converge properly**						Mean in Log Scale					1.545
449							SD in Log Scale					0.842
450							Mean in Original Scale					6.959
451							SD in Original Scale					7.884
452							95% Percentile Bootstrap UCL					10.4
453							95% BCA Bootstrap UCL					11.89
454												
455	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
456	k star (bias corrected)					0.857	**Data appear Gamma Distributed at 5% Significance Level**					
457	Theta Star					10.27						
458	nu star					15.42						
459												
460	A-D Test Statistic					0.7	**Nonparametric Statistics**					
461	5% A-D Critical Value					0.74	Kaplan-Meier (KM) Method					
462	K-S Test Statistic					0.74	Mean					6.92
463	5% K-S Critical Value					0.286	SD					7.686
464	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					2.179
465							95% KM (t) UCL					10.76
466	**Assuming Gamma Distribution**						95% KM (z) UCL					10.5
467	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.71
468	Minimum					2	95% KM (bootstrap t) UCL					14.08
469	Maximum					29.5	95% KM (BCA) UCL					10.94
470	Mean					8.81	95% KM (Percentile Bootstrap) UCL					10.76
471	Median					8.568	95% KM (Chebyshev) UCL					16.42
472	SD					7.428	97.5% KM (Chebyshev) UCL					20.53
473	k star					1.543	99% KM (Chebyshev) UCL					28.61
474	Theta star					5.708						
475	Nu star					46.3	**Potential UCLs to Use**					
476	AppChi2					31.69	95% KM (BCA) UCL					10.94
477	95% Gamma Approximate UCL					12.87						

	A	B	C	D	E	F	G	H	I	J	K	L
478					95% Adjusted Gamma UCL	13.51						
479	**Note: DL/2 is not a recommended method.**											
480												
481												
482	**Indeno(1,2,3-cd)pyrene**											
483												
484					**General Statistics**							
485					Number of Valid Data	15			Number of Detected Data			9
486					Number of Distinct Detected Data	7			Number of Non-Detect Data			6
487									Percent Non-Detects			40.00%
488												
489					**Raw Statistics**				**Log-transformed Statistics**			
490					Minimum Detected	11			Minimum Detected			2.398
491					Maximum Detected	42			Maximum Detected			3.738
492					Mean of Detected	23.32			Mean of Detected			3.004
493					SD of Detected	12.71			SD of Detected			0.582
494					Minimum Non-Detect	19			Minimum Non-Detect			2.944
495					Maximum Non-Detect	20			Maximum Non-Detect			2.996
496												
497	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			10
498	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			5
499	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			66.67%
500												
501	**Warning: There are only 9 Detected Values in this data**											
502	**Note: It should be noted that even though bootstrap may be performed on this data set**											
503	**the resulting calculations may not be reliable enough tp draw conclusions**											
504												
505	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
506												
507												
508					**UCL Statistics**							
509					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
510					Shapiro Wilk Test Statistic	0.844			Shapiro Wilk Test Statistic			0.821
511					5% Shapiro Wilk Critical Value	0.829			5% Shapiro Wilk Critical Value			0.829
512					**Data appear Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**			
513												
514					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
515					DL/2 Substitution Method				DL/2 Substitution Method			
516					Mean	17.89			Mean			2.713
517					SD	11.82			SD			0.575
518					95% DL/2 (t) UCL	23.27			95% H-Stat (DL/2) UCL			18.42
519												
520					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
521					Mean	13.16			Mean in Log Scale			2.803
522					SD	17.49			SD in Log Scale			0.533
523					95% MLE (t) UCL	21.11			Mean in Original Scale			19.01
524					95% MLE (Tiku) UCL	25.8			SD in Original Scale			11.23
525									95% Percentile Bootstrap UCL			23.45
526									95% BCA Bootstrap UCL			24.32
527												
528					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
529					k star (bias corrected)	2.476			**Data appear Normal at 5% Significance Level**			
530					Theta Star	9.419						

531					nu star	44.57						
532												
533					A-D Test Statistic	0.728	**Nonparametric Statistics**					
534					5% A-D Critical Value	0.726	Kaplan-Meier (KM) Method					
535					K-S Test Statistic	0.726	Mean	18.49				
536					5% K-S Critical Value	0.281	SD	11.01				
537	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean	3.018				
538							95% KM (t) UCL	23.81				
539	**Assuming Gamma Distribution**						95% KM (z) UCL	23.46				
540	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	23.68				
541					Minimum	11	95% KM (bootstrap t) UCL	25.31				
542					Maximum	42	95% KM (BCA) UCL	23.93				
543					Mean	23.34	95% KM (Percentile Bootstrap) UCL	23.17				
544					Median	23.4	95% KM (Chebyshev) UCL	31.65				
545					SD	9.613	97.5% KM (Chebyshev) UCL	37.34				
546					k star	4.765	99% KM (Chebyshev) UCL	48.52				
547					Theta star	4.898						
548					Nu star	143	**Potential UCLs to Use**					
549					AppChi2	116.3	95% KM (t) UCL	23.81				
550					95% Gamma Approximate UCL	28.68	95% KM (Percentile Bootstrap) UCL	23.17				
551					95% Adjusted Gamma UCL	29.43						
552	**Note: DL/2 is not a recommended method.**											
553												
554												
555	**Lead**											
556												
557	**General Statistics**											
558	Number of Valid Observations					15	Number of Distinct Observations	12				
559												
560	**Raw Statistics**						**Log-transformed Statistics**					
561					Minimum	9	Minimum of Log Data	2.197				
562					Maximum	22.8	Maximum of Log Data	3.127				
563					Mean	12.81	Mean of log Data	2.512				
564					Median	12	SD of log Data	0.278				
565					SD	3.912						
566					Coefficient of Variation	0.305						
567					Skewness	1.332						
568												
569	**Relevant UCL Statistics**											
570	**Normal Distribution Test**						**Lognormal Distribution Test**					
571					Shapiro Wilk Test Statistic	0.868	Shapiro Wilk Test Statistic	0.924				
572					Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881				
573	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
574												
575	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
576					95% Student's-t UCL	14.59	95% H-UCL	14.72				
577	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	16.82				
578					95% Adjusted-CLT UCL	14.84	97.5% Chebyshev (MVUE) UCL	18.57				
579					95% Modified-t UCL	14.64	99% Chebyshev (MVUE) UCL	22				
580												
581	**Gamma Distribution Test**						**Data Distribution**					
582					k star (bias corrected)	10.64	**Data appear Gamma Distributed at 5% Significance Level**					
583					Theta Star	1.204						

584					nu star	319.2						
585					Approximate Chi Square Value (.05)	278.8				**Nonparametric Statistics**		
586					Adjusted Level of Significance	0.0324				95% CLT UCL	14.47	
587					Adjusted Chi Square Value	274.2				95% Jackknife UCL	14.59	
588										95% Standard Bootstrap UCL	14.44	
589					Anderson-Darling Test Statistic	0.474				95% Bootstrap-t UCL	15.14	
590					Anderson-Darling 5% Critical Value	0.737				95% Hall's Bootstrap UCL	15.58	
591					Kolmogorov-Smirnov Test Statistic	0.164				95% Percentile Bootstrap UCL	14.45	
592					Kolmogorov-Smirnov 5% Critical Value	0.221				95% BCA Bootstrap UCL	14.89	
593					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	17.21	
594										97.5% Chebyshev(Mean, Sd) UCL	19.11	
595					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	22.86	
596					95% Approximate Gamma UCL	14.66						
597					95% Adjusted Gamma UCL	14.91						
598												
599					**Potential UCL to Use**					Use 95% Approximate Gamma UCL	14.66	
600												
601												
602	**Mercury**											
603												
604					**General Statistics**							
605					Number of Valid Observations	15				Number of Distinct Observations	8	
606												
607					**Raw Statistics**					**Log-transformed Statistics**		
608					Minimum	0.05				Minimum of Log Data	-2.996	
609					Maximum	0.263				Maximum of Log Data	-1.336	
610					Mean	0.0762				Mean of log Data	-2.688	
611					Median	0.06				SD of log Data	0.418	
612					SD	0.0531						
613					Coefficient of Variation	0.697						
614					Skewness	3.527						
615												
616												
617					**Relevant UCL Statistics**							
618					**Normal Distribution Test**					**Lognormal Distribution Test**		
619					Shapiro Wilk Test Statistic	0.486				Shapiro Wilk Test Statistic	0.686	
620					Shapiro Wilk Critical Value	0.881				Shapiro Wilk Critical Value	0.881	
621					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
622												
623					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
624					95% Student's-t UCL	0.1				95% H-UCL	0.0927	
625					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	0.109	
626					95% Adjusted-CLT UCL	0.112				97.5% Chebyshev (MVUE) UCL	0.125	
627					95% Modified-t UCL	0.102				99% Chebyshev (MVUE) UCL	0.155	
628												
629					**Gamma Distribution Test**					**Data Distribution**		
630					k star (bias corrected)	3.682				**Data do not follow a Discernable Distribution (0.05)**		
631					Theta Star	0.0207						
632					nu star	110.5						
633					Approximate Chi Square Value (.05)	87.2				**Nonparametric Statistics**		
634					Adjusted Level of Significance	0.0324				95% CLT UCL	0.0988	
635					Adjusted Chi Square Value	84.66				95% Jackknife UCL	0.1	
636										95% Standard Bootstrap UCL	0.0973	

637					Anderson-Darling Test Statistic	2.028				95% Bootstrap-t UCL	0.168	
638					Anderson-Darling 5% Critical Value	0.739				95% Hall's Bootstrap UCL	0.188	
639					Kolmogorov-Smirnov Test Statistic	0.273				95% Percentile Bootstrap UCL	0.102	
640					Kolmogorov-Smirnov 5% Critical Value	0.222				95% BCA Bootstrap UCL	0.119	
641					**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	0.136	
642										97.5% Chebyshev(Mean, Sd) UCL	0.162	
643					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	0.213	
644					95% Approximate Gamma UCL	0.0965						
645					95% Adjusted Gamma UCL	0.0994						
646												
647					**Potential UCL to Use**					Use 95% Student's-t UCL	0.1	
648										or 95% Modified-t UCL	0.102	
649												
650												
651	**Thallium**											
652												
653					**General Statistics**							
654					Number of Valid Data	7				Number of Detected Data	6	
655					Number of Distinct Detected Data	4				Number of Non-Detect Data	1	
656					Number of Missing Values	8				Percent Non-Detects	14.29%	
657												
658					**Raw Statistics**					**Log-transformed Statistics**		
659					Minimum Detected	8				Minimum Detected	2.079	
660					Maximum Detected	11				Maximum Detected	2.398	
661					Mean of Detected	9.667				Mean of Detected	2.264	
662					SD of Detected	1.033				SD of Detected	0.11	
663					Minimum Non-Detect	5				Minimum Non-Detect	1.609	
664					Maximum Non-Detect	5				Maximum Non-Detect	1.609	
665												
666												
667					**Warning: There are only 4 Distinct Detected Values in this data**							
668					**Note: It should be noted that even though bootstrap may be performed on this data set**							
669					**the resulting calculations may not be reliable enough tp draw conclusions**							
670												
671					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
672												
673												
674					**UCL Statistics**							
675					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
676					Shapiro Wilk Test Statistic	0.916				Shapiro Wilk Test Statistic	0.902	
677					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value	0.788	
678					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
679												
680					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
681					DL/2 Substitution Method					DL/2 Substitution Method		
682					Mean	8.643				Mean	2.071	
683					SD	2.868				SD	0.519	
684					95% DL/2 (t) UCL	10.75				95% H-Stat (DL/2) UCL	11.92	
685												
686					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
687					Mean	9.667				Mean in Log Scale	2.226	
688					SD	0.943				SD in Log Scale	0.141	
689					95% MLE (t) UCL	10.36				Mean in Original Scale	9.344	

690					95% MLE (Tiku) UCL	10.41				SD in Original Scale		1.272
691										95% Percentile Bootstrap UCL		10.14
692										95% BCA Bootstrap UCL		9.915
693												
694					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
695					k star (bias corrected)	50.56				**Data appear Normal at 5% Significance Level**		
696					Theta Star	0.191						
697					nu star	606.7						
698												
699					A-D Test Statistic	0.448				**Nonparametric Statistics**		
700					5% A-D Critical Value	0.696				Kaplan-Meier (KM) Method		
701					K-S Test Statistic	0.696				Mean		9.429
702					5% K-S Critical Value	0.332				SD		1.05
703					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		0.435
704										95% KM (t) UCL		10.27
705					**Assuming Gamma Distribution**					95% KM (z) UCL		10.14
706					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		10.3
707					Minimum	7.914				95% KM (bootstrap t) UCL		10.15
708					Maximum	11				95% KM (BCA) UCL		10.29
709					Mean	9.416				95% KM (Percentile Bootstrap) UCL		10.14
710					Median	10				95% KM (Chebyshev) UCL		11.32
711					SD	1.152				97.5% KM (Chebyshev) UCL		12.14
712					k star	43.55				99% KM (Chebyshev) UCL		13.75
713					Theta star	0.216						
714					Nu star	609.7				**Potential UCLs to Use**		
715					AppChi2	553.4				95% KM (t) UCL		10.27
716					95% Gamma Approximate UCL	10.37				95% KM (Percentile Bootstrap) UCL		10.14
717					95% Adjusted Gamma UCL	10.69						
718	**Note: DL/2 is not a recommended method.**											
719												
720												
721	**Total Aroclors**											
722												
723							**General Statistics**					
724					Number of Valid Data	12				Number of Detected Data		6
725					Number of Distinct Detected Data	6				Number of Non-Detect Data		6
726					Number of Missing Values	3				Percent Non-Detects		50.00%
727												
728					**Raw Statistics**					**Log-transformed Statistics**		
729					Minimum Detected	14.89				Minimum Detected		2.701
730					Maximum Detected	87				Maximum Detected		4.466
731					Mean of Detected	45.22				Mean of Detected		3.683
732					SD of Detected	23.9				SD of Detected		0.582
733					Minimum Non-Detect	20				Minimum Non-Detect		2.996
734					Maximum Non-Detect	40				Maximum Non-Detect		3.689
735												
736	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		8
737	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
738	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		66.67%
739												
740	**Warning: There are only 6 Detected Values in this data**											
741	**Note: It should be noted that even though bootstrap may be performed on this data set**											
742	**the resulting calculations may not be reliable enough tp draw conclusions**											

743												
744	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
745												
746												
747	UCL Statistics											
748	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
749	Shapiro Wilk Test Statistic				0.904		Shapiro Wilk Test Statistic					0.921
750	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value					0.788
751	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
752												
753	Assuming Normal Distribution						Assuming Lognormal Distribution					
754	DL/2 Substitution Method						DL/2 Substitution Method					
755	Mean				31.69		Mean					3.278
756	SD				21.6		SD					0.608
757	95% DL/2 (t) UCL				42.89		95% H-Stat (DL/2) UCL					34.85
758												
759	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
760	Mean				26.69		Mean in Log Scale					3.297
761	SD				28.2		SD in Log Scale					0.592
762	95% MLE (t) UCL				41.31		Mean in Original Scale					32.09
763	95% MLE (Tiku) UCL				50.42		SD in Original Scale					21.45
764							95% Percentile Bootstrap UCL					42.08
765							95% BCA Bootstrap UCL					44.19
766												
767	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
768	k star (bias corrected)				2.143		Data appear Normal at 5% Significance Level					
769	Theta Star				21.1							
770	nu star				25.71							
771												
772	A-D Test Statistic				0.363		Nonparametric Statistics					
773	5% A-D Critical Value				0.7		Kaplan-Meier (KM) Method					
774	K-S Test Statistic				0.7		Mean					32.37
775	5% K-S Critical Value				0.333		SD					20.76
776	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					7.067
777							95% KM (t) UCL					45.06
778	Assuming Gamma Distribution						95% KM (z) UCL					43.99
779	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					45.81
780	Minimum				14.89		95% KM (bootstrap t) UCL					46.38
781	Maximum				87		95% KM (BCA) UCL					52.72
782	Mean				45.08		95% KM (Percentile Bootstrap) UCL					51.38
783	Median				45.38		95% KM (Chebyshev) UCL					63.17
784	SD				16.24		97.5% KM (Chebyshev) UCL					76.5
785	k star				5.95		99% KM (Chebyshev) UCL					102.7
786	Theta star				7.577							
787	Nu star				142.8		Potential UCLs to Use					
788	AppChi2				116.2		95% KM (t) UCL					45.06
789	95% Gamma Approximate UCL				55.41		95% KM (Percentile Bootstrap) UCL					51.38
790	95% Adjusted Gamma UCL				57.21							
791	Note: DL/2 is not a recommended method.											
792												
793												
794	Tributyltin ion											
795												

796	**General Statistics**											
797					Number of Valid Data	10				Number of Detected Data		10
798					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
799					Number of Missing Values	5				Percent Non-Detects		0.00%
800												
801	**Raw Statistics**									**Log-transformed Statistics**		
802					Minimum Detected	16				Minimum Detected		2.773
803					Maximum Detected	310				Maximum Detected		5.737
804					Mean of Detected	161.9				Mean of Detected		4.667
805					SD of Detected	114.6				SD of Detected		1.134
806					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
807					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
808												
809												
810	**UCL Statistics**											
811	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
812					Shapiro Wilk Test Statistic	0.879				Shapiro Wilk Test Statistic		0.831
813					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
814	**Data appear Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
815												
816	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
817					DL/2 Substitution Method					DL/2 Substitution Method		
818					Mean	161.9				Mean		4.667
819					SD	114.6				SD		1.134
820					95% DL/2 (t) UCL	228.3				95% H-Stat (DL/2) UCL		727.9
821												
822					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
823	**MLE method failed to converge properly**									Mean in Log Scale		N/A
824										SD in Log Scale		N/A
825										Mean in Original Scale		N/A
826										SD in Original Scale		N/A
827										95% Percentile Bootstrap UCL		N/A
828										95% BCA Bootstrap UCL		N/A
829												
830	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
831					k star (bias corrected)	0.999				**Data appear Normal at 5% Significance Level**		
832					Theta Star	162.1						
833					nu star	19.98						
834												
835					A-D Test Statistic	0.726				**Nonparametric Statistics**		
836					5% A-D Critical Value	0.742				Kaplan-Meier (KM) Method		
837					K-S Test Statistic	0.742				Mean		161.9
838					5% K-S Critical Value	0.272				SD		108.7
839	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		36.25
840										95% KM (t) UCL		228.3
841	**Assuming Gamma Distribution**									95% KM (z) UCL		221.5
842					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		228.3
843					Minimum	16				95% KM (bootstrap t) UCL		227.2
844					Maximum	310				95% KM (BCA) UCL		215.8
845					Mean	161.9				95% KM (Percentile Bootstrap) UCL		217.4
846					Median	200				95% KM (Chebyshev) UCL		319.9
847					SD	114.6				97.5% KM (Chebyshev) UCL		388.3
848					k star	0.999				99% KM (Chebyshev) UCL		522.6

	A	B	C	D	E	F	G	H	I	J	K	L
849					Theta star	162.1						
850					Nu star	19.98	**Potential UCLs to Use**					
851					AppChi2	10.84					95% KM (t) UCL	228.3
852				95% Gamma Approximate UCL		298.5					95% KM (Percentile Bootstrap) UCL	217.4
853				95% Adjusted Gamma UCL		334						
854	**Note: DL/2 is not a recommended method.**											
855												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM7.5W.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

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General Statistics

Number of Valid Data	19	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	14
Number of Missing Values	15	Percent Non-Detects	73.68%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.047	Minimum Detected	-3.058
Maximum Detected	0.972	Maximum Detected	-0.0284
Mean of Detected	0.489	Mean of Detected	-1.317
SD of Detected	0.414	SD of Detected	1.45
Minimum Non-Detect	0.0322	Minimum Non-Detect	-3.436
Maximum Non-Detect	0.25	Maximum Non-Detect	-1.386
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	84.21%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.873	Shapiro Wilk Test Statistic	0.799
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.184	Mean	-2.381
SD	0.272	SD	1.117
95% DL/2 (t) UCL	0.292	95% H-Stat (DL/2) UCL	0.251
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0685	Mean in Log Scale	-3.668
SD	0.628	SD in Log Scale	1.671
95% MLE (t) UCL	0.318	Mean in Original Scale	0.138
95% MLE (Tiku) UCL	0.633	SD in Original Scale	0.291
		95% Percentile Bootstrap UCL	0.254
		95% BCA Bootstrap UCL	0.281

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56	k star (bias corrected)					0.519	**Data appear Normal at 5% Significance Level**					
57	Theta Star					0.943						
58	nu star					5.187						
59												
60	A-D Test Statistic					0.598	**Nonparametric Statistics**					
61	5% A-D Critical Value					0.692	Kaplan-Meier (KM) Method					
62	K-S Test Statistic					0.692	Mean					0.165
63	5% K-S Critical Value					0.365	SD					0.271
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0696
65							95% KM (t) UCL					0.286
66	**Assuming Gamma Distribution**						95% KM (z) UCL					0.28
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.269
68	Minimum					0.047	95% KM (bootstrap t) UCL					0.305
69	Maximum					0.972	95% KM (BCA) UCL					0.761
70	Mean					0.418	95% KM (Percentile Bootstrap) UCL					0.697
71	Median					0.427	95% KM (Chebyshev) UCL					0.469
72	SD					0.219	97.5% KM (Chebyshev) UCL					0.6
73	k star					2.39	99% KM (Chebyshev) UCL					0.858
74	Theta star					0.175						
75	Nu star					90.81	**Potential UCLs to Use**					
76	AppChi2					69.84	95% KM (t) UCL					0.286
77	95% Gamma Approximate UCL					0.544	95% KM (Percentile Bootstrap) UCL					0.697
78	95% Adjusted Gamma UCL					0.556						
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84	**General Statistics**											
85	Number of Valid Data					35	Number of Detected Data					29
86	Number of Distinct Detected Data					28	Number of Non-Detect Data					6
87	Number of Missing Values					16	Percent Non-Detects					17.14%
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90	Minimum Detected					1.6	Minimum Detected					0.47
91	Maximum Detected					5.38	Maximum Detected					1.683
92	Mean of Detected					3.465	Mean of Detected					1.198
93	SD of Detected					0.979	SD of Detected					0.318
94	Minimum Non-Detect					3	Minimum Non-Detect					1.099
95	Maximum Non-Detect					5	Maximum Non-Detect					1.609
96												
97	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					33
98	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					2
99	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					94.29%
100												
101	**UCL Statistics**											
102	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
103	Shapiro Wilk Test Statistic					0.957	Shapiro Wilk Test Statistic					0.915
104	5% Shapiro Wilk Critical Value					0.926	5% Shapiro Wilk Critical Value					0.926
105	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
108					DL/2 Substitution Method						DL/2 Substitution Method	
109					Mean	3.228					Mean	1.116
110					SD	1.044					SD	0.349
111					95% DL/2 (t) UCL	3.527					95% H-Stat (DL/2) UCL	3.466
112												
113					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
114	**MLE method failed to converge properly**										Mean in Log Scale	1.173
115											SD in Log Scale	0.3
116											Mean in Original Scale	3.367
117											SD in Original Scale	0.933
118											95% Percentile Bootstrap UCL	3.623
119											95% BCA Bootstrap UCL	3.606
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122					k star (bias corrected)	10.19	**Data appear Normal at 5% Significance Level**					
123					Theta Star	0.34						
124					nu star	590.9						
125												
126					A-D Test Statistic	0.837	**Nonparametric Statistics**					
127					5% A-D Critical Value	0.745					Kaplan-Meier (KM) Method	
128					K-S Test Statistic	0.745					Mean	3.376
129					5% K-S Critical Value	0.162					SD	0.961
130	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.176
131											95% KM (t) UCL	3.673
132	**Assuming Gamma Distribution**										95% KM (z) UCL	3.665
133					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.674
134					Minimum	1.6					95% KM (bootstrap t) UCL	3.661
135					Maximum	5.38					95% KM (BCA) UCL	3.65
136					Mean	3.445					95% KM (Percentile Bootstrap) UCL	3.67
137					Median	3.52					95% KM (Chebyshev) UCL	4.142
138					SD	0.92					97.5% KM (Chebyshev) UCL	4.474
139					k star	11.71					99% KM (Chebyshev) UCL	5.125
140					Theta star	0.294						
141					Nu star	819.5	**Potential UCLs to Use**					
142					AppChi2	754.1					95% KM (t) UCL	3.673
143					95% Gamma Approximate UCL	3.744					95% KM (Percentile Bootstrap) UCL	3.67
144					95% Adjusted Gamma UCL	3.759						
145	**Note: DL/2 is not a recommended method.**											
146												
147												
148	**Benzo(a)anthracene**											
149												
150	**General Statistics**											
151					Number of Valid Data	51					Number of Detected Data	50
152					Number of Distinct Detected Data	44					Number of Non-Detect Data	1
153											Percent Non-Detects	1.96%
154												
155	**Raw Statistics**						**Log-transformed Statistics**					
156					Minimum Detected	0.5					Minimum Detected	-0.693
157					Maximum Detected	3350					Maximum Detected	8.117
158					Mean of Detected	151					Mean of Detected	4.007
159					SD of Detected	472.7					SD of Detected	1.302

	A	B	C	D	E	F	G	H	I	J	K	L
160					Minimum Non-Detect	1.2					Minimum Non-Detect	0.182
161					Maximum Non-Detect	1.2					Maximum Non-Detect	0.182
162												
163												
164	**UCL Statistics**											
165	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
166					Lilliefors Test Statistic	0.272					Lilliefors Test Statistic	0.932
167					5% Lilliefors Critical Value	0.947					5% Lilliefors Critical Value	0.947
168	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
169												
170	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
171					DL/2 Substitution Method						DL/2 Substitution Method	
172					Mean	148					Mean	3.919
173					SD	468.5					SD	1.436
174					95% DL/2 (t) UCL	257.9					95% H-Stat (DL/2) UCL	231.8
175												
176					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
177					Mean	134.9					Mean in Log Scale	3.952
178					SD	475.3					SD in Log Scale	1.347
179					95% MLE (t) UCL	246.5					Mean in Original Scale	148.1
180					95% MLE (Tiku) UCL	234.5					SD in Original Scale	468.5
181											95% Percentile Bootstrap UCL	270.8
182											95% BCA Bootstrap UCL	372.2
183												
184	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
185					k star (bias corrected)	0.587	**Data do not follow a Discernable Distribution (0.05)**					
186					Theta Star	257.1						
187					nu star	58.71						
188												
189					A-D Test Statistic	3.834	**Nonparametric Statistics**					
190					5% A-D Critical Value	0.805					Kaplan-Meier (KM) Method	
191					K-S Test Statistic	0.805					Mean	148
192					5% K-S Critical Value	0.132					SD	463.9
193	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	65.61
194											95% KM (t) UCL	258
195	**Assuming Gamma Distribution**										95% KM (z) UCL	255.9
196					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	257.9
197					Minimum	1E-09					95% KM (bootstrap t) UCL	690.7
198					Maximum	3350					95% KM (BCA) UCL	275.7
199					Mean	148					95% KM (Percentile Bootstrap) UCL	271.2
200					Median	46					95% KM (Chebyshev) UCL	434
201					SD	468.5					97.5% KM (Chebyshev) UCL	557.8
202					k star	0.427					99% KM (Chebyshev) UCL	800.8
203					Theta star	346.8						
204					Nu star	43.53	**Potential UCLs to Use**					
205					AppChi2	29.4					95% KM (Chebyshev) UCL	434
206					95% Gamma Approximate UCL	219.1						
207					95% Adjusted Gamma UCL	221.7						
208	**Note: DL/2 is not a recommended method.**											
209												
210												
211	**Benzo(a)pyrene**											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	**General Statistics**											
214					Number of Valid Data	51				Number of Detected Data		49
215					Number of Distinct Detected Data	38				Number of Non-Detect Data		2
216										Percent Non-Detects		3.92%
217												
218	**Raw Statistics**						**Log-transformed Statistics**					
219					Minimum Detected	2.5				Minimum Detected		0.916
220					Maximum Detected	2470				Maximum Detected		7.812
221					Mean of Detected	134.4				Mean of Detected		4.099
222					SD of Detected	354.6				SD of Detected		1.074
223					Minimum Non-Detect	0.33				Minimum Non-Detect		-1.109
224					Maximum Non-Detect	0.83				Maximum Non-Detect		-0.186
225												
226	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		2
227	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		49
228	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		3.92%
229												
230	**UCL Statistics**											
231	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
232					Lilliefors Test Statistic	0.314				Lilliefors Test Statistic		0.948
233					5% Lilliefors Critical Value	0.947				5% Lilliefors Critical Value		0.947
234	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
235												
236	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
237					DL/2 Substitution Method					DL/2 Substitution Method		
238					Mean	129.2				Mean		3.886
239					SD	348.5				SD		1.501
240					95% DL/2 (t) UCL	210.9				95% H-Stat (DL/2) UCL		237.9
241												
242					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
243					Mean	119.6				Mean in Log Scale		4.001
244					SD	353.8				SD in Log Scale		1.16
245					95% MLE (t) UCL	202.7				Mean in Original Scale		129.3
246					95% MLE (Tiku) UCL	194				SD in Original Scale		348.4
247										95% Percentile Bootstrap UCL		219.3
248										95% BCA Bootstrap UCL		282.4
249												
250	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
251					k star (bias corrected)	0.715	**Data appear Lognormal at 5% Significance Level**					
252					Theta Star	188						
253					nu star	70.08						
254												
255					A-D Test Statistic	3.832	**Nonparametric Statistics**					
256					5% A-D Critical Value	0.793				Kaplan-Meier (KM) Method		
257					K-S Test Statistic	0.793				Mean		129.2
258					5% K-S Critical Value	0.132				SD		345
259	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		48.81
260										95% KM (t) UCL		211
261	**Assuming Gamma Distribution**									95% KM (z) UCL		209.5
262					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		210.6
263					Minimum	1E-09				95% KM (bootstrap t) UCL		435.4
264					Maximum	2470				95% KM (BCA) UCL		228.8
265					Mean	129.1				95% KM (Percentile Bootstrap) UCL		224.1

266					Median	48				95% KM (Chebyshev) UCL		342
267					SD	348.5				97.5% KM (Chebyshev) UCL		434.1
268					k star	0.373				99% KM (Chebyshev) UCL		614.9
269					Theta star	346.5						
270					Nu star	38.01				**Potential UCLs to Use**		
271					AppChi2	24.9				95% KM (Chebyshev) UCL		342
272					95% Gamma Approximate UCL	197.2						
273					95% Adjusted Gamma UCL	199.7						
274	**Note: DL/2 is not a recommended method.**											
275												
276												
277	**Benzo(b)fluoranthene**											
278												
279					**General Statistics**							
280					Number of Valid Data	51				Number of Detected Data		50
281					Number of Distinct Detected Data	44				Number of Non-Detect Data		1
282										Percent Non-Detects		1.96%
283												
284					**Raw Statistics**					**Log-transformed Statistics**		
285					Minimum Detected	1.2				Minimum Detected		0.182
286					Maximum Detected	3380				Maximum Detected		8.126
287					Mean of Detected	173.4				Mean of Detected		4.185
288					SD of Detected	485.5				SD of Detected		1.252
289					Minimum Non-Detect	0.72				Minimum Non-Detect		-0.329
290					Maximum Non-Detect	0.72				Maximum Non-Detect		-0.329
291												
292												
293					**UCL Statistics**							
294					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
295					Lilliefors Test Statistic	0.317				Lilliefors Test Statistic		0.949
296					5% Lilliefors Critical Value	0.947				5% Lilliefors Critical Value		0.947
297					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
298												
299					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
300					DL/2 Substitution Method					DL/2 Substitution Method		
301					Mean	170				Mean		4.083
302					SD	481.2				SD		1.438
303					95% DL/2 (t) UCL	283				95% H-Stat (DL/2) UCL		278.7
304												
305					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
306					Mean	163.5				Mean in Log Scale		4.124
307					SD	482.4				SD in Log Scale		1.314
308					95% MLE (t) UCL	276.7				Mean in Original Scale		170.1
309					95% MLE (Tiku) UCL	264				SD in Original Scale		481.2
310										95% Percentile Bootstrap UCL		299.7
311										95% BCA Bootstrap UCL		415.1
312												
313					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
314					k star (bias corrected)	0.607				**Data appear Lognormal at 5% Significance Level**		
315					Theta Star	285.6						
316					nu star	60.73						
317												
318					A-D Test Statistic	3.763				**Nonparametric Statistics**		

	A	B	C	D	E	F	G	H	I	J	K	L
319					5% A-D Critical Value	0.803					Kaplan-Meier (KM) Method	
320					K-S Test Statistic	0.803					Mean	170
321					5% K-S Critical Value	0.131					SD	476.5
322				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	67.4
323											95% KM (t) UCL	283
324				**Assuming Gamma Distribution**							95% KM (z) UCL	280.9
325					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	282.9
326					Minimum	1E-09					95% KM (bootstrap t) UCL	591
327					Maximum	3380					95% KM (BCA) UCL	295
328					Mean	170					95% KM (Percentile Bootstrap) UCL	300.1
329					Median	59					95% KM (Chebyshev) UCL	463.8
330					SD	481.2					97.5% KM (Chebyshev) UCL	590.9
331					k star	0.436					99% KM (Chebyshev) UCL	840.6
332					Theta star	390.4						
333					Nu star	44.43				**Potential UCLs to Use**		
334					AppChi2	30.14					95% KM (Chebyshev) UCL	463.8
335					95% Gamma Approximate UCL	250.6						
336					95% Adjusted Gamma UCL	253.5						
337	**Note: DL/2 is not a recommended method.**											
338												
339												
340	**Benzo(k)fluoranthene**											
341												
342						**General Statistics**						
343					Number of Valid Data	44					Number of Detected Data	43
344					Number of Distinct Detected Data	37					Number of Non-Detect Data	1
345					Number of Missing Values	7					Percent Non-Detects	2.27%
346												
347				**Raw Statistics**						**Log-transformed Statistics**		
348					Minimum Detected	0.79					Minimum Detected	-0.236
349					Maximum Detected	689					Maximum Detected	6.535
350					Mean of Detected	62.12					Mean of Detected	3.533
351					SD of Detected	105.3					SD of Detected	1.176
352					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
353					Maximum Non-Detect	0.5					Maximum Non-Detect	-0.693
354												
355												
356						**UCL Statistics**						
357				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
358					Shapiro Wilk Test Statistic	0.437					Shapiro Wilk Test Statistic	0.902
359					5% Shapiro Wilk Critical Value	0.943					5% Shapiro Wilk Critical Value	0.943
360				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
361												
362				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
363					DL/2 Substitution Method						DL/2 Substitution Method	
364					Mean	60.71					Mean	3.421
365					SD	104.5					SD	1.378
366					95% DL/2 (t) UCL	87.19					95% H-Stat (DL/2) UCL	135.7
367												
368					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
369					Mean	59.23					Mean in Log Scale	3.469
370					SD	104.9					SD in Log Scale	1.237
371					95% MLE (t) UCL	85.82					Mean in Original Scale	60.76

372					95% MLE (Tiku) UCL	83.32				SD in Original Scale		104.5
373										95% Percentile Bootstrap UCL		89.44
374										95% BCA Bootstrap UCL		106.9
375												
376			Gamma Distribution Test with Detected Values Only							Data Distribution Test with Detected Values Only		
377					k star (bias corrected)	0.92				Data do not follow a Discernable Distribution (0.05)		
378					Theta Star	67.54						
379					nu star	79.1						
380												
381					A-D Test Statistic	1.669				Nonparametric Statistics		
382					5% A-D Critical Value	0.779				Kaplan-Meier (KM) Method		
383					K-S Test Statistic	0.779				Mean		60.73
384					5% K-S Critical Value	0.139				SD		103.3
385			Data not Gamma Distributed at 5% Significance Level							SE of Mean		15.75
386										95% KM (t) UCL		87.21
387			Assuming Gamma Distribution							95% KM (z) UCL		86.64
388					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		87.19
389					Minimum	1E-09				95% KM (bootstrap t) UCL		131.2
390					Maximum	689				95% KM (BCA) UCL		92.02
391					Mean	60.71				95% KM (Percentile Bootstrap) UCL		90.35
392					Median	37				95% KM (Chebyshev) UCL		129.4
393					SD	104.5				97.5% KM (Chebyshev) UCL		159.1
394					k star	0.533				99% KM (Chebyshev) UCL		217.5
395					Theta star	113.9						
396					Nu star	46.92				Potential UCLs to Use		
397					AppChi2	32.2				95% KM (Chebyshev) UCL		129.4
398					95% Gamma Approximate UCL	88.46						
399					95% Adjusted Gamma UCL	89.61						
400	Note: DL/2 is not a recommended method.											
401												
402												
403	Bis(2-ethylhexyl) phthalate											
404												
405						General Statistics						
406					Number of Valid Data	39				Number of Detected Data		27
407					Number of Distinct Detected Data	23				Number of Non-Detect Data		12
408					Number of Missing Values	12				Percent Non-Detects		30.77%
409												
410			Raw Statistics							Log-transformed Statistics		
411					Minimum Detected	34				Minimum Detected		3.526
412					Maximum Detected	622				Maximum Detected		6.433
413					Mean of Detected	189.3				Mean of Detected		4.986
414					SD of Detected	137.9				SD of Detected		0.755
415					Minimum Non-Detect	6.7				Minimum Non-Detect		1.902
416					Maximum Non-Detect	279				Maximum Non-Detect		5.631
417												
418	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		34
419	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
420	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		87.18%
421												
422						UCL Statistics						
423			Normal Distribution Test with Detected Values Only							Lognormal Distribution Test with Detected Values Only		
424					Shapiro Wilk Test Statistic	0.874				Shapiro Wilk Test Statistic		0.966

425					5% Shapiro Wilk Critical Value	0.923					5% Shapiro Wilk Critical Value	0.923
426	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
427												
428	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
429					DL/2 Substitution Method						DL/2 Substitution Method	
430					Mean	141.9					Mean	4.364
431					SD	136.7					SD	1.296
432					95% DL/2 (t) UCL	178.8					95% H-Stat (DL/2) UCL	285.5
433												
434					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
435	**MLE yields a negative mean**										Mean in Log Scale	4.553
436											SD in Log Scale	0.931
437											Mean in Original Scale	142.9
438											SD in Original Scale	134.4
439											95% Percentile Bootstrap UCL	178
440											95% BCA Bootstrap UCL	181.9
441												
442	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
443					k star (bias corrected)	1.89	**Data appear Gamma Distributed at 5% Significance Level**					
444					Theta Star	100.2						
445					nu star	102						
446												
447					A-D Test Statistic	0.434	**Nonparametric Statistics**					
448					5% A-D Critical Value	0.756					Kaplan-Meier (KM) Method	
449					K-S Test Statistic	0.756					Mean	145.3
450					5% K-S Critical Value	0.17					SD	132
451	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	21.7
452											95% KM (t) UCL	181.9
453	**Assuming Gamma Distribution**										95% KM (z) UCL	181
454					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	180.8
455					Minimum	34					95% KM (bootstrap t) UCL	191.4
456					Maximum	622					95% KM (BCA) UCL	185
457					Mean	161.7					95% KM (Percentile Bootstrap) UCL	183.5
458					Median	113					95% KM (Chebyshev) UCL	239.9
459					SD	127.2					97.5% KM (Chebyshev) UCL	280.8
460					k star	1.836					99% KM (Chebyshev) UCL	361.2
461					Theta star	88.05						
462					Nu star	143.2	**Potential UCLs to Use**					
463					AppChi2	116.6					95% KM (Percentile Bootstrap) UCL	183.5
464					95% Gamma Approximate UCL	198.6						
465					95% Adjusted Gamma UCL	200.3						
466	**Note: DL/2 is not a recommended method.**											
467												
468												
469	**Dibenzo(a,h)anthracene**											
470												
471	**General Statistics**											
472					Number of Valid Data	51					Number of Detected Data	36
473					Number of Distinct Detected Data	29					Number of Non-Detect Data	15
474											Percent Non-Detects	29.41%
475												
476	**Raw Statistics**						**Log-transformed Statistics**					
477					Minimum Detected	0.62					Minimum Detected	-0.478

	A	B	C	D	E	F	G	H	I	J	K	L
478					Maximum Detected	345					Maximum Detected	5.844
479					Mean of Detected	24.73					Mean of Detected	2.223
480					SD of Detected	59.12					SD of Detected	1.244
481					Minimum Non-Detect	0.38					Minimum Non-Detect	-0.968
482					Maximum Non-Detect	27.9					Maximum Non-Detect	3.329
483												
484	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	45
485	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
486	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	88.24%
487												
488	**UCL Statistics**											
489	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
490					Lilliefors Test Statistic	0.395					Lilliefors Test Statistic	0.955
491					5% Lilliefors Critical Value	0.935					5% Lilliefors Critical Value	0.935
492	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
493												
494	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
495					DL/2 Substitution Method						DL/2 Substitution Method	
496					Mean	19.87					Mean	2.065
497					SD	50.09					SD	1.299
498					95% DL/2 (t) UCL	31.62					95% H-Stat (DL/2) UCL	22.89
499												
500					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
501	**MLE yields a negative mean**										Mean in Log Scale	1.934
502											SD in Log Scale	1.248
503											Mean in Original Scale	18.92
504											SD in Original Scale	50.33
505											95% Percentile Bootstrap UCL	31.96
506											95% BCA Bootstrap UCL	40.73
507												
508	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
509					k star (bias corrected)	0.59	**Data appear Lognormal at 5% Significance Level**					
510					Theta Star	41.89						
511					nu star	42.5						
512												
513					A-D Test Statistic	2.757	**Nonparametric Statistics**					
514					5% A-D Critical Value	0.8					Kaplan-Meier (KM) Method	
515					K-S Test Statistic	0.8					Mean	18.94
516					5% K-S Critical Value	0.154					SD	49.84
517	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	7.085
518											95% KM (t) UCL	30.81
519	**Assuming Gamma Distribution**										95% KM (z) UCL	30.59
520					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	30.71
521					Minimum	0.62					95% KM (bootstrap t) UCL	56.07
522					Maximum	345					95% KM (BCA) UCL	32.95
523					Mean	23.43					95% KM (Percentile Bootstrap) UCL	31.37
524					Median	9					95% KM (Chebyshev) UCL	49.82
525					SD	50.01					97.5% KM (Chebyshev) UCL	63.18
526					k star	0.743					99% KM (Chebyshev) UCL	89.43
527					Theta star	31.54						
528					Nu star	75.78					**Potential UCLs to Use**	
529					AppChi2	56.73					95% KM (Chebyshev) UCL	49.82
530					95% Gamma Approximate UCL	31.3						

531					95% Adjusted Gamma UCL	31.56						
532	**Note: DL/2 is not a recommended method.**											
533												
534												
535	**Indeno(1,2,3-cd)pyrene**											
536												
537					**General Statistics**							
538					Number of Valid Data	51				Number of Detected Data	49	
539					Number of Distinct Detected Data	38				Number of Non-Detect Data	2	
540										Percent Non-Detects	3.92%	
541												
542					**Raw Statistics**					**Log-transformed Statistics**		
543					Minimum Detected	2.7				Minimum Detected	0.993	
544					Maximum Detected	1130				Maximum Detected	7.03	
545					Mean of Detected	87.28				Mean of Detected	3.799	
546					SD of Detected	176.1				SD of Detected	1.014	
547					Minimum Non-Detect	0.36				Minimum Non-Detect	-1.022	
548					Maximum Non-Detect	0.5				Maximum Non-Detect	-0.693	
549												
550	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	2	
551	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	49	
552	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	3.92%	
553												
554					**UCL Statistics**							
555					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
556					Lilliefors Test Statistic	0.415				Lilliefors Test Statistic	0.945	
557					5% Lilliefors Critical Value	0.947				5% Lilliefors Critical Value	0.947	
558					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
559												
560					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
561					DL/2 Substitution Method					DL/2 Substitution Method		
562					Mean	83.87				Mean	3.589	
563					SD	173.4				SD	1.445	
564					95% DL/2 (t) UCL	124.6				95% H-Stat (DL/2) UCL	157.8	
565												
566					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
567					Mean	79.35				Mean in Log Scale	3.706	
568					SD	176.3				SD in Log Scale	1.097	
569					95% MLE (t) UCL	120.7				Mean in Original Scale	84.02	
570					95% MLE (Tiku) UCL	116.7				SD in Original Scale	173.3	
571										95% Percentile Bootstrap UCL	128.6	
572										95% BCA Bootstrap UCL	149.1	
573												
574					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
575					k star (bias corrected)	0.835				**Data do not follow a Discernable Distribution (0.05)**		
576					Theta Star	104.5						
577					nu star	81.83						
578												
579					A-D Test Statistic	3.589				**Nonparametric Statistics**		
580					5% A-D Critical Value	0.786				Kaplan-Meier (KM) Method		
581					K-S Test Statistic	0.786				Mean	83.96	
582					5% K-S Critical Value	0.131				SD	171.6	
583					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean	24.28	

584											95% KM (t) UCL	124.7
585	**Assuming Gamma Distribution**										95% KM (z) UCL	123.9
586	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	124.4
587	Minimum	1E-09									95% KM (bootstrap t) UCL	203.6
588	Maximum	1130									95% KM (BCA) UCL	133.9
589	Mean	83.86									95% KM (Percentile Bootstrap) UCL	128.4
590	Median	34									95% KM (Chebyshev) UCL	189.8
591	SD	173.4									97.5% KM (Chebyshev) UCL	235.6
592	k star	0.4									99% KM (Chebyshev) UCL	325.6
593	Theta star	209.5										
594	Nu star	40.83									**Potential UCLs to Use**	
595	AppChi2	27.19									95% KM (Chebyshev) UCL	189.8
596	95% Gamma Approximate UCL	125.9										
597	95% Adjusted Gamma UCL	127.5										
598	**Note: DL/2 is not a recommended method.**											
599												
600												
601	**Lead**											
602												
603	**General Statistics**											
604	Number of Valid Data	39									Number of Detected Data	39
605	Number of Distinct Detected Data	30									Number of Non-Detect Data	0
606	Number of Missing Values	12									Percent Non-Detects	0.00%
607												
608	**Raw Statistics**										**Log-transformed Statistics**	
609	Minimum Detected	5.84									Minimum Detected	1.765
610	Maximum Detected	71.7									Maximum Detected	4.272
611	Mean of Detected	16.55									Mean of Detected	2.685
612	SD of Detected	11.18									SD of Detected	0.453
613	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
614	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
615												
616												
617	**UCL Statistics**											
618	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
619	Shapiro Wilk Test Statistic	0.572									Shapiro Wilk Test Statistic	0.869
620	5% Shapiro Wilk Critical Value	0.939									5% Shapiro Wilk Critical Value	0.939
621	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
622												
623	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
624	DL/2 Substitution Method										DL/2 Substitution Method	
625	Mean	16.55									Mean	2.685
626	SD	11.18									SD	0.453
627	95% DL/2 (t) UCL	19.57									95% H-Stat (DL/2) UCL	18.64
628												
629	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
630	**MLE method failed to converge properly**										Mean in Log Scale	N/A
631											SD in Log Scale	N/A
632											Mean in Original Scale	N/A
633											SD in Original Scale	N/A
634											95% Percentile Bootstrap UCL	N/A
635											95% BCA Bootstrap UCL	N/A
636												

	A	B	C	D	E	F	G	H	I	J	K	L
637	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
638					k star (bias corrected)	3.964	**Data do not follow a Discernable Distribution (0.05)**					
639					Theta Star	4.176						
640					nu star	309.2						
641												
642					A-D Test Statistic	2.625	**Nonparametric Statistics**					
643					5% A-D Critical Value	0.752				Kaplan-Meier (KM) Method		
644					K-S Test Statistic	0.752				Mean		16.55
645					5% K-S Critical Value	0.142				SD		11.04
646	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		1.79
647										95% KM (t) UCL		19.57
648	**Assuming Gamma Distribution**									95% KM (z) UCL		19.5
649				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		19.57
650					Minimum	5.84				95% KM (bootstrap t) UCL		24.04
651					Maximum	71.7				95% KM (BCA) UCL		19.36
652					Mean	16.55				95% KM (Percentile Bootstrap) UCL		19.82
653					Median	15.1				95% KM (Chebyshev) UCL		24.36
654					SD	11.18				97.5% KM (Chebyshev) UCL		27.73
655					k star	3.964				99% KM (Chebyshev) UCL		34.37
656					Theta star	4.176						
657					Nu star	309.2	**Potential UCLs to Use**					
658					AppChi2	269.4				95% KM (Chebyshev) UCL		24.36
659				95% Gamma Approximate UCL		18.99						
660				95% Adjusted Gamma UCL		19.1						
661	**Note: DL/2 is not a recommended method.**											
662												
663												
664	**Mercury**											
665												
666							**General Statistics**					
667					Number of Valid Data	39				Number of Detected Data		38
668					Number of Distinct Detected Data	27				Number of Non-Detect Data		1
669					Number of Missing Values	12				Percent Non-Detects		2.56%
670												
671	**Raw Statistics**						**Log-transformed Statistics**					
672					Minimum Detected	0.016				Minimum Detected		-4.135
673					Maximum Detected	0.46				Maximum Detected		-0.777
674					Mean of Detected	0.0778				Mean of Detected		-2.808
675					SD of Detected	0.0777				SD of Detected		0.676
676					Minimum Non-Detect	0.08				Minimum Non-Detect		-2.526
677					Maximum Non-Detect	0.08				Maximum Non-Detect		-2.526
678												
679												
680	**UCL Statistics**											
681	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
682					Shapiro Wilk Test Statistic	0.564				Shapiro Wilk Test Statistic		0.909
683					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
684	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
685												
686	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
687					DL/2 Substitution Method					DL/2 Substitution Method		
688					Mean	0.0769				Mean		-2.819
689					SD	0.0769				SD		0.671

	A	B	C	D	E	F	G	H	I	J	K	L
690					95% DL/2 (t) UCL	0.0976				95% H-Stat (DL/2) UCL		0.0941
691												
692					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
693					**MLE yields a negative mean**					Mean in Log Scale		-2.814
694										SD in Log Scale		0.668
695										Mean in Original Scale		0.0771
696										SD in Original Scale		0.0768
697										95% Percentile Bootstrap UCL		0.0987
698										95% BCA Bootstrap UCL		0.107
699												
700			**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**			
701					k star (bias corrected)	1.961			**Data do not follow a Discernable Distribution (0.05)**			
702					Theta Star	0.0397						
703					nu star	149.1						
704												
705					A-D Test Statistic	2.049			**Nonparametric Statistics**			
706					5% A-D Critical Value	0.759			Kaplan-Meier (KM) Method			
707					K-S Test Statistic	0.759			Mean			0.0772
708					5% K-S Critical Value	0.145			SD			0.0759
709			**Data not Gamma Distributed at 5% Significance Level**						SE of Mean			0.0123
710									95% KM (t) UCL			0.0979
711			**Assuming Gamma Distribution**						95% KM (z) UCL			0.0974
712					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL			0.0979
713					Minimum	0.016			95% KM (bootstrap t) UCL			0.129
714					Maximum	0.46			95% KM (BCA) UCL			0.0998
715					Mean	0.0776			95% KM (Percentile Bootstrap) UCL			0.1
716					Median	0.067			95% KM (Chebyshev) UCL			0.131
717					SD	0.0767			97.5% KM (Chebyshev) UCL			0.154
718					k star	2.011			99% KM (Chebyshev) UCL			0.2
719					Theta star	0.0386						
720					Nu star	156.9			**Potential UCLs to Use**			
721					AppChi2	128.9			95% KM (Chebyshev) UCL			0.131
722					95% Gamma Approximate UCL	0.0944						
723					95% Adjusted Gamma UCL	0.0951						
724	**Note: DL/2 is not a recommended method.**											
725												
726												
727	**Naphthalene**											
728												
729						**General Statistics**						
730					Number of Valid Data	51			Number of Detected Data			33
731					Number of Distinct Detected Data	28			Number of Non-Detect Data			18
732									Percent Non-Detects			35.29%
733												
734			**Raw Statistics**						**Log-transformed Statistics**			
735					Minimum Detected	6.1			Minimum Detected			1.808
736					Maximum Detected	154			Maximum Detected			5.037
737					Mean of Detected	35.11			Mean of Detected			3.211
738					SD of Detected	34.78			SD of Detected			0.814
739					Minimum Non-Detect	0.51			Minimum Non-Detect			-0.673
740					Maximum Non-Detect	24.5			Maximum Non-Detect			3.199
741												
742	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			34

	A	B	C	D	E	F	G	H	I	J	K	L
743	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		17
744	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		66.67%
745												
746	**UCL Statistics**											
747	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
748	Lilliefors Test Statistic					0.72	Lilliefors Test Statistic					0.96
749	5% Lilliefors Critical Value					0.931	5% Lilliefors Critical Value					0.931
750	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
751												
752	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
753	DL/2 Substitution Method						DL/2 Substitution Method					
754	Mean					25.02	Mean					2.548
755	SD					31.17	SD					1.368
756	95% DL/2 (t) UCL					32.33	95% H-Stat (DL/2) UCL					39.13
757												
758	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
759	**MLE yields a negative mean**						Mean in Log Scale					2.684
760							SD in Log Scale					1.01
761							Mean in Original Scale					24.91
762							SD in Original Scale					31.18
763							95% Percentile Bootstrap UCL					32.55
764							95% BCA Bootstrap UCL					35.13
765												
766	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
767	k star (bias corrected)					1.462	**Data appear Lognormal at 5% Significance Level**					
768	Theta Star					24.02						
769	nu star					96.48						
770												
771	A-D Test Statistic					1.127	**Nonparametric Statistics**					
772	5% A-D Critical Value					0.764	Kaplan-Meier (KM) Method					
773	K-S Test Statistic					0.764	Mean					25.58
774	5% K-S Critical Value					0.156	SD					30.49
775	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					4.347
776							95% KM (t) UCL					32.86
777	**Assuming Gamma Distribution**						95% KM (z) UCL					32.73
778	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					32.76
779	Minimum					2.685	95% KM (bootstrap t) UCL					35.58
780	Maximum					154	95% KM (BCA) UCL					32.94
781	Mean					29.77	95% KM (Percentile Bootstrap) UCL					33.04
782	Median					22.44	95% KM (Chebyshev) UCL					44.53
783	SD					30.61	97.5% KM (Chebyshev) UCL					52.73
784	k star					1.153	99% KM (Chebyshev) UCL					68.83
785	Theta star					25.82						
786	Nu star					117.6	**Potential UCLs to Use**					
787	AppChi2					93.54	95% KM (BCA) UCL					32.94
788	95% Gamma Approximate UCL					37.41						
789	95% Adjusted Gamma UCL					37.67						
790	**Note: DL/2 is not a recommended method.**											
791												
792												
793	**Thallium**											
794												
795	**General Statistics**											

796					Number of Valid Data	14					Number of Detected Data	13
797					Number of Distinct Detected Data	9					Number of Non-Detect Data	1
798					Number of Missing Values	37					Percent Non-Detects	7.14%
799												
800					**Raw Statistics**						**Log-transformed Statistics**	
801					Minimum Detected	0.11					Minimum Detected	-2.207
802					Maximum Detected	11					Maximum Detected	2.398
803					Mean of Detected	6.488					Mean of Detected	1.118
804					SD of Detected	4.049					SD of Detected	1.878
805					Minimum Non-Detect	0.0757					Minimum Non-Detect	-2.581
806					Maximum Non-Detect	0.0757					Maximum Non-Detect	-2.581
807												
808												
809					**UCL Statistics**							
810					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
811					Shapiro Wilk Test Statistic	0.854					Shapiro Wilk Test Statistic	0.639
812					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
813					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
814												
815					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
816					DL/2 Substitution Method						DL/2 Substitution Method	
817					Mean	6.028					Mean	0.804
818					SD	4.255					SD	2.153
819					95% DL/2 (t) UCL	8.042					95% H-Stat (DL/2) UCL	425.4
820												
821					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
822					Mean	5.886					Mean in Log Scale	0.854
823					SD	4.359					SD in Log Scale	2.056
824					95% MLE (t) UCL	7.949					Mean in Original Scale	6.03
825					95% MLE (Tiku) UCL	7.944					SD in Original Scale	4.251
826											95% Percentile Bootstrap UCL	7.865
827											95% BCA Bootstrap UCL	7.659
828												
829					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
830					k star (bias corrected)	0.659					**Data do not follow a Discernable Distribution (0.05)**	
831					Theta Star	9.846						
832					nu star	17.13						
833												
834					A-D Test Statistic	2.014					**Nonparametric Statistics**	
835					5% A-D Critical Value	0.768					Kaplan-Meier (KM) Method	
836					K-S Test Statistic	0.768					Mean	6.033
837					5% K-S Critical Value	0.245					SD	4.093
838					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	1.139
839											95% KM (t) UCL	8.049
840					**Assuming Gamma Distribution**						95% KM (z) UCL	7.906
841					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	8.043
842					Minimum	0.11					95% KM (bootstrap t) UCL	7.856
843					Maximum	11					95% KM (BCA) UCL	8
844					Mean	6.141					95% KM (Percentile Bootstrap) UCL	7.946
845					Median	7.5					95% KM (Chebyshev) UCL	11
846					SD	4.102					97.5% KM (Chebyshev) UCL	13.14
847					k star	0.676					99% KM (Chebyshev) UCL	17.36
848					Theta star	9.09						

849					Nu star	18.92	**Potential UCLs to Use**					
850					AppChi2	10.06				99% KM (Chebyshev) UCL		17.36
851					95% Gamma Approximate UCL	11.55						
852					95% Adjusted Gamma UCL	12.61						
853	**Warning: Recommended UCL exceeds the maximum observation**											
854	**Note: DL/2 is not a recommended method.**											
855												
856												
857	**Total Aroclors**											
858												
859	**General Statistics**											
860					Number of Valid Data	20				Number of Detected Data		16
861					Number of Distinct Detected Data	16				Number of Non-Detect Data		4
862					Number of Missing Values	30				Percent Non-Detects		20.00%
863												
864	**Raw Statistics**						**Log-transformed Statistics**					
865					Minimum Detected	5.136				Minimum Detected		1.636
866					Maximum Detected	769.6				Maximum Detected		6.646
867					Mean of Detected	106.5				Mean of Detected		4.006
868					SD of Detected	181.9				SD of Detected		1.122
869					Minimum Non-Detect	1.3				Minimum Non-Detect		0.262
870					Maximum Non-Detect	16				Maximum Non-Detect		2.773
871												
872	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		6
873	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		14
874	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		30.00%
875												
876	**UCL Statistics**											
877	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
878					Shapiro Wilk Test Statistic	0.481				Shapiro Wilk Test Statistic		0.952
879					5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value		0.887
880	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
881												
882	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
883					DL/2 Substitution Method					DL/2 Substitution Method		
884					Mean	85.73				Mean		3.311
885					SD	167.1				SD		1.792
886					95% DL/2 (t) UCL	150.3				95% H-Stat (DL/2) UCL		352.3
887												
888					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
889					Mean	42.81				Mean in Log Scale		3.524
890					SD	204.9				SD in Log Scale		1.407
891					95% MLE (t) UCL	122				Mean in Original Scale		86.18
892					95% MLE (Tiku) UCL	125.2				SD in Original Scale		166.9
893										95% Percentile Bootstrap UCL		157.7
894										95% BCA Bootstrap UCL		192.4
895												
896	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
897					k star (bias corrected)	0.761	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
898					Theta Star	139.9						
899					nu star	24.35						
900												
901					A-D Test Statistic	0.938	**Nonparametric Statistics**					

	A	B	C	D	E	F	G	H	I	J	K	L
902					5% A-D Critical Value	0.768				Kaplan-Meier (KM) Method		
903					K-S Test Statistic	0.768					Mean	86.28
904					5% K-S Critical Value	0.222					SD	162.6
905				Data follow Appr. Gamma Distribution at 5% Significance Level							SE of Mean	37.55
906											95% KM (t) UCL	151.2
907				Assuming Gamma Distribution							95% KM (z) UCL	148
908				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	149.6
909					Minimum	1E-09					95% KM (bootstrap t) UCL	296.7
910					Maximum	769.6					95% KM (BCA) UCL	159.7
911					Mean	85.17					95% KM (Percentile Bootstrap) UCL	158.8
912					Median	39.9					95% KM (Chebyshev) UCL	250
913					SD	167.4					97.5% KM (Chebyshev) UCL	320.8
914					k star	0.155					99% KM (Chebyshev) UCL	459.9
915					Theta star	548						
916					Nu star	6.217				Potential UCLs to Use		
917					AppChi2	1.752					95% KM (Chebyshev) UCL	250
918					95% Gamma Approximate UCL	302.3						
919					95% Adjusted Gamma UCL	336.9						
920	Note: DL/2 is not a recommended method.											
921												
922												
923	Total DDT											
924												
925						General Statistics						
926					Number of Valid Data	28					Number of Detected Data	20
927					Number of Distinct Detected Data	19					Number of Non-Detect Data	8
928					Number of Missing Values	22					Percent Non-Detects	28.57%
929												
930				Raw Statistics						Log-transformed Statistics		
931					Minimum Detected	0.122					Minimum Detected	-2.102
932					Maximum Detected	265					Maximum Detected	5.58
933					Mean of Detected	28.86					Mean of Detected	1.539
934					SD of Detected	65.8					SD of Detected	1.95
935					Minimum Non-Detect	0.18					Minimum Non-Detect	-1.715
936					Maximum Non-Detect	4.2					Maximum Non-Detect	1.435
937												
938	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	17
939	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	11
940	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	60.71%
941												
942						UCL Statistics						
943				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
944					Shapiro Wilk Test Statistic	0.486					Shapiro Wilk Test Statistic	0.949
945					5% Shapiro Wilk Critical Value	0.905					5% Shapiro Wilk Critical Value	0.905
946				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
947												
948				Assuming Normal Distribution						Assuming Lognormal Distribution		
949					DL/2 Substitution Method						DL/2 Substitution Method	
950					Mean	20.98					Mean	1.032
951					SD	56.63					SD	1.952
952					95% DL/2 (t) UCL	39.21					95% H-Stat (DL/2) UCL	46.51
953												
954					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	

955	MLE yields a negative mean									Mean in Log Scale		0.775
956										SD in Log Scale		2.09
957										Mean in Original Scale		20.73
958										SD in Original Scale		56.73
959										95% Percentile Bootstrap UCL		39.98
960										95% BCA Bootstrap UCL		47.88
961												
962	Gamma Distribution Test with Detected Values Only									Data Distribution Test with Detected Values Only		
963				k star (bias corrected)		0.344				Data appear Lognormal at 5% Significance Level		
964				Theta Star		83.78						
965				nu star		13.78						
966												
967				A-D Test Statistic		1.745				Nonparametric Statistics		
968				5% A-D Critical Value		0.831				Kaplan-Meier (KM) Method		
969				K-S Test Statistic		0.831				Mean		20.83
970				5% K-S Critical Value		0.208				SD		55.67
971	Data not Gamma Distributed at 5% Significance Level									SE of Mean		10.79
972										95% KM (t) UCL		39.21
973	Assuming Gamma Distribution									95% KM (z) UCL		38.58
974				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		39.05
975				Minimum		1E-09				95% KM (bootstrap t) UCL		59.7
976				Maximum		265				95% KM (BCA) UCL		41.71
977				Mean		20.61				95% KM (Percentile Bootstrap) UCL		40.18
978				Median		2.791				95% KM (Chebyshev) UCL		67.88
979				SD		56.77				97.5% KM (Chebyshev) UCL		88.24
980				k star		0.116				99% KM (Chebyshev) UCL		128.2
981				Theta star		177.9						
982				Nu star		6.488				Potential UCLs to Use		
983				AppChi2		1.894				99% KM (Chebyshev) UCL		128.2
984				95% Gamma Approximate UCL		70.61						
985				95% Adjusted Gamma UCL		76.64						
986	Note: DL/2 is not a recommended method.											
987												
988												
989	Total Dioxin/Furan TEQ											
990												
991	General Statistics											
992				Number of Valid Data		8				Number of Detected Data		8
993				Number of Distinct Detected Data		8				Number of Non-Detect Data		0
994				Number of Missing Values		9				Percent Non-Detects		0.00%
995												
996	Raw Statistics									Log-transformed Statistics		
997				Minimum Detected		0.197				Minimum Detected		-1.625
998				Maximum Detected		3.467				Maximum Detected		1.243
999				Mean of Detected		0.929				Mean of Detected		-0.532
1000				SD of Detected		1.09				SD of Detected		0.979
1001				Minimum Non-Detect		N/A				Minimum Non-Detect		N/A
1002				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
1003												
1004												
1005	Warning: There are only 8 Detected Values in this data											
1006	Note: It should be noted that even though bootstrap may be performed on this data set											
1007	the resulting calculations may not be reliable enough tp draw conclusions											

	A	B	C	D	E	F	G	H	I	J	K	L
1008												
1009	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1010												
1011												
1012	**UCL Statistics**											
1013	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1014	Shapiro Wilk Test Statistic					0.703	Shapiro Wilk Test Statistic					0.927
1015	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
1016	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1017												
1018	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1019	DL/2 Substitution Method						DL/2 Substitution Method					
1020	Mean					0.929	Mean					-0.532
1021	SD					1.09	SD					0.979
1022	95% DL/2 (t) UCL					1.659	95% H-Stat (DL/2) UCL					3.302
1023												
1024	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1025	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1026							SD in Log Scale					N/A
1027							Mean in Original Scale					N/A
1028							SD in Original Scale					N/A
1029							95% Percentile Bootstrap UCL					N/A
1030							95% BCA Bootstrap UCL					N/A
1031												
1032	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1033	k star (bias corrected)					0.853	**Data appear Gamma Distributed at 5% Significance Level**					
1034	Theta Star					1.089						
1035	nu star					13.65						
1036												
1037	A-D Test Statistic					0.464	**Nonparametric Statistics**					
1038	5% A-D Critical Value					0.732	Kaplan-Meier (KM) Method					
1039	K-S Test Statistic					0.732	Mean					0.929
1040	5% K-S Critical Value					0.3	SD					1.02
1041	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.385
1042							95% KM (t) UCL					1.659
1043	**Assuming Gamma Distribution**						95% KM (z) UCL					1.563
1044	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.659
1045	Minimum					0.197	95% KM (bootstrap t) UCL					3.151
1046	Maximum					3.467	95% KM (BCA) UCL					1.626
1047	Mean					0.929	95% KM (Percentile Bootstrap) UCL					1.586
1048	Median					0.592	95% KM (Chebyshev) UCL					2.609
1049	SD					1.09	97.5% KM (Chebyshev) UCL					3.336
1050	k star					0.853	99% KM (Chebyshev) UCL					4.764
1051	Theta star					1.089						
1052	Nu star					13.65	**Potential UCLs to Use**					
1053	AppChi2					6.33	95% KM (Chebyshev) UCL					2.609
1054	95% Gamma Approximate UCL					2.002						
1055	95% Adjusted Gamma UCL					2.473						
1056	**Note: DL/2 is not a recommended method.**											
1057												
1058												
1059	**Total Dioxin-like PCBs**											
1060												

	A	B	C	D	E	F	G	H	I	J	K	L
1061	**General Statistics**											
1062					Number of Valid Data	9				Number of Detected Data		9
1063					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
1064					Number of Missing Values	8				Percent Non-Detects		0.00%
1065												
1066	**Raw Statistics**						**Log-transformed Statistics**					
1067					Minimum Detected	81.63				Minimum Detected		4.402
1068					Maximum Detected	2508				Maximum Detected		7.827
1069					Mean of Detected	1238				Mean of Detected		6.823
1070					SD of Detected	727.3				SD of Detected		1.032
1071					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1072					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1073												
1074												
1075	**Warning: There are only 9 Detected Values in this data**											
1076	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1077	**the resulting calculations may not be reliable enough tp draw conclusions**											
1078												
1079	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1080												
1081												
1082	**UCL Statistics**											
1083	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1084					Shapiro Wilk Test Statistic	0.984				Shapiro Wilk Test Statistic		0.799
1085					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
1086	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1087												
1088	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1089					DL/2 Substitution Method					DL/2 Substitution Method		
1090					Mean	1238				Mean		6.823
1091					SD	727.3				SD		1.032
1092					95% DL/2 (t) UCL	1688				95% H-Stat (DL/2) UCL		5235
1093												
1094					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1095	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1096										SD in Log Scale		N/A
1097										Mean in Original Scale		N/A
1098										SD in Original Scale		N/A
1099										95% Percentile Bootstrap UCL		N/A
1100										95% BCA Bootstrap UCL		N/A
1101												
1102	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1103					k star (bias corrected)	1.294	**Data appear Normal at 5% Significance Level**					
1104					Theta Star	956.6						
1105					nu star	23.29						
1106												
1107					A-D Test Statistic	0.502	**Nonparametric Statistics**					
1108					5% A-D Critical Value	0.731				Kaplan-Meier (KM) Method		
1109					K-S Test Statistic	0.731				Mean		1238
1110					5% K-S Critical Value	0.283				SD		685.7
1111	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		242.4
1112										95% KM (t) UCL		1688
1113	**Assuming Gamma Distribution**									95% KM (z) UCL		1636

1114	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		1688
1115					Minimum	81.63				95% KM (bootstrap t) UCL		1697
1116					Maximum	2508				95% KM (BCA) UCL		1622
1117					Mean	1238				95% KM (Percentile Bootstrap) UCL		1611
1118					Median	1167				95% KM (Chebyshev) UCL		2294
1119					SD	727.3				97.5% KM (Chebyshev) UCL		2751
1120					k star	1.294				99% KM (Chebyshev) UCL		3650
1121					Theta star	956.6						
1122					Nu star	23.29				**Potential UCLs to Use**		
1123					AppChi2	13.31				95% KM (t) UCL		1688
1124					95% Gamma Approximate UCL	2166				95% KM (Percentile Bootstrap) UCL		1611
1125					95% Adjusted Gamma UCL	2453						
1126	**Note: DL/2 is not a recommended method.**											
1127												
1128												
1129	**Total PCB TEQ**											
1130												
1131	**General Statistics**											
1132					Number of Valid Data	9				Number of Detected Data		9
1133					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
1134					Number of Missing Values	8				Percent Non-Detects		0.00%
1135												
1136	**Raw Statistics**						**Log-transformed Statistics**					
1137					Minimum Detected	0.237				Minimum Detected		-1.441
1138					Maximum Detected	1.626				Maximum Detected		0.486
1139					Mean of Detected	0.665				Mean of Detected		-0.56
1140					SD of Detected	0.415				SD of Detected		0.578
1141					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1142					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1143												
1144												
1145	**Warning: There are only 9 Detected Values in this data**											
1146	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1147	**the resulting calculations may not be reliable enough tp draw conclusions**											
1148												
1149	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1150												
1151												
1152	**UCL Statistics**											
1153	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1154					Shapiro Wilk Test Statistic	0.844				Shapiro Wilk Test Statistic		0.969
1155					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
1156	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1157												
1158	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1159					DL/2 Substitution Method					DL/2 Substitution Method		
1160					Mean	0.665				Mean		-0.56
1161					SD	0.415				SD		0.578
1162					95% DL/2 (t) UCL	0.922				95% H-Stat (DL/2) UCL		1.099
1163												
1164					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1165	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1166										SD in Log Scale		N/A

1167											Mean in Original Scale	N/A
1168											SD in Original Scale	N/A
1169											95% Percentile Bootstrap UCL	N/A
1170											95% BCA Bootstrap UCL	N/A
1171												
1172	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1173					k star (bias corrected)	2.379	**Data appear Normal at 5% Significance Level**					
1174					Theta Star	0.279						
1175					nu star	42.82						
1176												
1177					A-D Test Statistic	0.271	**Nonparametric Statistics**					
1178					5% A-D Critical Value	0.726	Kaplan-Meier (KM) Method					
1179					K-S Test Statistic	0.726	Mean	0.665				
1180					5% K-S Critical Value	0.281	SD	0.391				
1181	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.138				
1182							95% KM (t) UCL	0.922				
1183	**Assuming Gamma Distribution**						95% KM (z) UCL	0.892				
1184					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.922				
1185					Minimum	0.237	95% KM (bootstrap t) UCL	1.073				
1186					Maximum	1.626	95% KM (BCA) UCL	0.889				
1187					Mean	0.665	95% KM (Percentile Bootstrap) UCL	0.891				
1188					Median	0.524	95% KM (Chebyshev) UCL	1.268				
1189					SD	0.415	97.5% KM (Chebyshev) UCL	1.529				
1190					k star	2.379	99% KM (Chebyshev) UCL	2.041				
1191					Theta star	0.279						
1192					Nu star	42.82	**Potential UCLs to Use**					
1193					AppChi2	28.82	95% KM (t) UCL	0.922				
1194					95% Gamma Approximate UCL	0.988	95% KM (Percentile Bootstrap) UCL	0.891				
1195					95% Adjusted Gamma UCL	1.077						
1196	**Note: DL/2 is not a recommended method.**											
1197												
1198												
1199	**Total PCB_Congeners**											
1200												
1201	**General Statistics**											
1202					Number of Valid Data	9	Number of Detected Data	9				
1203					Number of Distinct Detected Data	9	Number of Non-Detect Data	0				
1204					Number of Missing Values	8	Percent Non-Detects	0.00%				
1205												
1206	**Raw Statistics**						**Log-transformed Statistics**					
1207					Minimum Detected	2002	Minimum Detected	7.602				
1208					Maximum Detected	59628	Maximum Detected	11				
1209					Mean of Detected	25505	Mean of Detected	9.835				
1210					SD of Detected	16875	SD of Detected	1.011				
1211					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
1212					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1213												
1214												
1215	**Warning: There are only 9 Detected Values in this data**											
1216	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1217	**the resulting calculations may not be reliable enough tp draw conclusions**											
1218												
1219	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											

	A	B	C	D	E	F	G	H	I	J	K	L
1220												
1221												
1222	**UCL Statistics**											
1223	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1224	Shapiro Wilk Test Statistic					0.944	Shapiro Wilk Test Statistic					0.85
1225	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
1226	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1227												
1228	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1229	DL/2 Substitution Method						DL/2 Substitution Method					
1230	Mean					25505	Mean					9.835
1231	SD					16875	SD					1.011
1232	95% DL/2 (t) UCL					35966	95% H-Stat (DL/2) UCL					100083
1233												
1234	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1235	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1236							SD in Log Scale					N/A
1237							Mean in Original Scale					N/A
1238							SD in Original Scale					N/A
1239							95% Percentile Bootstrap UCL					N/A
1240							95% BCA Bootstrap UCL					N/A
1241												
1242	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1243	k star (bias corrected)					1.243	**Data appear Normal at 5% Significance Level**					
1244	Theta Star					20522						
1245	nu star					22.37						
1246												
1247	A-D Test Statistic					0.426	**Nonparametric Statistics**					
1248	5% A-D Critical Value					0.732	Kaplan-Meier (KM) Method					
1249	K-S Test Statistic					0.732	Mean					25505
1250	5% K-S Critical Value					0.283	SD					15910
1251	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					5625
1252							95% KM (t) UCL					35966
1253	**Assuming Gamma Distribution**						95% KM (z) UCL					34758
1254	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					35966
1255	Minimum					2002	95% KM (bootstrap t) UCL					38010
1256	Maximum					59628	95% KM (BCA) UCL					34632
1257	Mean					25505	95% KM (Percentile Bootstrap) UCL					34559
1258	Median					26325	95% KM (Chebyshev) UCL					50025
1259	SD					16875	97.5% KM (Chebyshev) UCL					60634
1260	k star					1.243	99% KM (Chebyshev) UCL					81475
1261	Theta star					20522						
1262	Nu star					22.37	**Potential UCLs to Use**					
1263	AppChi2					12.62	95% KM (t) UCL					35966
1264	95% Gamma Approximate UCL					45224	95% KM (Percentile Bootstrap) UCL					34559
1265	95% Adjusted Gamma UCL					51391						
1266	**Note: DL/2 is not a recommended method.**											
1267												
1268												
1269	**Total PCBs, Adjusted**											
1270												
1271	**General Statistics**											
1272	Number of Valid Data					9	Number of Detected Data					9

1273					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
1274					Number of Missing Values	8				Percent Non-Detects		0.00%
1275												
1276					**Raw Statistics**					**Log-transformed Statistics**		
1277					Minimum Detected	1920				Minimum Detected		7.56
1278					Maximum Detected	57120				Maximum Detected		10.95
1279					Mean of Detected	24268				Mean of Detected		9.784
1280					SD of Detected	16160				SD of Detected		1.011
1281					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1282					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1283												
1284												
1285					**Warning: There are only 9 Detected Values in this data**							
1286					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1287					**the resulting calculations may not be reliable enough tp draw conclusions**							
1288												
1289					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1290												
1291												
1292					**UCL Statistics**							
1293					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1294					Shapiro Wilk Test Statistic	0.941				Shapiro Wilk Test Statistic		0.852
1295					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
1296					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1297												
1298					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1299					DL/2 Substitution Method					DL/2 Substitution Method		
1300					Mean	24268				Mean		9.784
1301					SD	16160				SD		1.011
1302					95% DL/2 (t) UCL	34285				95% H-Stat (DL/2) UCL		95011
1303												
1304					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1305					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1306										SD in Log Scale		N/A
1307										Mean in Original Scale		N/A
1308										SD in Original Scale		N/A
1309										95% Percentile Bootstrap UCL		N/A
1310										95% BCA Bootstrap UCL		N/A
1311												
1312					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1313					k star (bias corrected)	1.239				**Data appear Normal at 5% Significance Level**		
1314					Theta Star	19586						
1315					nu star	22.3						
1316												
1317					A-D Test Statistic	0.423				**Nonparametric Statistics**		
1318					5% A-D Critical Value	0.732				Kaplan-Meier (KM) Method		
1319					K-S Test Statistic	0.732				Mean		24268
1320					5% K-S Critical Value	0.283				SD		15236
1321					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		5387
1322										95% KM (t) UCL		34285
1323					**Assuming Gamma Distribution**					95% KM (z) UCL		33128
1324					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		34285
1325					Minimum	1920				95% KM (bootstrap t) UCL		35664

1326					Maximum	57120				95% KM (BCA) UCL		32580
1327					Mean	24268				95% KM (Percentile Bootstrap) UCL		32713
1328					Median	25016				95% KM (Chebyshev) UCL		47748
1329					SD	16160				97.5% KM (Chebyshev) UCL		57908
1330					k star	1.239				99% KM (Chebyshev) UCL		77865
1331					Theta star	19586						
1332					Nu star	22.3				**Potential UCLs to Use**		
1333					AppChi2	12.57				95% KM (t) UCL		34285
1334					95% Gamma Approximate UCL	43073				95% KM (Percentile Bootstrap) UCL		32713
1335					95% Adjusted Gamma UCL	48959						
1336	**Note: DL/2 is not a recommended method.**											
1337												
1338												
1339	**Total TEQ**											
1340												
1341						**General Statistics**						
1342					Number of Valid Data	6				Number of Detected Data		6
1343					Number of Distinct Detected Data	6				Number of Non-Detect Data		0
1344					Number of Missing Values	11				Percent Non-Detects		0.00%
1345												
1346					**Raw Statistics**					**Log-transformed Statistics**		
1347					Minimum Detected	0.47				Minimum Detected		-0.755
1348					Maximum Detected	3.98				Maximum Detected		1.381
1349					Mean of Detected	1.524				Mean of Detected		0.17
1350					SD of Detected	1.291				SD of Detected		0.751
1351					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1352					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1353												
1354												
1355						**Warning: There are only 6 Detected Values in this data**							
1356						**Note: It should be noted that even though bootstrap may be performed on this data set**						
1357						**the resulting calculations may not be reliable enough tp draw conclusions**						
1358												
1359						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
1360												
1361												
1362						**UCL Statistics**						
1363					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1364					Shapiro Wilk Test Statistic	0.808				Shapiro Wilk Test Statistic		0.976
1365					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
1366					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1367												
1368					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1369					DL/2 Substitution Method					DL/2 Substitution Method		
1370					Mean	1.524				Mean		0.17
1371					SD	1.291				SD		0.751
1372					95% DL/2 (t) UCL	2.586				95% H-Stat (DL/2) UCL		4.809
1373												
1374					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1375					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1376										SD in Log Scale		N/A
1377										Mean in Original Scale		N/A
1378										SD in Original Scale		N/A

	A	B	C	D	E	F	G	H	I	J	K	L
1379											95% Percentile Bootstrap UCL	N/A
1380											95% BCA Bootstrap UCL	N/A
1381												
1382	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1383					k star (bias corrected)	1.183	**Data appear Normal at 5% Significance Level**					
1384					Theta Star	1.289						
1385					nu star	14.19						
1386												
1387					A-D Test Statistic	0.296	**Nonparametric Statistics**					
1388					5% A-D Critical Value	0.704					Kaplan-Meier (KM) Method	
1389					K-S Test Statistic	0.704					Mean	1.524
1390					5% K-S Critical Value	0.336					SD	1.179
1391	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.527
1392											95% KM (t) UCL	2.586
1393	**Assuming Gamma Distribution**										95% KM (z) UCL	2.391
1394					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.586
1395					Minimum	0.47					95% KM (bootstrap t) UCL	4.222
1396					Maximum	3.98					95% KM (BCA) UCL	2.294
1397					Mean	1.524					95% KM (Percentile Bootstrap) UCL	2.416
1398					Median	1.071					95% KM (Chebyshev) UCL	3.822
1399					SD	1.291					97.5% KM (Chebyshev) UCL	4.816
1400					k star	1.183					99% KM (Chebyshev) UCL	6.769
1401					Theta star	1.289						
1402					Nu star	14.19	**Potential UCLs to Use**					
1403					AppChi2	6.704					95% KM (t) UCL	2.586
1404					95% Gamma Approximate UCL	3.227					95% KM (Percentile Bootstrap) UCL	2.416
1405					95% Adjusted Gamma UCL	4.358						
1406	**Note: DL/2 is not a recommended method.**											
1407												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM8.0E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12					Number of Valid Data	37			Number of Detected Data	33		
13					Number of Distinct Detected Data	22			Number of Non-Detect Data	4		
14					Number of Missing Values	2			Percent Non-Detects	10.81%		
15												
16				Raw Statistics					Log-transformed Statistics			
17					Minimum Detected	2.4			Minimum Detected	0.875		
18					Maximum Detected	17			Maximum Detected	2.833		
19					Mean of Detected	6.598			Mean of Detected	1.755		
20					SD of Detected	4.037			SD of Detected	0.488		
21					Minimum Non-Detect	4			Minimum Non-Detect	1.386		
22					Maximum Non-Detect	6			Maximum Non-Detect	1.792		
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	23		
25	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	14		
26	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	62.16%		
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only			
30					Shapiro Wilk Test Statistic	0.713			Shapiro Wilk Test Statistic	0.902		
31					5% Shapiro Wilk Critical Value	0.931			5% Shapiro Wilk Critical Value	0.931		
32				Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level			
33												
34				Assuming Normal Distribution					Assuming Lognormal Distribution			
35					DL/2 Substitution Method				DL/2 Substitution Method			
36					Mean	6.155			Mean	1.663		
37					SD	4.02			SD	0.534		
38					95% DL/2 (t) UCL	7.27			95% H-Stat (DL/2) UCL	6.427		
39												
40					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
41					Mean	3.515			Mean in Log Scale	1.702		
42					SD	6.506			SD in Log Scale	0.487		
43					95% MLE (t) UCL	5.321			Mean in Original Scale	6.273		
44					95% MLE (Tiku) UCL	6.202			SD in Original Scale	3.925		
45									95% Percentile Bootstrap UCL	7.355		
46									95% BCA Bootstrap UCL	7.586		
47												
48				Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only			
49					k star (bias corrected)	3.614			Data do not follow a Discernable Distribution (0.05)			
50					Theta Star	1.825						
51					nu star	238.6						
52												
53					A-D Test Statistic	1.869			Nonparametric Statistics			

54					5% A-D Critical Value	0.751				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	0.751				Mean		6.287
56					5% K-S Critical Value	0.154				SD		3.867
57	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.647
58										95% KM (t) UCL		7.379
59	**Assuming Gamma Distribution**									95% KM (z) UCL		7.351
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		7.378
61					Minimum	2.4				95% KM (bootstrap t) UCL		7.88
62					Maximum	17				95% KM (BCA) UCL		7.326
63					Mean	6.326				95% KM (Percentile Bootstrap) UCL		7.304
64					Median	5.25				95% KM (Chebyshev) UCL		9.106
65					SD	3.913				97.5% KM (Chebyshev) UCL		10.33
66					k star	3.604				99% KM (Chebyshev) UCL		12.72
67					Theta star	1.755						
68					Nu star	266.7				**Potential UCLs to Use**		
69					AppChi2	229.9				95% KM (Chebyshev) UCL		9.106
70					95% Gamma Approximate UCL	7.339						
71					95% Adjusted Gamma UCL	7.387						
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Benzo(a)anthracene**											
76												
77					**General Statistics**							
78					Number of Valid Data	36				Number of Detected Data		35
79					Number of Distinct Detected Data	32				Number of Non-Detect Data		1
80					Number of Missing Values	3				Percent Non-Detects		2.78%
81												
82	**Raw Statistics**									**Log-transformed Statistics**		
83					Minimum Detected	8.9				Minimum Detected		2.186
84					Maximum Detected	1480				Maximum Detected		7.3
85					Mean of Detected	171.4				Mean of Detected		4.138
86					SD of Detected	319.6				SD of Detected		1.311
87					Minimum Non-Detect	10				Minimum Non-Detect		2.303
88					Maximum Non-Detect	10				Maximum Non-Detect		2.303
89												
90												
91					**UCL Statistics**							
92	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
93					Shapiro Wilk Test Statistic	0.541				Shapiro Wilk Test Statistic		0.92
94					5% Shapiro Wilk Critical Value	0.934				5% Shapiro Wilk Critical Value		0.934
95	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
96												
97	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
98					DL/2 Substitution Method					DL/2 Substitution Method		
99					Mean	166.8				Mean		4.068
100					SD	316.2				SD		1.359
101					95% DL/2 (t) UCL	255.8				95% H-Stat (DL/2) UCL		265.6
102												
103					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
104					Mean	155.2				Mean in Log Scale		4.061
105					SD	323.7				SD in Log Scale		1.373
106					95% MLE (t) UCL	246.3				Mean in Original Scale		166.7

107					95% MLE (Tiku) UCL	238.3				SD in Original Scale		316.2
108										95% Percentile Bootstrap UCL		261.7
109										95% BCA Bootstrap UCL		281.3
110												
111			Gamma Distribution Test with Detected Values Only							Data Distribution Test with Detected Values Only		
112					k star (bias corrected)	0.579				Data do not follow a Discernable Distribution (0.05)		
113					Theta Star	296						
114					nu star	40.53						
115												
116					A-D Test Statistic	2.677				Nonparametric Statistics		
117					5% A-D Critical Value	0.801				Kaplan-Meier (KM) Method		
118					K-S Test Statistic	0.801				Mean		166.9
119					5% K-S Critical Value	0.156				SD		311.7
120			Data not Gamma Distributed at 5% Significance Level							SE of Mean		52.71
121										95% KM (t) UCL		255.9
122			Assuming Gamma Distribution							95% KM (z) UCL		253.6
123					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		255.8
124					Minimum	1E-09				95% KM (bootstrap t) UCL		339.7
125					Maximum	1480				95% KM (BCA) UCL		271.6
126					Mean	166.6				95% KM (Percentile Bootstrap) UCL		255.8
127					Median	45.5				95% KM (Chebyshev) UCL		396.6
128					SD	316.2				97.5% KM (Chebyshev) UCL		496
129					k star	0.381				99% KM (Chebyshev) UCL		691.3
130					Theta star	437.6						
131					Nu star	27.42				Potential UCLs to Use		
132					AppChi2	16.48				97.5% KM (Chebyshev) UCL		496
133					95% Gamma Approximate UCL	277.3						
134					95% Adjusted Gamma UCL	284						
135	Note: DL/2 is not a recommended method.											
136												
137												
138	Benzo(a)pyrene											
139												
140						General Statistics						
141					Number of Valid Data	36				Number of Detected Data		35
142					Number of Distinct Detected Data	32				Number of Non-Detect Data		1
143					Number of Missing Values	3				Percent Non-Detects		2.78%
144												
145			Raw Statistics							Log-transformed Statistics		
146					Minimum Detected	11				Minimum Detected		2.398
147					Maximum Detected	1630				Maximum Detected		7.396
148					Mean of Detected	179.2				Mean of Detected		4.202
149					SD of Detected	342.8				SD of Detected		1.266
150					Minimum Non-Detect	10				Minimum Non-Detect		2.303
151					Maximum Non-Detect	10				Maximum Non-Detect		2.303
152												
153												
154						UCL Statistics						
155			Normal Distribution Test with Detected Values Only							Lognormal Distribution Test with Detected Values Only		
156					Shapiro Wilk Test Statistic	0.523				Shapiro Wilk Test Statistic		0.896
157					5% Shapiro Wilk Critical Value	0.934				5% Shapiro Wilk Critical Value		0.934
158			Data not Normal at 5% Significance Level							Data not Lognormal at 5% Significance Level		
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
161	DL/2 Substitution Method						DL/2 Substitution Method					
162	Mean					174.4	Mean					4.13
163	SD					339.1	SD					1.32
164	95% DL/2 (t) UCL					269.9	95% H-Stat (DL/2) UCL					261.3
165												
166	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
167	Mean					168.4	Mean in Log Scale					4.116
168	SD					340.6	SD in Log Scale					1.352
169	95% MLE (t) UCL					264.3	Mean in Original Scale					174.3
170	95% MLE (Tiku) UCL					254.7	SD in Original Scale					339.1
171							95% Percentile Bootstrap UCL					268.1
172							95% BCA Bootstrap UCL					302.3
173												
174	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
175	k star (bias corrected)					0.589	**Data do not follow a Discernable Distribution (0.05)**					
176	Theta Star					304.5						
177	nu star					41.2						
178												
179	A-D Test Statistic					3.078	**Nonparametric Statistics**					
180	5% A-D Critical Value					0.8	Kaplan-Meier (KM) Method					
181	K-S Test Statistic					0.8	Mean					174.6
182	5% K-S Critical Value					0.156	SD					334.3
183	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					56.53
184							95% KM (t) UCL					270.1
185	**Assuming Gamma Distribution**						95% KM (z) UCL					267.5
186	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					269.9
187	Minimum					1E-09	95% KM (bootstrap t) UCL					346.3
188	Maximum					1630	95% KM (BCA) UCL					282.7
189	Mean					174.3	95% KM (Percentile Bootstrap) UCL					276.1
190	Median					49.5	95% KM (Chebyshev) UCL					421
191	SD					339.2	97.5% KM (Chebyshev) UCL					527.6
192	k star					0.384	99% KM (Chebyshev) UCL					737
193	Theta star					453.7						
194	Nu star					27.66	**Potential UCLs to Use**					
195	AppChi2					16.66	97.5% KM (Chebyshev) UCL					527.6
196	95% Gamma Approximate UCL					289.3						
197	95% Adjusted Gamma UCL					296.2						
198	**Note: DL/2 is not a recommended method.**											
199												
200												
201	**Benzo(b)fluoranthene**											
202												
203	**General Statistics**											
204	Number of Valid Data					36	Number of Detected Data					35
205	Number of Distinct Detected Data					33	Number of Non-Detect Data					1
206	Number of Missing Values					3	Percent Non-Detects					2.78%
207												
208	**Raw Statistics**						**Log-transformed Statistics**					
209	Minimum Detected					13	Minimum Detected					2.565
210	Maximum Detected					1400	Maximum Detected					7.244
211	Mean of Detected					202.4	Mean of Detected					4.426
212	SD of Detected					342.2	SD of Detected					1.227

	A	B	C	D	E	F	G	H	I	J	K	L
213					Minimum Non-Detect	10					Minimum Non-Detect	2.303
214					Maximum Non-Detect	10					Maximum Non-Detect	2.303
215												
216												
217	**UCL Statistics**											
218	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
219					Shapiro Wilk Test Statistic	0.569					Shapiro Wilk Test Statistic	0.904
220					5% Shapiro Wilk Critical Value	0.934					5% Shapiro Wilk Critical Value	0.934
221	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
222												
223	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
224					DL/2 Substitution Method						DL/2 Substitution Method	
225					Mean	196.9					Mean	4.348
226					SD	338.9					SD	1.297
227					95% DL/2 (t) UCL	292.3					95% H-Stat (DL/2) UCL	306.8
228												
229					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
230					Mean	191.1					Mean in Log Scale	4.341
231					SD	340.5					SD in Log Scale	1.311
232					95% MLE (t) UCL	286.9					Mean in Original Scale	196.9
233					95% MLE (Tiku) UCL	277.9					SD in Original Scale	338.9
234											95% Percentile Bootstrap UCL	294.6
235											95% BCA Bootstrap UCL	313.6
236												
237	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
238					k star (bias corrected)	0.646	**Data do not follow a Discernable Distribution (0.05)**					
239					Theta Star	313.4						
240					nu star	45.21						
241												
242					A-D Test Statistic	2.787	**Nonparametric Statistics**					
243					5% A-D Critical Value	0.794					Kaplan-Meier (KM) Method	
244					K-S Test Statistic	0.794					Mean	197.1
245					5% K-S Critical Value	0.155					SD	334
246	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	56.49
247											95% KM (t) UCL	292.6
248	**Assuming Gamma Distribution**										95% KM (z) UCL	290
249					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	292.3
250					Minimum	1E-09					95% KM (bootstrap t) UCL	345.3
251					Maximum	1400					95% KM (BCA) UCL	300.9
252					Mean	196.8					95% KM (Percentile Bootstrap) UCL	295.5
253					Median	66					95% KM (Chebyshev) UCL	443.3
254					SD	339					97.5% KM (Chebyshev) UCL	549.9
255					k star	0.403					99% KM (Chebyshev) UCL	759.2
256					Theta star	487.6						
257					Nu star	29.05	**Potential UCLs to Use**					
258					AppChi2	17.75					97.5% KM (Chebyshev) UCL	549.9
259					95% Gamma Approximate UCL	322.1						
260					95% Adjusted Gamma UCL	329.5						
261	**Note: DL/2 is not a recommended method.**											
262												
263												
264	**Benzo(k)fluoranthene**											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	**General Statistics**											
267	Number of Valid Data					35	Number of Detected Data					34
268	Number of Distinct Detected Data					32	Number of Non-Detect Data					1
269	Number of Missing Values					4	Percent Non-Detects					2.86%
270												
271	**Raw Statistics**						**Log-transformed Statistics**					
272	Minimum Detected					4.5	Minimum Detected					1.504
273	Maximum Detected					1120	Maximum Detected					7.021
274	Mean of Detected					132.1	Mean of Detected					3.891
275	SD of Detected					229.5	SD of Detected					1.386
276	Minimum Non-Detect					10	Minimum Non-Detect					2.303
277	Maximum Non-Detect					10	Maximum Non-Detect					2.303
278												
279												
280	**UCL Statistics**											
281	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
282	Shapiro Wilk Test Statistic					0.583	Shapiro Wilk Test Statistic					0.962
283	5% Shapiro Wilk Critical Value					0.933	5% Shapiro Wilk Critical Value					0.933
284	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
285												
286	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
287	DL/2 Substitution Method						DL/2 Substitution Method					
288	Mean					128.5	Mean					3.826
289	SD					227.1	SD					1.419
290	95% DL/2 (t) UCL					193.4	95% H-Stat (DL/2) UCL					242
291												
292	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
293	Mean					105.1	Mean in Log Scale					3.827
294	SD					248.3	SD in Log Scale					1.417
295	95% MLE (t) UCL					176.1	Mean in Original Scale					128.5
296	95% MLE (Tiku) UCL					172.7	SD in Original Scale					227.1
297							95% Percentile Bootstrap UCL					196.8
298							95% BCA Bootstrap UCL					207.5
299												
300	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
301	k star (bias corrected)					0.584	**Data appear Lognormal at 5% Significance Level**					
302	Theta Star					226.1						
303	nu star					39.74						
304												
305	A-D Test Statistic					1.716	**Nonparametric Statistics**					
306	5% A-D Critical Value					0.8	Kaplan-Meier (KM) Method					
307	K-S Test Statistic					0.8	Mean					128.6
308	5% K-S Critical Value					0.158	SD					223.8
309	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					38.4
310							95% KM (t) UCL					193.5
311	**Assuming Gamma Distribution**						95% KM (z) UCL					191.7
312	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					193.5
313	Minimum					1E-09	95% KM (bootstrap t) UCL					236.3
314	Maximum					1120	95% KM (BCA) UCL					197.4
315	Mean					128.4	95% KM (Percentile Bootstrap) UCL					195.4
316	Median					37	95% KM (Chebyshev) UCL					296
317	SD					227.2	97.5% KM (Chebyshev) UCL					368.4
318	k star					0.381	99% KM (Chebyshev) UCL					510.7

319					Theta star	337.3						
320					Nu star	26.64			**Potential UCLs to Use**			
321					AppChi2	15.87					97.5% KM (Chebyshev) UCL	368.4
322				95% Gamma Approximate UCL		215.4						
323				95% Adjusted Gamma UCL		220.9						
324	**Note: DL/2 is not a recommended method.**											
325												
326												
327	**Bis(2-ethylhexyl) phthalate**											
328												
329					**General Statistics**							
330				Number of Valid Data		35			Number of Detected Data			35
331				Number of Distinct Detected Data		32			Number of Non-Detect Data			0
332				Number of Missing Values		4			Percent Non-Detects			0.00%
333												
334				**Raw Statistics**					**Log-transformed Statistics**			
335				Minimum Detected		120			Minimum Detected			4.787
336				Maximum Detected		3100			Maximum Detected			8.039
337				Mean of Detected		774.5			Mean of Detected			6.337
338				SD of Detected		722.5			SD of Detected			0.78
339				Minimum Non-Detect		N/A			Minimum Non-Detect			N/A
340				Maximum Non-Detect		N/A			Maximum Non-Detect			N/A
341												
342												
343					**UCL Statistics**							
344				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
345				Shapiro Wilk Test Statistic		0.737			Shapiro Wilk Test Statistic			0.976
346				5% Shapiro Wilk Critical Value		0.934			5% Shapiro Wilk Critical Value			0.934
347				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
348												
349				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
350				DL/2 Substitution Method					DL/2 Substitution Method			
351				Mean		774.5			Mean			6.337
352				SD		722.5			SD			0.78
353				95% DL/2 (t) UCL		981.1			95% H-Stat (DL/2) UCL			1023
354												
355				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
356				**MLE method failed to converge properly**					Mean in Log Scale			N/A
357									SD in Log Scale			N/A
358									Mean in Original Scale			N/A
359									SD in Original Scale			N/A
360									95% Percentile Bootstrap UCL			N/A
361									95% BCA Bootstrap UCL			N/A
362												
363				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
364				k star (bias corrected)		1.606			**Data appear Lognormal at 5% Significance Level**			
365				Theta Star		482.3						
366				nu star		112.4						
367												
368				A-D Test Statistic		0.856			**Nonparametric Statistics**			
369				5% A-D Critical Value		0.763			Kaplan-Meier (KM) Method			
370				K-S Test Statistic		0.763			Mean			774.5
371				5% K-S Critical Value		0.151			SD			712.1

372	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	122.1
373											95% KM (t) UCL	981.1
374	**Assuming Gamma Distribution**										95% KM (z) UCL	975.4
375	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	981.1
376	Minimum	120									95% KM (bootstrap t) UCL	1067
377	Maximum	3100									95% KM (BCA) UCL	979
378	Mean	774.5									95% KM (Percentile Bootstrap) UCL	973.6
379	Median	546									95% KM (Chebyshev) UCL	1307
380	SD	722.5									97.5% KM (Chebyshev) UCL	1537
381	k star	1.606									99% KM (Chebyshev) UCL	1990
382	Theta star	482.3										
383	Nu star	112.4									**Potential UCLs to Use**	
384	AppChi2	88.95									95% KM (Chebyshev) UCL	1307
385	95% Gamma Approximate UCL	979										
386	95% Adjusted Gamma UCL	990										
387	**Note: DL/2 is not a recommended method.**											
388												
389												
390	**Dibenzo(a,h)anthracene**											
391												
392	**General Statistics**											
393	Number of Valid Data	36									Number of Detected Data	22
394	Number of Distinct Detected Data	21									Number of Non-Detect Data	14
395	Number of Missing Values	3									Percent Non-Detects	38.89%
396												
397	**Raw Statistics**										**Log-transformed Statistics**	
398	Minimum Detected	2									Minimum Detected	0.693
399	Maximum Detected	240									Maximum Detected	5.481
400	Mean of Detected	38.25									Mean of Detected	2.774
401	SD of Detected	57.05									SD of Detected	1.371
402	Minimum Non-Detect	2.4									Minimum Non-Detect	0.875
403	Maximum Non-Detect	20									Maximum Non-Detect	2.996
404												
405	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	27
406	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	9
407	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	75.00%
408												
409	**UCL Statistics**											
410	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
411	Shapiro Wilk Test Statistic	0.656									Shapiro Wilk Test Statistic	0.963
412	5% Shapiro Wilk Critical Value	0.911									5% Shapiro Wilk Critical Value	0.911
413	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
414												
415	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
416	DL/2 Substitution Method										DL/2 Substitution Method	
417	Mean	25.74									Mean	2.356
418	SD	47									SD	1.232
419	95% DL/2 (t) UCL	38.98									95% H-Stat (DL/2) UCL	26.04
420												
421	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
422	**MLE yields a negative mean**										Mean in Log Scale	2.208
423											SD in Log Scale	1.382
424											Mean in Original Scale	25.3

425											SD in Original Scale	47.21
426											95% Percentile Bootstrap UCL	38.42
427											95% BCA Bootstrap UCL	43.05
428												
429	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
430					k star (bias corrected)	0.631					**Data appear Gamma Distributed at 5% Significance Level**	
431					Theta Star	60.63						
432					nu star	27.76						
433												
434					A-D Test Statistic	0.669					**Nonparametric Statistics**	
435					5% A-D Critical Value	0.788					Kaplan-Meier (KM) Method	
436					K-S Test Statistic	0.788					Mean	25.23
437					5% K-S Critical Value	0.193					SD	46.58
438	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	7.957
439											95% KM (t) UCL	38.68
440	**Assuming Gamma Distribution**										95% KM (z) UCL	38.32
441					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	38.52
442					Minimum	1E-09					95% KM (bootstrap t) UCL	48.32
443					Maximum	240					95% KM (BCA) UCL	40.28
444					Mean	34.67					95% KM (Percentile Bootstrap) UCL	38.99
445					Median	15					95% KM (Chebyshev) UCL	59.92
446					SD	47.93					97.5% KM (Chebyshev) UCL	74.93
447					k star	0.225					99% KM (Chebyshev) UCL	104.4
448					Theta star	154						
449					Nu star	16.21					**Potential UCLs to Use**	
450					AppChi2	8.114					95% KM (BCA) UCL	40.28
451					95% Gamma Approximate UCL	69.29						
452					95% Adjusted Gamma UCL	71.59						
453	**Note: DL/2 is not a recommended method.**											
454												
455												
456	**Dieldrin**											
457												
458	**General Statistics**											
459					Number of Valid Data	17					Number of Detected Data	5
460					Number of Distinct Detected Data	5					Number of Non-Detect Data	12
461					Number of Missing Values	16					Percent Non-Detects	70.59%
462												
463	**Raw Statistics**										**Log-transformed Statistics**	
464					Minimum Detected	0.0989					Minimum Detected	-2.314
465					Maximum Detected	10					Maximum Detected	2.303
466					Mean of Detected	2.179					Mean of Detected	-0.809
467					SD of Detected	4.373					SD of Detected	1.796
468					Minimum Non-Detect	0.037					Minimum Non-Detect	-3.297
469					Maximum Non-Detect	2					Maximum Non-Detect	0.693
470												
471	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	16
472	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
473	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.12%
474												
475	**Warning: There are only 5 Detected Values in this data**											
476	**Note: It should be noted that even though bootstrap may be performed on this data set**											
477	**the resulting calculations may not be reliable enough tp draw conclusions**											

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
480												
481												
482	**UCL Statistics**											
483	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
484	Shapiro Wilk Test Statistic					0.571	Shapiro Wilk Test Statistic					0.781
485	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
486	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
487												
488	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
489	DL/2 Substitution Method						DL/2 Substitution Method					
490	Mean					0.785	Mean					-1.898
491	SD					2.388	SD					1.539
492	95% DL/2 (t) UCL					1.796	95% H-Stat (DL/2) UCL					1.631
493												
494	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
495	**MLE method failed to converge properly**						Mean in Log Scale					-3.709
496							SD in Log Scale					2.193
497							Mean in Original Scale					0.647
498							SD in Original Scale					2.412
499							95% Percentile Bootstrap UCL					1.813
500							95% BCA Bootstrap UCL					2.42
501												
502	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
503	k star (bias corrected)					0.298	**Data appear Lognormal at 5% Significance Level**					
504	Theta Star					7.304						
505	nu star					2.983						
506												
507	A-D Test Statistic					0.937	**Nonparametric Statistics**					
508	5% A-D Critical Value					0.723	Kaplan-Meier (KM) Method					
509	K-S Test Statistic					0.723	Mean					0.72
510	5% K-S Critical Value					0.375	SD					2.321
511	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.629
512							95% KM (t) UCL					1.819
513	**Assuming Gamma Distribution**						95% KM (z) UCL					1.756
514	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.68
515	Minimum					1E-09	95% KM (bootstrap t) UCL					25.49
516	Maximum					10	95% KM (BCA) UCL					2.53
517	Mean					0.641	95% KM (Percentile Bootstrap) UCL					1.922
518	Median					1E-09	95% KM (Chebyshev) UCL					3.464
519	SD					2.414	97.5% KM (Chebyshev) UCL					4.652
520	k star					0.0884	99% KM (Chebyshev) UCL					6.984
521	Theta star					7.252						
522	Nu star					3.004	**Potential UCLs to Use**					
523	AppChi2					0.374	97.5% KM (Chebyshev) UCL					4.652
524	95% Gamma Approximate UCL					5.151						
525	95% Adjusted Gamma UCL					6.46						
526	**Note: DL/2 is not a recommended method.**											
527												
528												
529	**Indeno(1,2,3-cd)pyrene**											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**General Statistics**											
532					Number of Valid Data	36				Number of Detected Data		35
533					Number of Distinct Detected Data	31				Number of Non-Detect Data		1
534					Number of Missing Values	3				Percent Non-Detects		2.78%
535												
536	**Raw Statistics**						**Log-transformed Statistics**					
537					Minimum Detected	8.4				Minimum Detected		2.128
538					Maximum Detected	1100				Maximum Detected		7.003
539					Mean of Detected	125.4				Mean of Detected		3.925
540					SD of Detected	237.1				SD of Detected		1.205
541					Minimum Non-Detect	10				Minimum Non-Detect		2.303
542					Maximum Non-Detect	10				Maximum Non-Detect		2.303
543												
544												
545	**UCL Statistics**											
546	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
547					Shapiro Wilk Test Statistic	0.511				Shapiro Wilk Test Statistic		0.904
548					5% Shapiro Wilk Critical Value	0.934				5% Shapiro Wilk Critical Value		0.934
549	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
550												
551	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
552					DL/2 Substitution Method					DL/2 Substitution Method		
553					Mean	122.1				Mean		3.861
554					SD	234.6				SD		1.248
555					95% DL/2 (t) UCL	188.1				95% H-Stat (DL/2) UCL		174
556												
557					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
558					Mean	113.4				Mean in Log Scale		3.855
559					SD	240.1				SD in Log Scale		1.26
560					95% MLE (t) UCL	181				Mean in Original Scale		122
561					95% MLE (Tiku) UCL	175				SD in Original Scale		234.6
562										95% Percentile Bootstrap UCL		188.7
563										95% BCA Bootstrap UCL		212.9
564												
565	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
566					k star (bias corrected)	0.632	**Data do not follow a Discernable Distribution (0.05)**					
567					Theta Star	198.3						
568					nu star	44.27						
569												
570					A-D Test Statistic	2.972	**Nonparametric Statistics**					
571					5% A-D Critical Value	0.795				Kaplan-Meier (KM) Method		
572					K-S Test Statistic	0.795				Mean		122.2
573					5% K-S Critical Value	0.155				SD		231.2
574	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		39.1
575										95% KM (t) UCL		188.2
576	**Assuming Gamma Distribution**									95% KM (z) UCL		186.5
577					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		188.1
578					Minimum	1E-09				95% KM (bootstrap t) UCL		265.2
579					Maximum	1100				95% KM (BCA) UCL		193.6
580					Mean	121.9				95% KM (Percentile Bootstrap) UCL		193.3
581					Median	35				95% KM (Chebyshev) UCL		292.6
582					SD	234.6				97.5% KM (Chebyshev) UCL		366.4
583					k star	0.402				99% KM (Chebyshev) UCL		511.2

584					Theta star	303.5						
585					Nu star	28.93			**Potential UCLs to Use**			
586					AppChi2	17.65					97.5% KM (Chebyshev) UCL	366.4
587				95% Gamma Approximate UCL		199.8						
588				95% Adjusted Gamma UCL		204.4						
589	**Note: DL/2 is not a recommended method.**											
590												
591												
592	**Lead**											
593												
594						**General Statistics**						
595					Number of Valid Data	37					Number of Detected Data	37
596					Number of Distinct Detected Data	33					Number of Non-Detect Data	0
597					Number of Missing Values	2					Percent Non-Detects	0.00%
598												
599				**Raw Statistics**					**Log-transformed Statistics**			
600					Minimum Detected	10.5					Minimum Detected	2.351
601					Maximum Detected	110					Maximum Detected	4.7
602					Mean of Detected	27.84					Mean of Detected	3.081
603					SD of Detected	25.42					SD of Detected	0.634
604					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
605					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
606												
607												
608						**UCL Statistics**						
609				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
610					Shapiro Wilk Test Statistic	0.631					Shapiro Wilk Test Statistic	0.842
611					5% Shapiro Wilk Critical Value	0.936					5% Shapiro Wilk Critical Value	0.936
612				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
613												
614				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
615					DL/2 Substitution Method						DL/2 Substitution Method	
616					Mean	27.84					Mean	3.081
617					SD	25.42					SD	0.634
618					95% DL/2 (t) UCL	34.9					95% H-Stat (DL/2) UCL	32.92
619												
620					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
621				**MLE method failed to converge properly**							Mean in Log Scale	N/A
622											SD in Log Scale	N/A
623											Mean in Original Scale	N/A
624											SD in Original Scale	N/A
625											95% Percentile Bootstrap UCL	N/A
626											95% BCA Bootstrap UCL	N/A
627												
628				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
629					k star (bias corrected)	2.027			**Data do not follow a Discernable Distribution (0.05)**			
630					Theta Star	13.73						
631					nu star	150						
632												
633					A-D Test Statistic	2.979			**Nonparametric Statistics**			
634					5% A-D Critical Value	0.758					Kaplan-Meier (KM) Method	
635					K-S Test Statistic	0.758					Mean	27.84
636					5% K-S Critical Value	0.147					SD	25.07

637	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	4.179
638											95% KM (t) UCL	34.9
639	**Assuming Gamma Distribution**										95% KM (z) UCL	34.72
640	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	34.9
641	Minimum					10.5					95% KM (bootstrap t) UCL	38.43
642	Maximum					110					95% KM (BCA) UCL	35.3
643	Mean					27.84					95% KM (Percentile Bootstrap) UCL	34.95
644	Median					20.2					95% KM (Chebyshev) UCL	46.06
645	SD					25.42					97.5% KM (Chebyshev) UCL	53.94
646	k star					2.027					99% KM (Chebyshev) UCL	69.42
647	Theta star					13.73						
648	Nu star					150					**Potential UCLs to Use**	
649	AppChi2					122.7					95% KM (Chebyshev) UCL	46.06
650	95% Gamma Approximate UCL					34.04						
651	95% Adjusted Gamma UCL					34.34						
652	**Note: DL/2 is not a recommended method.**											
653												
654												
655	**Mercury**											
656												
657	**General Statistics**											
658	Number of Valid Data					37					Number of Detected Data	34
659	Number of Distinct Detected Data					24					Number of Non-Detect Data	3
660	Number of Missing Values					2					Percent Non-Detects	8.11%
661												
662	**Raw Statistics**										**Log-transformed Statistics**	
663	Minimum Detected					0.04					Minimum Detected	-3.219
664	Maximum Detected					0.86					Maximum Detected	-0.151
665	Mean of Detected					0.126					Mean of Detected	-2.368
666	SD of Detected					0.148					SD of Detected	0.679
667	Minimum Non-Detect					0.05					Minimum Non-Detect	-2.996
668	Maximum Non-Detect					0.05					Maximum Non-Detect	-2.996
669												
670												
671	**UCL Statistics**											
672	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
673	Shapiro Wilk Test Statistic					0.536					Shapiro Wilk Test Statistic	0.869
674	5% Shapiro Wilk Critical Value					0.933					5% Shapiro Wilk Critical Value	0.933
675	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
676												
677	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
678	DL/2 Substitution Method										DL/2 Substitution Method	
679	Mean					0.118					Mean	-2.475
680	SD					0.144					SD	0.746
681	95% DL/2 (t) UCL					0.158					95% H-Stat (DL/2) UCL	0.138
682												
683	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
684	Mean					0.109					Mean in Log Scale	-2.479
685	SD					0.152					SD in Log Scale	0.754
686	95% MLE (t) UCL					0.152					Mean in Original Scale	0.118
687	95% MLE (Tiku) UCL					0.149					SD in Original Scale	0.144
688											95% Percentile Bootstrap UCL	0.161
689											95% BCA Bootstrap UCL	0.182

690												
691	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
692					k star (bias corrected)	1.676	**Data do not follow a Discernable Distribution (0.05)**					
693					Theta Star	0.0754						
694					nu star	114						
695												
696					A-D Test Statistic	2.372	**Nonparametric Statistics**					
697					5% A-D Critical Value	0.762	Kaplan-Meier (KM) Method					
698					K-S Test Statistic	0.762	Mean	0.119				
699					5% K-S Critical Value	0.153	SD	0.141				
700	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0236				
701							95% KM (t) UCL	0.159				
702	**Assuming Gamma Distribution**						95% KM (z) UCL	0.158				
703	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.159				
704					Minimum	1E-09	95% KM (bootstrap t) UCL	0.203				
705					Maximum	0.86	95% KM (BCA) UCL	0.169				
706					Mean	0.116	95% KM (Percentile Bootstrap) UCL	0.161				
707					Median	0.07	95% KM (Chebyshev) UCL	0.222				
708					SD	0.145	97.5% KM (Chebyshev) UCL	0.267				
709					k star	0.375	99% KM (Chebyshev) UCL	0.354				
710					Theta star	0.31						
711					Nu star	27.73	**Potential UCLs to Use**					
712					AppChi2	16.72	95% KM (Chebyshev) UCL	0.222				
713					95% Gamma Approximate UCL	0.193						
714					95% Adjusted Gamma UCL	0.197						
715	**Note: DL/2 is not a recommended method.**											
716												
717												
718	**Naphthalene**											
719												
720	**General Statistics**											
721					Number of Valid Data	36	Number of Detected Data	17				
722					Number of Distinct Detected Data	15	Number of Non-Detect Data	19				
723					Number of Missing Values	3	Percent Non-Detects	52.78%				
724												
725	**Raw Statistics**						**Log-transformed Statistics**					
726					Minimum Detected	5.5	Minimum Detected	1.705				
727					Maximum Detected	64	Maximum Detected	4.159				
728					Mean of Detected	27.88	Mean of Detected	3.062				
729					SD of Detected	19.68	SD of Detected	0.786				
730					Minimum Non-Detect	0.99	Minimum Non-Detect	-0.0101				
731					Maximum Non-Detect	20	Maximum Non-Detect	2.996				
732												
733	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	27				
734	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	9				
735	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	75.00%				
736												
737	**UCL Statistics**											
738	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
739					Shapiro Wilk Test Statistic	0.886	Shapiro Wilk Test Statistic	0.942				
740					5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892				
741	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
744	DL/2 Substitution Method						DL/2 Substitution Method					
745	Mean					16.34	Mean					2.322
746	SD					17.41	SD					1.003
747	95% DL/2 (t) UCL					21.24	95% H-Stat (DL/2) UCL					18.22
748												
749	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
750	Mean					44.89	Mean in Log Scale					2.288
751	SD					14.1	SD in Log Scale					1.002
752	95% MLE (t) UCL					48.86	Mean in Original Scale					16.17
753	95% MLE (Tiku) UCL					52.69	SD in Original Scale					17.54
754							95% Percentile Bootstrap UCL					21.34
755							95% BCA Bootstrap UCL					22.16
756												
757	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
758	k star (bias corrected)					1.713	**Data appear Gamma Distributed at 5% Significance Level**					
759	Theta Star					16.28						
760	nu star					58.23						
761												
762	A-D Test Statistic					0.408	**Nonparametric Statistics**					
763	5% A-D Critical Value					0.749	Kaplan-Meier (KM) Method					
764	K-S Test Statistic					0.749	Mean					16.85
765	5% K-S Critical Value					0.212	SD					16.85
766	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					2.928
767							95% KM (t) UCL					21.8
768	**Assuming Gamma Distribution**						95% KM (z) UCL					21.67
769	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					21.6
770	Minimum					3.316	95% KM (bootstrap t) UCL					23.01
771	Maximum					64	95% KM (BCA) UCL					22.13
772	Mean					27.65	95% KM (Percentile Bootstrap) UCL					22.37
773	Median					27.48	95% KM (Chebyshev) UCL					29.62
774	SD					16.18	97.5% KM (Chebyshev) UCL					35.14
775	k star					2.317	99% KM (Chebyshev) UCL					45.99
776	Theta star					11.94						
777	Nu star					166.8	**Potential UCLs to Use**					
778	AppChi2					138	95% KM (t) UCL					21.8
779	95% Gamma Approximate UCL					33.44						
780	95% Adjusted Gamma UCL					33.73						
781	**Note: DL/2 is not a recommended method.**											
782												
783												
784	**Thallium**											
785												
786	**General Statistics**											
787	Number of Valid Data					6	Number of Detected Data					6
788	Number of Distinct Detected Data					4	Number of Non-Detect Data					0
789	Number of Missing Values					33	Percent Non-Detects					0.00%
790												
791	**Raw Statistics**						**Log-transformed Statistics**					
792	Minimum Detected					8	Minimum Detected					2.079
793	Maximum Detected					11	Maximum Detected					2.398
794	Mean of Detected					9.167	Mean of Detected					2.209
795	SD of Detected					1.169	SD of Detected					0.125

796				Minimum Non-Detect	N/A					Minimum Non-Detect	N/A	
797				Maximum Non-Detect	N/A					Maximum Non-Detect	N/A	
798												
799												
800				Warning: There are only 4 Distinct Detected Values in this data								
801				Note: It should be noted that even though bootstrap may be performed on this data set								
802				the resulting calculations may not be reliable enough tp draw conclusions								
803												
804				It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.								
805												
806												
807				UCL Statistics								
808				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
809				Shapiro Wilk Test Statistic	0.908					Shapiro Wilk Test Statistic	0.913	
810				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788	
811				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
812												
813				Assuming Normal Distribution						Assuming Lognormal Distribution		
814				DL/2 Substitution Method						DL/2 Substitution Method		
815				Mean	9.167					Mean	2.209	
816				SD	1.169					SD	0.125	
817				95% DL/2 (t) UCL	10.13					95% H-Stat (DL/2) UCL	10.25	
818												
819				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
820				MLE method failed to converge properly						Mean in Log Scale	N/A	
821										SD in Log Scale	N/A	
822										Mean in Original Scale	N/A	
823										SD in Original Scale	N/A	
824										95% Percentile Bootstrap UCL	N/A	
825										95% BCA Bootstrap UCL	N/A	
826												
827				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
828				k star (bias corrected)	38.04					Data appear Normal at 5% Significance Level		
829				Theta Star	0.241							
830				nu star	456.5							
831												
832				A-D Test Statistic	0.346					Nonparametric Statistics		
833				5% A-D Critical Value	0.697					Kaplan-Meier (KM) Method		
834				K-S Test Statistic	0.697					Mean	9.167	
835				5% K-S Critical Value	0.332					SD	1.067	
836				Data appear Gamma Distributed at 5% Significance Level						SE of Mean	0.477	
837										95% KM (t) UCL	10.13	
838				Assuming Gamma Distribution						95% KM (z) UCL	9.952	
839				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	10.13	
840				Minimum	8					95% KM (bootstrap t) UCL	10.59	
841				Maximum	11					95% KM (BCA) UCL	9.833	
842				Mean	9.167					95% KM (Percentile Bootstrap) UCL	10	
843				Median	9					95% KM (Chebyshev) UCL	11.25	
844				SD	1.169					97.5% KM (Chebyshev) UCL	12.15	
845				k star	38.04					99% KM (Chebyshev) UCL	13.92	
846				Theta star	0.241							
847				Nu star	456.5					Potential UCLs to Use		
848				AppChi2	408					95% KM (t) UCL	10.13	

	A	B	C	D	E	F	G	H	I	J	K	L
849				95% Gamma Approximate UCL		10.26			95% KM (Percentile Bootstrap) UCL			10
850				95% Adjusted Gamma UCL		10.7						
851	**Note: DL/2 is not a recommended method.**											
852												
853												
854	**Total Aroclors**											
855												
856						**General Statistics**						
857				Number of Valid Data		32			Number of Detected Data			21
858				Number of Distinct Detected Data		21			Number of Non-Detect Data			11
859				Number of Missing Values		7			Percent Non-Detects			34.38%
860												
861				**Raw Statistics**					**Log-transformed Statistics**			
862				Minimum Detected		18.66			Minimum Detected			2.926
863				Maximum Detected		1563			Maximum Detected			7.354
864				Mean of Detected		257.1			Mean of Detected			4.581
865				SD of Detected		427			SD of Detected			1.336
866				Minimum Non-Detect		5.2			Minimum Non-Detect			1.649
867				Maximum Non-Detect		40			Maximum Non-Detect			3.689
868												
869	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			17
870	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			15
871	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			53.13%
872												
873						**UCL Statistics**						
874				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
875				Shapiro Wilk Test Statistic		0.598			Shapiro Wilk Test Statistic			0.915
876				5% Shapiro Wilk Critical Value		0.908			5% Shapiro Wilk Critical Value			0.908
877				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
878												
879				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
880				DL/2 Substitution Method					DL/2 Substitution Method			
881				Mean		172.1			Mean			3.705
882				SD		363.2			SD			1.686
883				95% DL/2 (t) UCL		280.9			95% H-Stat (DL/2) UCL			211.1
884												
885				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
886				**MLE yields a negative mean**					Mean in Log Scale			3.564
887									SD in Log Scale			1.834
888									Mean in Original Scale			170.8
889									SD in Original Scale			363.7
890									95% Percentile Bootstrap UCL			280.7
891									95% BCA Bootstrap UCL			319
892												
893				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
894				k star (bias corrected)		0.575			**Data appear Lognormal at 5% Significance Level**			
895				Theta Star		447.5						
896				nu star		24.13						
897												
898				A-D Test Statistic		1.536			**Nonparametric Statistics**			
899				5% A-D Critical Value		0.793			Kaplan-Meier (KM) Method			
900				K-S Test Statistic		0.793			Mean			175.5
901				5% K-S Critical Value		0.199			SD			355.9

902	Data not Gamma Distributed at 5% Significance Level										SE of Mean	64.47
903											95% KM (t) UCL	284.8
904	Assuming Gamma Distribution										95% KM (z) UCL	281.5
905	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	283.7
906	Minimum	1E-09									95% KM (bootstrap t) UCL	364.9
907	Maximum	1563									95% KM (BCA) UCL	297.1
908	Mean	180.4									95% KM (Percentile Bootstrap) UCL	290.3
909	Median	58.33									95% KM (Chebyshev) UCL	456.5
910	SD	360.2									97.5% KM (Chebyshev) UCL	578.1
911	k star	0.167									99% KM (Chebyshev) UCL	817
912	Theta star	1077										
913	Nu star	10.72									Potential UCLs to Use	
914	AppChi2	4.394									97.5% KM (Chebyshev) UCL	578.1
915	95% Gamma Approximate UCL	439.9										
916	95% Adjusted Gamma UCL	462.6										
917	Note: DL/2 is not a recommended method.											
918												
919												
920	Total DDT											
921												
922	General Statistics											
923	Number of Valid Data	17									Number of Detected Data	11
924	Number of Distinct Detected Data	11									Number of Non-Detect Data	6
925	Number of Missing Values	16									Percent Non-Detects	35.29%
926												
927	Raw Statistics										Log-transformed Statistics	
928	Minimum Detected	0.37									Minimum Detected	-0.994
929	Maximum Detected	140									Maximum Detected	4.942
930	Mean of Detected	16.03									Mean of Detected	0.584
931	SD of Detected	41.72									SD of Detected	1.969
932	Minimum Non-Detect	0.122									Minimum Non-Detect	-2.104
933	Maximum Non-Detect	3.59									Maximum Non-Detect	1.278
934												
935	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
936	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
937	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	82.35%
938												
939	UCL Statistics											
940	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
941	Shapiro Wilk Test Statistic	0.44									Shapiro Wilk Test Statistic	0.801
942	5% Shapiro Wilk Critical Value	0.85									5% Shapiro Wilk Critical Value	0.85
943	Data not Normal at 5% Significance Level										Data not Lognormal at 5% Significance Level	
944												
945	Assuming Normal Distribution										Assuming Lognormal Distribution	
946	DL/2 Substitution Method										DL/2 Substitution Method	
947	Mean	10.62									Mean	-0.0371
948	SD	33.84									SD	1.987
949	95% DL/2 (t) UCL	24.95									95% H-Stat (DL/2) UCL	35.63
950												
951	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
952	MLE yields a negative mean										Mean in Log Scale	-0.474
953											SD in Log Scale	2.262
954											Mean in Original Scale	10.43

955											SD in Original Scale	33.9
956											95% Percentile Bootstrap UCL	25.46
957											95% BCA Bootstrap UCL	35.07
958												
959	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
960					k star (bias corrected)	0.288	**Data do not follow a Discernable Distribution (0.05)**					
961					Theta Star	55.68						
962					nu star	6.335						
963												
964					A-D Test Statistic	1.582	**Nonparametric Statistics**					
965					5% A-D Critical Value	0.818					Kaplan-Meier (KM) Method	
966					K-S Test Statistic	0.818					Mean	10.55
967					5% K-S Critical Value	0.275					SD	32.85
968	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	8.356
969											95% KM (t) UCL	25.14
970	**Assuming Gamma Distribution**										95% KM (z) UCL	24.3
971					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	24.89
972					Minimum	0.37					95% KM (bootstrap t) UCL	299
973					Maximum	140					95% KM (BCA) UCL	25.65
974					Mean	16.06					95% KM (Percentile Bootstrap) UCL	26.02
975					Median	3.78					95% KM (Chebyshev) UCL	46.98
976					SD	32.98					97.5% KM (Chebyshev) UCL	62.74
977					k star	0.414					99% KM (Chebyshev) UCL	93.7
978					Theta star	38.83						
979					Nu star	14.07	**Potential UCLs to Use**					
980					AppChi2	6.617					99% KM (Chebyshev) UCL	93.7
981					95% Gamma Approximate UCL	34.15						
982					95% Adjusted Gamma UCL	37.12						
983	**Note: DL/2 is not a recommended method.**											
984												
985												
986	**Tributyltin ion**											
987												
988	**General Statistics**											
989					Number of Valid Data	13	Number of Detected Data	13				
990					Number of Distinct Detected Data	13	Number of Non-Detect Data	0				
991					Number of Missing Values	26	Percent Non-Detects	0.00%				
992												
993	**Raw Statistics**						**Log-transformed Statistics**					
994					Minimum Detected	88	Minimum Detected	4.477				
995					Maximum Detected	9300	Maximum Detected	9.138				
996					Mean of Detected	2379	Mean of Detected	6.903				
997					SD of Detected	2825	SD of Detected	1.562				
998					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
999					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1000												
1001												
1002	**UCL Statistics**											
1003	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1004					Shapiro Wilk Test Statistic	0.81	Shapiro Wilk Test Statistic	0.944				
1005					5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866				
1006	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1007												

	A	B	C	D	E	F	G	H	I	J	K	L
1008	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1009	DL/2 Substitution Method						DL/2 Substitution Method					
1010	Mean					2379	Mean					6.903
1011	SD					2825	SD					1.562
1012	95% DL/2 (t) UCL					3776	95% H-Stat (DL/2) UCL					19588
1013												
1014	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1015	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1016							SD in Log Scale					N/A
1017							Mean in Original Scale					N/A
1018							SD in Original Scale					N/A
1019							95% Percentile Bootstrap UCL					N/A
1020							95% BCA Bootstrap UCL					N/A
1021												
1022	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1023	k star (bias corrected)					0.586	**Data appear Gamma Distributed at 5% Significance Level**					
1024	Theta Star					4064						
1025	nu star					15.22						
1026												
1027	A-D Test Statistic					0.256	**Nonparametric Statistics**					
1028	5% A-D Critical Value					0.775	Kaplan-Meier (KM) Method					
1029	K-S Test Statistic					0.775	Mean					2379
1030	5% K-S Critical Value					0.247	SD					2714
1031	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					783.6
1032							95% KM (t) UCL					3776
1033	**Assuming Gamma Distribution**						95% KM (z) UCL					3668
1034	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3776
1035	Minimum					88	95% KM (bootstrap t) UCL					4679
1036	Maximum					9300	95% KM (BCA) UCL					3662
1037	Mean					2379	95% KM (Percentile Bootstrap) UCL					3659
1038	Median					1300	95% KM (Chebyshev) UCL					5795
1039	SD					2825	97.5% KM (Chebyshev) UCL					7273
1040	k star					0.586	99% KM (Chebyshev) UCL					10176
1041	Theta star					4064						
1042	Nu star					15.22	**Potential UCLs to Use**					
1043	AppChi2					7.418	95% KM (Chebyshev) UCL					5795
1044	95% Gamma Approximate UCL					4883						
1045	95% Adjusted Gamma UCL					5443						
1046	**Note: DL/2 is not a recommended method.**											
1047												

1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM8.0W.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Arsenic											
10												
11	General Statistics											
12	Number of Valid Data			24		Number of Detected Data				20		
13	Number of Distinct Detected Data			20		Number of Non-Detect Data				4		
14	Number of Missing Values			3		Percent Non-Detects				16.67%		
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected			0.97		Minimum Detected				-0.0305		
18	Maximum Detected			23.3		Maximum Detected				3.148		
19	Mean of Detected			4.473		Mean of Detected				1.297		
20	SD of Detected			4.526		SD of Detected				0.557		
21	Minimum Non-Detect			5		Minimum Non-Detect				1.609		
22	Maximum Non-Detect			5		Maximum Non-Detect				1.609		
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic			0.416		Shapiro Wilk Test Statistic				0.75		
28	5% Shapiro Wilk Critical Value			0.905		5% Shapiro Wilk Critical Value				0.905		
29	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method					DL/2 Substitution Method						
33	Mean			4.144		Mean				1.233		
34	SD			4.181		SD				0.527		
35	95% DL/2 (t) UCL			5.607		95% H-Stat (DL/2) UCL				4.433		
36												
37	Maximum Likelihood Estimate(MLE) Method			N/A		Log ROS Method						
38	MLE method failed to converge properly					Mean in Log Scale				1.283		
39						SD in Log Scale				0.521		
40						Mean in Original Scale				4.311		
41						SD in Original Scale				4.149		
42						95% Percentile Bootstrap UCL				5.957		
43						95% BCA Bootstrap UCL				6.831		
44												
45	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
46	k star (bias corrected)			2.276		Data do not follow a Discernable Distribution (0.05)						
47	Theta Star			1.965								
48	nu star			91.05								
49												
50	A-D Test Statistic			2.702		Nonparametric Statistics						
51	5% A-D Critical Value			0.749		Kaplan-Meier (KM) Method						
52	K-S Test Statistic			0.749		Mean				4.288		
53	5% K-S Critical Value			0.195		SD				4.061		

54	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.854
55											95% KM (t) UCL	5.751
56	**Assuming Gamma Distribution**										95% KM (z) UCL	5.692
57	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	5.745
58	Minimum	0.97									95% KM (bootstrap t) UCL	9.12
59	Maximum	23.3									95% KM (BCA) UCL	6.041
60	Mean	4.482									95% KM (Percentile Bootstrap) UCL	5.906
61	Median	3.805									95% KM (Chebyshev) UCL	8.009
62	SD	4.116									97.5% KM (Chebyshev) UCL	9.619
63	k star	2.765									99% KM (Chebyshev) UCL	12.78
64	Theta star	1.621										
65	Nu star	132.7									**Potential UCLs to Use**	
66	AppChi2	107.1									95% KM (Chebyshev) UCL	8.009
67	95% Gamma Approximate UCL	5.554										
68	95% Adjusted Gamma UCL	5.639										
69	**Note: DL/2 is not a recommended method.**											
70												
71												
72	**Benzo(a)anthracene**											
73												
74	**General Statistics**											
75	Number of Valid Data	26									Number of Detected Data	26
76	Number of Distinct Detected Data	25									Number of Non-Detect Data	0
77	Number of Missing Values	1									Percent Non-Detects	0.00%
78												
79	**Raw Statistics**										**Log-transformed Statistics**	
80	Minimum Detected	5.4									Minimum Detected	1.686
81	Maximum Detected	1210									Maximum Detected	7.098
82	Mean of Detected	176.9									Mean of Detected	4.093
83	SD of Detected	306.2									SD of Detected	1.453
84	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
85	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
86												
87												
88	**UCL Statistics**											
89	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
90	Shapiro Wilk Test Statistic	0.59									Shapiro Wilk Test Statistic	0.946
91	5% Shapiro Wilk Critical Value	0.92									5% Shapiro Wilk Critical Value	0.92
92	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
93												
94	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
95	DL/2 Substitution Method										DL/2 Substitution Method	
96	Mean	176.9									Mean	4.093
97	SD	306.2									SD	1.453
98	95% DL/2 (t) UCL	279.5									95% H-Stat (DL/2) UCL	424.4
99												
100	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
101	**MLE method failed to converge properly**										Mean in Log Scale	N/A
102											SD in Log Scale	N/A
103											Mean in Original Scale	N/A
104											SD in Original Scale	N/A
105											95% Percentile Bootstrap UCL	N/A
106											95% BCA Bootstrap UCL	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
109	k star (bias corrected)					0.534	**Data appear Lognormal at 5% Significance Level**					
110	Theta Star					331.6						
111	nu star					27.75						
112												
113	A-D Test Statistic					1.574	**Nonparametric Statistics**					
114	5% A-D Critical Value					0.801	Kaplan-Meier (KM) Method					
115	K-S Test Statistic					0.801	Mean					176.9
116	5% K-S Critical Value					0.18	SD					300.3
117	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					60.06
118							95% KM (t) UCL					279.5
119	**Assuming Gamma Distribution**						95% KM (z) UCL					275.7
120	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					279.5
121	Minimum					5.4	95% KM (bootstrap t) UCL					355.4
122	Maximum					1210	95% KM (BCA) UCL					273.8
123	Mean					176.9	95% KM (Percentile Bootstrap) UCL					278.6
124	Median					40.75	95% KM (Chebyshev) UCL					438.7
125	SD					306.2	97.5% KM (Chebyshev) UCL					552
126	k star					0.534	99% KM (Chebyshev) UCL					774.5
127	Theta star					331.6						
128	Nu star					27.75	**Potential UCLs to Use**					
129	AppChi2					16.73	97.5% KM (Chebyshev) UCL					552
130	95% Gamma Approximate UCL					293.4						
131	95% Adjusted Gamma UCL					303.7						
132	**Note: DL/2 is not a recommended method.**											
133												
134												
135	**Benzo(a)pyrene**											
136												
137	**General Statistics**											
138	Number of Valid Data					26	Number of Detected Data					26
139	Number of Distinct Detected Data					24	Number of Non-Detect Data					0
140	Number of Missing Values					1	Percent Non-Detects					0.00%
141												
142	**Raw Statistics**						**Log-transformed Statistics**					
143	Minimum Detected					4.3	Minimum Detected					1.459
144	Maximum Detected					905	Maximum Detected					6.808
145	Mean of Detected					167.1	Mean of Detected					4.161
146	SD of Detected					262.4	SD of Detected					1.381
147	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
148	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
149												
150												
151	**UCL Statistics**											
152	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
153	Shapiro Wilk Test Statistic					0.619	Shapiro Wilk Test Statistic					0.948
154	5% Shapiro Wilk Critical Value					0.92	5% Shapiro Wilk Critical Value					0.92
155	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
156												
157	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
158	DL/2 Substitution Method						DL/2 Substitution Method					
159	Mean					167.1	Mean					4.161

160					SD	262.4					SD	1.381
161					95% DL/2 (t) UCL	255					95% H-Stat (DL/2) UCL	380.9
162												
163					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
164					**MLE method failed to converge properly**						Mean in Log Scale	N/A
165											SD in Log Scale	N/A
166											Mean in Original Scale	N/A
167											SD in Original Scale	N/A
168											95% Percentile Bootstrap UCL	N/A
169											95% BCA Bootstrap UCL	N/A
170												
171					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
172					k star (bias corrected)	0.591					**Data appear Lognormal at 5% Significance Level**	
173					Theta Star	282.6						
174					nu star	30.74						
175												
176					A-D Test Statistic	1.615					**Nonparametric Statistics**	
177					5% A-D Critical Value	0.795					Kaplan-Meier (KM) Method	
178					K-S Test Statistic	0.795					Mean	167.1
179					5% K-S Critical Value	0.179					SD	257.3
180					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	51.47
181											95% KM (t) UCL	255
182					**Assuming Gamma Distribution**						95% KM (z) UCL	251.8
183					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	255
184					Minimum	4.3					95% KM (bootstrap t) UCL	300.3
185					Maximum	905					95% KM (BCA) UCL	263.5
186					Mean	167.1					95% KM (Percentile Bootstrap) UCL	254.2
187					Median	49					95% KM (Chebyshev) UCL	391.4
188					SD	262.4					97.5% KM (Chebyshev) UCL	488.5
189					k star	0.591					99% KM (Chebyshev) UCL	679.2
190					Theta star	282.6						
191					Nu star	30.74					**Potential UCLs to Use**	
192					AppChi2	19.08					97.5% KM (Chebyshev) UCL	488.5
193					95% Gamma Approximate UCL	269.3						
194					95% Adjusted Gamma UCL	278.1						
195	**Note: DL/2 is not a recommended method.**											
196												
197												
198	**Benzo(b)fluoranthene**											
199												
200						**General Statistics**							
201					Number of Valid Data	26					Number of Detected Data	26
202					Number of Distinct Detected Data	22					Number of Non-Detect Data	0
203					Number of Missing Values	1					Percent Non-Detects	0.00%
204												
205					**Raw Statistics**						**Log-transformed Statistics**	
206					Minimum Detected	7.4					Minimum Detected	2.001
207					Maximum Detected	1450					Maximum Detected	7.279
208					Mean of Detected	229.2					Mean of Detected	4.349
209					SD of Detected	374.4					SD of Detected	1.482
210					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
211					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**UCL Statistics**											
215	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
216					Shapiro Wilk Test Statistic	0.633				Shapiro Wilk Test Statistic		0.929
217					5% Shapiro Wilk Critical Value	0.92				5% Shapiro Wilk Critical Value		0.92
218	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
219												
220	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
221					DL/2 Substitution Method					DL/2 Substitution Method		
222					Mean	229.2				Mean		4.349
223					SD	374.4				SD		1.482
224					95% DL/2 (t) UCL	354.7				95% H-Stat (DL/2) UCL		589.1
225												
226					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
227	**MLE method failed to converge properly**									Mean in Log Scale		N/A
228										SD in Log Scale		N/A
229										Mean in Original Scale		N/A
230										SD in Original Scale		N/A
231										95% Percentile Bootstrap UCL		N/A
232										95% BCA Bootstrap UCL		N/A
233												
234	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
235					k star (bias corrected)	0.532	**Data appear Lognormal at 5% Significance Level**					
236					Theta Star	430.6						
237					nu star	27.69						
238												
239					A-D Test Statistic	1.538	**Nonparametric Statistics**					
240					5% A-D Critical Value	0.801				Kaplan-Meier (KM) Method		
241					K-S Test Statistic	0.801				Mean		229.2
242					5% K-S Critical Value	0.18				SD		367.1
243	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		73.43
244										95% KM (t) UCL		354.7
245	**Assuming Gamma Distribution**									95% KM (z) UCL		350
246					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		354.7
247					Minimum	7.4				95% KM (bootstrap t) UCL		447.7
248					Maximum	1450				95% KM (BCA) UCL		357.5
249					Mean	229.2				95% KM (Percentile Bootstrap) UCL		360.8
250					Median	51				95% KM (Chebyshev) UCL		549.3
251					SD	374.4				97.5% KM (Chebyshev) UCL		687.8
252					k star	0.532				99% KM (Chebyshev) UCL		959.9
253					Theta star	430.6						
254					Nu star	27.69	**Potential UCLs to Use**					
255					AppChi2	16.68				97.5% KM (Chebyshev) UCL		687.8
256					95% Gamma Approximate UCL	380.4						
257					95% Adjusted Gamma UCL	393.7						
258	**Note: DL/2 is not a recommended method.**											
259												
260												
261	**Benzo(k)fluoranthene**											
262												
263	**General Statistics**											
264					Number of Valid Data	20				Number of Detected Data		20
265					Number of Distinct Detected Data	18				Number of Non-Detect Data		0

	A	B	C	D	E	F	G	H	I	J	K	L
266					Number of Missing Values	7					Percent Non-Detects	0.00%
267												
268				**Raw Statistics**						**Log-transformed Statistics**		
269					Minimum Detected	2.6					Minimum Detected	0.956
270					Maximum Detected	310					Maximum Detected	5.737
271					Mean of Detected	50.39					Mean of Detected	3.243
272					SD of Detected	74.89					SD of Detected	1.161
273					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
274					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
275												
276												
277						**UCL Statistics**							
278				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
279					Shapiro Wilk Test Statistic	0.601					Shapiro Wilk Test Statistic	0.969
280					5% Shapiro Wilk Critical Value	0.905					5% Shapiro Wilk Critical Value	0.905
281				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
282												
283				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
284					DL/2 Substitution Method						DL/2 Substitution Method	
285					Mean	50.39					Mean	3.243
286					SD	74.89					SD	1.161
287					95% DL/2 (t) UCL	79.35					95% H-Stat (DL/2) UCL	106.4
288												
289					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
290				**MLE method failed to converge properly**							Mean in Log Scale	N/A
291											SD in Log Scale	N/A
292											Mean in Original Scale	N/A
293											SD in Original Scale	N/A
294											95% Percentile Bootstrap UCL	N/A
295											95% BCA Bootstrap UCL	N/A
296												
297				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
298					k star (bias corrected)	0.771				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
299					Theta Star	65.36						
300					nu star	30.84						
301												
302					A-D Test Statistic	0.967				**Nonparametric Statistics**		
303					5% A-D Critical Value	0.774				Kaplan-Meier (KM) Method		
304					K-S Test Statistic	0.774					Mean	50.39
305					5% K-S Critical Value	0.2					SD	73
306				**Data follow Appr. Gamma Distribution at 5% Significance Level**							SE of Mean	16.75
307											95% KM (t) UCL	79.35
308				**Assuming Gamma Distribution**							95% KM (z) UCL	77.94
309					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	79.35
310					Minimum	2.6					95% KM (bootstrap t) UCL	124.2
311					Maximum	310					95% KM (BCA) UCL	79.87
312					Mean	50.39					95% KM (Percentile Bootstrap) UCL	79.32
313					Median	22.5					95% KM (Chebyshev) UCL	123.4
314					SD	74.89					97.5% KM (Chebyshev) UCL	155
315					k star	0.771					99% KM (Chebyshev) UCL	217
316					Theta star	65.36						
317					Nu star	30.84				**Potential UCLs to Use**		
318					AppChi2	19.15					95% KM (Chebyshev) UCL	123.4

319				95% Gamma Approximate UCL		81.13						
320				95% Adjusted Gamma UCL		84.33						
321	**Note: DL/2 is not a recommended method.**											
322												
323												
324	**Bis(2-ethylhexyl) phthalate**											
325												
326					**General Statistics**							
327				Number of Valid Data		24		Number of Detected Data		19		
328				Number of Distinct Detected Data		18		Number of Non-Detect Data		5		
329				Number of Missing Values		3		Percent Non-Detects		20.83%		
330												
331				**Raw Statistics**				**Log-transformed Statistics**				
332				Minimum Detected		13		Minimum Detected		2.565		
333				Maximum Detected		4420		Maximum Detected		8.394		
334				Mean of Detected		746.9		Mean of Detected		5.48		
335				SD of Detected		1290		SD of Detected		1.523		
336				Minimum Non-Detect		8.3		Minimum Non-Detect		2.116		
337				Maximum Non-Detect		340		Maximum Non-Detect		5.829		
338												
339	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect		17		
340	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected		7		
341	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage		70.83%		
342												
343					**UCL Statistics**							
344				**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**				
345				Shapiro Wilk Test Statistic		0.581		Shapiro Wilk Test Statistic		0.948		
346				5% Shapiro Wilk Critical Value		0.901		5% Shapiro Wilk Critical Value		0.901		
347				**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**				
348												
349				**Assuming Normal Distribution**				**Assuming Lognormal Distribution**				
350				DL/2 Substitution Method				DL/2 Substitution Method				
351				Mean		602.6		Mean		5.001		
352				SD		1178		SD		1.777		
353				95% DL/2 (t) UCL		1015		95% H-Stat (DL/2) UCL		2187		
354												
355				Maximum Likelihood Estimate(MLE) Method		N/A		Log ROS Method				
356				**MLE yields a negative mean**				Mean in Log Scale		4.975		
357								SD in Log Scale		1.735		
358								Mean in Original Scale		597.7		
359								SD in Original Scale		1180		
360								95% Percentile Bootstrap UCL		1047		
361								95% BCA Bootstrap UCL		1166		
362												
363				**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**				
364				k star (bias corrected)		0.499		**Data appear Lognormal at 5% Significance Level**				
365				Theta Star		1496						
366				nu star		18.97						
367												
368				A-D Test Statistic		1.34		**Nonparametric Statistics**				
369				5% A-D Critical Value		0.798		Kaplan-Meier (KM) Method				
370				K-S Test Statistic		0.798		Mean		600.9		
371				5% K-S Critical Value		0.209		SD		1154		

372	Data not Gamma Distributed at 5% Significance Level										SE of Mean	242
373											95% KM (t) UCL	1016
374	Assuming Gamma Distribution										95% KM (z) UCL	998.9
375	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	1010
376	Minimum	1E-09									95% KM (bootstrap t) UCL	1250
377	Maximum	4420									95% KM (BCA) UCL	1043
378	Mean	612.6									95% KM (Percentile Bootstrap) UCL	1025
379	Median	136.5									95% KM (Chebyshev) UCL	1656
380	SD	1175									97.5% KM (Chebyshev) UCL	2112
381	k star	0.222									99% KM (Chebyshev) UCL	3008
382	Theta star	2759										
383	Nu star	10.66									Potential UCLs to Use	
384	AppChi2	4.357									99% KM (Chebyshev) UCL	3008
385	95% Gamma Approximate UCL	1499										
386	95% Adjusted Gamma UCL	1602										
387	Note: DL/2 is not a recommended method.											
388												
389												
390	Dibenzo(a,h)anthracene											
391												
392	General Statistics											
393	Number of Valid Data	26									Number of Detected Data	18
394	Number of Distinct Detected Data	16									Number of Non-Detect Data	8
395	Number of Missing Values	1									Percent Non-Detects	30.77%
396												
397	Raw Statistics										Log-transformed Statistics	
398	Minimum Detected	0.67									Minimum Detected	-0.4
399	Maximum Detected	221									Maximum Detected	5.398
400	Mean of Detected	40.52									Mean of Detected	2.401
401	SD of Detected	63.5									SD of Detected	1.764
402	Minimum Non-Detect	5.8									Minimum Non-Detect	1.758
403	Maximum Non-Detect	21.7									Maximum Non-Detect	3.077
404												
405	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	20
406	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
407	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	76.92%
408												
409	UCL Statistics											
410	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
411	Shapiro Wilk Test Statistic	0.681									Shapiro Wilk Test Statistic	0.943
412	5% Shapiro Wilk Critical Value	0.897									5% Shapiro Wilk Critical Value	0.897
413	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
414												
415	Assuming Normal Distribution										Assuming Lognormal Distribution	
416	DL/2 Substitution Method										DL/2 Substitution Method	
417	Mean	30.84									Mean	2.322
418	SD	54.43									SD	1.478
419	95% DL/2 (t) UCL	49.08									95% H-Stat (DL/2) UCL	48.32
420												
421	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
422	Mean	123.1									Mean in Log Scale	2.075
423	SD	63.46									SD in Log Scale	1.563
424	95% MLE (t) UCL	144.4									Mean in Original Scale	29.37

425					95% MLE (Tiku) UCL	166.3				SD in Original Scale		55.08
426										95% Percentile Bootstrap UCL		46.61
427										95% BCA Bootstrap UCL		52.44
428												
429				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
430					k star (bias corrected)	0.445				**Data appear Lognormal at 5% Significance Level**		
431					Theta Star	90.98						
432					nu star	16.03						
433												
434					A-D Test Statistic	0.861				**Nonparametric Statistics**		
435					5% A-D Critical Value	0.802				Kaplan-Meier (KM) Method		
436					K-S Test Statistic	0.802				Mean		29.4
437					5% K-S Critical Value	0.215				SD		54.03
438				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		10.91
439										95% KM (t) UCL		48.04
440				**Assuming Gamma Distribution**						95% KM (z) UCL		47.35
441					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		47.88
442					Minimum	0.67				95% KM (bootstrap t) UCL		65.02
443					Maximum	221				95% KM (BCA) UCL		48.97
444					Mean	39.31				95% KM (Percentile Bootstrap) UCL		47.12
445					Median	30.85				95% KM (Chebyshev) UCL		76.97
446					SD	52.48				97.5% KM (Chebyshev) UCL		97.55
447					k star	0.62				99% KM (Chebyshev) UCL		138
448					Theta star	63.39						
449					Nu star	32.25				**Potential UCLs to Use**		
450					AppChi2	20.27				99% KM (Chebyshev) UCL		138
451					95% Gamma Approximate UCL	62.54						
452					95% Adjusted Gamma UCL	64.54						
453	**Note: DL/2 is not a recommended method.**											
454												
455												
456	**Dieldrin**											
457												
458							**General Statistics**					
459					Number of Valid Data	19				Number of Detected Data		7
460					Number of Distinct Detected Data	7				Number of Non-Detect Data		12
461					Number of Missing Values	8				Percent Non-Detects		63.16%
462												
463				**Raw Statistics**						**Log-transformed Statistics**		
464					Minimum Detected	0.0762				Minimum Detected		-2.574
465					Maximum Detected	27.8				Maximum Detected		3.325
466					Mean of Detected	5.002				Mean of Detected		0.216
467					SD of Detected	10.09				SD of Detected		1.813
468					Minimum Non-Detect	0.0498				Minimum Non-Detect		-3
469					Maximum Non-Detect	1.9				Maximum Non-Detect		0.642
470												
471	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		17
472	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
473	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		89.47%
474												
475	**Warning: There are only 7 Detected Values in this data**											
476	**Note: It should be noted that even though bootstrap may be performed on this data set**											
477	**the resulting calculations may not be reliable enough tp draw conclusions**											

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
480												
481												
482	**UCL Statistics**											
483	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
484	Shapiro Wilk Test Statistic					0.538	Shapiro Wilk Test Statistic					0.968
485	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
486	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
487												
488	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
489	DL/2 Substitution Method						DL/2 Substitution Method					
490	Mean					1.993	Mean					-1.221
491	SD					6.292	SD					1.805
492	95% DL/2 (t) UCL					4.496	95% H-Stat (DL/2) UCL					4.916
493												
494	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
495	**MLE method failed to converge properly**						Mean in Log Scale					-2.523
496							SD in Log Scale					2.428
497							Mean in Original Scale					1.855
498							SD in Original Scale					6.33
499							95% Percentile Bootstrap UCL					4.675
500							95% BCA Bootstrap UCL					6.282
501												
502	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
503	k star (bias corrected)					0.359	**Data appear Gamma Distributed at 5% Significance Level**					
504	Theta Star					13.94						
505	nu star					5.024						
506												
507	A-D Test Statistic					0.601	**Nonparametric Statistics**					
508	5% A-D Critical Value					0.758	Kaplan-Meier (KM) Method					
509	K-S Test Statistic					0.758	Mean					1.913
510	5% K-S Critical Value					0.329	SD					6.146
511	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.523
512							95% KM (t) UCL					4.555
513	**Assuming Gamma Distribution**						95% KM (z) UCL					4.419
514	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.259
515	Minimum					0.0762	95% KM (bootstrap t) UCL					20.07
516	Maximum					27.8	95% KM (BCA) UCL					5.237
517	Mean					5.052	95% KM (Percentile Bootstrap) UCL					4.888
518	Median					5.116	95% KM (Chebyshev) UCL					8.553
519	SD					5.831	97.5% KM (Chebyshev) UCL					11.43
520	k star					0.969	99% KM (Chebyshev) UCL					17.07
521	Theta star					5.212						
522	Nu star					36.83	**Potential UCLs to Use**					
523	AppChi2					23.94	95% KM (t) UCL					4.555
524	95% Gamma Approximate UCL					7.773						
525	95% Adjusted Gamma UCL					8.08						
526	**Note: DL/2 is not a recommended method.**											
527												
528												
529	**Indeno(1,2,3-cd)pyrene**											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**General Statistics**											
532					Number of Valid Data	26				Number of Detected Data		25
533					Number of Distinct Detected Data	23				Number of Non-Detect Data		1
534					Number of Missing Values	1				Percent Non-Detects		3.85%
535												
536	**Raw Statistics**						**Log-transformed Statistics**					
537					Minimum Detected	3.2				Minimum Detected		1.163
538					Maximum Detected	620				Maximum Detected		6.43
539					Mean of Detected	117				Mean of Detected		3.907
540					SD of Detected	167.5				SD of Detected		1.351
541					Minimum Non-Detect	19				Minimum Non-Detect		2.944
542					Maximum Non-Detect	19				Maximum Non-Detect		2.944
543												
544												
545	**UCL Statistics**											
546	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
547					Shapiro Wilk Test Statistic	0.67				Shapiro Wilk Test Statistic		0.96
548					5% Shapiro Wilk Critical Value	0.918				5% Shapiro Wilk Critical Value		0.918
549	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
550												
551	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
552					DL/2 Substitution Method					DL/2 Substitution Method		
553					Mean	112.9				Mean		3.843
554					SD	165.5				SD		1.363
555					95% DL/2 (t) UCL	168.3				95% H-Stat (DL/2) UCL		231.1
556												
557					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
558					Mean	90.46				Mean in Log Scale		3.831
559					SD	187.1				SD in Log Scale		1.38
560					95% MLE (t) UCL	153.1				Mean in Original Scale		112.8
561					95% MLE (Tiku) UCL	151.9				SD in Original Scale		165.5
562										95% Percentile Bootstrap UCL		167.7
563										95% BCA Bootstrap UCL		180.2
564												
565	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
566					k star (bias corrected)	0.648	**Data appear Lognormal at 5% Significance Level**					
567					Theta Star	180.6						
568					nu star	32.39						
569												
570					A-D Test Statistic	1.198	**Nonparametric Statistics**					
571					5% A-D Critical Value	0.788				Kaplan-Meier (KM) Method		
572					K-S Test Statistic	0.788				Mean		112.9
573					5% K-S Critical Value	0.182				SD		162.3
574	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		32.48
575										95% KM (t) UCL		168.4
576	**Assuming Gamma Distribution**									95% KM (z) UCL		166.3
577					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		168.3
578					Minimum	1E-09				95% KM (bootstrap t) UCL		199.8
579					Maximum	620				95% KM (BCA) UCL		169.5
580					Mean	112.5				95% KM (Percentile Bootstrap) UCL		164.7
581					Median	42.25				95% KM (Chebyshev) UCL		254.5
582					SD	165.7				97.5% KM (Chebyshev) UCL		315.7
583					k star	0.359				99% KM (Chebyshev) UCL		436.1

584					Theta star	313.4						
585					Nu star	18.67			**Potential UCLs to Use**			
586					AppChi2	9.873					97.5% KM (Chebyshev) UCL	315.7
587				95% Gamma Approximate UCL		212.7						
588				95% Adjusted Gamma UCL		222.2						
589	**Note: DL/2 is not a recommended method.**											
590												
591												
592	**Lead**											
593												
594						**General Statistics**						
595					Number of Valid Data	24					Number of Detected Data	24
596					Number of Distinct Detected Data	23					Number of Non-Detect Data	0
597					Number of Missing Values	3					Percent Non-Detects	0.00%
598												
599				**Raw Statistics**					**Log-transformed Statistics**			
600					Minimum Detected	3.07					Minimum Detected	1.122
601					Maximum Detected	350					Maximum Detected	5.858
602					Mean of Detected	49.63					Mean of Detected	3.41
603					SD of Detected	73.66					SD of Detected	0.915
604					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
605					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
606												
607												
608						**UCL Statistics**						
609				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
610					Shapiro Wilk Test Statistic	0.507					Shapiro Wilk Test Statistic	0.9
611					5% Shapiro Wilk Critical Value	0.916					5% Shapiro Wilk Critical Value	0.916
612				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
613												
614				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
615					DL/2 Substitution Method						DL/2 Substitution Method	
616					Mean	49.63					Mean	3.41
617					SD	73.66					SD	0.915
618					95% DL/2 (t) UCL	75.4					95% H-Stat (DL/2) UCL	72.81
619												
620					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
621				**MLE method failed to converge properly**							Mean in Log Scale	N/A
622											SD in Log Scale	N/A
623											Mean in Original Scale	N/A
624											SD in Original Scale	N/A
625											95% Percentile Bootstrap UCL	N/A
626											95% BCA Bootstrap UCL	N/A
627												
628				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
629					k star (bias corrected)	1.033			**Data do not follow a Discernable Distribution (0.05)**			
630					Theta Star	48.04						
631					nu star	49.59						
632												
633					A-D Test Statistic	2.018			**Nonparametric Statistics**			
634					5% A-D Critical Value	0.769					Kaplan-Meier (KM) Method	
635					K-S Test Statistic	0.769					Mean	49.63
636					5% K-S Critical Value	0.182					SD	72.11

637	Data not Gamma Distributed at 5% Significance Level										SE of Mean	15.04
638											95% KM (t) UCL	75.4
639	Assuming Gamma Distribution										95% KM (z) UCL	74.36
640	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	75.4
641	Minimum	3.07									95% KM (bootstrap t) UCL	148.4
642	Maximum	350									95% KM (BCA) UCL	78.16
643	Mean	49.63									95% KM (Percentile Bootstrap) UCL	75.2
644	Median	27									95% KM (Chebyshev) UCL	115.2
645	SD	73.66									97.5% KM (Chebyshev) UCL	143.5
646	k star	1.033									99% KM (Chebyshev) UCL	199.2
647	Theta star	48.04										
648	Nu star	49.59									Potential UCLs to Use	
649	AppChi2	34.42									95% KM (Chebyshev) UCL	115.2
650	95% Gamma Approximate UCL	71.5										
651	95% Adjusted Gamma UCL	73.39										
652	Note: DL/2 is not a recommended method.											
653												
654												
655	Mercury											
656												
657	General Statistics											
658	Number of Valid Data	24									Number of Detected Data	22
659	Number of Distinct Detected Data	20									Number of Non-Detect Data	2
660	Number of Missing Values	3									Percent Non-Detects	8.33%
661												
662	Raw Statistics										Log-transformed Statistics	
663	Minimum Detected	0.029									Minimum Detected	-3.54
664	Maximum Detected	0.796									Maximum Detected	-0.228
665	Mean of Detected	0.179									Mean of Detected	-2.058
666	SD of Detected	0.18									SD of Detected	0.803
667	Minimum Non-Detect	0.01									Minimum Non-Detect	-4.605
668	Maximum Non-Detect	0.05									Maximum Non-Detect	-2.996
669												
670	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	3
671	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	21
672	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	12.50%
673												
674	UCL Statistics											
675	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
676	Shapiro Wilk Test Statistic	0.719									Shapiro Wilk Test Statistic	0.967
677	5% Shapiro Wilk Critical Value	0.911									5% Shapiro Wilk Critical Value	0.911
678	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
679												
680	Assuming Normal Distribution										Assuming Lognormal Distribution	
681	DL/2 Substitution Method										DL/2 Substitution Method	
682	Mean	0.166									Mean	-2.261
683	SD	0.178									SD	1.057
684	95% DL/2 (t) UCL	0.228									95% H-Stat (DL/2) UCL	0.278
685												
686	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
687	Mean	0.155									Mean in Log Scale	-2.209
688	SD	0.188									SD in Log Scale	0.924
689	95% MLE (t) UCL	0.221									Mean in Original Scale	0.166

690					95% MLE (Tiku) UCL	0.218				SD in Original Scale		0.177
691										95% Percentile Bootstrap UCL		0.226
692										95% BCA Bootstrap UCL		0.243
693												
694	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
695					k star (bias corrected)	1.428	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
696					Theta Star	0.126						
697					nu star	62.82						
698												
699					A-D Test Statistic	0.83	**Nonparametric Statistics**					
700					5% A-D Critical Value	0.758				Kaplan-Meier (KM) Method		
701					K-S Test Statistic	0.758				Mean		0.167
702					5% K-S Critical Value	0.188				SD		0.173
703	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		0.0362
704										95% KM (t) UCL		0.229
705	**Assuming Gamma Distribution**									95% KM (z) UCL		0.226
706					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.228
707					Minimum	1E-09				95% KM (bootstrap t) UCL		0.268
708					Maximum	0.796				95% KM (BCA) UCL		0.237
709					Mean	0.164				95% KM (Percentile Bootstrap) UCL		0.23
710					Median	0.1				95% KM (Chebyshev) UCL		0.325
711					SD	0.179				97.5% KM (Chebyshev) UCL		0.393
712					k star	0.35				99% KM (Chebyshev) UCL		0.527
713					Theta star	0.469						
714					Nu star	16.82	**Potential UCLs to Use**					
715					AppChi2	8.544				95% KM (Chebyshev) UCL		0.325
716					95% Gamma Approximate UCL	0.324						
717					95% Adjusted Gamma UCL	0.34						
718	**Note: DL/2 is not a recommended method.**											
719												
720												
721	**Naphthalene**											
722												
723	**General Statistics**											
724					Number of Valid Data	26				Number of Detected Data		16
725					Number of Distinct Detected Data	16				Number of Non-Detect Data		10
726					Number of Missing Values	1				Percent Non-Detects		38.46%
727												
728	**Raw Statistics**						**Log-transformed Statistics**					
729					Minimum Detected	5.7				Minimum Detected		1.74
730					Maximum Detected	269				Maximum Detected		5.595
731					Mean of Detected	78.8				Mean of Detected		3.877
732					SD of Detected	78.08				SD of Detected		1.074
733					Minimum Non-Detect	3.1				Minimum Non-Detect		1.131
734					Maximum Non-Detect	20				Maximum Non-Detect		2.996
735												
736	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		13
737	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		13
738	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		50.00%
739												
740	**UCL Statistics**											
741	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
742					Shapiro Wilk Test Statistic	0.818				Shapiro Wilk Test Statistic		0.952

743					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
744	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
745												
746	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
747					DL/2 Substitution Method						DL/2 Substitution Method	
748					Mean	51.29					Mean	3.095
749					SD	70.16					SD	1.362
750					95% DL/2 (t) UCL	74.79					95% H-Stat (DL/2) UCL	82.6
751												
752					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
753					Mean	11.95					Mean in Log Scale	3.002
754					SD	108.9					SD in Log Scale	1.442
755					95% MLE (t) UCL	48.45					Mean in Original Scale	50.71
756					95% MLE (Tiku) UCL	57.07					SD in Original Scale	70.54
757											95% Percentile Bootstrap UCL	72.88
758											95% BCA Bootstrap UCL	79.27
759												
760	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
761					k star (bias corrected)	0.983	**Data appear Gamma Distributed at 5% Significance Level**					
762					Theta Star	80.17						
763					nu star	31.45						
764												
765					A-D Test Statistic	0.522	**Nonparametric Statistics**					
766					5% A-D Critical Value	0.761					Kaplan-Meier (KM) Method	
767					K-S Test Statistic	0.761					Mean	51.48
768					5% K-S Critical Value	0.22					SD	68.7
769	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	13.93
770											95% KM (t) UCL	75.28
771	**Assuming Gamma Distribution**										95% KM (z) UCL	74.4
772					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	73.01
773					Minimum	0.795					95% KM (bootstrap t) UCL	84.12
774					Maximum	269					95% KM (BCA) UCL	80.77
775					Mean	65.4					95% KM (Percentile Bootstrap) UCL	77.2
776					Median	33.5					95% KM (Chebyshev) UCL	112.2
777					SD	66.41					97.5% KM (Chebyshev) UCL	138.5
778					k star	0.936					99% KM (Chebyshev) UCL	190.1
779					Theta star	69.87						
780					Nu star	48.68	**Potential UCLs to Use**					
781					AppChi2	33.66					95% KM (BCA) UCL	80.77
782					95% Gamma Approximate UCL	94.57						
783					95% Adjusted Gamma UCL	96.95						
784	**Note: DL/2 is not a recommended method.**											
785												
786												
787	**Thallium**											
788												
789	**General Statistics**											
790					Number of Valid Data	6					Number of Detected Data	6
791					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
792					Number of Missing Values	21					Percent Non-Detects	0.00%
793												
794	**Raw Statistics**						**Log-transformed Statistics**					
795					Minimum Detected	0.112					Minimum Detected	-2.189

796					Maximum Detected	12					Maximum Detected	2.485
797					Mean of Detected	6.205					Mean of Detected	0.74
798					SD of Detected	5.1					SD of Detected	2.264
799					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
800					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
801												
802												
803	**Warning: There are only 6 Detected Values in this data**											
804	**Note: It should be noted that even though bootstrap may be performed on this data set**											
805	**the resulting calculations may not be reliable enough tp draw conclusions**											
806												
807	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
808												
809												
810	**UCL Statistics**											
811	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
812					Shapiro Wilk Test Statistic	0.877					Shapiro Wilk Test Statistic	0.718
813					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
814	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
815												
816	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
817					DL/2 Substitution Method						DL/2 Substitution Method	
818					Mean	6.205					Mean	0.74
819					SD	5.1					SD	2.264
820					95% DL/2 (t) UCL	10.4					95% H-Stat (DL/2) UCL	176631
821												
822					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
823	**MLE method failed to converge properly**										Mean in Log Scale	N/A
824											SD in Log Scale	N/A
825											Mean in Original Scale	N/A
826											SD in Original Scale	N/A
827											95% Percentile Bootstrap UCL	N/A
828											95% BCA Bootstrap UCL	N/A
829												
830	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
831					k star (bias corrected)	0.398	**Data appear Normal at 5% Significance Level**					
832					Theta Star	15.6						
833					nu star	4.773						
834												
835					A-D Test Statistic	0.848	**Nonparametric Statistics**					
836					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
837					K-S Test Statistic	0.731					Mean	6.205
838					5% K-S Critical Value	0.347					SD	4.655
839	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	2.082
840											95% KM (t) UCL	10.4
841	**Assuming Gamma Distribution**										95% KM (z) UCL	9.629
842					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	10.4
843					Minimum	0.112					95% KM (bootstrap t) UCL	9.682
844					Maximum	12					95% KM (BCA) UCL	8.853
845					Mean	6.205					95% KM (Percentile Bootstrap) UCL	9.02
846					Median	7.5					95% KM (Chebyshev) UCL	15.28
847					SD	5.1					97.5% KM (Chebyshev) UCL	19.21
848					k star	0.398					99% KM (Chebyshev) UCL	26.92

849					Theta star	15.6						
850					Nu star	4.773	**Potential UCLs to Use**					
851					AppChi2	1.049				95% KM (t) UCL		10.4
852				95% Gamma Approximate UCL		28.24				95% KM (Percentile Bootstrap) UCL		9.02
853				95% Adjusted Gamma UCL		53.62						
854	**Note: DL/2 is not a recommended method.**											
855												
856												
857	**Total Aroclors**											
858												
859	**General Statistics**											
860					Number of Valid Data	13				Number of Detected Data		12
861					Number of Distinct Detected Data	12				Number of Non-Detect Data		1
862					Number of Missing Values	14				Percent Non-Detects		7.69%
863												
864	**Raw Statistics**						**Log-transformed Statistics**					
865					Minimum Detected	8.37				Minimum Detected		2.125
866					Maximum Detected	617				Maximum Detected		6.425
867					Mean of Detected	127				Mean of Detected		4.32
868					SD of Detected	167.1				SD of Detected		1.053
869					Minimum Non-Detect	38				Minimum Non-Detect		3.638
870					Maximum Non-Detect	38				Maximum Non-Detect		3.638
871												
872												
873	**UCL Statistics**											
874	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
875					Shapiro Wilk Test Statistic	0.62				Shapiro Wilk Test Statistic		0.937
876					5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value		0.859
877	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
878												
879	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
880					DL/2 Substitution Method					DL/2 Substitution Method		
881					Mean	118.7				Mean		4.214
882					SD	162.8				SD		1.078
883					95% DL/2 (t) UCL	199.2				95% H-Stat (DL/2) UCL		210.6
884												
885					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
886					Mean	93.02				Mean in Log Scale		4.202
887					SD	184.6				SD in Log Scale		1.094
888					95% MLE (t) UCL	184.3				Mean in Original Scale		118.5
889					95% MLE (Tiku) UCL	184.2				SD in Original Scale		162.9
890										95% Percentile Bootstrap UCL		195.8
891										95% BCA Bootstrap UCL		239.1
892												
893	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
894					k star (bias corrected)	0.872	**Data appear Lognormal at 5% Significance Level**					
895					Theta Star	145.6						
896					nu star	20.93						
897												
898					A-D Test Statistic	0.756	**Nonparametric Statistics**					
899					5% A-D Critical Value	0.755				Kaplan-Meier (KM) Method		
900					K-S Test Statistic	0.755				Mean		118.9
901					5% K-S Critical Value	0.252				SD		156.4

902	Data not Gamma Distributed at 5% Significance Level										SE of Mean	45.31
903											95% KM (t) UCL	199.6
904	Assuming Gamma Distribution										95% KM (z) UCL	193.4
905	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	199.4
906	Minimum	1E-09									95% KM (bootstrap t) UCL	423
907	Maximum	617									95% KM (BCA) UCL	193.3
908	Mean	117.3									95% KM (Percentile Bootstrap) UCL	197.8
909	Median	59.28									95% KM (Chebyshev) UCL	316.4
910	SD	163.8									97.5% KM (Chebyshev) UCL	401.8
911	k star	0.276									99% KM (Chebyshev) UCL	569.7
912	Theta star	424.9										
913	Nu star	7.175									Potential UCLs to Use	
914	AppChi2	2.267									97.5% KM (Chebyshev) UCL	401.8
915	95% Gamma Approximate UCL	371.1										
916	95% Adjusted Gamma UCL	444.1										
917	Note: DL/2 is not a recommended method.											
918												
919												
920	Total DDT											
921												
922	General Statistics											
923	Number of Valid Data	19									Number of Detected Data	14
924	Number of Distinct Detected Data	14									Number of Non-Detect Data	5
925	Number of Missing Values	8									Percent Non-Detects	26.32%
926												
927	Raw Statistics										Log-transformed Statistics	
928	Minimum Detected	0.115									Minimum Detected	-2.163
929	Maximum Detected	63.43									Maximum Detected	4.15
930	Mean of Detected	8.418									Mean of Detected	0.683
931	SD of Detected	16.79									SD of Detected	1.865
932	Minimum Non-Detect	0.353									Minimum Non-Detect	-1.041
933	Maximum Non-Detect	3.28									Maximum Non-Detect	1.188
934												
935	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
936	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
937	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	68.42%
938												
939	UCL Statistics											
940	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
941	Shapiro Wilk Test Statistic	0.541									Shapiro Wilk Test Statistic	0.976
942	5% Shapiro Wilk Critical Value	0.874									5% Shapiro Wilk Critical Value	0.874
943	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
944												
945	Assuming Normal Distribution										Assuming Lognormal Distribution	
946	DL/2 Substitution Method										DL/2 Substitution Method	
947	Mean	6.492									Mean	0.457
948	SD	14.65									SD	1.695
949	95% DL/2 (t) UCL	12.32									95% H-Stat (DL/2) UCL	19.57
950												
951	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
952	MLE yields a negative mean										Mean in Log Scale	0.255
953											SD in Log Scale	1.766
954											Mean in Original Scale	6.315

955											SD in Original Scale	14.72
956											95% Percentile Bootstrap UCL	12.23
957											95% BCA Bootstrap UCL	17.17
958												
959				Gamma Distribution Test with Detected Values Only							Data Distribution Test with Detected Values Only	
960						k star (bias corrected)	0.399				Data appear Gamma Distributed at 5% Significance Level	
961						Theta Star	21.12					
962						nu star	11.16					
963												
964						A-D Test Statistic	0.531				Nonparametric Statistics	
965						5% A-D Critical Value	0.804				Kaplan-Meier (KM) Method	
966						K-S Test Statistic	0.804				Mean	6.354
967						5% K-S Critical Value	0.243				SD	14.31
968				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	3.409
969											95% KM (t) UCL	12.27
970				Assuming Gamma Distribution							95% KM (z) UCL	11.96
971						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	12.21
972						Minimum	1E-09				95% KM (bootstrap t) UCL	25.12
973						Maximum	63.43				95% KM (BCA) UCL	12.9
974						Mean	6.892				95% KM (Percentile Bootstrap) UCL	12.84
975						Median	1.968				95% KM (Chebyshev) UCL	21.21
976						SD	14.53				97.5% KM (Chebyshev) UCL	27.64
977						k star	0.289				99% KM (Chebyshev) UCL	40.27
978						Theta star	23.84					
979						Nu star	10.99				Potential UCLs to Use	
980						AppChi2	4.567				95% KM (Chebyshev) UCL	21.21
981						95% Gamma Approximate UCL	16.58					
982						95% Adjusted Gamma UCL	17.98					
983	Note: DL/2 is not a recommended method.											
984												
985												
986	Tributyltin ion											
987												
988							General Statistics					
989						Number of Valid Data	9				Number of Detected Data	6
990						Number of Distinct Detected Data	6				Number of Non-Detect Data	3
991						Number of Missing Values	18				Percent Non-Detects	33.33%
992												
993				Raw Statistics							Log-transformed Statistics	
994						Minimum Detected	2.7				Minimum Detected	0.993
995						Maximum Detected	55				Maximum Detected	4.007
996						Mean of Detected	19.35				Mean of Detected	2.567
997						SD of Detected	18.84				SD of Detected	1.021
998						Minimum Non-Detect	0.58				Minimum Non-Detect	-0.545
999						Maximum Non-Detect	5.7				Maximum Non-Detect	1.74
1000												
1001	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	4
1002	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
1003	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	44.44%
1004												
1005	Warning: There are only 6 Detected Values in this data											
1006	Note: It should be noted that even though bootstrap may be performed on this data set											
1007	the resulting calculations may not be reliable enough tp draw conclusions											

	A	B	C	D	E	F	G	H	I	J	K	L
1008												
1009	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1010												
1011												
1012	**UCL Statistics**											
1013	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1014	Shapiro Wilk Test Statistic					0.829	Shapiro Wilk Test Statistic					0.987
1015	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
1016	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1017												
1018	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1019	DL/2 Substitution Method						DL/2 Substitution Method					
1020	Mean					13.28	Mean					1.56
1021	SD					17.47	SD					1.832
1022	95% DL/2 (t) UCL					24.11	95% H-Stat (DL/2) UCL					74.07
1023												
1024	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
1025	Mean					6.984	Mean in Log Scale					1.745
1026	SD					23.56	SD in Log Scale					1.479
1027	95% MLE (t) UCL					21.59	Mean in Original Scale					13.28
1028	95% MLE (Tiku) UCL					24.02	SD in Original Scale					17.46
1029							95% Percentile Bootstrap UCL					23.59
1030							95% BCA Bootstrap UCL					26.41
1031												
1032	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1033	k star (bias corrected)					0.814	**Data appear Normal at 5% Significance Level**					
1034	Theta Star					23.77						
1035	nu star					9.769						
1036												
1037	A-D Test Statistic					0.206	**Nonparametric Statistics**					
1038	5% A-D Critical Value					0.709	Kaplan-Meier (KM) Method					
1039	K-S Test Statistic					0.709	Mean					13.8
1040	5% K-S Critical Value					0.338	SD					16.09
1041	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					5.874
1042							95% KM (t) UCL					24.72
1043	**Assuming Gamma Distribution**						95% KM (z) UCL					23.46
1044	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					23.84
1045	Minimum					2.7	95% KM (bootstrap t) UCL					34.14
1046	Maximum					55	95% KM (BCA) UCL					27.47
1047	Mean					14.96	95% KM (Percentile Bootstrap) UCL					25.24
1048	Median					9.473	95% KM (Chebyshev) UCL					39.4
1049	SD					16.34	97.5% KM (Chebyshev) UCL					50.48
1050	k star					0.986	99% KM (Chebyshev) UCL					72.24
1051	Theta star					15.18						
1052	Nu star					17.74	**Potential UCLs to Use**					
1053	AppChi2					9.203	95% KM (t) UCL					24.72
1054	95% Gamma Approximate UCL					28.84	95% KM (Percentile Bootstrap) UCL					25.24
1055	95% Adjusted Gamma UCL					33.43						
1056	**Note: DL/2 is not a recommended method.**											
1057												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM8.0SIL.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Aldrin											
10												
11					General Statistics							
12				Number of Valid Data	57			Number of Detected Data	5			
13				Number of Distinct Detected Data	5			Number of Non-Detect Data	52			
14				Number of Missing Values	30			Percent Non-Detects	91.23%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	0.027			Minimum Detected	-3.612			
18				Maximum Detected	6			Maximum Detected	1.792			
19				Mean of Detected	1.342			Mean of Detected	-1.449			
20				SD of Detected	2.611			SD of Detected	2.085			
21				Minimum Non-Detect	0.0312			Minimum Non-Detect	-3.467			
22				Maximum Non-Detect	6			Maximum Non-Detect	1.792			
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect	56			
25	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected	1			
26	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage	98.25%			
27												
28					Warning: There are only 5 Detected Values in this data							
29					Note: It should be noted that even though bootstrap may be performed on this data set							
30					the resulting calculations may not be reliable enough tp draw conclusions							
31												
32					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
33												
34												
35					UCL Statistics							
36				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
37				Lilliefors Test Statistic	0.607			Lilliefors Test Statistic	0.922			
38				5% Lilliefors Critical Value	0.762			5% Lilliefors Critical Value	0.762			
39				Data not Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level				
40												
41				Assuming Normal Distribution				Assuming Lognormal Distribution				
42				DL/2 Substitution Method				DL/2 Substitution Method				
43				Mean	0.616			Mean	-1.443			
44				SD	1.024			SD	1.505			
45				95% DL/2 (t) UCL	0.843			95% H-Stat (DL/2) UCL	1.291			
46												
47				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
48				MLE method failed to converge properly				Mean in Log Scale	-3.748			
49								SD in Log Scale	1.003			
50								Mean in Original Scale	0.137			
51								SD in Original Scale	0.793			
52								95% Percentile Bootstrap UCL	0.346			
53								95% BCA Bootstrap UCL	0.46			

54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56					k star (bias corrected)	0.286	**Data appear Gamma Distributed at 5% Significance Level**					
57					Theta Star	4.698						
58					nu star	2.856						
59												
60					A-D Test Statistic	0.576	**Nonparametric Statistics**					
61					5% A-D Critical Value	0.728	Kaplan-Meier (KM) Method					
62					K-S Test Statistic	0.728	Mean	0.159				
63					5% K-S Critical Value	0.377	SD	0.785				
64	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.117				
65							95% KM (t) UCL	0.355				
66	**Assuming Gamma Distribution**						95% KM (z) UCL	0.352				
67					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.309				
68					Minimum	1E-09	95% KM (bootstrap t) UCL	1.696				
69					Maximum	6	95% KM (BCA) UCL	0.781				
70					Mean	0.118	95% KM (Percentile Bootstrap) UCL	0.491				
71					Median	1E-09	95% KM (Chebyshev) UCL	0.67				
72					SD	0.796	97.5% KM (Chebyshev) UCL	0.892				
73					k star	0.0606	99% KM (Chebyshev) UCL	1.326				
74					Theta star	1.941						
75					Nu star	6.912	**Potential UCLs to Use**					
76					AppChi2	2.122	95% KM (t) UCL	0.355				
77					95% Gamma Approximate UCL	0.383						
78					95% Adjusted Gamma UCL	0.396						
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Arsenic**											
83												
84							**General Statistics**					
85					Number of Valid Data	85	Number of Detected Data	79				
86					Number of Distinct Detected Data	61	Number of Non-Detect Data	6				
87					Number of Missing Values	3	Percent Non-Detects	7.06%				
88												
89	**Raw Statistics**						**Log-transformed Statistics**					
90					Minimum Detected	1.49	Minimum Detected	0.399				
91					Maximum Detected	15.6	Maximum Detected	2.747				
92					Mean of Detected	5.538	Mean of Detected	1.573				
93					SD of Detected	2.941	SD of Detected	0.542				
94					Minimum Non-Detect	5	Minimum Non-Detect	1.609				
95					Maximum Non-Detect	7	Maximum Non-Detect	1.946				
96												
97	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	62				
98	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	23				
99	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	72.94%				
100												
101	**UCL Statistics**											
102	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
103					Lilliefors Test Statistic	0.0997	Lilliefors Test Statistic	0.112				
104					5% Lilliefors Critical Value	0.0997	5% Lilliefors Critical Value	0.0997				
105	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
106												

107	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
108				DL/2 Substitution Method						DL/2 Substitution Method		
109				Mean		5.377				Mean		1.545
110				SD		2.897				SD		0.534
111				95% DL/2 (t) UCL		5.9				95% H-Stat (DL/2) UCL		5.752
112												
113				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
114				Mean		4.45				Mean in Log Scale		1.554
115				SD		3.929				SD in Log Scale		0.53
116				95% MLE (t) UCL		5.158				Mean in Original Scale		5.412
117				95% MLE (Tiku) UCL		5.803				SD in Original Scale		2.881
118										95% Percentile Bootstrap UCL		5.941
119										95% BCA Bootstrap UCL		5.956
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122				k star (bias corrected)		3.636	**Data appear Gamma Distributed at 5% Significance Level**					
123				Theta Star		1.523						
124				nu star		574.5						
125												
126				A-D Test Statistic		0.439	**Nonparametric Statistics**					
127				5% A-D Critical Value		0.757				Kaplan-Meier (KM) Method		
128				K-S Test Statistic		0.757				Mean		5.418
129				5% K-S Critical Value		0.101				SD		2.878
130	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.317
131										95% KM (t) UCL		5.946
132	**Assuming Gamma Distribution**									95% KM (z) UCL		5.94
133				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		5.946
134				Minimum		1.49				95% KM (bootstrap t) UCL		6.018
135				Maximum		15.6				95% KM (BCA) UCL		5.947
136				Mean		5.486				95% KM (Percentile Bootstrap) UCL		5.95
137				Median		5				95% KM (Chebyshev) UCL		6.8
138				SD		2.862				97.5% KM (Chebyshev) UCL		7.398
139				k star		3.812				99% KM (Chebyshev) UCL		8.573
140				Theta star		1.439						
141				Nu star		648.1	**Potential UCLs to Use**					
142				AppChi2		590				95% KM (BCA) UCL		5.947
143				95% Gamma Approximate UCL		6.025						
144				95% Adjusted Gamma UCL		6.035						
145	**Note: DL/2 is not a recommended method.**											
146												
147												
148	**Benzo(a)anthracene**											
149												
150	**General Statistics**											
151				Number of Valid Data		86				Number of Detected Data		78
152				Number of Distinct Detected Data		70				Number of Non-Detect Data		8
153				Number of Missing Values		2				Percent Non-Detects		9.30%
154												
155	**Raw Statistics**						**Log-transformed Statistics**					
156				Minimum Detected		1.3				Minimum Detected		0.262
157				Maximum Detected		5570				Maximum Detected		8.625
158				Mean of Detected		259.8				Mean of Detected		4.543
159				SD of Detected		660.6				SD of Detected		1.418

160				Minimum Non-Detect	2.08					Minimum Non-Detect	0.732	
161				Maximum Non-Detect	215					Maximum Non-Detect	5.371	
162												
163	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	67	
164	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	19	
165	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	77.91%	
166												
167	**UCL Statistics**											
168	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
169				Lilliefors Test Statistic	0.348					Lilliefors Test Statistic	0.0872	
170				5% Lilliefors Critical Value	0.1					5% Lilliefors Critical Value	0.1	
171	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
172												
173	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
174				DL/2 Substitution Method						DL/2 Substitution Method		
175				Mean	239.1					Mean	4.356	
176				SD	632.2					SD	1.571	
177				95% DL/2 (t) UCL	352.5					95% H-Stat (DL/2) UCL	364	
178												
179				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
180	**MLE yields a negative mean**									Mean in Log Scale	4.358	
181										SD in Log Scale	1.507	
182										Mean in Original Scale	237.7	
183										SD in Original Scale	632.6	
184										95% Percentile Bootstrap UCL	359.6	
185										95% BCA Bootstrap UCL	450.6	
186												
187	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
188				k star (bias corrected)	0.592					**Data appear Lognormal at 5% Significance Level**		
189				Theta Star	439.1							
190				nu star	92.31							
191												
192				A-D Test Statistic	2.444					**Nonparametric Statistics**		
193				5% A-D Critical Value	0.808					Kaplan-Meier (KM) Method		
194				K-S Test Statistic	0.808					Mean	238.3	
195				5% K-S Critical Value	0.106					SD	628.8	
196	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean	68.25	
197										95% KM (t) UCL	351.8	
198	**Assuming Gamma Distribution**									95% KM (z) UCL	350.6	
199				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	351.6	
200				Minimum	1E-09					95% KM (bootstrap t) UCL	526.8	
201				Maximum	5570					95% KM (BCA) UCL	369.1	
202				Mean	237.6					95% KM (Percentile Bootstrap) UCL	364.2	
203				Median	98					95% KM (Chebyshev) UCL	535.8	
204				SD	632.7					97.5% KM (Chebyshev) UCL	664.5	
205				k star	0.284					99% KM (Chebyshev) UCL	917.4	
206				Theta star	835.5							
207				Nu star	48.91					**Potential UCLs to Use**		
208				AppChi2	33.85					95% KM (Chebyshev) UCL	535.8	
209				95% Gamma Approximate UCL	343.2							
210				95% Adjusted Gamma UCL	345.4							
211	**Note: DL/2 is not a recommended method.**											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**Benzo(a)pyrene**											
215												
216	**General Statistics**											
217	Number of Valid Data					86	Number of Detected Data					74
218	Number of Distinct Detected Data					60	Number of Non-Detect Data					12
219	Number of Missing Values					2	Percent Non-Detects					13.95%
220												
221	**Raw Statistics**						**Log-transformed Statistics**					
222	Minimum Detected					2.2	Minimum Detected					0.788
223	Maximum Detected					2600	Maximum Detected					7.863
224	Mean of Detected					223.8	Mean of Detected					4.635
225	SD of Detected					366.5	SD of Detected					1.319
226	Minimum Non-Detect					2.08	Minimum Non-Detect					0.732
227	Maximum Non-Detect					215	Maximum Non-Detect					5.371
228												
229	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					71
230	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					15
231	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					82.56%
232												
233	**UCL Statistics**											
234	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
235	Lilliefors Test Statistic					0.309	Lilliefors Test Statistic					0.125
236	5% Lilliefors Critical Value					0.103	5% Lilliefors Critical Value					0.103
237	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
238												
239	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
240	DL/2 Substitution Method						DL/2 Substitution Method					
241	Mean					196.7	Mean					4.334
242	SD					346.5	SD					1.548
243	95% DL/2 (t) UCL					258.9	95% H-Stat (DL/2) UCL					310.6
244												
245	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
246	**MLE yields a negative mean**						Mean in Log Scale					4.343
247							SD in Log Scale					1.459
248							Mean in Original Scale					195
249							SD in Original Scale					347.2
250							95% Percentile Bootstrap UCL					261.4
251							95% BCA Bootstrap UCL					293.3
252												
253	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
254	k star (bias corrected)					0.747	**Data do not follow a Discernable Distribution (0.05)**					
255	Theta Star					299.4						
256	nu star					110.6						
257												
258	A-D Test Statistic					1.393	**Nonparametric Statistics**					
259	5% A-D Critical Value					0.792	Kaplan-Meier (KM) Method					
260	K-S Test Statistic					0.792	Mean					195.7
261	5% K-S Critical Value					0.108	SD					345.1
262	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					37.48
263							95% KM (t) UCL					258
264	**Assuming Gamma Distribution**						95% KM (z) UCL					257.3
265	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					257.6

266					Minimum	1E-09				95% KM (bootstrap t) UCL		299.9
267					Maximum	2600				95% KM (BCA) UCL		266.2
268					Mean	196.5				95% KM (Percentile Bootstrap) UCL		259.6
269					Median	112				95% KM (Chebyshev) UCL		359
270					SD	346.9				97.5% KM (Chebyshev) UCL		429.7
271					k star	0.256				99% KM (Chebyshev) UCL		568.6
272					Theta star	768.6						
273					Nu star	43.96				**Potential UCLs to Use**		
274					AppChi2	29.76				95% KM (Chebyshev) UCL		359
275					95% Gamma Approximate UCL	290.2						
276					95% Adjusted Gamma UCL	292.2						
277	**Note: DL/2 is not a recommended method.**											
278												
279												
280	**Benzo(b)fluoranthene**											
281												
282					**General Statistics**							
283					Number of Valid Data	86				Number of Detected Data		81
284					Number of Distinct Detected Data	75				Number of Non-Detect Data		5
285					Number of Missing Values	2				Percent Non-Detects		5.81%
286												
287					**Raw Statistics**					**Log-transformed Statistics**		
288					Minimum Detected	2.9				Minimum Detected		1.065
289					Maximum Detected	4470				Maximum Detected		8.405
290					Mean of Detected	400.8				Mean of Detected		5.127
291					SD of Detected	695.7				SD of Detected		1.349
292					Minimum Non-Detect	4.17				Minimum Non-Detect		1.428
293					Maximum Non-Detect	84.3				Maximum Non-Detect		4.434
294												
295	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		27
296	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		59
297	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		31.40%
298												
299					**UCL Statistics**							
300					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
301					Lilliefors Test Statistic	0.284				Lilliefors Test Statistic		0.0631
302					5% Lilliefors Critical Value	0.0984				5% Lilliefors Critical Value		0.0984
303					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
304												
305					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
306					DL/2 Substitution Method					DL/2 Substitution Method		
307					Mean	378.5				Mean		4.947
308					SD	680.9				SD		1.534
309					95% DL/2 (t) UCL	500.6				95% H-Stat (DL/2) UCL		615.2
310												
311					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
312					Mean	189.8				Mean in Log Scale		4.981
313					SD	863.2				SD in Log Scale		1.445
314					95% MLE (t) UCL	344.6				Mean in Original Scale		378.5
315					95% MLE (Tiku) UCL	352.3				SD in Original Scale		680.9
316										95% Percentile Bootstrap UCL		501.4
317										95% BCA Bootstrap UCL		540.5
318												

319	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
320					k star (bias corrected)	0.68	**Data appear Lognormal at 5% Significance Level**					
321					Theta Star	589.4						
322					nu star	110.2						
323												
324					A-D Test Statistic	1.915	**Nonparametric Statistics**					
325					5% A-D Critical Value	0.799	Kaplan-Meier (KM) Method					
326					K-S Test Statistic	0.799	Mean	378.4				
327					5% K-S Critical Value	0.104	SD	677				
328	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	73.46				
329							95% KM (t) UCL	500.5				
330	**Assuming Gamma Distribution**						95% KM (z) UCL	499.2				
331	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	499.9				
332					Minimum	1E-09	95% KM (bootstrap t) UCL	575.1				
333					Maximum	4470	95% KM (BCA) UCL	506.8				
334					Mean	377.5	95% KM (Percentile Bootstrap) UCL	513.4				
335					Median	172	95% KM (Chebyshev) UCL	698.6				
336					SD	681.5	97.5% KM (Chebyshev) UCL	837.1				
337					k star	0.296	99% KM (Chebyshev) UCL	1109				
338					Theta star	1275						
339					Nu star	50.92	**Potential UCLs to Use**					
340					AppChi2	35.54	95% KM (Chebyshev) UCL	698.6				
341					95% Gamma Approximate UCL	540.9						
342					95% Adjusted Gamma UCL	544.3						
343	**Note: DL/2 is not a recommended method.**											
344												
345												
346	**Benzo(k)fluoranthene**											
347												
348	**General Statistics**											
349					Number of Valid Data	61	Number of Detected Data	61				
350					Number of Distinct Detected Data	55	Number of Non-Detect Data	0				
351					Number of Missing Values	27	Percent Non-Detects	0.00%				
352												
353	**Raw Statistics**						**Log-transformed Statistics**					
354					Minimum Detected	1.2	Minimum Detected	0.182				
355					Maximum Detected	1450	Maximum Detected	7.279				
356					Mean of Detected	206.6	Mean of Detected	4.594				
357					SD of Detected	251.6	SD of Detected	1.42				
358					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
359					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
360												
361												
362	**UCL Statistics**											
363	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
364					Lilliefors Test Statistic	0.219	Lilliefors Test Statistic	0.128				
365					5% Lilliefors Critical Value	0.113	5% Lilliefors Critical Value	0.113				
366	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
367												
368	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
369					DL/2 Substitution Method		DL/2 Substitution Method					
370					Mean	206.6	Mean	4.594				
371					SD	251.6	SD	1.42				

372					95% DL/2 (t) UCL	260.4				95% H-Stat (DL/2) UCL		368.1
373												
374					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
375					**MLE method failed to converge properly**					Mean in Log Scale		N/A
376										SD in Log Scale		N/A
377										Mean in Original Scale		N/A
378										SD in Original Scale		N/A
379										95% Percentile Bootstrap UCL		N/A
380										95% BCA Bootstrap UCL		N/A
381												
382					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
383					k star (bias corrected)	0.776				**Data appear Gamma Distributed at 5% Significance Level**		
384					Theta Star	266.3						
385					nu star	94.67						
386												
387					A-D Test Statistic	0.457				**Nonparametric Statistics**		
388					5% A-D Critical Value	0.789				Kaplan-Meier (KM) Method		
389					K-S Test Statistic	0.789				Mean		206.6
390					5% K-S Critical Value	0.118				SD		249.5
391					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		32.21
392										95% KM (t) UCL		260.4
393					**Assuming Gamma Distribution**					95% KM (z) UCL		259.6
394					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		260.4
395					Minimum	1.2				95% KM (bootstrap t) UCL		276.3
396					Maximum	1450				95% KM (BCA) UCL		265
397					Mean	206.6				95% KM (Percentile Bootstrap) UCL		261.5
398					Median	135				95% KM (Chebyshev) UCL		347
399					SD	251.6				97.5% KM (Chebyshev) UCL		407.8
400					k star	0.776				99% KM (Chebyshev) UCL		527.1
401					Theta star	266.3						
402					Nu star	94.67				**Potential UCLs to Use**		
403					AppChi2	73.23				95% KM (Chebyshev) UCL		347
404					95% Gamma Approximate UCL	267.1						
405					95% Adjusted Gamma UCL	268.8						
406	**Note: DL/2 is not a recommended method.**											
407												
408												
409	**Bis(2-ethylhexyl) phthalate**											
410												
411							**General Statistics**					
412					Number of Valid Data	84				Number of Detected Data		75
413					Number of Distinct Detected Data	70				Number of Non-Detect Data		9
414					Number of Missing Values	4				Percent Non-Detects		10.71%
415												
416					**Raw Statistics**					**Log-transformed Statistics**		
417					Minimum Detected	45.7				Minimum Detected		3.822
418					Maximum Detected	440000				Maximum Detected		12.99
419					Mean of Detected	9062				Mean of Detected		6.957
420					SD of Detected	50911				SD of Detected		1.693
421					Minimum Non-Detect	13				Minimum Non-Detect		2.565
422					Maximum Non-Detect	960				Maximum Non-Detect		6.867
423												
424	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		42

	A	B	C	D	E	F	G	H	I	J	K	L
425	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		42
426	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		50.00%
427												
428	**UCL Statistics**											
429	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
430	Lilliefors Test Statistic					0.43	Lilliefors Test Statistic					0.102
431	5% Lilliefors Critical Value					0.102	5% Lilliefors Critical Value					0.102
432	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
433												
434	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
435	DL/2 Substitution Method						DL/2 Substitution Method					
436	Mean					8100	Mean					6.571
437	SD					48153	SD					1.994
438	95% DL/2 (t) UCL					16839	95% H-Stat (DL/2) UCL					9064
439												
440	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
441	**MLE yields a negative mean**						Mean in Log Scale					6.596
442							SD in Log Scale					1.926
443							Mean in Original Scale					8097
444							SD in Original Scale					48154
445							95% Percentile Bootstrap UCL					18212
446							95% BCA Bootstrap UCL					28094
447												
448	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
449	k star (bias corrected)					0.313	**Data appear Lognormal at 5% Significance Level**					
450	Theta Star					28924						
451	nu star					47						
452												
453	A-D Test Statistic					8.596	**Nonparametric Statistics**					
454	5% A-D Critical Value					0.861	Kaplan-Meier (KM) Method					
455	K-S Test Statistic					0.861	Mean					8100
456	5% K-S Critical Value					0.112	SD					47866
457	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					5258
458							95% KM (t) UCL					16846
459	**Assuming Gamma Distribution**						95% KM (z) UCL					16748
460	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					16838
461	Minimum					1E-09	95% KM (bootstrap t) UCL					69992
462	Maximum					440000	95% KM (BCA) UCL					18889
463	Mean					8091	95% KM (Percentile Bootstrap) UCL					18472
464	Median					953.5	95% KM (Chebyshev) UCL					31018
465	SD					48155	97.5% KM (Chebyshev) UCL					40934
466	k star					0.156	99% KM (Chebyshev) UCL					60414
467	Theta star					52030						
468	Nu star					26.13	**Potential UCLs to Use**					
469	AppChi2					15.48	97.5% KM (Chebyshev) UCL					40934
470	95% Gamma Approximate UCL					13659						
471	95% Adjusted Gamma UCL					13787						
472	**Note: DL/2 is not a recommended method.**											
473												
474												
475	**Dibenzo(a,h)anthracene**											
476												
477	**General Statistics**											

478					Number of Valid Data	86					Number of Detected Data	55
479					Number of Distinct Detected Data	45					Number of Non-Detect Data	31
480					Number of Missing Values	2					Percent Non-Detects	36.05%
481												
482					**Raw Statistics**						**Log-transformed Statistics**	
483					Minimum Detected	2					Minimum Detected	0.693
484					Maximum Detected	667					Maximum Detected	6.503
485					Mean of Detected	50.05					Mean of Detected	3.194
486					SD of Detected	94.85					SD of Detected	1.174
487					Minimum Non-Detect	0.41					Minimum Non-Detect	-0.892
488					Maximum Non-Detect	215					Maximum Non-Detect	5.371
489												
490	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	84
491	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
492	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	97.67%
493												
494					**UCL Statistics**							
495					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
496					Lilliefors Test Statistic	0.306					Lilliefors Test Statistic	0.0717
497					5% Lilliefors Critical Value	0.119					5% Lilliefors Critical Value	0.119
498					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
499												
500					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
501					DL/2 Substitution Method						DL/2 Substitution Method	
502					Mean	35.51					Mean	2.511
503					SD	78.92					SD	1.555
504					95% DL/2 (t) UCL	49.66					95% H-Stat (DL/2) UCL	35.52
505												
506					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
507					**MLE method failed to converge properly**						Mean in Log Scale	2.45
508											SD in Log Scale	1.419
509											Mean in Original Scale	33.39
510											SD in Original Scale	78.84
511											95% Percentile Bootstrap UCL	48.86
512											95% BCA Bootstrap UCL	56.85
513												
514					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
515					k star (bias corrected)	0.789					**Data appear Lognormal at 5% Significance Level**	
516					Theta Star	63.4						
517					nu star	86.83						
518												
519					A-D Test Statistic	1.469					**Nonparametric Statistics**	
520					5% A-D Critical Value	0.789					Kaplan-Meier (KM) Method	
521					K-S Test Statistic	0.789					Mean	33.94
522					5% K-S Critical Value	0.124					SD	78.36
523					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	8.544
524											95% KM (t) UCL	48.15
525					**Assuming Gamma Distribution**						95% KM (z) UCL	47.99
526					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	48.04
527					Minimum	1E-09					95% KM (bootstrap t) UCL	64.57
528					Maximum	667					95% KM (BCA) UCL	49.81
529					Mean	39.75					95% KM (Percentile Bootstrap) UCL	48.77
530					Median	23.5					95% KM (Chebyshev) UCL	71.18

531					SD	78.76				97.5% KM (Chebyshev) UCL		87.3
532					k star	0.191				99% KM (Chebyshev) UCL		119
533					Theta star	208.6						
534					Nu star	32.78				**Potential UCLs to Use**		
535					AppChi2	20.69				95% KM (Chebyshev) UCL		71.18
536					95% Gamma Approximate UCL	62.98						
537					95% Adjusted Gamma UCL	63.48						
538	**Note: DL/2 is not a recommended method.**											
539												
540												
541	**Dieldrin**											
542												
543					**General Statistics**							
544					Number of Valid Data	59				Number of Detected Data		7
545					Number of Distinct Detected Data	7				Number of Non-Detect Data		52
546					Number of Missing Values	28				Percent Non-Detects		88.14%
547												
548					**Raw Statistics**					**Log-transformed Statistics**		
549					Minimum Detected	0.0378				Minimum Detected		-3.275
550					Maximum Detected	22.3				Maximum Detected		3.105
551					Mean of Detected	5.321				Mean of Detected		0.00518
552					SD of Detected	7.885				SD of Detected		2.522
553					Minimum Non-Detect	0.03				Minimum Non-Detect		-3.507
554					Maximum Non-Detect	20.3				Maximum Non-Detect		3.011
555												
556	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		58
557	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
558	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		98.31%
559												
560	**Warning: There are only 7 Detected Values in this data**											
561	**Note: It should be noted that even though bootstrap may be performed on this data set**											
562	**the resulting calculations may not be reliable enough tp draw conclusions**											
563												
564	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
565												
566												
567					**UCL Statistics**							
568					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
569					Lilliefors Test Statistic	0.711				Lilliefors Test Statistic		0.868
570					5% Lilliefors Critical Value	0.803				5% Lilliefors Critical Value		0.803
571					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
572												
573					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
574					DL/2 Substitution Method					DL/2 Substitution Method		
575					Mean	1.385				Mean		-1.099
576					SD	3.343				SD		1.67
577					95% DL/2 (t) UCL	2.112				95% H-Stat (DL/2) UCL		2.273
578												
579					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
580					**MLE method failed to converge properly**					Mean in Log Scale		-4.487
581										SD in Log Scale		1.924
582										Mean in Original Scale		0.638
583										SD in Original Scale		3.072

584											95% Percentile Bootstrap UCL	1.39
585											95% BCA Bootstrap UCL	1.775
586												
587	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
588					k star (bias corrected)	0.321					**Data appear Gamma Distributed at 5% Significance Level**	
589					Theta Star	16.56						
590					nu star	4.498						
591												
592					A-D Test Statistic	0.463					**Nonparametric Statistics**	
593					5% A-D Critical Value	0.769					Kaplan-Meier (KM) Method	
594					K-S Test Statistic	0.769					Mean	0.697
595					5% K-S Critical Value	0.331					SD	3.053
596	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.432
597											95% KM (t) UCL	1.419
598	**Assuming Gamma Distribution**										95% KM (z) UCL	1.408
599					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.337
600					Minimum	0.0378					95% KM (bootstrap t) UCL	2.3
601					Maximum	22.3					95% KM (BCA) UCL	4.552
602					Mean	4.824					95% KM (Percentile Bootstrap) UCL	1.854
603					Median	4.675					95% KM (Chebyshev) UCL	2.58
604					SD	2.68					97.5% KM (Chebyshev) UCL	3.395
605					k star	2.238					99% KM (Chebyshev) UCL	4.996
606					Theta star	2.155						
607					Nu star	264.1					**Potential UCLs to Use**	
608					AppChi2	227.5					95% KM (t) UCL	1.419
609					95% Gamma Approximate UCL	5.6						
610					95% Adjusted Gamma UCL	5.621						
611	**Note: DL/2 is not a recommended method.**											
612												
613												
614	**Indeno(1,2,3-cd)pyrene**											
615												
616	**General Statistics**											
617					Number of Valid Data	86					Number of Detected Data	74
618					Number of Distinct Detected Data	65					Number of Non-Detect Data	12
619					Number of Missing Values	2					Percent Non-Detects	13.95%
620												
621	**Raw Statistics**										**Log-transformed Statistics**	
622					Minimum Detected	1.4					Minimum Detected	0.336
623					Maximum Detected	1100					Maximum Detected	7.003
624					Mean of Detected	141.8					Mean of Detected	4.301
625					SD of Detected	186.1					SD of Detected	1.233
626					Minimum Non-Detect	2.08					Minimum Non-Detect	0.732
627					Maximum Non-Detect	215					Maximum Non-Detect	5.371
628												
629	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	73
630	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	13
631	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	84.88%
632												
633	**UCL Statistics**											
634	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
635					Lilliefors Test Statistic	0.239					Lilliefors Test Statistic	0.109
636					5% Lilliefors Critical Value	0.103					5% Lilliefors Critical Value	0.103

	A	B	C	D	E	F	G	H	I	J	K	L
637	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
638												
639	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
640	DL/2 Substitution Method						DL/2 Substitution Method					
641	Mean					124.5	Mean					3.974
642	SD					178.1	SD					1.505
643	95% DL/2 (t) UCL					156.5	95% H-Stat (DL/2) UCL					191.4
644												
645	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
646	**MLE yields a negative mean**						Mean in Log Scale					4.02
647							SD in Log Scale					1.365
648							Mean in Original Scale					123.7
649							SD in Original Scale					178.3
650							95% Percentile Bootstrap UCL					157.3
651							95% BCA Bootstrap UCL					161
652												
653	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
654	k star (bias corrected)					0.868	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
655	Theta Star					163.3						
656	nu star					128.5						
657												
658	A-D Test Statistic					0.805	**Nonparametric Statistics**					
659	5% A-D Critical Value					0.786	Kaplan-Meier (KM) Method					
660	K-S Test Statistic					0.786	Mean					123.7
661	5% K-S Critical Value					0.107	SD					177.4
662	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean					19.28
663							95% KM (t) UCL					155.8
664	**Assuming Gamma Distribution**						95% KM (z) UCL					155.4
665	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					155.3
666	Minimum					1E-09	95% KM (bootstrap t) UCL					166.7
667	Maximum					1100	95% KM (BCA) UCL					156
668	Mean					124.4	95% KM (Percentile Bootstrap) UCL					158.8
669	Median					75.3	95% KM (Chebyshev) UCL					207.8
670	SD					178.4	97.5% KM (Chebyshev) UCL					244.1
671	k star					0.267	99% KM (Chebyshev) UCL					315.5
672	Theta star					466.4						
673	Nu star					45.87	**Potential UCLs to Use**					
674	AppChi2					31.33	95% KM (Chebyshev) UCL					207.8
675	95% Gamma Approximate UCL					182.1						
676	95% Adjusted Gamma UCL					183.3						
677	**Note: DL/2 is not a recommended method.**											
678												
679												
680	**Lead**											
681												
682	**General Statistics**											
683	Number of Valid Data					85	Number of Detected Data					85
684	Number of Distinct Detected Data					81	Number of Non-Detect Data					0
685	Number of Missing Values					3	Percent Non-Detects					0.00%
686												
687	**Raw Statistics**						**Log-transformed Statistics**					
688	Minimum Detected					4.59	Minimum Detected					1.524
689	Maximum Detected					936	Maximum Detected					6.842

	A	B	C	D	E	F	G	H	I	J	K	L
690					Mean of Detected	45.64					Mean of Detected	3.346
691					SD of Detected	100.2					SD of Detected	0.862
692					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
693					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
694												
695												
696	**UCL Statistics**											
697	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
698					Lilliefors Test Statistic	0.341					Lilliefors Test Statistic	0.105
699					5% Lilliefors Critical Value	0.0961					5% Lilliefors Critical Value	0.0961
700	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
701												
702	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
703					DL/2 Substitution Method						DL/2 Substitution Method	
704					Mean	45.64					Mean	3.346
705					SD	100.2					SD	0.862
706					95% DL/2 (t) UCL	63.72					95% H-Stat (DL/2) UCL	50.16
707												
708					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
709	**MLE method failed to converge properly**										Mean in Log Scale	N/A
710											SD in Log Scale	N/A
711											Mean in Original Scale	N/A
712											SD in Original Scale	N/A
713											95% Percentile Bootstrap UCL	N/A
714											95% BCA Bootstrap UCL	N/A
715												
716	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
717					k star (bias corrected)	1.159	**Data do not follow a Discernable Distribution (0.05)**					
718					Theta Star	39.38						
719					nu star	197						
720												
721					A-D Test Statistic	2.808	**Nonparametric Statistics**					
722					5% A-D Critical Value	0.778					Kaplan-Meier (KM) Method	
723					K-S Test Statistic	0.778					Mean	45.64
724					5% K-S Critical Value	0.0994					SD	99.66
725	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	10.87
726											95% KM (t) UCL	63.72
727	**Assuming Gamma Distribution**										95% KM (z) UCL	63.52
728					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	63.72
729					Minimum	4.59					95% KM (bootstrap t) UCL	106.5
730					Maximum	936					95% KM (BCA) UCL	70.29
731					Mean	45.64					95% KM (Percentile Bootstrap) UCL	66.51
732					Median	33.6					95% KM (Chebyshev) UCL	93.03
733					SD	100.2					97.5% KM (Chebyshev) UCL	113.5
734					k star	1.159					99% KM (Chebyshev) UCL	153.8
735					Theta star	39.38						
736					Nu star	197	**Potential UCLs to Use**					
737					AppChi2	165.5					95% KM (BCA) UCL	70.29
738					95% Gamma Approximate UCL	54.32						
739					95% Adjusted Gamma UCL	54.48						
740	**Note: DL/2 is not a recommended method.**											
741												
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**Mercury**											
744												
745						**General Statistics**							
746						Number of Valid Data	84			Number of Detected Data		74
747						Number of Distinct Detected Data	55			Number of Non-Detect Data		10
748						Number of Missing Values	4			Percent Non-Detects		11.90%
749												
750						**Raw Statistics**				**Log-transformed Statistics**		
751						Minimum Detected	0.0162			Minimum Detected		-4.123
752						Maximum Detected	0.769			Maximum Detected		-0.263
753						Mean of Detected	0.13			Mean of Detected		-2.306
754						SD of Detected	0.11			SD of Detected		0.758
755						Minimum Non-Detect	0.00943			Minimum Non-Detect		-4.664
756						Maximum Non-Detect	0.05			Maximum Non-Detect		-2.996
757												
758	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		26
759	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		58
760	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		30.95%
761												
762						**UCL Statistics**							
763						**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**		
764						Lilliefors Test Statistic	0.221			Lilliefors Test Statistic		0.164
765						5% Lilliefors Critical Value	0.103			5% Lilliefors Critical Value		0.103
766						**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**		
767												
768						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**		
769						DL/2 Substitution Method				DL/2 Substitution Method		
770						Mean	0.116			Mean		-2.635
771						SD	0.11			SD		1.161
772						95% DL/2 (t) UCL	0.136			95% H-Stat (DL/2) UCL		0.145
773												
774						Maximum Likelihood Estimate(MLE) Method				Log ROS Method		
775						Mean	0.0952			Mean in Log Scale		-2.492
776						SD	0.136			SD in Log Scale		0.878
777						95% MLE (t) UCL	0.12			Mean in Original Scale		0.117
778						95% MLE (Tiku) UCL	0.121			SD in Original Scale		0.109
779										95% Percentile Bootstrap UCL		0.137
780										95% BCA Bootstrap UCL		0.141
781												
782						**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**		
783						k star (bias corrected)	1.943			**Data do not follow a Discernable Distribution (0.05)**		
784						Theta Star	0.0671					
785						nu star	287.5					
786												
787						A-D Test Statistic	1.524			**Nonparametric Statistics**		
788						5% A-D Critical Value	0.763			Kaplan-Meier (KM) Method		
789						K-S Test Statistic	0.763			Mean		0.117
790						5% K-S Critical Value	0.105			SD		0.109
791						**Data not Gamma Distributed at 5% Significance Level**				SE of Mean		0.0119
792										95% KM (t) UCL		0.137
793						**Assuming Gamma Distribution**				95% KM (z) UCL		0.137
794						Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL		0.136
795						Minimum	1E-09			95% KM (bootstrap t) UCL		0.143

796					Maximum	0.769				95% KM (BCA) UCL		0.139
797					Mean	0.115				95% KM (Percentile Bootstrap) UCL		0.137
798					Median	0.116				95% KM (Chebyshev) UCL		0.169
799					SD	0.111				97.5% KM (Chebyshev) UCL		0.191
800					k star	0.317				99% KM (Chebyshev) UCL		0.236
801					Theta star	0.364						
802					Nu star	53.24				**Potential UCLs to Use**		
803					AppChi2	37.48				95% KM (BCA) UCL		0.139
804					95% Gamma Approximate UCL	0.164						
805					95% Adjusted Gamma UCL	0.165						
806	**Note: DL/2 is not a recommended method.**											
807												
808												
809	**Naphthalene**											
810												
811						**General Statistics**						
812					Number of Valid Data	86				Number of Detected Data		58
813					Number of Distinct Detected Data	44				Number of Non-Detect Data		28
814					Number of Missing Values	2				Percent Non-Detects		32.56%
815												
816					**Raw Statistics**					**Log-transformed Statistics**		
817					Minimum Detected	1.73				Minimum Detected		0.548
818					Maximum Detected	230				Maximum Detected		5.438
819					Mean of Detected	31.77				Mean of Detected		3.012
820					SD of Detected	41.58				SD of Detected		0.931
821					Minimum Non-Detect	1.2				Minimum Non-Detect		0.182
822					Maximum Non-Detect	96.8				Maximum Non-Detect		4.573
823												
824	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		83
825	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		3
826	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		96.51%
827												
828						**UCL Statistics**						
829					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
830					Lilliefors Test Statistic	0.293				Lilliefors Test Statistic		0.105
831					5% Lilliefors Critical Value	0.116				5% Lilliefors Critical Value		0.116
832					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
833												
834					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
835					DL/2 Substitution Method					DL/2 Substitution Method		
836					Mean	25.24				Mean		2.554
837					SD	36.41				SD		1.27
838					95% DL/2 (t) UCL	31.77				95% H-Stat (DL/2) UCL		34.71
839												
840					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
841					Mean	202.4				Mean in Log Scale		2.533
842					SD	54.78				SD in Log Scale		1.083
843					95% MLE (t) UCL	212.2				Mean in Original Scale		23.24
844					95% MLE (Tiku) UCL	254.3				SD in Original Scale		36.28
845										95% Percentile Bootstrap UCL		30.61
846										95% BCA Bootstrap UCL		32.58
847												
848					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		

849					k star (bias corrected)	1.208	**Data appear Lognormal at 5% Significance Level**					
850					Theta Star	26.31						
851					nu star	140.1						
852												
853					A-D Test Statistic	1.613	**Nonparametric Statistics**					
854					5% A-D Critical Value	0.774				Kaplan-Meier (KM) Method		
855					K-S Test Statistic	0.774				Mean		23.5
856					5% K-S Critical Value	0.12				SD		36.3
857	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		3.979
858										95% KM (t) UCL		30.11
859	**Assuming Gamma Distribution**									95% KM (z) UCL		30.04
860					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		30.04
861					Minimum	1E-09				95% KM (bootstrap t) UCL		34.3
862					Maximum	230				95% KM (BCA) UCL		30.41
863					Mean	26.8				95% KM (Percentile Bootstrap) UCL		30.44
864					Median	19.6				95% KM (Chebyshev) UCL		40.84
865					SD	36.36				97.5% KM (Chebyshev) UCL		48.34
866					k star	0.251				99% KM (Chebyshev) UCL		63.09
867					Theta star	106.8						
868					Nu star	43.15	**Potential UCLs to Use**					
869					AppChi2	29.09				95% KM (BCA) UCL		30.41
870					95% Gamma Approximate UCL	39.76						
871					95% Adjusted Gamma UCL	40.03						
872	**Note: DL/2 is not a recommended method.**											
873												
874												
875	**Thallium**											
876												
877	**General Statistics**											
878					Number of Valid Data	9				Number of Detected Data		7
879					Number of Distinct Detected Data	7				Number of Non-Detect Data		2
880					Number of Missing Values	79				Percent Non-Detects		22.22%
881												
882	**Raw Statistics**						**Log-transformed Statistics**					
883					Minimum Detected	0.084				Minimum Detected		-2.477
884					Maximum Detected	15				Maximum Detected		2.708
885					Mean of Detected	7.676				Mean of Detected		1.052
886					SD of Detected	5.595				SD of Detected		2.227
887					Minimum Non-Detect	0.051				Minimum Non-Detect		-2.976
888					Maximum Non-Detect	7				Maximum Non-Detect		1.946
889												
890	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		4
891	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
892	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		44.44%
893												
894	**Warning: There are only 7 Detected Values in this data**											
895	**Note: It should be noted that even though bootstrap may be performed on this data set**											
896	**the resulting calculations may not be reliable enough tp draw conclusions**											
897												
898	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
899												
900												
901	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
902	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
903	Shapiro Wilk Test Statistic					0.881	Shapiro Wilk Test Statistic					0.7
904	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
905	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
906												
907	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
908	DL/2 Substitution Method						DL/2 Substitution Method					
909	Mean					6.362	Mean					0.55
910	SD					5.57	SD					2.496
911	95% DL/2 (t) UCL					9.815	95% H-Stat (DL/2) UCL					13316
912												
913	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
914	Mean					7.722	Mean in Log Scale					0.189
915	SD					4.072	SD in Log Scale					2.622
916	95% MLE (t) UCL					10.25	Mean in Original Scale					5.99
917	95% MLE (Tiku) UCL					10.67	SD in Original Scale					5.889
918							95% Percentile Bootstrap UCL					9.111
919							95% BCA Bootstrap UCL					9.019
920												
921	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
922	k star (bias corrected)					0.451	**Data appear Normal at 5% Significance Level**					
923	Theta Star					17.01						
924	nu star					6.319						
925												
926	A-D Test Statistic					1.087	**Nonparametric Statistics**					
927	5% A-D Critical Value					0.744	Kaplan-Meier (KM) Method					
928	K-S Test Statistic					0.744	Mean					5.992
929	5% K-S Critical Value					0.325	SD					5.55
930	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1.998
931							95% KM (t) UCL					9.707
932	**Assuming Gamma Distribution**						95% KM (z) UCL					9.278
933	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					9.637
934	Minimum					0.084	95% KM (bootstrap t) UCL					9.435
935	Maximum					15	95% KM (BCA) UCL					10.33
936	Mean					6.796	95% KM (Percentile Bootstrap) UCL					10.07
937	Median					8	95% KM (Chebyshev) UCL					14.7
938	SD					5.154	97.5% KM (Chebyshev) UCL					18.47
939	k star					0.569	99% KM (Chebyshev) UCL					25.87
940	Theta star					11.95						
941	Nu star					10.24	**Potential UCLs to Use**					
942	AppChi2					4.093	95% KM (t) UCL					9.707
943	95% Gamma Approximate UCL					17	95% KM (Percentile Bootstrap) UCL					10.07
944	95% Adjusted Gamma UCL					21						
945	**Note: DL/2 is not a recommended method.**											
946												
947												
948	**Total Aroclors**											
949												
950	**General Statistics**											
951	Number of Valid Data					64	Number of Detected Data					58
952	Number of Distinct Detected Data					56	Number of Non-Detect Data					6
953	Number of Missing Values					23	Percent Non-Detects					9.38%
954												

	A	B	C	D	E	F	G	H	I	J	K	L
955	**Raw Statistics**						**Log-transformed Statistics**					
956					Minimum Detected	6.82					Minimum Detected	1.92
957					Maximum Detected	2520					Maximum Detected	7.832
958					Mean of Detected	309.4					Mean of Detected	5.053
959					SD of Detected	466.4					SD of Detected	1.218
960					Minimum Non-Detect	2.82					Minimum Non-Detect	1.037
961					Maximum Non-Detect	31					Maximum Non-Detect	3.434
962												
963	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
964	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	51
965	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	20.31%
966												
967	**UCL Statistics**											
968	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
969					Lilliefors Test Statistic	0.264					Lilliefors Test Statistic	0.122
970					5% Lilliefors Critical Value	0.116					5% Lilliefors Critical Value	0.116
971	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
972												
973	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
974					DL/2 Substitution Method						DL/2 Substitution Method	
975					Mean	280.9					Mean	4.715
976					SD	452.5					SD	1.587
977					95% DL/2 (t) UCL	375.4					95% H-Stat (DL/2) UCL	475.8
978												
979					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
980					Mean	212.1					Mean in Log Scale	4.808
981					SD	523					SD in Log Scale	1.393
982					95% MLE (t) UCL	321.3					Mean in Original Scale	281.5
983					95% MLE (Tiku) UCL	319.6					SD in Original Scale	452.1
984											95% Percentile Bootstrap UCL	378.3
985											95% BCA Bootstrap UCL	396.8
986												
987	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
988					k star (bias corrected)	0.829	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
989					Theta Star	373						
990					nu star	96.22						
991												
992					A-D Test Statistic	1.229	**Nonparametric Statistics**					
993					5% A-D Critical Value	0.786					Kaplan-Meier (KM) Method	
994					K-S Test Statistic	0.786					Mean	281.2
995					5% K-S Critical Value	0.121					SD	448.8
996	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	56.59
997											95% KM (t) UCL	375.6
998	**Assuming Gamma Distribution**										95% KM (z) UCL	374.2
999					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	375.1
1000					Minimum	1E-09					95% KM (bootstrap t) UCL	442.4
1001					Maximum	2520					95% KM (BCA) UCL	379.3
1002					Mean	280.4					95% KM (Percentile Bootstrap) UCL	376.8
1003					Median	136					95% KM (Chebyshev) UCL	527.8
1004					SD	452.8					97.5% KM (Chebyshev) UCL	634.6
1005					k star	0.238					99% KM (Chebyshev) UCL	844.3
1006					Theta star	1179						
1007					Nu star	30.44	**Potential UCLs to Use**					

1008					AppChi2	18.84				95% KM (Chebyshev) UCL		527.8
1009					95% Gamma Approximate UCL	453.1						
1010					95% Adjusted Gamma UCL	458.2						
1011	**Note: DL/2 is not a recommended method.**											
1012												
1013												
1014	**Total DDT**											
1015												
1016						**General Statistics**						
1017					Number of Valid Data	59				Number of Detected Data		28
1018					Number of Distinct Detected Data	28				Number of Non-Detect Data		31
1019					Number of Missing Values	28				Percent Non-Detects		52.54%
1020												
1021				**Raw Statistics**						**Log-transformed Statistics**		
1022					Minimum Detected	0.188				Minimum Detected		-1.672
1023					Maximum Detected	78.9				Maximum Detected		4.368
1024					Mean of Detected	8.824				Mean of Detected		0.872
1025					SD of Detected	17.67				SD of Detected		1.633
1026					Minimum Non-Detect	0.0584				Minimum Non-Detect		-2.84
1027					Maximum Non-Detect	25.9				Maximum Non-Detect		3.254
1028												
1029	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		57
1030	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
1031	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		96.61%
1032												
1033						**UCL Statistics**						
1034				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1035					Lilliefors Test Statistic	0.529				Lilliefors Test Statistic		0.964
1036					5% Lilliefors Critical Value	0.924				5% Lilliefors Critical Value		0.924
1037				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1038												
1039				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1040					DL/2 Substitution Method					DL/2 Substitution Method		
1041					Mean	5.234				Mean		0.471
1042					SD	12.64				SD		1.547
1043					95% DL/2 (t) UCL	7.986				95% H-Stat (DL/2) UCL		5.485
1044												
1045					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1046				**MLE method failed to converge properly**						Mean in Log Scale		-0.152
1047										SD in Log Scale		1.583
1048										Mean in Original Scale		4.403
1049										SD in Original Scale		12.78
1050										95% Percentile Bootstrap UCL		7.321
1051										95% BCA Bootstrap UCL		8.349
1052												
1053				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1054					k star (bias corrected)	0.46				**Data appear Lognormal at 5% Significance Level**		
1055					Theta Star	19.19						
1056					nu star	25.75						
1057												
1058					A-D Test Statistic	1.319				**Nonparametric Statistics**		
1059					5% A-D Critical Value	0.813				Kaplan-Meier (KM) Method		
1060					K-S Test Statistic	0.813				Mean		4.604

1061					5% K-S Critical Value	0.175					SD	12.64
1062					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	1.681
1063											95% KM (t) UCL	7.413
1064					**Assuming Gamma Distribution**						95% KM (z) UCL	7.368
1065					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	7.38
1066					Minimum	0.188					95% KM (bootstrap t) UCL	11.75
1067					Maximum	78.9					95% KM (BCA) UCL	7.575
1068					Mean	8.861					95% KM (Percentile Bootstrap) UCL	7.398
1069					Median	8.759					95% KM (Chebyshev) UCL	11.93
1070					SD	12.06					97.5% KM (Chebyshev) UCL	15.1
1071					k star	0.902					99% KM (Chebyshev) UCL	21.33
1072					Theta star	9.82						
1073					Nu star	106.5					**Potential UCLs to Use**	
1074					AppChi2	83.66					95% KM (Chebyshev) UCL	11.93
1075					95% Gamma Approximate UCL	11.28						
1076					95% Adjusted Gamma UCL	11.35						
1077	**Note: DL/2 is not a recommended method.**											
1078												
1079												
1080	**Total Dioxin/Furan TEQ**											
1081												
1082					**General Statistics**							
1083					Number of Valid Data	9					Number of Detected Data	9
1084					Number of Distinct Detected Data	9					Number of Non-Detect Data	0
1085					Number of Missing Values	21					Percent Non-Detects	0.00%
1086												
1087					**Raw Statistics**						**Log-transformed Statistics**	
1088					Minimum Detected	0.707					Minimum Detected	-0.346
1089					Maximum Detected	40.47					Maximum Detected	3.701
1090					Mean of Detected	6.288					Mean of Detected	0.901
1091					SD of Detected	12.86					SD of Detected	1.192
1092					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1093					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1094												
1095												
1096					**Warning: There are only 9 Detected Values in this data**							
1097					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1098					**the resulting calculations may not be reliable enough tp draw conclusions**							
1099												
1100					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1101												
1102												
1103					**UCL Statistics**							
1104					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1105					Shapiro Wilk Test Statistic	0.464					Shapiro Wilk Test Statistic	0.827
1106					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
1107					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
1108												
1109					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1110					DL/2 Substitution Method						DL/2 Substitution Method	
1111					Mean	6.288					Mean	0.901
1112					SD	12.86					SD	1.192
1113					95% DL/2 (t) UCL	14.26					95% H-Stat (DL/2) UCL	23.61

1114												
1115					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1116					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1117										SD in Log Scale		N/A
1118										Mean in Original Scale		N/A
1119										SD in Original Scale		N/A
1120										95% Percentile Bootstrap UCL		N/A
1121										95% BCA Bootstrap UCL		N/A
1122												
1123					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1124					k star (bias corrected)	0.508				**Data do not follow a Discernable Distribution (0.05)**		
1125					Theta Star	12.37						
1126					nu star	9.148						
1127												
1128					A-D Test Statistic	1.345				**Nonparametric Statistics**		
1129					5% A-D Critical Value	0.759				Kaplan-Meier (KM) Method		
1130					K-S Test Statistic	0.759				Mean		6.288
1131					5% K-S Critical Value	0.291				SD		12.13
1132					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		4.287
1133										95% KM (t) UCL		14.26
1134					**Assuming Gamma Distribution**					95% KM (z) UCL		13.34
1135					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		14.26
1136					Minimum	0.707				95% KM (bootstrap t) UCL		70.11
1137					Maximum	40.47				95% KM (BCA) UCL		14.96
1138					Mean	6.288				95% KM (Percentile Bootstrap) UCL		14.52
1139					Median	2.037				95% KM (Chebyshev) UCL		24.97
1140					SD	12.86				97.5% KM (Chebyshev) UCL		33.06
1141					k star	0.508				99% KM (Chebyshev) UCL		48.94
1142					Theta star	12.37						
1143					Nu star	9.148				**Potential UCLs to Use**		
1144					AppChi2	3.416				97.5% KM (Chebyshev) UCL		33.06
1145					95% Gamma Approximate UCL	16.84						
1146					95% Adjusted Gamma UCL	21.15						
1147	**Note: DL/2 is not a recommended method.**											
1148												
1149												
1150	**Total Dioxin-like PCBs**											
1151												
1152						**General Statistics**						
1153					Number of Valid Data	15				Number of Detected Data		15
1154					Number of Distinct Detected Data	15				Number of Non-Detect Data		0
1155					Number of Missing Values	15				Percent Non-Detects		0.00%
1156												
1157					**Raw Statistics**					**Log-transformed Statistics**		
1158					Minimum Detected	256				Minimum Detected		5.545
1159					Maximum Detected	308867				Maximum Detected		12.64
1160					Mean of Detected	30409				Mean of Detected		8.815
1161					SD of Detected	77594				SD of Detected		1.803
1162					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1163					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1164												
1165												
1166						**UCL Statistics**						

	A	B	C	D	E	F	G	H	I	J	K	L
1167	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1168					Shapiro Wilk Test Statistic	0.388					Shapiro Wilk Test Statistic	0.958
1169					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
1170	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1171												
1172	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1173					DL/2 Substitution Method						DL/2 Substitution Method	
1174					Mean	30409					Mean	8.815
1175					SD	77594					SD	1.803
1176					95% DL/2 (t) UCL	65696					95% H-Stat (DL/2) UCL	256859
1177												
1178					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1179	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1180											SD in Log Scale	N/A
1181											Mean in Original Scale	N/A
1182											SD in Original Scale	N/A
1183											95% Percentile Bootstrap UCL	N/A
1184											95% BCA Bootstrap UCL	N/A
1185												
1186	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1187					k star (bias corrected)	0.389	**Data appear Lognormal at 5% Significance Level**					
1188					Theta Star	78096						
1189					nu star	11.68						
1190												
1191					A-D Test Statistic	0.975	**Nonparametric Statistics**					
1192					5% A-D Critical Value	0.808					Kaplan-Meier (KM) Method	
1193					K-S Test Statistic	0.808					Mean	30409
1194					5% K-S Critical Value	0.236					SD	74963
1195	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	20035
1196											95% KM (t) UCL	65696
1197	**Assuming Gamma Distribution**										95% KM (z) UCL	63363
1198					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	65696
1199					Minimum	256					95% KM (bootstrap t) UCL	246108
1200					Maximum	308867					95% KM (BCA) UCL	72096
1201					Mean	30409					95% KM (Percentile Bootstrap) UCL	69211
1202					Median	11169					95% KM (Chebyshev) UCL	117738
1203					SD	77594					97.5% KM (Chebyshev) UCL	155525
1204					k star	0.389					99% KM (Chebyshev) UCL	229751
1205					Theta star	78096						
1206					Nu star	11.68	**Potential UCLs to Use**					
1207					AppChi2	5.018					99% KM (Chebyshev) UCL	229751
1208					95% Gamma Approximate UCL	70790						
1209					95% Adjusted Gamma UCL	79091						
1210	**Note: DL/2 is not a recommended method.**											
1211												
1212												
1213	**Total PCB TEQ**											
1214												
1215	**General Statistics**											
1216					Number of Valid Data	15					Number of Detected Data	15
1217					Number of Distinct Detected Data	15					Number of Non-Detect Data	0
1218					Number of Missing Values	15					Percent Non-Detects	0.00%
1219												

	A	B	C	D	E	F	G	H	I	J	K	L
1220	**Raw Statistics**						**Log-transformed Statistics**					
1221	Minimum Detected					0.148	Minimum Detected					-1.91
1222	Maximum Detected					117.7	Maximum Detected					4.768
1223	Mean of Detected					12.05	Mean of Detected					1.193
1224	SD of Detected					29.47	SD of Detected					1.606
1225	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
1226	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
1227												
1228												
1229	**UCL Statistics**											
1230	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1231	Shapiro Wilk Test Statistic					0.397	Shapiro Wilk Test Statistic					0.97
1232	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881
1233	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1234												
1235	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1236	DL/2 Substitution Method						DL/2 Substitution Method					
1237	Mean					12.05	Mean					1.193
1238	SD					29.47	SD					1.606
1239	95% DL/2 (t) UCL					25.45	95% H-Stat (DL/2) UCL					61.29
1240												
1241	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1242	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1243							SD in Log Scale					N/A
1244							Mean in Original Scale					N/A
1245							SD in Original Scale					N/A
1246							95% Percentile Bootstrap UCL					N/A
1247							95% BCA Bootstrap UCL					N/A
1248												
1249	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1250	k star (bias corrected)					0.438	**Data appear Lognormal at 5% Significance Level**					
1251	Theta Star					27.53						
1252	nu star					13.13						
1253												
1254	A-D Test Statistic					1.01	**Nonparametric Statistics**					
1255	5% A-D Critical Value					0.795	Kaplan-Meier (KM) Method					
1256	K-S Test Statistic					0.795	Mean					12.05
1257	5% K-S Critical Value					0.234	SD					28.47
1258	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					7.608
1259							95% KM (t) UCL					25.45
1260	**Assuming Gamma Distribution**						95% KM (z) UCL					24.56
1261	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					25.45
1262	Minimum					0.148	95% KM (bootstrap t) UCL					88.4
1263	Maximum					117.7	95% KM (BCA) UCL					28.04
1264	Mean					12.05	95% KM (Percentile Bootstrap) UCL					27.29
1265	Median					3.302	95% KM (Chebyshev) UCL					45.21
1266	SD					29.47	97.5% KM (Chebyshev) UCL					59.56
1267	k star					0.438	99% KM (Chebyshev) UCL					87.75
1268	Theta star					27.53						
1269	Nu star					13.13	**Potential UCLs to Use**					
1270	AppChi2					5.977	99% KM (Chebyshev) UCL					87.75
1271	95% Gamma Approximate UCL					26.45						
1272	95% Adjusted Gamma UCL					29.32						

	A	B	C	D	E	F	G	H	I	J	K	L
1273	**Note: DL/2 is not a recommended method.**											
1274												
1275												
1276	**Total PCB_Congeners**											
1277												
1278						**General Statistics**							
1279					Number of Valid Data	15			Number of Detected Data	15		
1280					Number of Distinct Detected Data	15			Number of Non-Detect Data	0		
1281					Number of Missing Values	15			Percent Non-Detects	0.00%		
1282												
1283					**Raw Statistics**				**Log-transformed Statistics**			
1284					Minimum Detected	9422			Minimum Detected	9.151		
1285					Maximum Detected	12537864			Maximum Detected	16.34		
1286					Mean of Detected	1030002			Mean of Detected	11.91		
1287					SD of Detected	3190248			SD of Detected	1.794		
1288					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
1289					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
1290												
1291												
1292						**UCL Statistics**							
1293					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
1294					Shapiro Wilk Test Statistic	0.336			Shapiro Wilk Test Statistic	0.94		
1295					5% Shapiro Wilk Critical Value	0.881			5% Shapiro Wilk Critical Value	0.881		
1296					**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
1297												
1298					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
1299					DL/2 Substitution Method				DL/2 Substitution Method			
1300					Mean	1030002			Mean	11.91		
1301					SD	3190248			SD	1.794		
1302					95% DL/2 (t) UCL	2480825			95% H-Stat (DL/2) UCL	5505294		
1303												
1304					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1305					**MLE method failed to converge properly**				Mean in Log Scale	N/A		
1306									SD in Log Scale	N/A		
1307									Mean in Original Scale	N/A		
1308									SD in Original Scale	N/A		
1309									95% Percentile Bootstrap UCL	N/A		
1310									95% BCA Bootstrap UCL	N/A		
1311												
1312					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
1313					k star (bias corrected)	0.323			**Data appear Lognormal at 5% Significance Level**			
1314					Theta Star	3186584						
1315					nu star	9.697						
1316												
1317					A-D Test Statistic	1.723			**Nonparametric Statistics**			
1318					5% A-D Critical Value	0.825			Kaplan-Meier (KM) Method			
1319					K-S Test Statistic	0.825			Mean	1030002		
1320					5% K-S Critical Value	0.239			SD	3082072		
1321					**Data not Gamma Distributed at 5% Significance Level**				SE of Mean	823719		
1322									95% KM (t) UCL	2480825		
1323					**Assuming Gamma Distribution**				95% KM (z) UCL	2384898		
1324					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL	2480825		
1325					Minimum	9422			95% KM (bootstrap t) UCL	19002136		

1326					Maximum	12537864				95% KM (BCA) UCL		2690034
1327					Mean	1030002				95% KM (Percentile Bootstrap) UCL		2664127
1328					Median	130511				95% KM (Chebyshev) UCL		4620507
1329					SD	3190248				97.5% KM (Chebyshev) UCL		6174122
1330					k star	0.323				99% KM (Chebyshev) UCL		9225897
1331					Theta star	3186584						
1332					Nu star	9.697				**Potential UCLs to Use**		
1333					AppChi2	3.753				99% KM (Chebyshev) UCL		9225897
1334					95% Gamma Approximate UCL	2661131						
1335					95% Adjusted Gamma UCL	3016988						
1336	**Note: DL/2 is not a recommended method.**											
1337												
1338												
1339	**Total PCBs, Adjusted**											
1340												
1341						**General Statistics**						
1342					Number of Valid Data	15				Number of Detected Data		15
1343					Number of Distinct Detected Data	15				Number of Non-Detect Data		0
1344					Number of Missing Values	15				Percent Non-Detects		0.00%
1345												
1346					**Raw Statistics**					**Log-transformed Statistics**		
1347					Minimum Detected	9166				Minimum Detected		9.123
1348					Maximum Detected	12228997				Maximum Detected		16.32
1349					Mean of Detected	999593				Mean of Detected		11.86
1350					SD of Detected	3112840				SD of Detected		1.796
1351					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1352					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1353												
1354												
1355						**UCL Statistics**						
1356					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1357					Shapiro Wilk Test Statistic	0.335				Shapiro Wilk Test Statistic		0.937
1358					5% Shapiro Wilk Critical Value	0.881				5% Shapiro Wilk Critical Value		0.881
1359					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1360												
1361					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1362					DL/2 Substitution Method					DL/2 Substitution Method		
1363					Mean	999593				Mean		11.86
1364					SD	3112840				SD		1.796
1365					95% DL/2 (t) UCL	2415214				95% H-Stat (DL/2) UCL		5275536
1366												
1367					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1368					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1369										SD in Log Scale		N/A
1370										Mean in Original Scale		N/A
1371										SD in Original Scale		N/A
1372										95% Percentile Bootstrap UCL		N/A
1373										95% BCA Bootstrap UCL		N/A
1374												
1375					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1376					k star (bias corrected)	0.321				**Data appear Lognormal at 5% Significance Level**		
1377					Theta Star	3117556						
1378					nu star	9.619						

1379												
1380					A-D Test Statistic	1.76	**Nonparametric Statistics**					
1381					5% A-D Critical Value	0.826				Kaplan-Meier (KM) Method		
1382					K-S Test Statistic	0.826				Mean		999593
1383					5% K-S Critical Value	0.239				SD		3007289
1384			**Data not Gamma Distributed at 5% Significance Level**							SE of Mean		803732
1385										95% KM (t) UCL		2415214
1386			**Assuming Gamma Distribution**							95% KM (z) UCL		2321614
1387			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		2415214
1388					Minimum	9166				95% KM (bootstrap t) UCL		18822736
1389					Maximum	12228997				95% KM (BCA) UCL		2644392
1390					Mean	999593				95% KM (Percentile Bootstrap) UCL		2576106
1391					Median	119342				95% KM (Chebyshev) UCL		4502978
1392					SD	3112840				97.5% KM (Chebyshev) UCL		6018896
1393					k star	0.321				99% KM (Chebyshev) UCL		8996623
1394					Theta star	3117556						
1395					Nu star	9.619	**Potential UCLs to Use**					
1396					AppChi2	3.705				99% KM (Chebyshev) UCL		8996623
1397					95% Gamma Approximate UCL	2595120						
1398					95% Adjusted Gamma UCL	2944167						
1399	**Note: DL/2 is not a recommended method.**											
1400												
1401												
1402	**Total TEQ**											
1403												
1404						**General Statistics**						
1405					Number of Valid Data	6				Number of Detected Data		6
1406					Number of Distinct Detected Data	6				Number of Non-Detect Data		0
1407					Number of Missing Values	24				Percent Non-Detects		0.00%
1408												
1409					**Raw Statistics**					**Log-transformed Statistics**		
1410					Minimum Detected	1.124				Minimum Detected		0.117
1411					Maximum Detected	49.25				Maximum Detected		3.897
1412					Mean of Detected	12.37				Mean of Detected		1.663
1413					SD of Detected	18.5				SD of Detected		1.431
1414					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1415					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1416												
1417												
1418						**Warning: There are only 6 Detected Values in this data**						
1419						**Note: It should be noted that even though bootstrap may be performed on this data set**						
1420						**the resulting calculations may not be reliable enough tp draw conclusions**						
1421												
1422						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
1423												
1424												
1425						**UCL Statistics**						
1426					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1427					Shapiro Wilk Test Statistic	0.68				Shapiro Wilk Test Statistic		0.94
1428					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
1429					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1430												
1431					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		

1432				DL/2 Substitution Method						DL/2 Substitution Method		
1433				Mean	12.37					Mean	1.663	
1434				SD	18.5					SD	1.431	
1435				95% DL/2 (t) UCL	27.59					95% H-Stat (DL/2) UCL	538.7	
1436												
1437				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
1438	**MLE method failed to converge properly**									Mean in Log Scale	N/A	
1439										SD in Log Scale	N/A	
1440										Mean in Original Scale	N/A	
1441										SD in Original Scale	N/A	
1442										95% Percentile Bootstrap UCL	N/A	
1443										95% BCA Bootstrap UCL	N/A	
1444												
1445	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
1446				k star (bias corrected)	0.465					**Data appear Gamma Distributed at 5% Significance Level**		
1447				Theta Star	26.58							
1448				nu star	5.583							
1449												
1450				A-D Test Statistic	0.398					**Nonparametric Statistics**		
1451				5% A-D Critical Value	0.723					Kaplan-Meier (KM) Method		
1452				K-S Test Statistic	0.723					Mean	12.37	
1453				5% K-S Critical Value	0.344					SD	16.89	
1454	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	7.554	
1455										95% KM (t) UCL	27.59	
1456	**Assuming Gamma Distribution**									95% KM (z) UCL	24.79	
1457				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	27.59	
1458				Minimum	1.124					95% KM (bootstrap t) UCL	57.58	
1459				Maximum	49.25					95% KM (BCA) UCL	26.44	
1460				Mean	12.37					95% KM (Percentile Bootstrap) UCL	25.88	
1461				Median	5.736					95% KM (Chebyshev) UCL	45.3	
1462				SD	18.5					97.5% KM (Chebyshev) UCL	59.54	
1463				k star	0.465					99% KM (Chebyshev) UCL	87.53	
1464				Theta star	26.58							
1465				Nu star	5.583					**Potential UCLs to Use**		
1466				AppChi2	1.431					95% KM (Chebyshev) UCL	45.3	
1467				95% Gamma Approximate UCL	48.27							
1468				95% Adjusted Gamma UCL	85.74							
1469	**Note: DL/2 is not a recommended method.**											
1470												
1471												
1472	**Tributyltin ion**											
1473												
1474	**General Statistics**											
1475				Number of Valid Data	24					Number of Detected Data	24	
1476				Number of Distinct Detected Data	22					Number of Non-Detect Data	0	
1477				Number of Missing Values	13					Percent Non-Detects	0.00%	
1478												
1479	**Raw Statistics**									**Log-transformed Statistics**		
1480				Minimum Detected	0.45					Minimum Detected	-0.799	
1481				Maximum Detected	46000					Maximum Detected	10.74	
1482				Mean of Detected	2226					Mean of Detected	4.819	
1483				SD of Detected	9333					SD of Detected	2.56	
1484				Minimum Non-Detect	N/A					Minimum Non-Detect	N/A	

	A	B	C	D	E	F	G	H	I	J	K	L
1485	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
1486												
1487												
1488	**UCL Statistics**											
1489	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1490	Shapiro Wilk Test Statistic					0.24	Shapiro Wilk Test Statistic					0.904
1491	5% Shapiro Wilk Critical Value					0.916	5% Shapiro Wilk Critical Value					0.916
1492	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1493												
1494	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1495	DL/2 Substitution Method						DL/2 Substitution Method					
1496	Mean					2226	Mean					4.819
1497	SD					9333	SD					2.56
1498	95% DL/2 (t) UCL					5492	95% H-Stat (DL/2) UCL					46157
1499												
1500	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1501	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1502							SD in Log Scale					N/A
1503							Mean in Original Scale					N/A
1504							SD in Original Scale					N/A
1505							95% Percentile Bootstrap UCL					N/A
1506							95% BCA Bootstrap UCL					N/A
1507												
1508	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1509	k star (bias corrected)					0.243	**Data do not follow a Discernable Distribution (0.05)**					
1510	Theta Star					9147						
1511	nu star					11.68						
1512												
1513	A-D Test Statistic					2.665	**Nonparametric Statistics**					
1514	5% A-D Critical Value					0.874	Kaplan-Meier (KM) Method					
1515	K-S Test Statistic					0.874	Mean					2226
1516	5% K-S Critical Value					0.195	SD					9137
1517	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1905
1518							95% KM (t) UCL					5492
1519	**Assuming Gamma Distribution**						95% KM (z) UCL					5360
1520	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5492
1521	Minimum					0.45	95% KM (bootstrap t) UCL					75365
1522	Maximum					46000	95% KM (BCA) UCL					6052
1523	Mean					2226	95% KM (Percentile Bootstrap) UCL					6008
1524	Median					185	95% KM (Chebyshev) UCL					10531
1525	SD					9333	97.5% KM (Chebyshev) UCL					14124
1526	k star					0.243	99% KM (Chebyshev) UCL					21183
1527	Theta star					9147						
1528	Nu star					11.68	**Potential UCLs to Use**					
1529	AppChi2					5.019	99% KM (Chebyshev) UCL					21183
1530	95% Gamma Approximate UCL					5182						
1531	95% Adjusted Gamma UCL					5517						
1532	**Note: DL/2 is not a recommended method.**											
1533												

1				**General UCL Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM8.5E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Arsenic**											
10												
11						**General Statistics**							
12						Number of Valid Data	13			Number of Detected Data	11	
13						Number of Distinct Detected Data	11			Number of Non-Detect Data	2	
14										Percent Non-Detects	15.38%	
15												
16						**Raw Statistics**				**Log-transformed Statistics**		
17						Minimum Detected	2.81			Minimum Detected	1.033	
18						Maximum Detected	15			Maximum Detected	2.708	
19						Mean of Detected	5.137			Mean of Detected	1.487	
20						SD of Detected	3.682			SD of Detected	0.513	
21						Minimum Non-Detect	4			Minimum Non-Detect	1.386	
22						Maximum Non-Detect	5			Maximum Non-Detect	1.609	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	10	
25	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	3	
26	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	76.92%	
27												
28						**UCL Statistics**							
29						**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**		
30						Shapiro Wilk Test Statistic	0.638			Shapiro Wilk Test Statistic	0.772	
31						5% Shapiro Wilk Critical Value	0.85			5% Shapiro Wilk Critical Value	0.85	
32						**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**		
33												
34						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	4.693			Mean	1.382	
37						SD	3.534			SD	0.536	
38						95% DL/2 (t) UCL	6.44			95% H-Stat (DL/2) UCL	4.744	
39												
40						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
41						**MLE yields a negative mean**				Mean in Log Scale	1.449	
42										SD in Log Scale	0.478	
43										Mean in Original Scale	4.879	
44										SD in Original Scale	3.421	
45										95% Percentile Bootstrap UCL	6.596	
46										95% BCA Bootstrap UCL	7.43	
47												
48						**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**		
49						k star (bias corrected)	2.605			**Data do not follow a Discernable Distribution (0.05)**		
50						Theta Star	1.972					
51						nu star	57.31					
52												
53						A-D Test Statistic	1.358			**Nonparametric Statistics**		

54				5% A-D Critical Value	0.733					Kaplan-Meier (KM) Method		
55				K-S Test Statistic	0.733					Mean		4.86
56				5% K-S Critical Value	0.257					SD		3.297
57	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.96
58										95% KM (t) UCL		6.571
59	**Assuming Gamma Distribution**									95% KM (z) UCL		6.439
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		6.558
61				Minimum	2.81					95% KM (bootstrap t) UCL		12.47
62				Maximum	15					95% KM (BCA) UCL		6.594
63				Mean	5.062					95% KM (Percentile Bootstrap) UCL		6.475
64				Median	4					95% KM (Chebyshev) UCL		9.045
65				SD	3.371					97.5% KM (Chebyshev) UCL		10.86
66				k star	3.181					99% KM (Chebyshev) UCL		14.41
67				Theta star	1.591							
68				Nu star	82.7					**Potential UCLs to Use**		
69				AppChi2	62.74					95% KM (Chebyshev) UCL		9.045
70				95% Gamma Approximate UCL	6.672							
71				95% Adjusted Gamma UCL	6.945							
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Benzo(a)anthracene**											
76												
77	**General Statistics**											
78				Number of Valid Data	13					Number of Detected Data		12
79				Number of Distinct Detected Data	12					Number of Non-Detect Data		1
80										Percent Non-Detects		7.69%
81												
82	**Raw Statistics**									**Log-transformed Statistics**		
83				Minimum Detected	6.5					Minimum Detected		1.872
84				Maximum Detected	179					Maximum Detected		5.187
85				Mean of Detected	44.04					Mean of Detected		3.432
86				SD of Detected	46.91					SD of Detected		0.841
87				Minimum Non-Detect	19					Minimum Non-Detect		2.944
88				Maximum Non-Detect	19					Maximum Non-Detect		2.944
89												
90												
91	**UCL Statistics**											
92	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
93				Shapiro Wilk Test Statistic	0.678					Shapiro Wilk Test Statistic		0.968
94				5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value		0.859
95	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
96												
97	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
98				DL/2 Substitution Method						DL/2 Substitution Method		
99				Mean	41.38					Mean		3.341
100				SD	45.92					SD		0.869
101				95% DL/2 (t) UCL	64.09					95% H-Stat (DL/2) UCL		65.15
102												
103				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
104				Mean	31.11					Mean in Log Scale		3.353
105				SD	55.49					SD in Log Scale		0.855
106				95% MLE (t) UCL	58.54					Mean in Original Scale		41.5

107				95% MLE (Tiku) UCL	59.86					SD in Original Scale	45.84
108										95% Percentile Bootstrap UCL	63.12
109										95% BCA Bootstrap UCL	75.54
110											
111				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
112				k star (bias corrected)	1.226					**Data appear Gamma Distributed at 5% Significance Level**	
113				Theta Star	35.91						
114				nu star	29.44						
115											
116				A-D Test Statistic	0.559					**Nonparametric Statistics**	
117				5% A-D Critical Value	0.745					Kaplan-Meier (KM) Method	
118				K-S Test Statistic	0.745					Mean	41.67
119				5% K-S Critical Value	0.249					SD	43.95
120				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	12.74
121										95% KM (t) UCL	64.37
122				**Assuming Gamma Distribution**						95% KM (z) UCL	62.62
123				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	64.31
124				Minimum	3.939					95% KM (bootstrap t) UCL	109.7
125				Maximum	179					95% KM (BCA) UCL	65.45
126				Mean	40.96					95% KM (Percentile Bootstrap) UCL	63.15
127				Median	29					95% KM (Chebyshev) UCL	97.2
128				SD	46.27					97.5% KM (Chebyshev) UCL	121.2
129				k star	1.035					99% KM (Chebyshev) UCL	168.4
130				Theta star	39.55						
131				Nu star	26.92					**Potential UCLs to Use**	
132				AppChi2	16.09					95% KM (Chebyshev) UCL	97.2
133				95% Gamma Approximate UCL	68.52						
134				95% Adjusted Gamma UCL	73.96						
135	**Note: DL/2 is not a recommended method.**										
136											
137											
138	**Benzo(a)pyrene**										
139											
140										**General Statistics**	
141				Number of Valid Data	13					Number of Detected Data	12
142				Number of Distinct Detected Data	12					Number of Non-Detect Data	1
143										Percent Non-Detects	7.69%
144											
145				**Raw Statistics**						**Log-transformed Statistics**	
146				Minimum Detected	8.4					Minimum Detected	2.128
147				Maximum Detected	176					Maximum Detected	5.17
148				Mean of Detected	49.49					Mean of Detected	3.605
149				SD of Detected	45.25					SD of Detected	0.794
150				Minimum Non-Detect	10					Minimum Non-Detect	2.303
151				Maximum Non-Detect	10					Maximum Non-Detect	2.303
152											
153											
154										**UCL Statistics**	
155				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
156				Shapiro Wilk Test Statistic	0.756					Shapiro Wilk Test Statistic	0.99
157				5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
158				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
159											

160	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
161				DL/2 Substitution Method						DL/2 Substitution Method		
162				Mean	46.07					Mean	3.451	
163				SD	45.05					SD	0.941	
164				95% DL/2 (t) UCL	68.34					95% H-Stat (DL/2) UCL	80.91	
165												
166				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
167				Mean	42.09					Mean in Log Scale	3.492	
168				SD	48.6					SD in Log Scale	0.863	
169				95% MLE (t) UCL	66.11					Mean in Original Scale	46.33	
170				95% MLE (Tiku) UCL	65.72					SD in Original Scale	44.8	
171										95% Percentile Bootstrap UCL	68.26	
172										95% BCA Bootstrap UCL	77.22	
173												
174	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
175				k star (bias corrected)	1.431		**Data appear Gamma Distributed at 5% Significance Level**					
176				Theta Star	34.59							
177				nu star	34.34							
178												
179				A-D Test Statistic	0.291		**Nonparametric Statistics**					
180				5% A-D Critical Value	0.743					Kaplan-Meier (KM) Method		
181				K-S Test Statistic	0.743					Mean	46.33	
182				5% K-S Critical Value	0.249					SD	43.04	
183	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	12.47	
184										95% KM (t) UCL	68.55	
185	**Assuming Gamma Distribution**									95% KM (z) UCL	66.84	
186				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	68.11	
187				Minimum	1E-09					95% KM (bootstrap t) UCL	92.23	
188				Maximum	176					95% KM (BCA) UCL	68.45	
189				Mean	45.68					95% KM (Percentile Bootstrap) UCL	67.82	
190				Median	32					95% KM (Chebyshev) UCL	100.7	
191				SD	45.45					97.5% KM (Chebyshev) UCL	124.2	
192				k star	0.302					99% KM (Chebyshev) UCL	170.4	
193				Theta star	151.3							
194				Nu star	7.849		**Potential UCLs to Use**					
195				AppChi2	2.648					95% KM (Chebyshev) UCL	100.7	
196				95% Gamma Approximate UCL	135.4							
197				95% Adjusted Gamma UCL	160.3							
198	**Note: DL/2 is not a recommended method.**											
199												
200												
201	**Benzo(b)fluoranthene**											
202												
203	**General Statistics**											
204				Number of Valid Observations	13					Number of Distinct Observations	11	
205												
206	**Raw Statistics**						**Log-transformed Statistics**					
207				Minimum	12					Minimum of Log Data	2.485	
208				Maximum	351					Maximum of Log Data	5.861	
209				Mean	70.62					Mean of log Data	3.793	
210				Median	37					SD of log Data	0.908	
211				SD	91.59							
212				Coefficient of Variation	1.297							

	A	B	C	D	E	F	G	H	I	J	K	L
213					Skewness	2.773						
214												
215	**Relevant UCL Statistics**											
216	**Normal Distribution Test**						**Lognormal Distribution Test**					
217					Shapiro Wilk Test Statistic	0.615					Shapiro Wilk Test Statistic	0.924
218					Shapiro Wilk Critical Value	0.866					Shapiro Wilk Critical Value	0.866
219	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
220												
221	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
222					95% Student's-t UCL	115.9					95% H-UCL	135.7
223	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	139.8
224					95% Adjusted-CLT UCL	133.3					97.5% Chebyshev (MVUE) UCL	172.4
225					95% Modified-t UCL	119.1					99% Chebyshev (MVUE) UCL	236.5
226												
227	**Gamma Distribution Test**						**Data Distribution**					
228					k star (bias corrected)	0.988	**Data appear Lognormal at 5% Significance Level**					
229					Theta Star	71.49						
230					nu star	25.68						
231					Approximate Chi Square Value (.05)	15.13	**Nonparametric Statistics**					
232					Adjusted Level of Significance	0.0301					95% CLT UCL	112.4
233					Adjusted Chi Square Value	13.99					95% Jackknife UCL	115.9
234											95% Standard Bootstrap UCL	110.5
235					Anderson-Darling Test Statistic	0.915					95% Bootstrap-t UCL	206.9
236					Anderson-Darling 5% Critical Value	0.754					95% Hall's Bootstrap UCL	263.2
237					Kolmogorov-Smirnov Test Statistic	0.276					95% Percentile Bootstrap UCL	116
238					Kolmogorov-Smirnov 5% Critical Value	0.242					95% BCA Bootstrap UCL	145.2
239	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	181.3
240											97.5% Chebyshev(Mean, Sd) UCL	229.3
241	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	323.4
242					95% Approximate Gamma UCL	119.8						
243					95% Adjusted Gamma UCL	129.6						
244												
245	**Potential UCL to Use**										Use 95% H-UCL	135.7
246												
247												
248	**Benzo(k)fluoranthene**											
249												
250	**General Statistics**											
251					Number of Valid Data	13					Number of Detected Data	12
252					Number of Distinct Detected Data	11					Number of Non-Detect Data	1
253											Percent Non-Detects	7.69%
254												
255	**Raw Statistics**						**Log-transformed Statistics**					
256					Minimum Detected	4.2					Minimum Detected	1.435
257					Maximum Detected	201					Maximum Detected	5.303
258					Mean of Detected	37.73					Mean of Detected	3.136
259					SD of Detected	52.86					SD of Detected	0.97
260					Minimum Non-Detect	19					Minimum Non-Detect	2.944
261					Maximum Non-Detect	19					Maximum Non-Detect	2.944
262												
263												
264	**UCL Statistics**											
265	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

	A	B	C	D	E	F	G	H	I	J	K	L
266					Shapiro Wilk Test Statistic	0.545				Shapiro Wilk Test Statistic		0.932
267					5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value		0.859
268	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
269												
270	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
271					DL/2 Substitution Method					DL/2 Substitution Method		
272					Mean	35.55				Mean		3.068
273					SD	51.21				SD		0.961
274					95% DL/2 (t) UCL	60.87				95% H-Stat (DL/2) UCL		64.92
275												
276					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
277					Mean	24.47				Mean in Log Scale		3.046
278					SD	60.68				SD in Log Scale		0.984
279					95% MLE (t) UCL	54.46				Mean in Original Scale		35.37
280					95% MLE (Tiku) UCL	55.82				SD in Original Scale		51.31
281										95% Percentile Bootstrap UCL		62.45
282										95% BCA Bootstrap UCL		75.7
283												
284	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
285					k star (bias corrected)	0.918	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
286					Theta Star	41.11						
287					nu star	22.02						
288												
289					A-D Test Statistic	0.845	**Nonparametric Statistics**					
290					5% A-D Critical Value	0.753				Kaplan-Meier (KM) Method		
291					K-S Test Statistic	0.753				Mean		35.46
292					5% K-S Critical Value	0.252				SD		49.27
293	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		14.28
294										95% KM (t) UCL		60.9
295	**Assuming Gamma Distribution**									95% KM (z) UCL		58.94
296					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		60.82
297					Minimum	1E-09				95% KM (bootstrap t) UCL		128.8
298					Maximum	201				95% KM (BCA) UCL		63.4
299					Mean	34.82				95% KM (Percentile Bootstrap) UCL		61.71
300					Median	23				95% KM (Chebyshev) UCL		97.69
301					SD	51.68				97.5% KM (Chebyshev) UCL		124.6
302					k star	0.286				99% KM (Chebyshev) UCL		177.5
303					Theta star	121.6						
304					Nu star	7.445	**Potential UCLs to Use**					
305					AppChi2	2.418				95% KM (Chebyshev) UCL		97.69
306					95% Gamma Approximate UCL	107.2						
307					95% Adjusted Gamma UCL	127.7						
308	**Note: DL/2 is not a recommended method.**											
309												
310												
311	**Bis(2-ethylhexyl) phthalate**											
312												
313	**General Statistics**											
314					Number of Valid Data	13				Number of Detected Data		8
315					Number of Distinct Detected Data	8				Number of Non-Detect Data		5
316										Percent Non-Detects		38.46%
317												
318	**Raw Statistics**						**Log-transformed Statistics**					

319					Minimum Detected	80					Minimum Detected	4.382
320					Maximum Detected	2400					Maximum Detected	7.783
321					Mean of Detected	712.8					Mean of Detected	5.86
322					SD of Detected	913.4					SD of Detected	1.254
323					Minimum Non-Detect	30					Minimum Non-Detect	3.401
324					Maximum Non-Detect	95					Maximum Non-Detect	4.554
325												
326	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
327	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	7
328	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	46.15%
329												
330	**Warning: There are only 8 Detected Values in this data**											
331	**Note: It should be noted that even though bootstrap may be performed on this data set**											
332	**the resulting calculations may not be reliable enough tp draw conclusions**											
333												
334	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
335												
336												
337	**UCL Statistics**											
338	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
339					Shapiro Wilk Test Statistic	0.711					Shapiro Wilk Test Statistic	0.909
340					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
341	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
342												
343	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
344					DL/2 Substitution Method						DL/2 Substitution Method	
345					Mean	451.1					Mean	4.912
346					SD	778.1					SD	1.597
347					95% DL/2 (t) UCL	835.7					95% H-Stat (DL/2) UCL	2419
348												
349					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
350					Mean	47.8					Mean in Log Scale	4.677
351					SD	1142					SD in Log Scale	1.833
352					95% MLE (t) UCL	612.2					Mean in Original Scale	445
353					95% MLE (Tiku) UCL	718.9					SD in Original Scale	781.6
354											95% Percentile Bootstrap UCL	799.6
355											95% BCA Bootstrap UCL	925.6
356												
357	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
358					k star (bias corrected)	0.604	**Data appear Gamma Distributed at 5% Significance Level**					
359					Theta Star	1181						
360					nu star	9.658						
361												
362					A-D Test Statistic	0.628	**Nonparametric Statistics**					
363					5% A-D Critical Value	0.742					Kaplan-Meier (KM) Method	
364					K-S Test Statistic	0.742					Mean	469.4
365					5% K-S Critical Value	0.303					SD	737.6
366	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	218.7
367											95% KM (t) UCL	859.2
368	**Assuming Gamma Distribution**										95% KM (z) UCL	829.1
369					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	838.6
370					Minimum	64.57					95% KM (bootstrap t) UCL	2517
371					Maximum	2400					95% KM (BCA) UCL	924.8

372					Mean	493.1				95% KM (Percentile Bootstrap) UCL		857.2
373					Median	242				95% KM (Chebyshev) UCL		1423
374					SD	757.7				97.5% KM (Chebyshev) UCL		1835
375					k star	0.641				99% KM (Chebyshev) UCL		2645
376					Theta star	769.6						
377					Nu star	16.66				**Potential UCLs to Use**		
378					AppChi2	8.428				95% KM (BCA) UCL		924.8
379					95% Gamma Approximate UCL	974.5						
380					95% Adjusted Gamma UCL	1080						
381	**Note: DL/2 is not a recommended method.**											
382												
383												
384	**Dibenzo(a,h)anthracene**											
385												
386					**General Statistics**							
387					Number of Valid Data	12				Number of Detected Data		9
388					Number of Distinct Detected Data	9				Number of Non-Detect Data		3
389										Percent Non-Detects		25.00%
390												
391					**Raw Statistics**					**Log-transformed Statistics**		
392					Minimum Detected	1.6				Minimum Detected		0.47
393					Maximum Detected	22				Maximum Detected		3.091
394					Mean of Detected	8.956				Mean of Detected		1.842
395					SD of Detected	7.45				SD of Detected		0.922
396					Minimum Non-Detect	10				Minimum Non-Detect		2.303
397					Maximum Non-Detect	19				Maximum Non-Detect		2.944
398												
399	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		11
400	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
401	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		91.67%
402												
403	**Warning: There are only 9 Detected Values in this data**											
404	**Note: It should be noted that even though bootstrap may be performed on this data set**											
405	**the resulting calculations may not be reliable enough tp draw conclusions**											
406												
407	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
408												
409												
410					**UCL Statistics**							
411					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
412					Shapiro Wilk Test Statistic	0.87				Shapiro Wilk Test Statistic		0.942
413					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
414					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
415												
416					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
417					DL/2 Substitution Method					DL/2 Substitution Method		
418					Mean	8.342				Mean		1.837
419					SD	6.544				SD		0.802
420					95% DL/2 (t) UCL	11.73				95% H-Stat (DL/2) UCL		13.01
421												
422					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
423					**MLE method failed to converge properly**					Mean in Log Scale		1.716
424										SD in Log Scale		0.833

425											Mean in Original Scale	7.709
426											SD in Original Scale	6.764
427											95% Percentile Bootstrap UCL	10.91
428											95% BCA Bootstrap UCL	11.48
429												
430	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
431					k star (bias corrected)	1.122	**Data appear Normal at 5% Significance Level**					
432					Theta Star	7.982						
433					nu star	20.2						
434												
435					A-D Test Statistic	0.364	**Nonparametric Statistics**					
436					5% A-D Critical Value	0.734					Kaplan-Meier (KM) Method	
437					K-S Test Statistic	0.734					Mean	7.814
438					5% K-S Critical Value	0.284					SD	6.637
439	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	2.099
440											95% KM (t) UCL	11.58
441	**Assuming Gamma Distribution**										95% KM (z) UCL	11.27
442					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	11.56
443					Minimum	1.6					95% KM (bootstrap t) UCL	12.82
444					Maximum	22					95% KM (BCA) UCL	11.08
445					Mean	8.662					95% KM (Percentile Bootstrap) UCL	11.11
446					Median	7.188					95% KM (Chebyshev) UCL	16.96
447					SD	6.544					97.5% KM (Chebyshev) UCL	20.92
448					k star	1.477					99% KM (Chebyshev) UCL	28.7
449					Theta star	5.866						
450					Nu star	35.44	**Potential UCLs to Use**					
451					AppChi2	22.82					95% KM (t) UCL	11.58
452					95% Gamma Approximate UCL	13.45					95% KM (Percentile Bootstrap) UCL	11.11
453					95% Adjusted Gamma UCL	14.42						
454	**Note: DL/2 is not a recommended method.**											
455												
456												
457	**Indeno(1,2,3-cd)pyrene**											
458												
459	**General Statistics**											
460					Number of Valid Data	13					Number of Detected Data	12
461					Number of Distinct Detected Data	10					Number of Non-Detect Data	1
462											Percent Non-Detects	7.69%
463												
464	**Raw Statistics**						**Log-transformed Statistics**					
465					Minimum Detected	7.5					Minimum Detected	2.015
466					Maximum Detected	130					Maximum Detected	4.868
467					Mean of Detected	41.88					Mean of Detected	3.475
468					SD of Detected	33.89					SD of Detected	0.759
469					Minimum Non-Detect	19					Minimum Non-Detect	2.944
470					Maximum Non-Detect	19					Maximum Non-Detect	2.944
471												
472												
473	**UCL Statistics**											
474	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
475					Shapiro Wilk Test Statistic	0.81					Shapiro Wilk Test Statistic	0.98
476					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
477	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

478												
479	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
480				DL/2 Substitution Method						DL/2 Substitution Method		
481				Mean	39.38					Mean	3.381	
482				SD	33.66					SD	0.802	
483				95% DL/2 (t) UCL	56.02					95% H-Stat (DL/2) UCL	59.82	
484												
485				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
486				Mean	35.76					Mean in Log Scale	3.388	
487				SD	37.25					SD in Log Scale	0.792	
488				95% MLE (t) UCL	54.17					Mean in Original Scale	39.45	
489				95% MLE (Tiku) UCL	54.37					SD in Original Scale	33.6	
490										95% Percentile Bootstrap UCL	56.07	
491										95% BCA Bootstrap UCL	60.19	
492												
493	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
494				k star (bias corrected)	1.615		**Data appear Gamma Distributed at 5% Significance Level**					
495				Theta Star	25.94							
496				nu star	38.75							
497												
498				A-D Test Statistic	0.319		**Nonparametric Statistics**					
499				5% A-D Critical Value	0.741					Kaplan-Meier (KM) Method		
500				K-S Test Statistic	0.741					Mean	39.48	
501				5% K-S Critical Value	0.248					SD	32.27	
502	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	9.353	
503										95% KM (t) UCL	56.15	
504	**Assuming Gamma Distribution**									95% KM (z) UCL	54.86	
505				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	56.12	
506				Minimum	4.175					95% KM (bootstrap t) UCL	70.64	
507				Maximum	130					95% KM (BCA) UCL	55.65	
508				Mean	38.98					95% KM (Percentile Bootstrap) UCL	56.38	
509				Median	30					95% KM (Chebyshev) UCL	80.25	
510				SD	34.09					97.5% KM (Chebyshev) UCL	97.89	
511				k star	1.278					99% KM (Chebyshev) UCL	132.5	
512				Theta star	30.49							
513				Nu star	33.24		**Potential UCLs to Use**					
514				AppChi2	21.06					95% KM (Chebyshev) UCL	80.25	
515				95% Gamma Approximate UCL	61.52							
516				95% Adjusted Gamma UCL	65.81							
517	**Note: DL/2 is not a recommended method.**											
518												
519												
520	**Lead**											
521												
522							**General Statistics**					
523				Number of Valid Observations	13					Number of Distinct Observations	13	
524												
525	**Raw Statistics**						**Log-transformed Statistics**					
526				Minimum	10.6					Minimum of Log Data	2.361	
527				Maximum	54.7					Maximum of Log Data	4.002	
528				Mean	20.54					Mean of log Data	2.878	
529				Median	15.6					SD of log Data	0.497	
530				SD	14.3							

531				Coefficient of Variation	0.696							
532				Skewness	2.126							
533												
534	**Relevant UCL Statistics**											
535	**Normal Distribution Test**						**Lognormal Distribution Test**					
536				Shapiro Wilk Test Statistic	0.576					Shapiro Wilk Test Statistic	0.694	
537				Shapiro Wilk Critical Value	0.866					Shapiro Wilk Critical Value	0.866	
538	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
539												
540	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
541				95% Student's-t UCL	27.61					95% H-UCL	27.22	
542	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	32.17	
543				95% Adjusted-CLT UCL	29.56					97.5% Chebyshev (MVUE) UCL	37.48	
544				95% Modified-t UCL	28					99% Chebyshev (MVUE) UCL	47.9	
545												
546	**Gamma Distribution Test**						**Data Distribution**					
547				k star (bias corrected)	2.844		**Data do not follow a Discernable Distribution (0.05)**					
548				Theta Star	7.221							
549				nu star	73.95							
550				Approximate Chi Square Value (.05)	55.15		**Nonparametric Statistics**					
551				Adjusted Level of Significance	0.0301					95% CLT UCL	27.06	
552				Adjusted Chi Square Value	52.84					95% Jackknife UCL	27.61	
553										95% Standard Bootstrap UCL	26.84	
554				Anderson-Darling Test Statistic	2.245					95% Bootstrap-t UCL	65.8	
555				Anderson-Darling 5% Critical Value	0.738					95% Hall's Bootstrap UCL	87.68	
556				Kolmogorov-Smirnov Test Statistic	0.406					95% Percentile Bootstrap UCL	27.32	
557				Kolmogorov-Smirnov 5% Critical Value	0.238					95% BCA Bootstrap UCL	29.76	
558	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	37.83	
559										97.5% Chebyshev(Mean, Sd) UCL	45.31	
560	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	60	
561				95% Approximate Gamma UCL	27.54							
562				95% Adjusted Gamma UCL	28.75							
563												
564	**Potential UCL to Use**									Use 95% Student's-t UCL	27.61	
565										or 95% Modified-t UCL	28	
566												
567												
568	**Mercury**											
569												
570	**General Statistics**											
571				Number of Valid Observations	13					Number of Distinct Observations	11	
572												
573	**Raw Statistics**						**Log-transformed Statistics**					
574				Minimum	0.05					Minimum of Log Data	-2.996	
575				Maximum	0.54					Maximum of Log Data	-0.616	
576				Mean	0.123					Mean of log Data	-2.364	
577				Median	0.082					SD of log Data	0.657	
578				SD	0.131							
579				Coefficient of Variation	1.063							
580				Skewness	3.127							
581												
582	**Relevant UCL Statistics**											
583	**Normal Distribution Test**						**Lognormal Distribution Test**					

584				Shapiro Wilk Test Statistic	0.556					Shapiro Wilk Test Statistic	0.83	
585				Shapiro Wilk Critical Value	0.866					Shapiro Wilk Critical Value	0.866	
586				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
587												
588				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
589				95% Student's-t UCL	0.188					95% H-UCL	0.181	
590				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.209	
591				95% Adjusted-CLT UCL	0.216					97.5% Chebyshev (MVUE) UCL	0.25	
592				95% Modified-t UCL	0.193					99% Chebyshev (MVUE) UCL	0.331	
593												
594				**Gamma Distribution Test**						**Data Distribution**		
595				k star (bias corrected)	1.604					**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
596				Theta Star	0.0766							
597				nu star	41.71							
598				Approximate Chi Square Value (.05)	27.9					**Nonparametric Statistics**		
599				Adjusted Level of Significance	0.0301					95% CLT UCL	0.183	
600				Adjusted Chi Square Value	26.3					95% Jackknife UCL	0.188	
601										95% Standard Bootstrap UCL	0.177	
602				Anderson-Darling Test Statistic	1.187					95% Bootstrap-t UCL	0.318	
603				Anderson-Darling 5% Critical Value	0.743					95% Hall's Bootstrap UCL	0.393	
604				Kolmogorov-Smirnov Test Statistic	0.194					95% Percentile Bootstrap UCL	0.19	
605				Kolmogorov-Smirnov 5% Critical Value	0.239					95% BCA Bootstrap UCL	0.228	
606				**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.281	
607										97.5% Chebyshev(Mean, Sd) UCL	0.349	
608				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.483	
609				95% Approximate Gamma UCL	0.184							
610				95% Adjusted Gamma UCL	0.195							
611												
612				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	0.184	
613												
614												
615	**Total Aroclors**											
616												
617				**General Statistics**								
618				Number of Valid Data	12					Number of Detected Data	9	
619				Number of Distinct Detected Data	9					Number of Non-Detect Data	3	
620										Percent Non-Detects	25.00%	
621												
622				**Raw Statistics**						**Log-transformed Statistics**		
623				Minimum Detected	21.65					Minimum Detected	3.075	
624				Maximum Detected	149					Maximum Detected	5.004	
625				Mean of Detected	58.42					Mean of Detected	3.82	
626				SD of Detected	47.85					SD of Detected	0.71	
627				Minimum Non-Detect	10					Minimum Non-Detect	2.303	
628				Maximum Non-Detect	38					Maximum Non-Detect	3.638	
629												
630	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	8	
631	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	4	
632	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	66.67%	
633												
634	**Warning: There are only 9 Detected Values in this data**											
635	**Note: It should be noted that even though bootstrap may be performed on this data set**											
636	**the resulting calculations may not be reliable enough tp draw conclusions**											

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
639												
640												
641	**UCL Statistics**											
642	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
643	Shapiro Wilk Test Statistic					0.748	Shapiro Wilk Test Statistic					0.868
644	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
645	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
646												
647	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
648	DL/2 Substitution Method						DL/2 Substitution Method					
649	Mean					46.23	Mean					3.379
650	SD					46.51	SD					1.054
651	95% DL/2 (t) UCL					70.34	95% H-Stat (DL/2) UCL					54.54
652												
653	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
654	Mean					0.79	Mean in Log Scale					3.494
655	SD					86.6	SD in Log Scale					0.875
656	95% MLE (t) UCL					45.69	Mean in Original Scale					47.21
657	95% MLE (Tiku) UCL					72.83	SD in Original Scale					45.67
658							95% Percentile Bootstrap UCL					68.58
659							95% BCA Bootstrap UCL					75.34
660												
661	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
662	k star (bias corrected)					1.521	**Data appear Lognormal at 5% Significance Level**					
663	Theta Star					38.41						
664	nu star					27.38						
665												
666	A-D Test Statistic					0.754	**Nonparametric Statistics**					
667	5% A-D Critical Value					0.729	Kaplan-Meier (KM) Method					
668	K-S Test Statistic					0.729	Mean					49.66
669	5% K-S Critical Value					0.282	SD					41.97
670	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					12.86
671							95% KM (t) UCL					72.76
672	**Assuming Gamma Distribution**						95% KM (z) UCL					70.81
673	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					72.36
674	Minimum					11.45	95% KM (bootstrap t) UCL					113.1
675	Maximum					149	95% KM (BCA) UCL					72.45
676	Mean					51.33	95% KM (Percentile Bootstrap) UCL					71.4
677	Median					34.6	95% KM (Chebyshev) UCL					105.7
678	SD					43.82	97.5% KM (Chebyshev) UCL					130
679	k star					1.547	99% KM (Chebyshev) UCL					177.6
680	Theta star					33.19						
681	Nu star					37.12	**Potential UCLs to Use**					
682	AppChi2					24.17	95% KM (BCA) UCL					72.45
683	95% Gamma Approximate UCL					78.83						
684	95% Adjusted Gamma UCL					84.36						
685	**Note: DL/2 is not a recommended method.**											
686												
687												
688	**Total DDT**											
689												

	A	B	C	D	E	F	G	H	I	J	K	L
690	**General Statistics**											
691					Number of Valid Data	10				Number of Detected Data		9
692					Number of Distinct Detected Data	9				Number of Non-Detect Data		1
693					Number of Missing Values	2				Percent Non-Detects		10.00%
694												
695	**Raw Statistics**						**Log-transformed Statistics**					
696					Minimum Detected	0.196				Minimum Detected		-1.629
697					Maximum Detected	4				Maximum Detected		1.386
698					Mean of Detected	1.556				Mean of Detected		-0.0236
699					SD of Detected	1.453				SD of Detected		1.077
700					Minimum Non-Detect	2				Minimum Non-Detect		0.693
701					Maximum Non-Detect	2				Maximum Non-Detect		0.693
702												
703												
704	**Warning: There are only 9 Detected Values in this data**											
705	**Note: It should be noted that even though bootstrap may be performed on this data set**											
706	**the resulting calculations may not be reliable enough tp draw conclusions**											
707												
708	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
709												
710												
711	**UCL Statistics**											
712	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
713					Shapiro Wilk Test Statistic	0.841				Shapiro Wilk Test Statistic		0.938
714					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
715	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
716												
717	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
718					DL/2 Substitution Method					DL/2 Substitution Method		
719					Mean	1.5				Mean		-0.0212
720					SD	1.382				SD		1.016
721					95% DL/2 (t) UCL	2.301				95% H-Stat (DL/2) UCL		4.227
722												
723					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
724					Mean	3.4				Mean in Log Scale		-0.0771
725					SD	0.529				SD in Log Scale		1.03
726					95% MLE (t) UCL	3.707				Mean in Original Scale		1.458
727					95% MLE (Tiku) UCL	3.959				SD in Original Scale		1.405
728										95% Percentile Bootstrap UCL		2.179
729										95% BCA Bootstrap UCL		2.263
730												
731	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
732					k star (bias corrected)	0.883	**Data appear Normal at 5% Significance Level**					
733					Theta Star	1.763						
734					nu star	15.89						
735												
736					A-D Test Statistic	0.379	**Nonparametric Statistics**					
737					5% A-D Critical Value	0.74				Kaplan-Meier (KM) Method		
738					K-S Test Statistic	0.74				Mean		1.464
739					5% K-S Critical Value	0.286				SD		1.335
740	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.45
741										95% KM (t) UCL		2.289
742	**Assuming Gamma Distribution**									95% KM (z) UCL		2.205

	A	B	C	D	E	F	G	H	I	J	K	L
743	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.286
744					Minimum	0.196	95% KM (bootstrap t) UCL					2.658
745					Maximum	4	95% KM (BCA) UCL					2.284
746					Mean	1.503	95% KM (Percentile Bootstrap) UCL					2.166
747					Median	0.932	95% KM (Chebyshev) UCL					3.426
748					SD	1.381	97.5% KM (Chebyshev) UCL					4.274
749					k star	0.987	99% KM (Chebyshev) UCL					5.941
750					Theta star	1.523						
751					Nu star	19.74	**Potential UCLs to Use**					
752					AppChi2	10.66	95% KM (t) UCL					2.289
753				95% Gamma Approximate UCL		2.783	95% KM (Percentile Bootstrap) UCL					2.166
754				95% Adjusted Gamma UCL		3.116						
755	**Note: DL/2 is not a recommended method.**											
756												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM8.5W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Aldrin											
10												
11					General Statistics							
12				Number of Valid Data	27			Number of Detected Data	19			
13				Number of Distinct Detected Data	19			Number of Non-Detect Data	8			
14				Number of Missing Values	5			Percent Non-Detects	29.63%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	0.123			Minimum Detected	-2.096			
18				Maximum Detected	132			Maximum Detected	4.883			
19				Mean of Detected	14.94			Mean of Detected	1.494			
20				SD of Detected	29.87			SD of Detected	1.719			
21				Minimum Non-Detect	0.044			Minimum Non-Detect	-3.124			
22				Maximum Non-Detect	3.9			Maximum Non-Detect	1.361			
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect	15			
25	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected	12			
26	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage	55.56%			
27												
28					UCL Statistics							
29				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
30				Shapiro Wilk Test Statistic	0.494			Shapiro Wilk Test Statistic	0.988			
31				5% Shapiro Wilk Critical Value	0.901			5% Shapiro Wilk Critical Value	0.901			
32				Data not Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level				
33												
34				Assuming Normal Distribution				Assuming Lognormal Distribution				
35				DL/2 Substitution Method				DL/2 Substitution Method				
36				Mean	10.65			Mean	0.639			
37				SD	25.75			SD	2.074			
38				95% DL/2 (t) UCL	19.1			95% H-Stat (DL/2) UCL	53.71			
39												
40				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
41				MLE yields a negative mean				Mean in Log Scale	0.514			
42								SD in Log Scale	2.131			
43								Mean in Original Scale	10.57			
44								SD in Original Scale	25.78			
45								95% Percentile Bootstrap UCL	19.59			
46								95% BCA Bootstrap UCL	25.74			
47												
48				Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only				
49				k star (bias corrected)	0.474			Data appear Gamma Distributed at 5% Significance Level				
50				Theta Star	31.49							
51				nu star	18.02							
52												
53				A-D Test Statistic	0.484			Nonparametric Statistics				

54				5% A-D Critical Value	0.801					Kaplan-Meier (KM) Method		
55				K-S Test Statistic	0.801					Mean		10.59
56				5% K-S Critical Value	0.21					SD		25.29
57				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		5
58										95% KM (t) UCL		19.12
59				**Assuming Gamma Distribution**						95% KM (z) UCL		18.81
60				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		19
61				Minimum	1E-09					95% KM (bootstrap t) UCL		36.48
62				Maximum	132					95% KM (BCA) UCL		20.53
63				Mean	10.63					95% KM (Percentile Bootstrap) UCL		19.87
64				Median	2.19					95% KM (Chebyshev) UCL		32.38
65				SD	25.76					97.5% KM (Chebyshev) UCL		41.82
66				k star	0.142					99% KM (Chebyshev) UCL		60.34
67				Theta star	74.76							
68				Nu star	7.68					**Potential UCLs to Use**		
69				AppChi2	2.551					95% KM (Chebyshev) UCL		32.38
70				95% Gamma Approximate UCL	32.01							
71				95% Adjusted Gamma UCL	34.52							
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Arsenic**											
76												
77					**General Statistics**							
78				Number of Valid Data	32					Number of Detected Data		29
79				Number of Distinct Detected Data	27					Number of Non-Detect Data		3
80				Number of Missing Values	3					Percent Non-Detects		9.38%
81												
82				**Raw Statistics**						**Log-transformed Statistics**		
83				Minimum Detected	2.3					Minimum Detected		0.833
84				Maximum Detected	34					Maximum Detected		3.526
85				Mean of Detected	7.097					Mean of Detected		1.748
86				SD of Detected	6.463					SD of Detected		0.586
87				Minimum Non-Detect	5					Minimum Non-Detect		1.609
88				Maximum Non-Detect	6					Maximum Non-Detect		1.792
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		23
91	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		9
92	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		71.88%
93												
94					**UCL Statistics**							
95				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
96				Shapiro Wilk Test Statistic	0.592					Shapiro Wilk Test Statistic		0.908
97				5% Shapiro Wilk Critical Value	0.926					5% Shapiro Wilk Critical Value		0.926
98				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
99												
100				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
101				DL/2 Substitution Method						DL/2 Substitution Method		
102				Mean	6.682					Mean		1.676
103				SD	6.281					SD		0.603
104				95% DL/2 (t) UCL	8.564					95% H-Stat (DL/2) UCL		6.752
105												
106				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		

107	**MLE yields a negative mean**									Mean in Log Scale		1.71
108										SD in Log Scale		0.573
109										Mean in Original Scale		6.792
110										SD in Original Scale		6.22
111										95% Percentile Bootstrap UCL		8.78
112										95% BCA Bootstrap UCL		9.519
113												
114	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
115				k star (bias corrected)		2.283				**Data do not follow a Discernable Distribution (0.05)**		
116				Theta Star		3.109						
117				nu star		132.4						
118												
119				A-D Test Statistic		1.694				**Nonparametric Statistics**		
120				5% A-D Critical Value		0.755				Kaplan-Meier (KM) Method		
121				K-S Test Statistic		0.755				Mean		6.799
122				5% K-S Critical Value		0.164				SD		6.123
123	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		1.103
124										95% KM (t) UCL		8.669
125	**Assuming Gamma Distribution**									95% KM (z) UCL		8.613
126				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		8.667
127				Minimum		2.3				95% KM (bootstrap t) UCL		11.47
128				Maximum		34				95% KM (BCA) UCL		8.794
129				Mean		6.876				95% KM (Percentile Bootstrap) UCL		8.723
130				Median		5.5				95% KM (Chebyshev) UCL		11.61
131				SD		6.203				97.5% KM (Chebyshev) UCL		13.69
132				k star		2.37				99% KM (Chebyshev) UCL		17.77
133				Theta star		2.901						
134				Nu star		151.7				**Potential UCLs to Use**		
135				AppChi2		124.2				95% KM (Chebyshev) UCL		11.61
136				95% Gamma Approximate UCL		8.396						
137				95% Adjusted Gamma UCL		8.487						
138	**Note: DL/2 is not a recommended method.**											
139												
140												
141	**Benzo(a)anthracene**											
142												
143	**General Statistics**											
144				Number of Valid Data		32				Number of Detected Data		29
145				Number of Distinct Detected Data		27				Number of Non-Detect Data		3
146				Number of Missing Values		3				Percent Non-Detects		9.38%
147												
148	**Raw Statistics**									**Log-transformed Statistics**		
149				Minimum Detected		12				Minimum Detected		2.485
150				Maximum Detected		405				Maximum Detected		6.004
151				Mean of Detected		102.7				Mean of Detected		4.16
152				SD of Detected		109.3				SD of Detected		0.986
153				Minimum Non-Detect		9.32				Minimum Non-Detect		2.232
154				Maximum Non-Detect		13.8				Maximum Non-Detect		2.625
155												
156	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		5
157	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		27
158	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		15.63%
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	**UCL Statistics**											
161	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
162					Shapiro Wilk Test Statistic	0.75					Shapiro Wilk Test Statistic	0.96
163					5% Shapiro Wilk Critical Value	0.926					5% Shapiro Wilk Critical Value	0.926
164	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
165												
166	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
167					DL/2 Substitution Method						DL/2 Substitution Method	
168					Mean	93.62					Mean	3.931
169					SD	107.8					SD	1.184
170					95% DL/2 (t) UCL	125.9					95% H-Stat (DL/2) UCL	135.4
171												
172					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
173					Mean	82.92					Mean in Log Scale	3.954
174					SD	119.5					SD in Log Scale	1.142
175					95% MLE (t) UCL	118.7					Mean in Original Scale	93.78
176					95% MLE (Tiku) UCL	117.9					SD in Original Scale	107.7
177											95% Percentile Bootstrap UCL	125.5
178											95% BCA Bootstrap UCL	131.9
179												
180	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
181					k star (bias corrected)	1.098	**Data appear Lognormal at 5% Significance Level**					
182					Theta Star	93.59						
183					nu star	63.66						
184												
185					A-D Test Statistic	0.885	**Nonparametric Statistics**					
186					5% A-D Critical Value	0.77					Kaplan-Meier (KM) Method	
187					K-S Test Statistic	0.77					Mean	94.22
188					5% K-S Critical Value	0.167					SD	105.6
189	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	19
190											95% KM (t) UCL	126.4
191	**Assuming Gamma Distribution**										95% KM (z) UCL	125.5
192					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	126.4
193					Minimum	1E-09					95% KM (bootstrap t) UCL	137.9
194					Maximum	405					95% KM (BCA) UCL	127
195					Mean	93.09					95% KM (Percentile Bootstrap) UCL	127.1
196					Median	52					95% KM (Chebyshev) UCL	177
197					SD	108.2					97.5% KM (Chebyshev) UCL	212.9
198					k star	0.257					99% KM (Chebyshev) UCL	283.3
199					Theta star	362.1						
200					Nu star	16.45	**Potential UCLs to Use**					
201					AppChi2	8.283					95% KM (Chebyshev) UCL	177
202					95% Gamma Approximate UCL	184.9						
203					95% Adjusted Gamma UCL	192.1						
204	**Note: DL/2 is not a recommended method.**											
205												
206												
207	**Benzo(a)pyrene**											
208												
209	**General Statistics**											
210					Number of Valid Data	32					Number of Detected Data	27
211					Number of Distinct Detected Data	25					Number of Non-Detect Data	5
212					Number of Missing Values	3					Percent Non-Detects	15.63%

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**Raw Statistics**						**Log-transformed Statistics**					
215					Minimum Detected	13				Minimum Detected	2.565	
216					Maximum Detected	499				Maximum Detected	6.213	
217					Mean of Detected	106.5				Mean of Detected	4.13	
218					SD of Detected	123.9				SD of Detected	1.044	
219					Minimum Non-Detect	8.97				Minimum Non-Detect	2.194	
220					Maximum Non-Detect	13.3				Maximum Non-Detect	2.588	
221												
222	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	8	
223	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	24	
224	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	25.00%	
225												
226	**UCL Statistics**											
227	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
228					Shapiro Wilk Test Statistic	0.732				Shapiro Wilk Test Statistic	0.956	
229					5% Shapiro Wilk Critical Value	0.923				5% Shapiro Wilk Critical Value	0.923	
230	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
231												
232	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
233					DL/2 Substitution Method					DL/2 Substitution Method		
234					Mean	90.66				Mean	3.74	
235					SD	119.5				SD	1.328	
236					95% DL/2 (t) UCL	126.5				95% H-Stat (DL/2) UCL	122.6	
237												
238					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
239					Mean	67.67				Mean in Log Scale	3.77	
240					SD	143.9				SD in Log Scale	1.281	
241					95% MLE (t) UCL	110.8				Mean in Original Scale	90.84	
242					95% MLE (Tiku) UCL	111.6				SD in Original Scale	119.4	
243										95% Percentile Bootstrap UCL	125.6	
244										95% BCA Bootstrap UCL	135.4	
245												
246	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
247					k star (bias corrected)	0.971	**Data appear Lognormal at 5% Significance Level**					
248					Theta Star	109.7						
249					nu star	52.42						
250												
251					A-D Test Statistic	0.851	**Nonparametric Statistics**					
252					5% A-D Critical Value	0.772				Kaplan-Meier (KM) Method		
253					K-S Test Statistic	0.772				Mean	91.88	
254					5% K-S Critical Value	0.173				SD	116.8	
255	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean	21.03	
256										95% KM (t) UCL	127.5	
257	**Assuming Gamma Distribution**									95% KM (z) UCL	126.5	
258					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	127.4	
259					Minimum	1E-09				95% KM (bootstrap t) UCL	144.4	
260					Maximum	499				95% KM (BCA) UCL	128.7	
261					Mean	89.85				95% KM (Percentile Bootstrap) UCL	130	
262					Median	41.5				95% KM (Chebyshev) UCL	183.6	
263					SD	120.1				97.5% KM (Chebyshev) UCL	223.2	
264					k star	0.181				99% KM (Chebyshev) UCL	301.1	
265					Theta star	497.1						

266					Nu star	11.57	**Potential UCLs to Use**					
267					AppChi2	4.944				97.5% KM (Chebyshev) UCL		223.2
268					95% Gamma Approximate UCL	210.2						
269					95% Adjusted Gamma UCL	220.5						
270	**Note: DL/2 is not a recommended method.**											
271												
272												
273	**Benzo(b)fluoranthene**											
274												
275					**General Statistics**							
276					Number of Valid Data	32				Number of Detected Data		28
277					Number of Distinct Detected Data	25				Number of Non-Detect Data		4
278					Number of Missing Values	3				Percent Non-Detects		12.50%
279												
280					**Raw Statistics**					**Log-transformed Statistics**		
281					Minimum Detected	18				Minimum Detected		2.89
282					Maximum Detected	603				Maximum Detected		6.402
283					Mean of Detected	148.6				Mean of Detected		4.481
284					SD of Detected	164				SD of Detected		1.027
285					Minimum Non-Detect	6.72				Minimum Non-Detect		1.905
286					Maximum Non-Detect	9.96				Maximum Non-Detect		2.299
287												
288	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		4
289	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		28
290	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		12.50%
291												
292					**UCL Statistics**							
293					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
294					Shapiro Wilk Test Statistic	0.749				Shapiro Wilk Test Statistic		0.945
295					5% Shapiro Wilk Critical Value	0.924				5% Shapiro Wilk Critical Value		0.924
296					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
297												
298					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
299					DL/2 Substitution Method					DL/2 Substitution Method		
300					Mean	130.5				Mean		4.091
301					SD	160.6				SD		1.422
302					95% DL/2 (t) UCL	178.6				95% H-Stat (DL/2) UCL		212.8
303												
304					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
305					Mean	118				Mean in Log Scale		4.191
306					SD	173.7				SD in Log Scale		1.236
307					95% MLE (t) UCL	170.1				Mean in Original Scale		131.1
308					95% MLE (Tiku) UCL	168.2				SD in Original Scale		160.1
309										95% Percentile Bootstrap UCL		178.1
310										95% BCA Bootstrap UCL		187.3
311												
312					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
313					k star (bias corrected)	1.004				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
314					Theta Star	148						
315					nu star	56.24						
316												
317					A-D Test Statistic	1.094				**Nonparametric Statistics**		
318					5% A-D Critical Value	0.772				Kaplan-Meier (KM) Method		

319					K-S Test Statistic	0.772					Mean	132.3
320					5% K-S Critical Value	0.17					SD	156.7
321	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	28.21
322											95% KM (t) UCL	180.1
323	**Assuming Gamma Distribution**										95% KM (z) UCL	178.7
324	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	179.9
325					Minimum	1E-09					95% KM (bootstrap t) UCL	196.7
326					Maximum	603					95% KM (BCA) UCL	182.2
327					Mean	130					95% KM (Percentile Bootstrap) UCL	178.8
328					Median	59					95% KM (Chebyshev) UCL	255.2
329					SD	161					97.5% KM (Chebyshev) UCL	308.4
330					k star	0.208					99% KM (Chebyshev) UCL	412.9
331					Theta star	624						
332					Nu star	13.34	**Potential UCLs to Use**					
333					AppChi2	6.12					95% KM (BCA) UCL	182.2
334					95% Gamma Approximate UCL	283.4						
335					95% Adjusted Gamma UCL	296						
336	**Note: DL/2 is not a recommended method.**											
337												
338												
339	**Benzo(k)fluoranthene**											
340												
341	**General Statistics**											
342					Number of Valid Data	23					Number of Detected Data	23
343					Number of Distinct Detected Data	22					Number of Non-Detect Data	0
344					Number of Missing Values	12					Percent Non-Detects	0.00%
345												
346	**Raw Statistics**						**Log-transformed Statistics**					
347					Minimum Detected	5.4					Minimum Detected	1.686
348					Maximum Detected	260					Maximum Detected	5.561
349					Mean of Detected	55.45					Mean of Detected	3.51
350					SD of Detected	62.39					SD of Detected	1.034
351					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
352					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
353												
354												
355	**UCL Statistics**											
356	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
357					Shapiro Wilk Test Statistic	0.745					Shapiro Wilk Test Statistic	0.984
358					5% Shapiro Wilk Critical Value	0.914					5% Shapiro Wilk Critical Value	0.914
359	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
360												
361	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
362					DL/2 Substitution Method						DL/2 Substitution Method	
363					Mean	55.45					Mean	3.51
364					SD	62.39					SD	1.034
365					95% DL/2 (t) UCL	77.79					95% H-Stat (DL/2) UCL	100.6
366												
367					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
368	**MLE method failed to converge properly**										Mean in Log Scale	N/A
369											SD in Log Scale	N/A
370											Mean in Original Scale	N/A
371											SD in Original Scale	N/A

372										95% Percentile Bootstrap UCL		N/A
373										95% BCA Bootstrap UCL		N/A
374												
375	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
376					k star (bias corrected)	1.008	**Data appear Gamma Distributed at 5% Significance Level**					
377					Theta Star	55						
378					nu star	46.38						
379												
380					A-D Test Statistic	0.464	**Nonparametric Statistics**					
381					5% A-D Critical Value	0.767				Kaplan-Meier (KM) Method		
382					K-S Test Statistic	0.767				Mean		55.45
383					5% K-S Critical Value	0.186				SD		61.02
384	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		13.01
385										95% KM (t) UCL		77.79
386	**Assuming Gamma Distribution**									95% KM (z) UCL		76.85
387					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		77.79
388					Minimum	5.4				95% KM (bootstrap t) UCL		89.34
389					Maximum	260				95% KM (BCA) UCL		79.46
390					Mean	55.45				95% KM (Percentile Bootstrap) UCL		78.7
391					Median	32				95% KM (Chebyshev) UCL		112.2
392					SD	62.39				97.5% KM (Chebyshev) UCL		136.7
393					k star	1.008				99% KM (Chebyshev) UCL		184.9
394					Theta star	55						
395					Nu star	46.38	**Potential UCLs to Use**					
396					AppChi2	31.75				95% KM (Chebyshev) UCL		112.2
397					95% Gamma Approximate UCL	81						
398					95% Adjusted Gamma UCL	83.3						
399	**Note: DL/2 is not a recommended method.**											
400												
401												
402	**Bis(2-ethylhexyl) phthalate**											
403												
404	**General Statistics**											
405					Number of Valid Data	32				Number of Detected Data		28
406					Number of Distinct Detected Data	28				Number of Non-Detect Data		4
407					Number of Missing Values	3				Percent Non-Detects		12.50%
408												
409	**Raw Statistics**						**Log-transformed Statistics**					
410					Minimum Detected	51				Minimum Detected		3.932
411					Maximum Detected	4500				Maximum Detected		8.412
412					Mean of Detected	701.4				Mean of Detected		5.756
413					SD of Detected	1046				SD of Detected		1.258
414					Minimum Non-Detect	62.7				Minimum Non-Detect		4.138
415					Maximum Non-Detect	480				Maximum Non-Detect		6.174
416												
417	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		24
418	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		8
419	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		75.00%
420												
421	**UCL Statistics**											
422	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
423					Shapiro Wilk Test Statistic	0.638				Shapiro Wilk Test Statistic		0.948
424					5% Shapiro Wilk Critical Value	0.924				5% Shapiro Wilk Critical Value		0.924

	A	B	C	D	E	F	G	H	I	J	K	L
425	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
426												
427	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
428	DL/2 Substitution Method						DL/2 Substitution Method					
429	Mean					630.9	Mean					5.607
430	SD					995.2	SD					1.283
431	95% DL/2 (t) UCL					929.2	95% H-Stat (DL/2) UCL					1085
432												
433	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
434	**MLE yields a negative mean**						Mean in Log Scale					5.607
435							SD in Log Scale					1.258
436							Mean in Original Scale					627.8
437							SD in Original Scale					996.4
438							95% Percentile Bootstrap UCL					952.1
439							95% BCA Bootstrap UCL					1008
440												
441	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
442	k star (bias corrected)					0.695	**Data appear Lognormal at 5% Significance Level**					
443	Theta Star					1010						
444	nu star					38.9						
445												
446	A-D Test Statistic					1.254	**Nonparametric Statistics**					
447	5% A-D Critical Value					0.785	Kaplan-Meier (KM) Method					
448	K-S Test Statistic					0.785	Mean					629.5
449	5% K-S Critical Value					0.172	SD					980.4
450	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					176.6
451							95% KM (t) UCL					928.9
452	**Assuming Gamma Distribution**						95% KM (z) UCL					920
453	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					928.2
454	Minimum					1E-09	95% KM (bootstrap t) UCL					1134
455	Maximum					4500	95% KM (BCA) UCL					929
456	Mean					637.4	95% KM (Percentile Bootstrap) UCL					915.1
457	Median					315	95% KM (Chebyshev) UCL					1399
458	SD					993.7	97.5% KM (Chebyshev) UCL					1732
459	k star					0.288	99% KM (Chebyshev) UCL					2387
460	Theta star					2212						
461	Nu star					18.44	**Potential UCLs to Use**					
462	AppChi2					9.708	97.5% KM (Chebyshev) UCL					1732
463	95% Gamma Approximate UCL					1211						
464	95% Adjusted Gamma UCL					1254						
465	**Note: DL/2 is not a recommended method.**											
466												
467												
468	**Dibenzo(a,h)anthracene**											
469												
470	**General Statistics**											
471	Number of Valid Data					32	Number of Detected Data					19
472	Number of Distinct Detected Data					17	Number of Non-Detect Data					13
473	Number of Missing Values					3	Percent Non-Detects					40.63%
474												
475	**Raw Statistics**						**Log-transformed Statistics**					
476	Minimum Detected					1.7	Minimum Detected					0.531
477	Maximum Detected					71	Maximum Detected					4.263

	A	B	C	D	E	F	G	H	I	J	K	L
478					Mean of Detected	16.61					Mean of Detected	2.176
479					SD of Detected	20.4					SD of Detected	1.169
480					Minimum Non-Detect	3.56					Minimum Non-Detect	1.27
481					Maximum Non-Detect	20					Maximum Non-Detect	2.996
482												
483	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	27
484	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
485	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	84.38%
486												
487	**UCL Statistics**											
488	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
489					Shapiro Wilk Test Statistic	0.72					Shapiro Wilk Test Statistic	0.952
490					5% Shapiro Wilk Critical Value	0.901					5% Shapiro Wilk Critical Value	0.901
491	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
492												
493	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
494					DL/2 Substitution Method						DL/2 Substitution Method	
495					Mean	11.43					Mean	1.735
496					SD	16.92					SD	1.126
497					95% DL/2 (t) UCL	16.5					95% H-Stat (DL/2) UCL	9.901
498												
499					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
500					Mean	49.98					Mean in Log Scale	1.665
501					SD	19.15					SD in Log Scale	1.107
502					95% MLE (t) UCL	55.71					Mean in Original Scale	10.94
503					95% MLE (Tiku) UCL	64.13					SD in Original Scale	17.05
504											95% Percentile Bootstrap UCL	16.18
505											95% BCA Bootstrap UCL	18
506												
507	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
508					k star (bias corrected)	0.809	**Data appear Gamma Distributed at 5% Significance Level**					
509					Theta Star	20.53						
510					nu star	30.74						
511												
512					A-D Test Statistic	0.578	**Nonparametric Statistics**					
513					5% A-D Critical Value	0.772					Kaplan-Meier (KM) Method	
514					K-S Test Statistic	0.772					Mean	11.01
515					5% K-S Critical Value	0.205					SD	16.79
516	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	3.061
517											95% KM (t) UCL	16.2
518	**Assuming Gamma Distribution**										95% KM (z) UCL	16.05
519					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	16.15
520					Minimum	1.7					95% KM (bootstrap t) UCL	19.74
521					Maximum	71					95% KM (BCA) UCL	16.63
522					Mean	15.13					95% KM (Percentile Bootstrap) UCL	16.25
523					Median	8.631					95% KM (Chebyshev) UCL	24.36
524					SD	16.65					97.5% KM (Chebyshev) UCL	30.13
525					k star	1.178					99% KM (Chebyshev) UCL	41.47
526					Theta star	12.84						
527					Nu star	75.42	**Potential UCLs to Use**					
528					AppChi2	56.42					95% KM (BCA) UCL	16.63
529					95% Gamma Approximate UCL	20.22						
530					95% Adjusted Gamma UCL	20.54						

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Note: DL/2 is not a recommended method.**											
532												
533												
534	**Dieldrin**											
535												
536	**General Statistics**											
537	Number of Valid Data					27	Number of Detected Data					7
538	Number of Distinct Detected Data					7	Number of Non-Detect Data					20
539	Number of Missing Values					5	Percent Non-Detects					74.07%
540												
541	**Raw Statistics**						**Log-transformed Statistics**					
542	Minimum Detected					0.164	Minimum Detected					-1.808
543	Maximum Detected					356	Maximum Detected					5.875
544	Mean of Detected					56.39	Mean of Detected					1.677
545	SD of Detected					132.3	SD of Detected					2.435
546	Minimum Non-Detect					0.0719	Minimum Non-Detect					-2.632
547	Maximum Non-Detect					1.6	Maximum Non-Detect					0.47
548												
549	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					22
550	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					5
551	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					81.48%
552												
553	**Warning: There are only 7 Detected Values in this data**											
554	**Note: It should be noted that even though bootstrap may be performed on this data set**											
555	**the resulting calculations may not be reliable enough tp draw conclusions**											
556												
557	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
558												
559												
560	**UCL Statistics**											
561	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
562	Shapiro Wilk Test Statistic					0.499	Shapiro Wilk Test Statistic					0.98
563	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
564	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
565												
566	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
567	DL/2 Substitution Method						DL/2 Substitution Method					
568	Mean					14.84	Mean					-0.683
569	SD					68.32	SD					1.988
570	95% DL/2 (t) UCL					37.27	95% H-Stat (DL/2) UCL					7.333
571												
572	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
573	**MLE yields a negative mean**						Mean in Log Scale					-4.022
574							SD in Log Scale					3.684
575							Mean in Original Scale					14.62
576							SD in Original Scale					68.37
577							95% Percentile Bootstrap UCL					40.66
578							95% BCA Bootstrap UCL					54.28
579												
580	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
581	k star (bias corrected)					0.263	**Data appear Gamma Distributed at 5% Significance Level**					
582	Theta Star					214.3						
583	nu star					3.683						

584												
585					A-D Test Statistic	0.651	**Nonparametric Statistics**					
586					5% A-D Critical Value	0.786				Kaplan-Meier (KM) Method		
587					K-S Test Statistic	0.786				Mean		14.75
588					5% K-S Critical Value	0.336				SD		67.06
589	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		13.94
590										95% KM (t) UCL		38.52
591	**Assuming Gamma Distribution**									95% KM (z) UCL		37.68
592					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		36.69
593					Minimum	0.164				95% KM (bootstrap t) UCL		513.5
594					Maximum	356				95% KM (BCA) UCL		43.87
595					Mean	60.17				95% KM (Percentile Bootstrap) UCL		41.33
596					Median	61.23				95% KM (Chebyshev) UCL		75.51
597					SD	63.62				97.5% KM (Chebyshev) UCL		101.8
598					k star	0.869				99% KM (Chebyshev) UCL		153.5
599					Theta star	69.26						
600					Nu star	46.91	**Potential UCLs to Use**					
601					AppChi2	32.19				95% KM (t) UCL		38.52
602					95% Gamma Approximate UCL	87.68						
603					95% Adjusted Gamma UCL	89.85						
604	**Note: DL/2 is not a recommended method.**											
605												
606												
607	**Indeno(1,2,3-cd)pyrene**											
608												
609	**General Statistics**											
610					Number of Valid Data	32				Number of Detected Data		25
611					Number of Distinct Detected Data	23				Number of Non-Detect Data		7
612					Number of Missing Values	3				Percent Non-Detects		21.88%
613												
614	**Raw Statistics**						**Log-transformed Statistics**					
615					Minimum Detected	8.6				Minimum Detected		2.152
616					Maximum Detected	320				Maximum Detected		5.768
617					Mean of Detected	65.82				Mean of Detected		3.729
618					SD of Detected	74.61				SD of Detected		0.95
619					Minimum Non-Detect	3.56				Minimum Non-Detect		1.27
620					Maximum Non-Detect	5.28				Maximum Non-Detect		1.664
621												
622	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		7
623	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		25
624	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		21.88%
625												
626	**UCL Statistics**											
627	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
628					Shapiro Wilk Test Statistic	0.708				Shapiro Wilk Test Statistic		0.972
629					5% Shapiro Wilk Critical Value	0.918				5% Shapiro Wilk Critical Value		0.918
630	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
631												
632	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
633					DL/2 Substitution Method					DL/2 Substitution Method		
634					Mean	51.86				Mean		3.064
635					SD	70.91				SD		1.528
636					95% DL/2 (t) UCL	73.11				95% H-Stat (DL/2) UCL		76.09

637												
638					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
639					Mean	40.58					Mean in Log Scale	3.258
640					SD	82.9					SD in Log Scale	1.233
641					95% MLE (t) UCL	65.43					Mean in Original Scale	52.48
642					95% MLE (Tiku) UCL	65.45					SD in Original Scale	70.47
643											95% Percentile Bootstrap UCL	73.14
644											95% BCA Bootstrap UCL	78.74
645												
646				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
647					k star (bias corrected)	1.112					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
648					Theta Star	59.22						
649					nu star	55.58						
650												
651					A-D Test Statistic	0.725					**Nonparametric Statistics**	
652					5% A-D Critical Value	0.768					Kaplan-Meier (KM) Method	
653					K-S Test Statistic	0.768					Mean	53.3
654					5% K-S Critical Value	0.179					SD	68.81
655				**Data follow Appr. Gamma Distribution at 5% Significance Level**							SE of Mean	12.41
656											95% KM (t) UCL	74.35
657				**Assuming Gamma Distribution**							95% KM (z) UCL	73.72
658					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	74.12
659					Minimum	1E-09					95% KM (bootstrap t) UCL	88.6
660					Maximum	320					95% KM (BCA) UCL	75.81
661					Mean	51.42					95% KM (Percentile Bootstrap) UCL	75.5
662					Median	28.5					95% KM (Chebyshev) UCL	107.4
663					SD	71.23					97.5% KM (Chebyshev) UCL	130.8
664					k star	0.147					99% KM (Chebyshev) UCL	176.8
665					Theta star	348.8						
666					Nu star	9.434					**Potential UCLs to Use**	
667					AppChi2	3.591					95% KM (BCA) UCL	75.81
668					95% Gamma Approximate UCL	135.1						
669					95% Adjusted Gamma UCL	142.7						
670	**Note: DL/2 is not a recommended method.**											
671												
672												
673	**Lead**											
674												
675						**General Statistics**							
676					Number of Valid Data	32					Number of Detected Data	32
677					Number of Distinct Detected Data	32					Number of Non-Detect Data	0
678					Number of Missing Values	3					Percent Non-Detects	0.00%
679												
680				**Raw Statistics**							**Log-transformed Statistics**	
681					Minimum Detected	12.8					Minimum Detected	2.549
682					Maximum Detected	956					Maximum Detected	6.863
683					Mean of Detected	108.4					Mean of Detected	3.955
684					SD of Detected	184.4					SD of Detected	1.117
685					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
686					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
687												
688												
689						**UCL Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
690	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
691	Shapiro Wilk Test Statistic					0.539	Shapiro Wilk Test Statistic					0.919
692	5% Shapiro Wilk Critical Value					0.93	5% Shapiro Wilk Critical Value					0.93
693	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
694												
695	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
696	DL/2 Substitution Method						DL/2 Substitution Method					
697	Mean					108.4	Mean					3.955
698	SD					184.4	SD					1.117
699	95% DL/2 (t) UCL					163.7	95% H-Stat (DL/2) UCL					162.6
700												
701	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
702	**MLE method failed to converge properly**						Mean in Log Scale					N/A
703							SD in Log Scale					N/A
704							Mean in Original Scale					N/A
705							SD in Original Scale					N/A
706							95% Percentile Bootstrap UCL					N/A
707							95% BCA Bootstrap UCL					N/A
708												
709	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
710	k star (bias corrected)					0.755	**Data do not follow a Discernable Distribution (0.05)**					
711	Theta Star					143.6						
712	nu star					48.34						
713												
714	A-D Test Statistic					1.812	**Nonparametric Statistics**					
715	5% A-D Critical Value					0.785	Kaplan-Meier (KM) Method					
716	K-S Test Statistic					0.785	Mean					108.4
717	5% K-S Critical Value					0.161	SD					181.5
718	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					32.6
719							95% KM (t) UCL					163.7
720	**Assuming Gamma Distribution**						95% KM (z) UCL					162.1
721	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					163.7
722	Minimum					12.8	95% KM (bootstrap t) UCL					236.6
723	Maximum					956	95% KM (BCA) UCL					172.1
724	Mean					108.4	95% KM (Percentile Bootstrap) UCL					163.3
725	Median					48.05	95% KM (Chebyshev) UCL					250.5
726	SD					184.4	97.5% KM (Chebyshev) UCL					312
727	k star					0.755	99% KM (Chebyshev) UCL					432.8
728	Theta star					143.6						
729	Nu star					48.34	**Potential UCLs to Use**					
730	AppChi2					33.38	97.5% KM (Chebyshev) UCL					312
731	95% Gamma Approximate UCL					157						
732	95% Adjusted Gamma UCL					160.2						
733	**Note: DL/2 is not a recommended method.**											
734												
735												
736	**Mercury**											
737												
738	**General Statistics**											
739	Number of Valid Data					32	Number of Detected Data					31
740	Number of Distinct Detected Data					27	Number of Non-Detect Data					1
741	Number of Missing Values					3	Percent Non-Detects					3.13%
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**Raw Statistics**						**Log-transformed Statistics**					
744	Minimum Detected					0.04	Minimum Detected					-3.219
745	Maximum Detected					2.01	Maximum Detected					0.698
746	Mean of Detected					0.208	Mean of Detected					-2.02
747	SD of Detected					0.351	SD of Detected					0.777
748	Minimum Non-Detect					0.0103	Minimum Non-Detect					-4.576
749	Maximum Non-Detect					0.0103	Maximum Non-Detect					-4.576
750												
751												
752	**UCL Statistics**											
753	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
754	Shapiro Wilk Test Statistic					0.406	Shapiro Wilk Test Statistic					0.856
755	5% Shapiro Wilk Critical Value					0.929	5% Shapiro Wilk Critical Value					0.929
756	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
757												
758	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
759	DL/2 Substitution Method						DL/2 Substitution Method					
760	Mean					0.201	Mean					-2.121
761	SD					0.348	SD					0.956
762	95% DL/2 (t) UCL					0.306	95% H-Stat (DL/2) UCL					0.259
763												
764	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
765	Mean					0.195	Mean in Log Scale					-2.077
766	SD					0.349	SD in Log Scale					0.83
767	95% MLE (t) UCL					0.299	Mean in Original Scale					0.202
768	95% MLE (Tiku) UCL					0.29	SD in Original Scale					0.347
769							95% Percentile Bootstrap UCL					0.317
770							95% BCA Bootstrap UCL					0.399
771												
772	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
773	k star (bias corrected)					1.156	**Data do not follow a Discernable Distribution (0.05)**					
774	Theta Star					0.18						
775	nu star					71.65						
776												
777	A-D Test Statistic					2.944	**Nonparametric Statistics**					
778	5% A-D Critical Value					0.769	Kaplan-Meier (KM) Method					
779	K-S Test Statistic					0.769	Mean					0.203
780	5% K-S Critical Value					0.161	SD					0.342
781	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0614
782							95% KM (t) UCL					0.307
783	**Assuming Gamma Distribution**						95% KM (z) UCL					0.303
784	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.306
785	Minimum					1E-09	95% KM (bootstrap t) UCL					0.539
786	Maximum					2.01	95% KM (BCA) UCL					0.33
787	Mean					0.201	95% KM (Percentile Bootstrap) UCL					0.322
788	Median					0.0963	95% KM (Chebyshev) UCL					0.47
789	SD					0.348	97.5% KM (Chebyshev) UCL					0.586
790	k star					0.578	99% KM (Chebyshev) UCL					0.813
791	Theta star					0.348						
792	Nu star					37	**Potential UCLs to Use**					
793	AppChi2					24.08	95% KM (Chebyshev) UCL					0.47
794	95% Gamma Approximate UCL					0.309						
795	95% Adjusted Gamma UCL					0.317						

	A	B	C	D	E	F	G	H	I	J	K	L
796	**Note: DL/2 is not a recommended method.**											
797												
798												
799	**Naphthalene**											
800												
801	**General Statistics**											
802	Number of Valid Data					32	Number of Detected Data					19
803	Number of Distinct Detected Data					19	Number of Non-Detect Data					13
804	Number of Missing Values					3	Percent Non-Detects					40.63%
805												
806	**Raw Statistics**						**Log-transformed Statistics**					
807	Minimum Detected					7.4	Minimum Detected					2.001
808	Maximum Detected					150	Maximum Detected					5.011
809	Mean of Detected					37.71	Mean of Detected					3.137
810	SD of Detected					43.36	SD of Detected					0.964
811	Minimum Non-Detect					0.69	Minimum Non-Detect					-0.371
812	Maximum Non-Detect					20	Maximum Non-Detect					2.996
813												
814	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					24
815	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					8
816	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					75.00%
817												
818	**UCL Statistics**											
819	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
820	Shapiro Wilk Test Statistic					0.707	Shapiro Wilk Test Statistic					0.901
821	5% Shapiro Wilk Critical Value					0.901	5% Shapiro Wilk Critical Value					0.901
822	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
823												
824	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
825	DL/2 Substitution Method						DL/2 Substitution Method					
826	Mean					24.45	Mean					2.369
827	SD					36.9	SD					1.374
828	95% DL/2 (t) UCL					35.51	95% H-Stat (DL/2) UCL					39.2
829												
830	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
831	**MLE yields a negative mean**						Mean in Log Scale					2.375
832							SD in Log Scale					1.237
833							Mean in Original Scale					24.08
834							SD in Original Scale					37.08
835							95% Percentile Bootstrap UCL					35.37
836							95% BCA Bootstrap UCL					36.9
837												
838	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
839	k star (bias corrected)					1.006	**Data do not follow a Discernable Distribution (0.05)**					
840	Theta Star					37.48						
841	nu star					38.24						
842												
843	A-D Test Statistic					1.17	**Nonparametric Statistics**					
844	5% A-D Critical Value					0.765	Kaplan-Meier (KM) Method					
845	K-S Test Statistic					0.765	Mean					25.75
846	5% K-S Critical Value					0.204	SD					35.62
847	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					6.474
848							95% KM (t) UCL					36.73

849	**Assuming Gamma Distribution**									95% KM (z) UCL		36.4
850				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		36.48
851				Minimum		0.156				95% KM (bootstrap t) UCL		44.31
852				Maximum		150				95% KM (BCA) UCL		37.63
853				Mean		29.1				95% KM (Percentile Bootstrap) UCL		37.31
854				Median		15.5				95% KM (Chebyshev) UCL		53.97
855				SD		37.5				97.5% KM (Chebyshev) UCL		66.18
856				k star		0.539				99% KM (Chebyshev) UCL		90.17
857				Theta star		53.97						
858				Nu star		34.51				**Potential UCLs to Use**		
859				AppChi2		22.07				95% KM (t) UCL		36.73
860				95% Gamma Approximate UCL		45.49				95% KM (% Bootstrap) UCL		37.31
861				95% Adjusted Gamma UCL		46.62						
862	**Note: DL/2 is not a recommended method.**											
863												
864												
865	**Thallium**											
866												
867						**General Statistics**						
868				Number of Valid Data		7				Number of Detected Data		5
869				Number of Distinct Detected Data		5				Number of Non-Detect Data		2
870				Number of Missing Values		28				Percent Non-Detects		28.57%
871												
872	**Raw Statistics**									**Log-transformed Statistics**		
873				Minimum Detected		0.124				Minimum Detected		-2.087
874				Maximum Detected		11				Maximum Detected		2.398
875				Mean of Detected		4.28				Mean of Detected		-0.271
876				SD of Detected		5.689				SD of Detected		2.394
877				Minimum Non-Detect		0.0753				Minimum Non-Detect		-2.586
878				Maximum Non-Detect		5				Maximum Non-Detect		1.609
879												
880	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		5
881	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
882	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		71.43%
883												
884	**Warning: There are only 5 Detected Values in this data**											
885	**Note: It should be noted that even though bootstrap may be performed on this data set**											
886	**the resulting calculations may not be reliable enough tp draw conclusions**											
887												
888	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
889												
890												
891	**UCL Statistics**											
892	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
893				Shapiro Wilk Test Statistic		0.713				Shapiro Wilk Test Statistic		0.705
894				5% Shapiro Wilk Critical Value		0.762				5% Shapiro Wilk Critical Value		0.762
895	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
896												
897	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
898				DL/2 Substitution Method						DL/2 Substitution Method		
899				Mean		3.42				Mean		-0.531
900				SD		4.924				SD		2.342
901				95% DL/2 (t) UCL		7.036				95% H-Stat (DL/2) UCL		9446

902												
903				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
904				**MLE method failed to converge properly**						Mean in Log Scale		-1.316
905										SD in Log Scale		2.781
906										Mean in Original Scale		3.07
907										SD in Original Scale		5.084
908										95% Percentile Bootstrap UCL		6.176
909										95% BCA Bootstrap UCL		6.2
910												
911				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
912				k star (bias corrected)		0.287				**Data do not follow a Discernable Distribution (0.05)**		
913				Theta Star		14.92						
914				nu star		2.869						
915												
916				A-D Test Statistic		0.861				**Nonparametric Statistics**		
917				5% A-D Critical Value		0.727				Kaplan-Meier (KM) Method		
918				K-S Test Statistic		0.727				Mean		3.093
919				5% K-S Critical Value		0.376				SD		4.692
920				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		1.983
921										95% KM (t) UCL		6.946
922				**Assuming Gamma Distribution**						95% KM (z) UCL		6.355
923				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		6.814
924				Minimum		0.124				95% KM (bootstrap t) UCL		1914
925				Maximum		11				95% KM (BCA) UCL		6.202
926				Mean		3.738				95% KM (Percentile Bootstrap) UCL		6.196
927				Median		1.684				95% KM (Chebyshev) UCL		11.74
928				SD		4.754				97.5% KM (Chebyshev) UCL		15.48
929				k star		0.38				99% KM (Chebyshev) UCL		22.82
930				Theta star		9.845						
931				Nu star		5.316				**Potential UCLs to Use**		
932				AppChi2		1.301				99% KM (Chebyshev) UCL		22.82
933				95% Gamma Approximate UCL		15.28						
934				95% Adjusted Gamma UCL		24.93						
935				**Warning: Recommended UCL exceeds the maximum observation**								
936	**Note: DL/2 is not a recommended method.**											
937												
938												
939	**Total Aroclors**											
940												
941						**General Statistics**						
942				Number of Valid Data		27				Number of Detected Data		27
943				Number of Distinct Detected Data		27				Number of Non-Detect Data		0
944				Number of Missing Values		5				Percent Non-Detects		0.00%
945												
946				**Raw Statistics**						**Log-transformed Statistics**		
947				Minimum Detected		17.95				Minimum Detected		2.888
948				Maximum Detected		30822				Maximum Detected		10.34
949				Mean of Detected		1380				Mean of Detected		5.168
950				SD of Detected		5891				SD of Detected		1.479
951				Minimum Non-Detect		N/A				Minimum Non-Detect		N/A
952				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
953												
954												

	A	B	C	D	E	F	G	H	I	J	K	L
955	**UCL Statistics**											
956	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
957					Shapiro Wilk Test Statistic	0.23				Shapiro Wilk Test Statistic		0.892
958					5% Shapiro Wilk Critical Value	0.923				5% Shapiro Wilk Critical Value		0.923
959	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
960												
961	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
962					DL/2 Substitution Method					DL/2 Substitution Method		
963					Mean	1380				Mean		5.168
964					SD	5891				SD		1.479
965					95% DL/2 (t) UCL	3313				95% H-Stat (DL/2) UCL		1297
966												
967					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
968	**MLE method failed to converge properly**									Mean in Log Scale		N/A
969										SD in Log Scale		N/A
970										Mean in Original Scale		N/A
971										SD in Original Scale		N/A
972										95% Percentile Bootstrap UCL		N/A
973										95% BCA Bootstrap UCL		N/A
974												
975	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
976					k star (bias corrected)	0.317	**Data do not follow a Discernable Distribution (0.05)**					
977					Theta Star	4346						
978					nu star	17.14						
979												
980					A-D Test Statistic	4.558	**Nonparametric Statistics**					
981					5% A-D Critical Value	0.846				Kaplan-Meier (KM) Method		
982					K-S Test Statistic	0.846				Mean		1380
983					5% K-S Critical Value	0.182				SD		5781
984	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		1134
985										95% KM (t) UCL		3313
986	**Assuming Gamma Distribution**									95% KM (z) UCL		3245
987					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		3313
988					Minimum	17.95				95% KM (bootstrap t) UCL		37073
989					Maximum	30822				95% KM (BCA) UCL		3657
990					Mean	1380				95% KM (Percentile Bootstrap) UCL		3626
991					Median	150.5				95% KM (Chebyshev) UCL		6322
992					SD	5891				97.5% KM (Chebyshev) UCL		8460
993					k star	0.317				99% KM (Chebyshev) UCL		12660
994					Theta star	4346						
995					Nu star	17.14				**Potential UCLs to Use**		
996					AppChi2	8.774				97.5% KM (Chebyshev) UCL		8460
997					95% Gamma Approximate UCL	2696						
998					95% Adjusted Gamma UCL	2818						
999	**Note: DL/2 is not a recommended method.**											
1000												
1001												
1002	**Total DDT**											
1003												
1004	**General Statistics**											
1005					Number of Valid Data	27				Number of Detected Data		15
1006					Number of Distinct Detected Data	15				Number of Non-Detect Data		12
1007					Number of Missing Values	5				Percent Non-Detects		44.44%

1008												
1009	**Raw Statistics**						**Log-transformed Statistics**					
1010					Minimum Detected	0.384					Minimum Detected	-0.958
1011					Maximum Detected	66.84					Maximum Detected	4.202
1012					Mean of Detected	9.043					Mean of Detected	1.308
1013					SD of Detected	17.41					SD of Detected	1.215
1014					Minimum Non-Detect	0.72					Minimum Non-Detect	-0.329
1015					Maximum Non-Detect	7.46					Maximum Non-Detect	2.01
1016												
1017	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	25
1018	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
1019	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.59%
1020												
1021	**UCL Statistics**											
1022	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1023					Shapiro Wilk Test Statistic	0.493					Shapiro Wilk Test Statistic	0.883
1024					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
1025	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1026												
1027	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1028					DL/2 Substitution Method						DL/2 Substitution Method	
1029					Mean	6.037					Mean	1.043
1030					SD	13.24					SD	1.019
1031					95% DL/2 (t) UCL	10.38					95% H-Stat (DL/2) UCL	5.454
1032												
1033					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1034	**MLE method failed to converge properly**										Mean in Log Scale	0.96
1035											SD in Log Scale	1.021
1036											Mean in Original Scale	5.832
1037											SD in Original Scale	13.29
1038											95% Percentile Bootstrap UCL	10.27
1039											95% BCA Bootstrap UCL	13.1
1040												
1041	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1042					k star (bias corrected)	0.588	**Data appear Lognormal at 5% Significance Level**					
1043					Theta Star	15.39						
1044					nu star	17.63						
1045												
1046					A-D Test Statistic	1.75	**Nonparametric Statistics**					
1047					5% A-D Critical Value	0.78	Kaplan-Meier (KM) Method					
1048					K-S Test Statistic	0.78					Mean	5.91
1049					5% K-S Critical Value	0.231					SD	13.04
1050	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	2.604
1051											95% KM (t) UCL	10.35
1052	**Assuming Gamma Distribution**										95% KM (z) UCL	10.19
1053					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	10.2
1054					Minimum	0.384					95% KM (bootstrap t) UCL	32.29
1055					Maximum	66.84					95% KM (BCA) UCL	11
1056					Mean	9.023					95% KM (Percentile Bootstrap) UCL	10.54
1057					Median	8.734					95% KM (Chebyshev) UCL	17.26
1058					SD	12.78					97.5% KM (Chebyshev) UCL	22.17
1059					k star	1.042					99% KM (Chebyshev) UCL	31.82
1060					Theta star	8.655						

1061					Nu star	56.29	**Potential UCLs to Use**					
1062					AppChi2	40.05				97.5% KM (Chebyshev) UCL		22.17
1063					95% Gamma Approximate UCL	12.68						
1064					95% Adjusted Gamma UCL	12.97						
1065	**Note: DL/2 is not a recommended method.**											
1066												
1067												
1068	**Total Dioxin/Furan TEQ**											
1069												
1070	**General Statistics**											
1071					Number of Valid Data	5				Number of Detected Data		5
1072					Number of Distinct Detected Data	5				Number of Non-Detect Data		0
1073					Number of Missing Values	14				Percent Non-Detects		0.00%
1074												
1075	**Raw Statistics**						**Log-transformed Statistics**					
1076					Minimum Detected	0.189				Minimum Detected		-1.666
1077					Maximum Detected	18.19				Maximum Detected		2.901
1078					Mean of Detected	5				Mean of Detected		0.443
1079					SD of Detected	7.59				SD of Detected		1.862
1080					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1081					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1082												
1083												
1084	**Warning: There are only 5 Detected Values in this data**											
1085	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1086	**the resulting calculations may not be reliable enough tp draw conclusions**											
1087												
1088	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1089												
1090												
1091	**UCL Statistics**											
1092	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1093					Shapiro Wilk Test Statistic	0.734				Shapiro Wilk Test Statistic		0.964
1094					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
1095	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1096												
1097	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1098					DL/2 Substitution Method					DL/2 Substitution Method		
1099					Mean	5				Mean		0.443
1100					SD	7.59				SD		1.862
1101					95% DL/2 (t) UCL	12.24				95% H-Stat (DL/2) UCL		30494
1102												
1103					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1104	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1105										SD in Log Scale		N/A
1106										Mean in Original Scale		N/A
1107										SD in Original Scale		N/A
1108										95% Percentile Bootstrap UCL		N/A
1109										95% BCA Bootstrap UCL		N/A
1110												
1111	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1112					k star (bias corrected)	0.349	**Data appear Gamma Distributed at 5% Significance Level**					
1113					Theta Star	14.34						

1114					nu star	3.486						
1115												
1116					A-D Test Statistic	0.284	**Nonparametric Statistics**					
1117					5% A-D Critical Value	0.709				Kaplan-Meier (KM) Method		
1118					K-S Test Statistic	0.709				Mean		5
1119					5% K-S Critical Value	0.371				SD		6.789
1120	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		3.394
1121										95% KM (t) UCL		12.24
1122	**Assuming Gamma Distribution**									95% KM (z) UCL		10.58
1123	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		12.24
1124					Minimum	0.189				95% KM (bootstrap t) UCL		49.73
1125					Maximum	18.19				95% KM (BCA) UCL		11.27
1126					Mean	5				95% KM (Percentile Bootstrap) UCL		11.06
1127					Median	1.591				95% KM (Chebyshev) UCL		19.8
1128					SD	7.59				97.5% KM (Chebyshev) UCL		26.2
1129					k star	0.349				99% KM (Chebyshev) UCL		38.77
1130					Theta star	14.34						
1131					Nu star	3.486	**Potential UCLs to Use**					
1132					AppChi2	0.53				95% KM (Chebyshev) UCL		19.8
1133					95% Gamma Approximate UCL	32.9						
1134					95% Adjusted Gamma UCL	85						
1135	**Warning: Recommended UCL exceeds the maximum observation**											
1136	**Note: DL/2 is not a recommended method.**											
1137												
1138												
1139	**Total Dioxin-like PCBs**											
1140												
1141	**General Statistics**											
1142					Number of Valid Data	8				Number of Detected Data		8
1143					Number of Distinct Detected Data	8				Number of Non-Detect Data		0
1144					Number of Missing Values	11				Percent Non-Detects		0.00%
1145												
1146	**Raw Statistics**						**Log-transformed Statistics**					
1147					Minimum Detected	1224				Minimum Detected		7.11
1148					Maximum Detected	958845				Maximum Detected		13.77
1149					Mean of Detected	129318				Mean of Detected		9.062
1150					SD of Detected	335691				SD of Detected		2.224
1151					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1152					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1153												
1154												
1155	**Warning: There are only 8 Detected Values in this data**											
1156	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1157	**the resulting calculations may not be reliable enough tp draw conclusions**											
1158												
1159	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1160												
1161												
1162	**UCL Statistics**											
1163	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1164					Shapiro Wilk Test Statistic	0.452				Shapiro Wilk Test Statistic		0.799
1165					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value		0.818
1166	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					

	A	B	C	D	E	F	G	H	I	J	K	L
1167												
1168	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1169	DL/2 Substitution Method						DL/2 Substitution Method					
1170	Mean					129318	Mean					9.062
1171	SD					335691	SD					2.224
1172	95% DL/2 (t) UCL					354175	95% H-Stat (DL/2) UCL					30281968
1173												
1174	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1175	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1176							SD in Log Scale					N/A
1177							Mean in Original Scale					N/A
1178							SD in Original Scale					N/A
1179							95% Percentile Bootstrap UCL					N/A
1180							95% BCA Bootstrap UCL					N/A
1181												
1182	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1183	k star (bias corrected)					0.246	**Data do not follow a Discernable Distribution (0.05)**					
1184	Theta Star					525275						
1185	nu star					3.939						
1186												
1187	A-D Test Statistic					1.378	**Nonparametric Statistics**					
1188	5% A-D Critical Value					0.812	Kaplan-Meier (KM) Method					
1189	K-S Test Statistic					0.812	Mean					129318
1190	5% K-S Critical Value					0.319	SD					314010
1191	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					118685
1192							95% KM (t) UCL					354175
1193	**Assuming Gamma Distribution**						95% KM (z) UCL					324537
1194	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					354175
1195	Minimum					1224	95% KM (bootstrap t) UCL					27733119
1196	Maximum					958845	95% KM (BCA) UCL					361872
1197	Mean					129318	95% KM (Percentile Bootstrap) UCL					361865
1198	Median					4304	95% KM (Chebyshev) UCL					646652
1199	SD					335691	97.5% KM (Chebyshev) UCL					870503
1200	k star					0.246	99% KM (Chebyshev) UCL					1310214
1201	Theta star					525275						
1202	Nu star					3.939	**Potential UCLs to Use**					
1203	AppChi2					0.698	99% KM (Chebyshev) UCL					1310214
1204	95% Gamma Approximate UCL					730033						
1205	95% Adjusted Gamma UCL					1197331						
1206	**Warning: Recommended UCL exceeds the maximum observation**											
1207	**Note: DL/2 is not a recommended method.**											
1208												
1209												
1210	**Total PCB TEQ**											
1211												
1212	**General Statistics**											
1213	Number of Valid Data					8	Number of Detected Data					8
1214	Number of Distinct Detected Data					8	Number of Non-Detect Data					0
1215	Number of Missing Values					11	Percent Non-Detects					0.00%
1216												
1217	**Raw Statistics**						**Log-transformed Statistics**					
1218	Minimum Detected					0.512	Minimum Detected					-0.67
1219	Maximum Detected					239.2	Maximum Detected					5.477

	A	B	C	D	E	F	G	H	I	J	K	L
1220					Mean of Detected	32.92					Mean of Detected	1.109
1221					SD of Detected	83.52					SD of Detected	2.055
1222					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1223					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1224												
1225												
1226					Warning: There are only 8 Detected Values in this data							
1227					Note: It should be noted that even though bootstrap may be performed on this data set							
1228					the resulting calculations may not be reliable enough tp draw conclusions							
1229												
1230					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
1231												
1232												
1233					UCL Statistics							
1234					Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only		
1235					Shapiro Wilk Test Statistic	0.459					Shapiro Wilk Test Statistic	0.793
1236					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
1237					Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level	
1238												
1239					Assuming Normal Distribution						Assuming Lognormal Distribution	
1240					DL/2 Substitution Method						DL/2 Substitution Method	
1241					Mean	32.92					Mean	1.109
1242					SD	83.52					SD	2.055
1243					95% DL/2 (t) UCL	88.87					95% H-Stat (DL/2) UCL	3325
1244												
1245					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1246					MLE method failed to converge properly						Mean in Log Scale	N/A
1247											SD in Log Scale	N/A
1248											Mean in Original Scale	N/A
1249											SD in Original Scale	N/A
1250											95% Percentile Bootstrap UCL	N/A
1251											95% BCA Bootstrap UCL	N/A
1252												
1253					Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only	
1254					k star (bias corrected)	0.265					Data do not follow a Discernable Distribution (0.05)	
1255					Theta Star	124.3						
1256					nu star	4.239						
1257												
1258					A-D Test Statistic	1.375					Nonparametric Statistics	
1259					5% A-D Critical Value	0.801					Kaplan-Meier (KM) Method	
1260					K-S Test Statistic	0.801					Mean	32.92
1261					5% K-S Critical Value	0.318					SD	78.12
1262					Data not Gamma Distributed at 5% Significance Level						SE of Mean	29.53
1263											95% KM (t) UCL	88.87
1264					Assuming Gamma Distribution						95% KM (z) UCL	81.49
1265					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	88.87
1266					Minimum	0.512					95% KM (bootstrap t) UCL	5191
1267					Maximum	239.2					95% KM (BCA) UCL	90.54
1268					Mean	32.92					95% KM (Percentile Bootstrap) UCL	90.57
1269					Median	1.563					95% KM (Chebyshev) UCL	161.6
1270					SD	83.52					97.5% KM (Chebyshev) UCL	217.3
1271					k star	0.265					99% KM (Chebyshev) UCL	326.7
1272					Theta star	124.3						

1273					Nu star	4.239	**Potential UCLs to Use**					
1274					AppChi2	0.818				99% KM (Chebyshev) UCL		326.7
1275					95% Gamma Approximate UCL	170.6						
1276					95% Adjusted Gamma UCL	273.6						
1277	**Warning: Recommended UCL exceeds the maximum observation**											
1278	**Note: DL/2 is not a recommended method.**											
1279												
1280												
1281	**Total PCB_Congeners**											
1282												
1283	**General Statistics**											
1284					Number of Valid Data	8				Number of Detected Data		8
1285					Number of Distinct Detected Data	8				Number of Non-Detect Data		0
1286					Number of Missing Values	11				Percent Non-Detects		0.00%
1287												
1288	**Raw Statistics**						**Log-transformed Statistics**					
1289					Minimum Detected	24575				Minimum Detected		10.11
1290					Maximum Detected	35440913				Maximum Detected		17.38
1291					Mean of Detected	4678616				Mean of Detected		12.24
1292					SD of Detected	12440426				SD of Detected		2.426
1293					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1294					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1295												
1296												
1297	**Warning: There are only 8 Detected Values in this data**											
1298	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1299	**the resulting calculations may not be reliable enough tp draw conclusions**											
1300												
1301	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1302												
1303												
1304	**UCL Statistics**											
1305	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1306					Shapiro Wilk Test Statistic	0.444				Shapiro Wilk Test Statistic		0.807
1307					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value		0.818
1308	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1309												
1310	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1311					DL/2 Substitution Method					DL/2 Substitution Method		
1312					Mean	4678616				Mean		12.24
1313					SD	12440426				SD		2.426
1314					95% DL/2 (t) UCL	13011645				95% H-Stat (DL/2) UCL		3.332E+09
1315												
1316					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1317	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1318										SD in Log Scale		N/A
1319										Mean in Original Scale		N/A
1320										SD in Original Scale		N/A
1321										95% Percentile Bootstrap UCL		N/A
1322										95% BCA Bootstrap UCL		N/A
1323												
1324	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1325					k star (bias corrected)	0.228	**Data do not follow a Discernable Distribution (0.05)**					

1326					Theta Star	20549104						
1327					nu star	3.643						
1328												
1329					A-D Test Statistic	1.38	**Nonparametric Statistics**					
1330					5% A-D Critical Value	0.824	Kaplan-Meier (KM) Method					
1331					K-S Test Statistic	0.824	Mean	4678616				
1332					5% K-S Critical Value	0.321	SD	11636953				
1333	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	4398355				
1334							95% KM (t) UCL	13011645				
1335	**Assuming Gamma Distribution**						95% KM (z) UCL	11913266				
1336					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	13011645				
1337					Minimum	24575	95% KM (bootstrap t) UCL	1.445E+09				
1338					Maximum	35440913	95% KM (BCA) UCL	13516098				
1339					Mean	4678616	95% KM (Percentile Bootstrap) UCL	13344176				
1340					Median	102783	95% KM (Chebyshev) UCL	23850601				
1341					SD	12440426	97.5% KM (Chebyshev) UCL	32146334				
1342					k star	0.228	99% KM (Chebyshev) UCL	48441695				
1343					Theta star	20549104						
1344					Nu star	3.643	**Potential UCLs to Use**					
1345					AppChi2	0.586	99% KM (Chebyshev) UCL	48441695				
1346					95% Gamma Approximate UCL	29089020						
1347					95% Adjusted Gamma UCL	48775076						
1348	**Warning: Recommended UCL exceeds the maximum observation**											
1349	**Note: DL/2 is not a recommended method.**											
1350												
1351												
1352	**Total PCBs, Adjusted**											
1353												
1354	**General Statistics**											
1355					Number of Valid Data	8	Number of Detected Data	8				
1356					Number of Distinct Detected Data	8	Number of Non-Detect Data	0				
1357					Number of Missing Values	11	Percent Non-Detects	0.00%				
1358												
1359	**Raw Statistics**						**Log-transformed Statistics**					
1360					Minimum Detected	23351	Minimum Detected	10.06				
1361					Maximum Detected	34482068	Maximum Detected	17.36				
1362					Mean of Detected	4549298	Mean of Detected	12.2				
1363					SD of Detected	12104769	SD of Detected	2.434				
1364					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
1365					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1366												
1367												
1368	**Warning: There are only 8 Detected Values in this data**											
1369	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1370	**the resulting calculations may not be reliable enough tp draw conclusions**											
1371												
1372	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1373												
1374												
1375	**UCL Statistics**											
1376	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1377					Shapiro Wilk Test Statistic	0.443	Shapiro Wilk Test Statistic	0.807				
1378					5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818				

1379	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1380												
1381	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1382	DL/2 Substitution Method						DL/2 Substitution Method					
1383	Mean				4549298		Mean				12.2	
1384	SD				12104769		SD				2.434	
1385	95% DL/2 (t) UCL				12657493		95% H-Stat (DL/2) UCL				3.397E+09	
1386												
1387	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
1388	**MLE method failed to converge properly**						Mean in Log Scale				N/A	
1389							SD in Log Scale				N/A	
1390							Mean in Original Scale				N/A	
1391							SD in Original Scale				N/A	
1392							95% Percentile Bootstrap UCL				N/A	
1393							95% BCA Bootstrap UCL				N/A	
1394												
1395	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1396	k star (bias corrected)				0.227		**Data do not follow a Discernable Distribution (0.05)**					
1397	Theta Star				20034586							
1398	nu star				3.633							
1399												
1400	A-D Test Statistic				1.379		**Nonparametric Statistics**					
1401	5% A-D Critical Value				0.824		Kaplan-Meier (KM) Method					
1402	K-S Test Statistic				0.824		Mean				4549298	
1403	5% K-S Critical Value				0.321		SD				11322975	
1404	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean				4279682	
1405							95% KM (t) UCL				12657493	
1406	**Assuming Gamma Distribution**						95% KM (z) UCL				11588749	
1407	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				12657493	
1408	Minimum				23351		95% KM (bootstrap t) UCL				1.368E+09	
1409	Maximum				34482068		95% KM (BCA) UCL				12978702	
1410	Mean				4549298		95% KM (Percentile Bootstrap) UCL				12972526	
1411	Median				98479		95% KM (Chebyshev) UCL				23204001	
1412	SD				12104769		97.5% KM (Chebyshev) UCL				31275905	
1413	k star				0.227		99% KM (Chebyshev) UCL				47131599	
1414	Theta star				20034586							
1415	Nu star				3.633		**Potential UCLs to Use**					
1416	AppChi2				0.582		99% KM (Chebyshev) UCL				47131599	
1417	95% Gamma Approximate UCL				28380982							
1418	95% Adjusted Gamma UCL				47621849							
1419	**Warning: Recommended UCL exceeds the maximum observation**											
1420	**Note: DL/2 is not a recommended method.**											
1421												
1422												
1423	**Tributyltin ion**											
1424												
1425	**General Statistics**											
1426	Number of Valid Data				18		Number of Detected Data				17	
1427	Number of Distinct Detected Data				16		Number of Non-Detect Data				1	
1428	Number of Missing Values				17		Percent Non-Detects				5.56%	
1429												
1430	**Raw Statistics**						**Log-transformed Statistics**					
1431	Minimum Detected				2.1		Minimum Detected				0.742	

1432					Maximum Detected	30					Maximum Detected	3.401
1433					Mean of Detected	13.21					Mean of Detected	2.231
1434					SD of Detected	9.669					SD of Detected	0.946
1435					Minimum Non-Detect	5.7					Minimum Non-Detect	1.74
1436					Maximum Non-Detect	5.7					Maximum Non-Detect	1.74
1437												
1438												
1439	**UCL Statistics**											
1440	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1441					Shapiro Wilk Test Statistic	0.898					Shapiro Wilk Test Statistic	0.895
1442					5% Shapiro Wilk Critical Value	0.892					5% Shapiro Wilk Critical Value	0.892
1443	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1444												
1445	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1446					DL/2 Substitution Method						DL/2 Substitution Method	
1447					Mean	12.64					Mean	2.165
1448					SD	9.693					SD	0.96
1449					95% DL/2 (t) UCL	16.61					95% H-Stat (DL/2) UCL	21.99
1450												
1451					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1452					Mean	11.07					Mean in Log Scale	2.173
1453					SD	11.7					SD in Log Scale	0.951
1454					95% MLE (t) UCL	15.87					Mean in Original Scale	12.66
1455					95% MLE (Tiku) UCL	16.29					SD in Original Scale	9.67
1456											95% Percentile Bootstrap UCL	16.08
1457											95% BCA Bootstrap UCL	16.52
1458												
1459	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1460					k star (bias corrected)	1.336	**Data appear Normal at 5% Significance Level**					
1461					Theta Star	9.887						
1462					nu star	45.43						
1463												
1464					A-D Test Statistic	0.541	**Nonparametric Statistics**					
1465					5% A-D Critical Value	0.755					Kaplan-Meier (KM) Method	
1466					K-S Test Statistic	0.755					Mean	12.63
1467					5% K-S Critical Value	0.213					SD	9.428
1468	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	2.291
1469											95% KM (t) UCL	16.62
1470	**Assuming Gamma Distribution**										95% KM (z) UCL	16.4
1471					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	16.61
1472					Minimum	2.1					95% KM (bootstrap t) UCL	16.83
1473					Maximum	30					95% KM (BCA) UCL	16.19
1474					Mean	12.63					95% KM (Percentile Bootstrap) UCL	16.14
1475					Median	9.8					95% KM (Chebyshev) UCL	22.62
1476					SD	9.697					97.5% KM (Chebyshev) UCL	26.94
1477					k star	1.278					99% KM (Chebyshev) UCL	35.42
1478					Theta star	9.887						
1479					Nu star	46	**Potential UCLs to Use**					
1480					AppChi2	31.44					95% KM (t) UCL	16.62
1481					95% Gamma Approximate UCL	18.48					95% KM (Percentile Bootstrap) UCL	16.14
1482					95% Adjusted Gamma UCL	19.19						
1483	**Note: DL/2 is not a recommended method.**											
1484												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM9.0E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12				Number of Valid Observations	16			Number of Distinct Observations	16			
13												
14				Raw Statistics				Log-transformed Statistics				
15				Minimum	2.08			Minimum of Log Data	0.732			
16				Maximum	11.6			Maximum of Log Data	2.451			
17				Mean	3.8			Mean of log Data	1.233			
18				Median	3.18			SD of log Data	0.419			
19				SD	2.275							
20				Coefficient of Variation	0.599							
21				Skewness	3.003							
22												
23						Relevant UCL Statistics						
24				Normal Distribution Test				Lognormal Distribution Test				
25				Shapiro Wilk Test Statistic	0.635			Shapiro Wilk Test Statistic	0.859			
26				Shapiro Wilk Critical Value	0.887			Shapiro Wilk Critical Value	0.887			
27				Data not Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level				
28												
29				Assuming Normal Distribution				Assuming Lognormal Distribution				
30				95% Student's-t UCL	4.797			95% H-UCL	4.635			
31				95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	5.461			
32				95% Adjusted-CLT UCL	5.192			97.5% Chebyshev (MVUE) UCL	6.213			
33				95% Modified-t UCL	4.868			99% Chebyshev (MVUE) UCL	7.69			
34												
35				Gamma Distribution Test				Data Distribution				
36				k star (bias corrected)	4.152			Data do not follow a Discernable Distribution (0.05)				
37				Theta Star	0.915							
38				nu star	132.9							
39				Approximate Chi Square Value (.05)	107.2			Nonparametric Statistics				
40				Adjusted Level of Significance	0.0335			95% CLT UCL	4.736			
41				Adjusted Chi Square Value	104.6			95% Jackknife UCL	4.797			
42								95% Standard Bootstrap UCL	4.704			
43				Anderson-Darling Test Statistic	1.086			95% Bootstrap-t UCL	6.063			
44				Anderson-Darling 5% Critical Value	0.741			95% Hall's Bootstrap UCL	8.498			
45				Kolmogorov-Smirnov Test Statistic	0.221			95% Percentile Bootstrap UCL	4.805			
46				Kolmogorov-Smirnov 5% Critical Value	0.216			95% BCA Bootstrap UCL	5.355			
47				Data not Gamma Distributed at 5% Significance Level				95% Chebyshev(Mean, Sd) UCL	6.279			
48								97.5% Chebyshev(Mean, Sd) UCL	7.352			
49				Assuming Gamma Distribution				99% Chebyshev(Mean, Sd) UCL	9.459			
50				95% Approximate Gamma UCL	4.708							
51				95% Adjusted Gamma UCL	4.826							
52												
53				Potential UCL to Use				Use 95% Student's-t UCL	4.797			

54											or 95% Modified-t UCL	4.868
55												
56												
57	**Benzo(a)anthracene**											
58												
59						**General Statistics**						
60						Number of Valid Data	15				Number of Detected Data	12
61						Number of Distinct Detected Data	10				Number of Non-Detect Data	3
62						Number of Missing Values	1				Percent Non-Detects	20.00%
63												
64						**Raw Statistics**					**Log-transformed Statistics**	
65						Minimum Detected	2.9				Minimum Detected	1.065
66						Maximum Detected	22				Maximum Detected	3.091
67						Mean of Detected	11.93				Mean of Detected	2.224
68						SD of Detected	7.443				SD of Detected	0.811
69						Minimum Non-Detect	1.58				Minimum Non-Detect	0.457
70						Maximum Non-Detect	16.8				Maximum Non-Detect	2.821
71												
72	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
73	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
74	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	73.33%
75												
76						**UCL Statistics**						
77						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
78						Shapiro Wilk Test Statistic	0.867				Shapiro Wilk Test Statistic	0.832
79						5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value	0.859
80						**Data appear Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**	
81												
82						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
83						DL/2 Substitution Method					DL/2 Substitution Method	
84						Mean	10.21				Mean	1.89
85						SD	7.678				SD	1.122
86						95% DL/2 (t) UCL	13.7				95% H-Stat (DL/2) UCL	16.99
87												
88						Maximum Likelihood Estimate(MLE) Method					Log ROS Method	
89						Mean	20.07				Mean in Log Scale	1.958
90						SD	1.414				SD in Log Scale	0.937
91						95% MLE (t) UCL	20.71				Mean in Original Scale	10.1
92						95% MLE (Tiku) UCL	21.31				SD in Original Scale	7.636
93											95% Percentile Bootstrap UCL	13.25
94											95% BCA Bootstrap UCL	13.2
95												
96						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
97						k star (bias corrected)	1.643				**Data appear Normal at 5% Significance Level**	
98						Theta Star	7.261					
99						nu star	39.42					
100												
101						A-D Test Statistic	0.841				**Nonparametric Statistics**	
102						5% A-D Critical Value	0.741				Kaplan-Meier (KM) Method	
103						K-S Test Statistic	0.741				Mean	10.39
104						5% K-S Critical Value	0.248				SD	7.244
105						**Data follow Appr. Gamma Distribution at 5% Significance Level**					SE of Mean	1.988
106											95% KM (t) UCL	13.89

107	**Assuming Gamma Distribution**									95% KM (z) UCL		13.66
108	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		13.86
109	Minimum					1.286				95% KM (bootstrap t) UCL		14.13
110	Maximum					22				95% KM (BCA) UCL		13.71
111	Mean					10.49				95% KM (Percentile Bootstrap) UCL		13.64
112	Median					11.58				95% KM (Chebyshev) UCL		19.05
113	SD					7.582				97.5% KM (Chebyshev) UCL		22.8
114	k star					1.231				99% KM (Chebyshev) UCL		30.16
115	Theta star					8.521						
116	Nu star					36.92				**Potential UCLs to Use**		
117	AppChi2					24.01				95% KM (t) UCL		13.89
118	95% Gamma Approximate UCL					16.12				95% KM (Percentile Bootstrap) UCL		13.64
119	95% Adjusted Gamma UCL					17.03						
120	**Note: DL/2 is not a recommended method.**											
121												
122												
123	**Benzo(a)pyrene**											
124												
125	**General Statistics**											
126	Number of Valid Data					15				Number of Detected Data		12
127	Number of Distinct Detected Data					11				Number of Non-Detect Data		3
128	Number of Missing Values					1				Percent Non-Detects		20.00%
129												
130	**Raw Statistics**									**Log-transformed Statistics**		
131	Minimum Detected					4.2				Minimum Detected		1.435
132	Maximum Detected					35				Maximum Detected		3.555
133	Mean of Detected					14.83				Mean of Detected		2.47
134	SD of Detected					9.901				SD of Detected		0.735
135	Minimum Non-Detect					1.59				Minimum Non-Detect		0.464
136	Maximum Non-Detect					16.8				Maximum Non-Detect		2.821
137												
138	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		11
139	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
140	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		73.33%
141												
142	**UCL Statistics**											
143	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
144	Shapiro Wilk Test Statistic					0.899				Shapiro Wilk Test Statistic		0.919
145	5% Shapiro Wilk Critical Value					0.859				5% Shapiro Wilk Critical Value		0.859
146	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
147												
148	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
149	DL/2 Substitution Method									DL/2 Substitution Method		
150	Mean					12.57				Mean		2.122
151	SD					10.08				SD		1.078
152	95% DL/2 (t) UCL					17.15				95% H-Stat (DL/2) UCL		20.19
153												
154	Maximum Likelihood Estimate(MLE) Method									Log ROS Method		
155	Mean					7.803				Mean in Log Scale		2.217
156	SD					14.4				SD in Log Scale		0.866
157	95% MLE (t) UCL					14.35				Mean in Original Scale		12.62
158	95% MLE (Tiku) UCL					20.29				SD in Original Scale		9.938
159										95% Percentile Bootstrap UCL		16.88

160											95% BCA Bootstrap UCL	17.2
161												
162	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
163					k star (bias corrected)	1.824					**Data appear Normal at 5% Significance Level**	
164					Theta Star	8.129						
165					nu star	43.78						
166												
167					A-D Test Statistic	0.349					**Nonparametric Statistics**	
168					5% A-D Critical Value	0.741					Kaplan-Meier (KM) Method	
169					K-S Test Statistic	0.741					Mean	12.99
170					5% K-S Critical Value	0.248					SD	9.37
171	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	2.551
172											95% KM (t) UCL	17.48
173	**Assuming Gamma Distribution**										95% KM (z) UCL	17.18
174					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	17.45
175					Minimum	2.207					95% KM (bootstrap t) UCL	18.37
176					Maximum	35					95% KM (BCA) UCL	17.12
177					Mean	13.13					95% KM (Percentile Bootstrap) UCL	17.28
178					Median	14					95% KM (Chebyshev) UCL	24.1
179					SD	9.833					97.5% KM (Chebyshev) UCL	28.92
180					k star	1.433					99% KM (Chebyshev) UCL	38.37
181					Theta star	9.158						
182					Nu star	43					**Potential UCLs to Use**	
183					AppChi2	28.97					95% KM (t) UCL	17.48
184					95% Gamma Approximate UCL	19.49					95% KM (Percentile Bootstrap) UCL	17.28
185					95% Adjusted Gamma UCL	20.49						
186	**Note: DL/2 is not a recommended method.**											
187												
188												
189	**Benzo(b)fluoranthene**											
190												
191	**General Statistics**											
192					Number of Valid Data	15					Number of Detected Data	13
193					Number of Distinct Detected Data	13					Number of Non-Detect Data	2
194					Number of Missing Values	1					Percent Non-Detects	13.33%
195												
196	**Raw Statistics**										**Log-transformed Statistics**	
197					Minimum Detected	3.7					Minimum Detected	1.308
198					Maximum Detected	39					Maximum Detected	3.664
199					Mean of Detected	19.42					Mean of Detected	2.722
200					SD of Detected	12.01					SD of Detected	0.803
201					Minimum Non-Detect	5.36					Minimum Non-Detect	1.679
202					Maximum Non-Detect	33.6					Maximum Non-Detect	3.515
203												
204	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
205	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
206	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	86.67%
207												
208	**UCL Statistics**											
209	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
210					Shapiro Wilk Test Statistic	0.936					Shapiro Wilk Test Statistic	0.899
211					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
212	**Data appear Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	

213												
214	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
215				DL/2 Substitution Method						DL/2 Substitution Method		
216				Mean		18.13				Mean		2.613
217				SD		11.93				SD		0.87
218				95% DL/2 (t) UCL		23.56				95% H-Stat (DL/2) UCL		29.78
219												
220				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
221	**MLE method failed to converge properly**									Mean in Log Scale		2.629
222										SD in Log Scale		0.802
223										Mean in Original Scale		17.95
224										SD in Original Scale		11.86
225										95% Percentile Bootstrap UCL		22.93
226										95% BCA Bootstrap UCL		23.23
227												
228	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
229				k star (bias corrected)		1.742	**Data appear Normal at 5% Significance Level**					
230				Theta Star		11.15						
231				nu star		45.3						
232												
233				A-D Test Statistic		0.379	**Nonparametric Statistics**					
234				5% A-D Critical Value		0.742				Kaplan-Meier (KM) Method		
235				K-S Test Statistic		0.742				Mean		18.1
236				5% K-S Critical Value		0.239				SD		11.68
237	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		3.206
238										95% KM (t) UCL		23.74
239	**Assuming Gamma Distribution**									95% KM (z) UCL		23.37
240				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		23.74
241				Minimum		3.7				95% KM (bootstrap t) UCL		24.11
242				Maximum		39				95% KM (BCA) UCL		23.16
243				Mean		18.49				95% KM (Percentile Bootstrap) UCL		23.28
244				Median		19				95% KM (Chebyshev) UCL		32.07
245				SD		11.78				97.5% KM (Chebyshev) UCL		38.12
246				k star		1.718				99% KM (Chebyshev) UCL		50
247				Theta star		10.77						
248				Nu star		51.54	**Potential UCLs to Use**					
249				AppChi2		36.05				95% KM (t) UCL		23.74
250				95% Gamma Approximate UCL		26.44				95% KM (Percentile Bootstrap) UCL		23.28
251				95% Adjusted Gamma UCL		27.66						
252	**Note: DL/2 is not a recommended method.**											
253												
254												
255	**Benzo(k)fluoranthene**											
256												
257							**General Statistics**					
258				Number of Valid Observations		9				Number of Distinct Observations		8
259												
260	**Raw Statistics**						**Log-transformed Statistics**					
261				Minimum		1.7				Minimum of Log Data		0.531
262				Maximum		13				Maximum of Log Data		2.565
263				Mean		8.256				Mean of log Data		1.969
264				Median		8				SD of log Data		0.644
265				SD		3.744						

	A	B	C	D	E	F	G	H	I	J	K	L
266					Coefficient of Variation	0.454						
267					Skewness	-0.437						
268												
269												
270					Warning: There are only 9 Values in this data							
271					Note: It should be noted that even though bootstrap methods may be performed on this data set,							
272					the resulting calculations may not be reliable enough to draw conclusions							
273												
274					The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.							
275												
276					Relevant UCL Statistics							
277				Normal Distribution Test					Lognormal Distribution Test			
278					Shapiro Wilk Test Statistic	0.932				Shapiro Wilk Test Statistic	0.825	
279					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value	0.829	
280				Data appear Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level			
281												
282				Assuming Normal Distribution					Assuming Lognormal Distribution			
283					95% Student's-t UCL	10.58				95% H-UCL	15.65	
284				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	16.79	
285					95% Adjusted-CLT UCL	10.11				97.5% Chebyshev (MVUE) UCL	20.34	
286					95% Modified-t UCL	10.55				99% Chebyshev (MVUE) UCL	27.31	
287												
288				Gamma Distribution Test					Data Distribution			
289					k star (bias corrected)	2.536			Data appear Normal at 5% Significance Level			
290					Theta Star	3.255						
291					nu star	45.65						
292					Approximate Chi Square Value (.05)	31.15			Nonparametric Statistics			
293					Adjusted Level of Significance	0.0231				95% CLT UCL	10.31	
294					Adjusted Chi Square Value	28.65				95% Jackknife UCL	10.58	
295										95% Standard Bootstrap UCL	10.11	
296					Anderson-Darling Test Statistic	0.535				95% Bootstrap-t UCL	10.28	
297					Anderson-Darling 5% Critical Value	0.726				95% Hall's Bootstrap UCL	10.15	
298					Kolmogorov-Smirnov Test Statistic	0.256				95% Percentile Bootstrap UCL	10.12	
299					Kolmogorov-Smirnov 5% Critical Value	0.281				95% BCA Bootstrap UCL	10.02	
300				Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	13.7	
301										97.5% Chebyshev(Mean, Sd) UCL	16.05	
302				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	20.67	
303					95% Approximate Gamma UCL	12.1						
304					95% Adjusted Gamma UCL	13.16						
305												
306				Potential UCL to Use						Use 95% Student's-t UCL	10.58	
307												
308												
309	Bis(2-ethylhexyl) phthalate											
310												
311					General Statistics							
312					Number of Valid Data	16				Number of Detected Data	15	
313					Number of Distinct Detected Data	14				Number of Non-Detect Data	1	
314										Percent Non-Detects	6.25%	
315												
316				Raw Statistics					Log-transformed Statistics			
317					Minimum Detected	17.8				Minimum Detected	2.879	
318					Maximum Detected	4230				Maximum Detected	8.35	

	A	B	C	D	E	F	G	H	I	J	K	L
319					Mean of Detected	382.3					Mean of Detected	4.526
320					SD of Detected	1070					SD of Detected	1.401
321					Minimum Non-Detect	22					Minimum Non-Detect	3.091
322					Maximum Non-Detect	22					Maximum Non-Detect	3.091
323												
324												
325	**UCL Statistics**											
326	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
327					Shapiro Wilk Test Statistic	0.359					Shapiro Wilk Test Statistic	0.878
328					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
329	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
330												
331	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
332					DL/2 Substitution Method						DL/2 Substitution Method	
333					Mean	359.1					Mean	4.393
334					SD	1038					SD	1.454
335					95% DL/2 (t) UCL	813.8					95% H-Stat (DL/2) UCL	860.9
336												
337					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
338					Mean	200.7					Mean in Log Scale	4.395
339					SD	1143					SD in Log Scale	1.451
340					95% MLE (t) UCL	701.8					Mean in Original Scale	359.1
341					95% MLE (Tiku) UCL	684.7					SD in Original Scale	1038
342											95% Percentile Bootstrap UCL	875.6
343											95% BCA Bootstrap UCL	1138
344												
345	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
346					k star (bias corrected)	0.408	**Data do not follow a Discernable Distribution (0.05)**					
347					Theta Star	937.7						
348					nu star	12.23						
349												
350					A-D Test Statistic	2.003	**Nonparametric Statistics**					
351					5% A-D Critical Value	0.803					Kaplan-Meier (KM) Method	
352					K-S Test Statistic	0.803					Mean	359.6
353					5% K-S Critical Value	0.235					SD	1004
354	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	259.9
355											95% KM (t) UCL	815.3
356	**Assuming Gamma Distribution**										95% KM (z) UCL	787.1
357					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	814.2
358					Minimum	1E-09					95% KM (bootstrap t) UCL	4341
359					Maximum	4230					95% KM (BCA) UCL	886.6
360					Mean	358.4					95% KM (Percentile Bootstrap) UCL	877.7
361					Median	66.5					95% KM (Chebyshev) UCL	1493
362					SD	1038					97.5% KM (Chebyshev) UCL	1983
363					k star	0.239					99% KM (Chebyshev) UCL	2946
364					Theta star	1498						
365					Nu star	7.657	**Potential UCLs to Use**					
366					AppChi2	2.538					97.5% KM (Chebyshev) UCL	1983
367					95% Gamma Approximate UCL	1081						
368					95% Adjusted Gamma UCL	1239						
369	**Note: DL/2 is not a recommended method.**											
370												
371												

372	**Dibenzo(a,h)anthracene**											
373												
374	**General Statistics**											
375					Number of Valid Data	14			Number of Detected Data	9		
376					Number of Distinct Detected Data	9			Number of Non-Detect Data	5		
377					Number of Missing Values	2			Percent Non-Detects	35.71%		
378												
379	**Raw Statistics**							**Log-transformed Statistics**				
380					Minimum Detected	1.3			Minimum Detected	0.262		
381					Maximum Detected	4.8			Maximum Detected	1.569		
382					Mean of Detected	2.844			Mean of Detected	0.957		
383					SD of Detected	1.209			SD of Detected	0.458		
384					Minimum Non-Detect	1.47			Minimum Non-Detect	0.385		
385					Maximum Non-Detect	2.68			Maximum Non-Detect	0.986		
386												
387	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	9		
388	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	5		
389	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	64.29%		
390												
391	**Warning: There are only 9 Detected Values in this data**											
392	**Note: It should be noted that even though bootstrap may be performed on this data set**											
393	**the resulting calculations may not be reliable enough tp draw conclusions**											
394												
395	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
396												
397												
398	**UCL Statistics**											
399	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
400					Shapiro Wilk Test Statistic	0.956			Shapiro Wilk Test Statistic	0.947		
401					5% Shapiro Wilk Critical Value	0.829			5% Shapiro Wilk Critical Value	0.829		
402	**Data appear Normal at 5% Significance Level**								**Data appear Lognormal at 5% Significance Level**			
403												
404	**Assuming Normal Distribution**								**Assuming Lognormal Distribution**			
405					DL/2 Substitution Method				DL/2 Substitution Method			
406					Mean	2.145			Mean	0.563		
407					SD	1.367			SD	0.671		
408					95% DL/2 (t) UCL	2.792			95% H-Stat (DL/2) UCL	2.043		
409												
410					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
411					Mean	2.157			Mean in Log Scale	0.741		
412					SD	1.451			SD in Log Scale	0.47		
413					95% MLE (t) UCL	2.843			Mean in Original Scale	2.337		
414					95% MLE (Tiku) UCL	3.203			SD in Original Scale	1.184		
415									95% Percentile Bootstrap UCL	2.818		
416									95% BCA Bootstrap UCL	2.94		
417												
418	**Gamma Distribution Test with Detected Values Only**								**Data Distribution Test with Detected Values Only**			
419					k star (bias corrected)	3.967			**Data appear Normal at 5% Significance Level**			
420					Theta Star	0.717						
421					nu star	71.4						
422												
423					A-D Test Statistic	0.208			**Nonparametric Statistics**			
424					5% A-D Critical Value	0.723			Kaplan-Meier (KM) Method			

425					K-S Test Statistic	0.723					Mean	2.327
426					5% K-S Critical Value	0.28					SD	1.155
427					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.329
428											95% KM (t) UCL	2.91
429					**Assuming Gamma Distribution**						95% KM (z) UCL	2.869
430					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.9
431					Minimum	1.3					95% KM (bootstrap t) UCL	3.016
432					Maximum	4.8					95% KM (BCA) UCL	3.064
433					Mean	2.739					95% KM (Percentile Bootstrap) UCL	3
434					Median	2.477					95% KM (Chebyshev) UCL	3.763
435					SD	0.967					97.5% KM (Chebyshev) UCL	4.384
436					k star	6.844					99% KM (Chebyshev) UCL	5.604
437					Theta star	0.4						
438					Nu star	191.6					**Potential UCLs to Use**	
439					AppChi2	160.6					95% KM (t) UCL	2.91
440					95% Gamma Approximate UCL	3.268					95% KM (Percentile Bootstrap) UCL	3
441					95% Adjusted Gamma UCL	3.347						
442	**Note: DL/2 is not a recommended method.**											
443												
444												
445	**Indeno(1,2,3-cd)pyrene**											
446												
447					**General Statistics**							
448					Number of Valid Data	15					Number of Detected Data	12
449					Number of Distinct Detected Data	11					Number of Non-Detect Data	3
450					Number of Missing Values	1					Percent Non-Detects	20.00%
451												
452					**Raw Statistics**						**Log-transformed Statistics**	
453					Minimum Detected	3.5					Minimum Detected	1.253
454					Maximum Detected	26					Maximum Detected	3.258
455					Mean of Detected	12.43					Mean of Detected	2.323
456					SD of Detected	7.377					SD of Detected	0.704
457					Minimum Non-Detect	1.59					Minimum Non-Detect	0.464
458					Maximum Non-Detect	16.8					Maximum Non-Detect	2.821
459												
460	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	12
461	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
462	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	80.00%
463												
464					**UCL Statistics**							
465					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
466					Shapiro Wilk Test Statistic	0.92					Shapiro Wilk Test Statistic	0.886
467					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
468					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
469												
470					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
471					DL/2 Substitution Method						DL/2 Substitution Method	
472					Mean	10.65					Mean	2.004
473					SD	7.68					SD	1.021
474					95% DL/2 (t) UCL	14.14					95% H-Stat (DL/2) UCL	16.82
475												
476					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
477					Mean	8.976					Mean in Log Scale	2.095

478					SD	9.395				SD in Log Scale		0.814
479					95% MLE (t) UCL	13.25				Mean in Original Scale		10.69
480					95% MLE (Tiku) UCL	19.21				SD in Original Scale		7.527
481										95% Percentile Bootstrap UCL		13.88
482										95% BCA Bootstrap UCL		14.36
483												
484	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
485					k star (bias corrected)	2.07				**Data appear Normal at 5% Significance Level**		
486					Theta Star	6.007						
487					nu star	49.68						
488												
489					A-D Test Statistic	0.443				**Nonparametric Statistics**		
490					5% A-D Critical Value	0.74				Kaplan-Meier (KM) Method		
491					K-S Test Statistic	0.74				Mean		10.96
492					5% K-S Critical Value	0.248				SD		7.136
493	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		1.951
494										95% KM (t) UCL		14.39
495	**Assuming Gamma Distribution**									95% KM (z) UCL		14.16
496					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		14.37
497					Minimum	2.656				95% KM (bootstrap t) UCL		14.9
498					Maximum	26				95% KM (BCA) UCL		14.37
499					Mean	11.18				95% KM (Percentile Bootstrap) UCL		14.23
500					Median	12				95% KM (Chebyshev) UCL		19.46
501					SD	7.4				97.5% KM (Chebyshev) UCL		23.14
502					k star	1.743				99% KM (Chebyshev) UCL		30.37
503					Theta star	6.414						
504					Nu star	52.28				**Potential UCLs to Use**		
505					AppChi2	36.67				95% KM (t) UCL		14.39
506					95% Gamma Approximate UCL	15.94				95% KM (Percentile Bootstrap) UCL		14.23
507					95% Adjusted Gamma UCL	16.66						
508	**Note: DL/2 is not a recommended method.**											
509												
510												
511	**Lead**											
512												
513	**General Statistics**											
514					Number of Valid Observations	16				Number of Distinct Observations		16
515												
516	**Raw Statistics**									**Log-transformed Statistics**		
517					Minimum	7.23				Minimum of Log Data		1.978
518					Maximum	86.5				Maximum of Log Data		4.46
519					Mean	25.69				Mean of log Data		3.041
520					Median	20.85				SD of log Data		0.626
521					SD	20.02						
522					Coefficient of Variation	0.779						
523					Skewness	2.197						
524												
525	**Relevant UCL Statistics**											
526	**Normal Distribution Test**									**Lognormal Distribution Test**		
527					Shapiro Wilk Test Statistic	0.749				Shapiro Wilk Test Statistic		0.957
528					Shapiro Wilk Critical Value	0.887				Shapiro Wilk Critical Value		0.887
529	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
530												

531	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
532				95% Student's-t UCL	34.46					95% H-UCL	36.28	
533	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	43.04	
534				95% Adjusted-CLT UCL	36.86					97.5% Chebyshev (MVUE) UCL	50.8	
535				95% Modified-t UCL	34.92					99% Chebyshev (MVUE) UCL	66.05	
536												
537	**Gamma Distribution Test**						**Data Distribution**					
538				k star (bias corrected)	2.145		**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
539				Theta Star	11.97							
540				nu star	68.65							
541				Approximate Chi Square Value (.05)	50.58		**Nonparametric Statistics**					
542				Adjusted Level of Significance	0.0335					95% CLT UCL	33.92	
543				Adjusted Chi Square Value	48.82					95% Jackknife UCL	34.46	
544										95% Standard Bootstrap UCL	33.8	
545				Anderson-Darling Test Statistic	0.627					95% Bootstrap-t UCL	43.13	
546				Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	70.47	
547				Kolmogorov-Smirnov Test Statistic	0.23					95% Percentile Bootstrap UCL	34.26	
548				Kolmogorov-Smirnov 5% Critical Value	0.217					95% BCA Bootstrap UCL	36.72	
549	**Data follow Appr. Gamma Distribution at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	47.5	
550										97.5% Chebyshev(Mean, Sd) UCL	56.94	
551	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	75.49	
552				95% Approximate Gamma UCL	34.87							
553				95% Adjusted Gamma UCL	36.13							
554												
555	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	34.87	
556												
557												
558	**Mercury**											
559												
560	**General Statistics**											
561				Number of Valid Observations	16					Number of Distinct Observations	16	
562												
563	**Raw Statistics**						**Log-transformed Statistics**					
564				Minimum	0.0146					Minimum of Log Data	-4.227	
565				Maximum	0.091					Maximum of Log Data	-2.397	
566				Mean	0.0503					Mean of log Data	-3.125	
567				Median	0.0438					SD of log Data	0.563	
568				SD	0.0247							
569				Coefficient of Variation	0.492							
570				Skewness	0.247							
571												
572	**Relevant UCL Statistics**											
573	**Normal Distribution Test**						**Lognormal Distribution Test**					
574				Shapiro Wilk Test Statistic	0.945					Shapiro Wilk Test Statistic	0.944	
575				Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887	
576	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
577												
578	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
579				95% Student's-t UCL	0.0611					95% H-UCL	0.0701	
580	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.0834	
581				95% Adjusted-CLT UCL	0.0608					97.5% Chebyshev (MVUE) UCL	0.0975	
582				95% Modified-t UCL	0.0612					99% Chebyshev (MVUE) UCL	0.125	
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584	**Gamma Distribution Test**						**Data Distribution**					
585					k star (bias corrected)	3.204	**Data appear Normal at 5% Significance Level**					
586					Theta Star	0.0157						
587					nu star	102.5						
588					Approximate Chi Square Value (.05)	80.16	**Nonparametric Statistics**					
589					Adjusted Level of Significance	0.0335					95% CLT UCL	0.0604
590					Adjusted Chi Square Value	77.91					95% Jackknife UCL	0.0611
591											95% Standard Bootstrap UCL	0.0603
592					Anderson-Darling Test Statistic	0.265					95% Bootstrap-t UCL	0.0615
593					Anderson-Darling 5% Critical Value	0.742					95% Hall's Bootstrap UCL	0.0605
594					Kolmogorov-Smirnov Test Statistic	0.142					95% Percentile Bootstrap UCL	0.0599
595					Kolmogorov-Smirnov 5% Critical Value	0.216					95% BCA Bootstrap UCL	0.0607
596	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0772
597											97.5% Chebyshev(Mean, Sd) UCL	0.0889
598	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.112
599					95% Approximate Gamma UCL	0.0643						
600					95% Adjusted Gamma UCL	0.0661						
601												
602	**Potential UCL to Use**										Use 95% Student's-t UCL	0.0611
603												
604												
605	**Total Aroclors**											
606												
607	**General Statistics**											
608					Number of Valid Observations	9					Number of Distinct Observations	9
609												
610	**Raw Statistics**						**Log-transformed Statistics**					
611					Minimum	15.73					Minimum of Log Data	2.755
612					Maximum	203.1					Maximum of Log Data	5.314
613					Mean	52.13					Mean of log Data	3.643
614					Median	35.76					SD of log Data	0.735
615					SD	57.87						
616					Coefficient of Variation	1.11						
617					Skewness	2.757						
618												
619												
620	**Warning: There are only 9 Values in this data**											
621	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
622	**the resulting calculations may not be reliable enough to draw conclusions**											
623												
624	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
625												
626	**Relevant UCL Statistics**											
627	**Normal Distribution Test**						**Lognormal Distribution Test**					
628					Shapiro Wilk Test Statistic	0.589					Shapiro Wilk Test Statistic	0.877
629					Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829
630	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
631												
632	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
633					95% Student's-t UCL	88					95% H-UCL	100.6
634	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	101.2
635					95% Adjusted-CLT UCL	102.8					97.5% Chebyshev (MVUE) UCL	124.2
636					95% Modified-t UCL	90.95					99% Chebyshev (MVUE) UCL	169.2

637												
638	**Gamma Distribution Test**						**Data Distribution**					
639					k star (bias corrected)	1.244	**Data appear Lognormal at 5% Significance Level**					
640					Theta Star	41.9						
641					nu star	22.39						
642					Approximate Chi Square Value (.05)	12.63	**Nonparametric Statistics**					
643					Adjusted Level of Significance	0.0231				95% CLT UCL	83.86	
644					Adjusted Chi Square Value	11.12				95% Jackknife UCL	88	
645										95% Standard Bootstrap UCL	81.52	
646					Anderson-Darling Test Statistic	0.866				95% Bootstrap-t UCL	175.8	
647					Anderson-Darling 5% Critical Value	0.732				95% Hall's Bootstrap UCL	213.3	
648					Kolmogorov-Smirnov Test Statistic	0.296				95% Percentile Bootstrap UCL	88.15	
649					Kolmogorov-Smirnov 5% Critical Value	0.283				95% BCA Bootstrap UCL	108.9	
650	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	136.2	
651										97.5% Chebyshev(Mean, Sd) UCL	172.6	
652	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	244.1	
653					95% Approximate Gamma UCL	92.39						
654					95% Adjusted Gamma UCL	105						
655												
656	**Potential UCL to Use**									Use 95% H-UCL	100.6	
657												
658												
659	**Total DDT**											
660												
661	**General Statistics**											
662					Number of Valid Data	16				Number of Detected Data	8	
663					Number of Distinct Detected Data	8				Number of Non-Detect Data	8	
664										Percent Non-Detects	50.00%	
665												
666	**Raw Statistics**						**Log-transformed Statistics**					
667					Minimum Detected	0.405				Minimum Detected	-0.904	
668					Maximum Detected	4.625				Maximum Detected	1.531	
669					Mean of Detected	1.876				Mean of Detected	0.307	
670					SD of Detected	1.531				SD of Detected	0.893	
671					Minimum Non-Detect	0.0538				Minimum Non-Detect	-2.922	
672					Maximum Non-Detect	3.79				Maximum Non-Detect	1.332	
673												
674	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	15	
675	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	1	
676	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	93.75%	
677												
678	**Warning: There are only 8 Detected Values in this data**											
679	**Note: It should be noted that even though bootstrap may be performed on this data set**											
680	**the resulting calculations may not be reliable enough tp draw conclusions**											
681												
682	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
683												
684												
685	**UCL Statistics**											
686	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
687					Shapiro Wilk Test Statistic	0.882				Shapiro Wilk Test Statistic	0.946	
688					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value	0.818	
689	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

690												
691	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
692				DL/2 Substitution Method						DL/2 Substitution Method		
693				Mean		1.445				Mean		-0.0946
694				SD		1.216				SD		1.252
695				95% DL/2 (t) UCL		1.977				95% H-Stat (DL/2) UCL		3.486
696												
697				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
698	**MLE method failed to converge properly**									Mean in Log Scale		-0.217
699										SD in Log Scale		0.89
700										Mean in Original Scale		1.201
701										SD in Original Scale		1.265
702										95% Percentile Bootstrap UCL		1.736
703										95% BCA Bootstrap UCL		1.831
704												
705	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
706				k star (bias corrected)		1.145	**Data appear Normal at 5% Significance Level**					
707				Theta Star		1.639						
708				nu star		18.31						
709												
710				A-D Test Statistic		0.256	**Nonparametric Statistics**					
711				5% A-D Critical Value		0.727				Kaplan-Meier (KM) Method		
712				K-S Test Statistic		0.727				Mean		1.324
713				5% K-S Critical Value		0.298				SD		1.227
714	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.352
715										95% KM (t) UCL		1.941
716	**Assuming Gamma Distribution**									95% KM (z) UCL		1.903
717				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		1.924
718				Minimum		0.405				95% KM (bootstrap t) UCL		2.16
719				Maximum		4.625				95% KM (BCA) UCL		2.034
720				Mean		1.778				95% KM (Percentile Bootstrap) UCL		1.95
721				Median		1.9				95% KM (Chebyshev) UCL		2.857
722				SD		1.157				97.5% KM (Chebyshev) UCL		3.521
723				k star		1.951				99% KM (Chebyshev) UCL		4.824
724				Theta star		0.911						
725				Nu star		62.45	**Potential UCLs to Use**					
726				AppChi2		45.27				95% KM (t) UCL		1.941
727				95% Gamma Approximate UCL		2.453				95% KM (Percentile Bootstrap) UCL		1.95
728				95% Adjusted Gamma UCL		2.547						
729	**Note: DL/2 is not a recommended method.**											
730												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM9.0W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12					Number of Valid Data	17			Number of Detected Data	15		
13					Number of Distinct Detected Data	14			Number of Non-Detect Data	2		
14									Percent Non-Detects	11.76%		
15												
16				Raw Statistics					Log-transformed Statistics			
17					Minimum Detected	2.35			Minimum Detected	0.854		
18					Maximum Detected	9.8			Maximum Detected	2.282		
19					Mean of Detected	4.339			Mean of Detected	1.4		
20					SD of Detected	1.844			SD of Detected	0.365		
21					Minimum Non-Detect	5			Minimum Non-Detect	1.609		
22					Maximum Non-Detect	6			Maximum Non-Detect	1.792		
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	15		
25	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	2		
26	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	88.24%		
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only			
30					Shapiro Wilk Test Statistic	0.806			Shapiro Wilk Test Statistic	0.936		
31					5% Shapiro Wilk Critical Value	0.881			5% Shapiro Wilk Critical Value	0.881		
32				Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
33												
34				Assuming Normal Distribution					Assuming Lognormal Distribution			
35					DL/2 Substitution Method				DL/2 Substitution Method			
36					Mean	4.152			Mean	1.354		
37					SD	1.806			SD	0.367		
38					95% DL/2 (t) UCL	4.917			95% H-Stat (DL/2) UCL	4.561		
39												
40					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
41				MLE method failed to converge properly					Mean in Log Scale	1.39		
42									SD in Log Scale	0.343		
43									Mean in Original Scale	4.265		
44									SD in Original Scale	1.738		
45									95% Percentile Bootstrap UCL	5.029		
46									95% BCA Bootstrap UCL	5.21		
47												
48				Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only			
49					k star (bias corrected)	6.109			Data Follow Appr. Gamma Distribution at 5% Significance Level			
50					Theta Star	0.71						
51					nu star	183.3						
52												
53					A-D Test Statistic	0.541			Nonparametric Statistics			

54					5% A-D Critical Value	0.738				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	0.738				Mean		4.263
56					5% K-S Critical Value	0.222				SD		1.709
57	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		0.436
58										95% KM (t) UCL		5.024
59	**Assuming Gamma Distribution**									95% KM (z) UCL		4.98
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		5.023
61					Minimum	2.35				95% KM (bootstrap t) UCL		5.463
62					Maximum	9.8				95% KM (BCA) UCL		4.957
63					Mean	4.353				95% KM (Percentile Bootstrap) UCL		4.99
64					Median	4.3				95% KM (Chebyshev) UCL		6.162
65					SD	1.725				97.5% KM (Chebyshev) UCL		6.983
66					k star	7.092				99% KM (Chebyshev) UCL		8.597
67					Theta star	0.614						
68					Nu star	241.1				**Potential UCLs to Use**		
69					AppChi2	206.2				95% KM (BCA) UCL		4.957
70					95% Gamma Approximate UCL	5.091						
71					95% Adjusted Gamma UCL	5.176						
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Benzo(a)anthracene**											
76												
77	**General Statistics**											
78	Number of Valid Observations					17				Number of Distinct Observations		16
79												
80	**Raw Statistics**									**Log-transformed Statistics**		
81					Minimum	3.4				Minimum of Log Data		1.224
82					Maximum	1600				Maximum of Log Data		7.378
83					Mean	154.6				Mean of log Data		3.774
84					Median	44				SD of log Data		1.537
85					SD	377.8						
86					Coefficient of Variation	2.444						
87					Skewness	3.935						
88												
89	**Relevant UCL Statistics**											
90	**Normal Distribution Test**									**Lognormal Distribution Test**		
91					Shapiro Wilk Test Statistic	0.398				Shapiro Wilk Test Statistic		0.969
92					Shapiro Wilk Critical Value	0.892				Shapiro Wilk Critical Value		0.892
93	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
94												
95	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
96					95% Student's-t UCL	314.5				95% H-UCL		554.2
97	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		361
98					95% Adjusted-CLT UCL	398.7				97.5% Chebyshev (MVUE) UCL		463.3
99					95% Modified-t UCL	329.1				99% Chebyshev (MVUE) UCL		664.3
100												
101	**Gamma Distribution Test**									**Data Distribution**		
102					k star (bias corrected)	0.452				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
103					Theta Star	342						
104					nu star	15.37						
105					Approximate Chi Square Value (.05)	7.517				**Nonparametric Statistics**		
106					Adjusted Level of Significance	0.0346				95% CLT UCL		305.3

107				Adjusted Chi Square Value	6.947					95% Jackknife UCL	314.5	
108										95% Standard Bootstrap UCL	300.6	
109				Anderson-Darling Test Statistic	1.074					95% Bootstrap-t UCL	910.5	
110				Anderson-Darling 5% Critical Value	0.798					95% Hall's Bootstrap UCL	842.2	
111				Kolmogorov-Smirnov Test Statistic	0.209					95% Percentile Bootstrap UCL	333.7	
112				Kolmogorov-Smirnov 5% Critical Value	0.221					95% BCA Bootstrap UCL	434	
113				**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	553.9	
114										97.5% Chebyshev(Mean, Sd) UCL	726.7	
115				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1066	
116				95% Approximate Gamma UCL	315.9							
117				95% Adjusted Gamma UCL	341.8							
118												
119				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	315.9	
120												
121												
122	**Benzo(a)pyrene**											
123												
124				**General Statistics**								
125				Number of Valid Observations	17					Number of Distinct Observations	17	
126												
127				**Raw Statistics**						**Log-transformed Statistics**		
128				Minimum	4.2					Minimum of Log Data	1.435	
129				Maximum	790					Maximum of Log Data	6.672	
130				Mean	103					Mean of log Data	3.677	
131				Median	40					SD of log Data	1.39	
132				SD	189.5							
133				Coefficient of Variation	1.841							
134				Skewness	3.35							
135												
136				**Relevant UCL Statistics**								
137				**Normal Distribution Test**						**Lognormal Distribution Test**		
138				Shapiro Wilk Test Statistic	0.529					Shapiro Wilk Test Statistic	0.979	
139				Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892	
140				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
141												
142				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
143				95% Student's-t UCL	183.2					95% H-UCL	326.1	
144				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	253.8	
145				95% Adjusted-CLT UCL	218.5					97.5% Chebyshev (MVUE) UCL	322.9	
146				95% Modified-t UCL	189.4					99% Chebyshev (MVUE) UCL	458.6	
147												
148				**Gamma Distribution Test**						**Data Distribution**		
149				k star (bias corrected)	0.566					**Data appear Gamma Distributed at 5% Significance Level**		
150				Theta Star	182							
151				nu star	19.23							
152				Approximate Chi Square Value (.05)	10.29					**Nonparametric Statistics**		
153				Adjusted Level of Significance	0.0346					95% CLT UCL	178.6	
154				Adjusted Chi Square Value	9.608					95% Jackknife UCL	183.2	
155										95% Standard Bootstrap UCL	176.1	
156				Anderson-Darling Test Statistic	0.718					95% Bootstrap-t UCL	321	
157				Anderson-Darling 5% Critical Value	0.786					95% Hall's Bootstrap UCL	416.5	
158				Kolmogorov-Smirnov Test Statistic	0.197					95% Percentile Bootstrap UCL	187.6	
159				Kolmogorov-Smirnov 5% Critical Value	0.219					95% BCA Bootstrap UCL	233.7	

	A	B	C	D	E	F	G	H	I	J	K	L
160	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		303.3
161										97.5% Chebyshev(Mean, Sd) UCL		390
162	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		560.3
163				95% Approximate Gamma UCL		192.5						
164				95% Adjusted Gamma UCL		206.1						
165												
166	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		192.5
167												
168												
169	**Benzo(b)fluoranthene**											
170												
171	**General Statistics**											
172				Number of Valid Observations		17				Number of Distinct Observations		16
173												
174	**Raw Statistics**								**Log-transformed Statistics**			
175				Minimum		4.8				Minimum of Log Data		1.569
176				Maximum		1000				Maximum of Log Data		6.908
177				Mean		159.8				Mean of log Data		4.051
178				Median		70				SD of log Data		1.52
179				SD		260.8						
180				Coefficient of Variation		1.633						
181				Skewness		2.584						
182												
183	**Relevant UCL Statistics**											
184	**Normal Distribution Test**								**Lognormal Distribution Test**			
185				Shapiro Wilk Test Statistic		0.623				Shapiro Wilk Test Statistic		0.974
186				Shapiro Wilk Critical Value		0.892				Shapiro Wilk Critical Value		0.892
187	**Data not Normal at 5% Significance Level**								**Data appear Lognormal at 5% Significance Level**			
188												
189	**Assuming Normal Distribution**								**Assuming Lognormal Distribution**			
190				95% Student's-t UCL		270.2				95% H-UCL		695.6
191	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		462.8
192				95% Adjusted-CLT UCL		306.2				97.5% Chebyshev (MVUE) UCL		593.4
193				95% Modified-t UCL		276.8				99% Chebyshev (MVUE) UCL		850
194												
195	**Gamma Distribution Test**								**Data Distribution**			
196				k star (bias corrected)		0.536			**Data appear Gamma Distributed at 5% Significance Level**			
197				Theta Star		298						
198				nu star		18.23						
199				Approximate Chi Square Value (.05)		9.557			**Nonparametric Statistics**			
200				Adjusted Level of Significance		0.0346				95% CLT UCL		263.8
201				Adjusted Chi Square Value		8.904				95% Jackknife UCL		270.2
202										95% Standard Bootstrap UCL		263
203				Anderson-Darling Test Statistic		0.581				95% Bootstrap-t UCL		468.7
204				Anderson-Darling 5% Critical Value		0.789				95% Hall's Bootstrap UCL		684.9
205				Kolmogorov-Smirnov Test Statistic		0.177				95% Percentile Bootstrap UCL		268.4
206				Kolmogorov-Smirnov 5% Critical Value		0.219				95% BCA Bootstrap UCL		300.5
207	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		435.5
208										97.5% Chebyshev(Mean, Sd) UCL		554.8
209	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		789.2
210				95% Approximate Gamma UCL		304.7						
211				95% Adjusted Gamma UCL		327.1						
212												

213	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		304.7
214												
215												
216	**Benzo(k)fluoranthene**											
217												
218	**General Statistics**											
219	Number of Valid Observations					17				Number of Distinct Observations		16
220												
221	**Raw Statistics**									**Log-transformed Statistics**		
222	Minimum					1.7				Minimum of Log Data		0.531
223	Maximum					400				Maximum of Log Data		5.991
224	Mean					61.55				Mean of log Data		3.191
225	Median					28				SD of log Data		1.469
226	SD					97.19						
227	Coefficient of Variation					1.579						
228	Skewness					2.945						
229												
230	**Relevant UCL Statistics**											
231	**Normal Distribution Test**									**Lognormal Distribution Test**		
232	Shapiro Wilk Test Statistic					0.618				Shapiro Wilk Test Statistic		0.978
233	Shapiro Wilk Critical Value					0.892				Shapiro Wilk Critical Value		0.892
234	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
235												
236	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
237	95% Student's-t UCL					102.7				95% H-UCL		252.4
238	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		179.1
239	95% Adjusted-CLT UCL					118.3				97.5% Chebyshev (MVUE) UCL		229
240	95% Modified-t UCL					105.5				99% Chebyshev (MVUE) UCL		327
241												
242	**Gamma Distribution Test**									**Data Distribution**		
243	k star (bias corrected)					0.58				**Data appear Gamma Distributed at 5% Significance Level**		
244	Theta Star					106.1						
245	nu star					19.72						
246	Approximate Chi Square Value (.05)					10.64				**Nonparametric Statistics**		
247	Adjusted Level of Significance					0.0346				95% CLT UCL		100.3
248	Adjusted Chi Square Value					9.949				95% Jackknife UCL		102.7
249										95% Standard Bootstrap UCL		100.2
250	Anderson-Darling Test Statistic					0.469				95% Bootstrap-t UCL		155
251	Anderson-Darling 5% Critical Value					0.784				95% Hall's Bootstrap UCL		241.6
252	Kolmogorov-Smirnov Test Statistic					0.174				95% Percentile Bootstrap UCL		102.9
253	Kolmogorov-Smirnov 5% Critical Value					0.219				95% BCA Bootstrap UCL		125.5
254	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		164.3
255										97.5% Chebyshev(Mean, Sd) UCL		208.8
256	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		296.1
257	95% Approximate Gamma UCL					114						
258	95% Adjusted Gamma UCL					122						
259												
260	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		114
261												
262												
263	**Bis(2-ethylhexyl) phthalate**											
264												
265	**General Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
266					Number of Valid Data	17				Number of Detected Data		12
267					Number of Distinct Detected Data	12				Number of Non-Detect Data		5
268										Percent Non-Detects		29.41%
269												
270	**Raw Statistics**						**Log-transformed Statistics**					
271					Minimum Detected	23				Minimum Detected		3.135
272					Maximum Detected	980				Maximum Detected		6.888
273					Mean of Detected	229.8				Mean of Detected		4.806
274					SD of Detected	283.8				SD of Detected		1.177
275					Minimum Non-Detect	25				Minimum Non-Detect		3.219
276					Maximum Non-Detect	110				Maximum Non-Detect		4.7
277												
278	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		12
279	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
280	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		70.59%
281												
282	**UCL Statistics**											
283	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
284					Shapiro Wilk Test Statistic	0.743				Shapiro Wilk Test Statistic		0.96
285					5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value		0.859
286	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
287												
288	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
289					DL/2 Substitution Method					DL/2 Substitution Method		
290					Mean	173.4				Mean		4.419
291					SD	252.2				SD		1.201
292					95% DL/2 (t) UCL	280.2				95% H-Stat (DL/2) UCL		429.5
293												
294					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
295	**MLE yields a negative mean**									Mean in Log Scale		4.403
296										SD in Log Scale		1.205
297										Mean in Original Scale		172.6
298										SD in Original Scale		252.6
299										95% Percentile Bootstrap UCL		279.5
300										95% BCA Bootstrap UCL		324.8
301												
302	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
303					k star (bias corrected)	0.748	**Data appear Gamma Distributed at 5% Significance Level**					
304					Theta Star	307.5						
305					nu star	17.94						
306												
307					A-D Test Statistic	0.464	**Nonparametric Statistics**					
308					5% A-D Critical Value	0.759				Kaplan-Meier (KM) Method		
309					K-S Test Statistic	0.759				Mean		173.8
310					5% K-S Critical Value	0.253				SD		244.6
311	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		62.03
312										95% KM (t) UCL		282.1
313	**Assuming Gamma Distribution**									95% KM (z) UCL		275.8
314					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		280
315					Minimum	23				95% KM (bootstrap t) UCL		379.7
316					Maximum	980				95% KM (BCA) UCL		272.8
317					Mean	216.6				95% KM (Percentile Bootstrap) UCL		279.1
318					Median	157.4				95% KM (Chebyshev) UCL		444.1

319					SD	237.9				97.5% KM (Chebyshev) UCL		561.1
320					k star	1.048				99% KM (Chebyshev) UCL		790.9
321					Theta star	206.7						
322					Nu star	35.62				**Potential UCLs to Use**		
323					AppChi2	22.96				95% KM (Chebyshev) UCL		444.1
324					95% Gamma Approximate UCL	336						
325					95% Adjusted Gamma UCL	352.3						
326	**Note: DL/2 is not a recommended method.**											
327												
328												
329	**Dibenzo(a,h)anthracene**											
330												
331					**General Statistics**							
332					Number of Valid Data	17				Number of Detected Data		16
333					Number of Distinct Detected Data	15				Number of Non-Detect Data		1
334										Percent Non-Detects		5.88%
335												
336					**Raw Statistics**					**Log-transformed Statistics**		
337					Minimum Detected	1.1				Minimum Detected		0.0953
338					Maximum Detected	110				Maximum Detected		4.7
339					Mean of Detected	18.77				Mean of Detected		2.029
340					SD of Detected	28.84				SD of Detected		1.387
341					Minimum Non-Detect	0.62				Minimum Non-Detect		-0.478
342					Maximum Non-Detect	0.62				Maximum Non-Detect		-0.478
343												
344												
345					**UCL Statistics**							
346					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
347					Shapiro Wilk Test Statistic	0.65				Shapiro Wilk Test Statistic		0.953
348					5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value		0.887
349					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
350												
351					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
352					DL/2 Substitution Method					DL/2 Substitution Method		
353					Mean	17.68				Mean		1.841
354					SD	28.28				SD		1.551
355					95% DL/2 (t) UCL	29.66				95% H-Stat (DL/2) UCL		71.74
356												
357					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
358					Mean	16.65				Mean in Log Scale		1.827
359					SD	28.61				SD in Log Scale		1.579
360					95% MLE (t) UCL	28.76				Mean in Original Scale		17.68
361					95% MLE (Tiku) UCL	27.83				SD in Original Scale		28.29
362										95% Percentile Bootstrap UCL		29.75
363										95% BCA Bootstrap UCL		34.37
364												
365					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
366					k star (bias corrected)	0.588				**Data appear Gamma Distributed at 5% Significance Level**		
367					Theta Star	31.9						
368					nu star	18.83						
369												
370					A-D Test Statistic	0.669				**Nonparametric Statistics**		
371					5% A-D Critical Value	0.781				Kaplan-Meier (KM) Method		

372					K-S Test Statistic	0.781					Mean	17.73
373					5% K-S Critical Value	0.224					SD	27.41
374	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	6.866
375											95% KM (t) UCL	29.72
376	**Assuming Gamma Distribution**										95% KM (z) UCL	29.02
377	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	29.68
378					Minimum	1E-09					95% KM (bootstrap t) UCL	42.63
379					Maximum	110					95% KM (BCA) UCL	28.75
380					Mean	17.66					95% KM (Percentile Bootstrap) UCL	29.37
381					Median	7.6					95% KM (Chebyshev) UCL	47.66
382					SD	28.3					97.5% KM (Chebyshev) UCL	60.61
383					k star	0.298					99% KM (Chebyshev) UCL	86.05
384					Theta star	59.34						
385					Nu star	10.12	**Potential UCLs to Use**					
386					AppChi2	4.017					95% KM (Chebyshev) UCL	47.66
387					95% Gamma Approximate UCL	44.5						
388					95% Adjusted Gamma UCL	49.35						
389	**Note: DL/2 is not a recommended method.**											
390												
391												
392	**Indeno(1,2,3-cd)pyrene**											
393												
394	**General Statistics**											
395					Number of Valid Observations	17					Number of Distinct Observations	14
396												
397	**Raw Statistics**						**Log-transformed Statistics**					
398					Minimum	3.1					Minimum of Log Data	1.131
399					Maximum	390					Maximum of Log Data	5.966
400					Mean	66.72					Mean of log Data	3.386
401					Median	33					SD of log Data	1.337
402					SD	99.18						
403					Coefficient of Variation	1.487						
404					Skewness	2.559						
405												
406	**Relevant UCL Statistics**											
407	**Normal Distribution Test**						**Lognormal Distribution Test**					
408					Shapiro Wilk Test Statistic	0.64					Shapiro Wilk Test Statistic	0.972
409					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
410	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
411												
412	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
413					95% Student's-t UCL	108.7					95% H-UCL	211
414	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	173.6
415					95% Adjusted-CLT UCL	122.2					97.5% Chebyshev (MVUE) UCL	220.1
416					95% Modified-t UCL	111.2					99% Chebyshev (MVUE) UCL	311.4
417												
418	**Gamma Distribution Test**						**Data Distribution**					
419					k star (bias corrected)	0.646	**Data appear Gamma Distributed at 5% Significance Level**					
420					Theta Star	103.3						
421					nu star	21.96						
422					Approximate Chi Square Value (.05)	12.31	**Nonparametric Statistics**					
423					Adjusted Level of Significance	0.0346					95% CLT UCL	106.3
424					Adjusted Chi Square Value	11.56					95% Jackknife UCL	108.7

425											95% Standard Bootstrap UCL	106.3
426					Anderson-Darling Test Statistic	0.597					95% Bootstrap-t UCL	152.7
427					Anderson-Darling 5% Critical Value	0.778					95% Hall's Bootstrap UCL	144.8
428					Kolmogorov-Smirnov Test Statistic	0.174					95% Percentile Bootstrap UCL	109.3
429					Kolmogorov-Smirnov 5% Critical Value	0.217					95% BCA Bootstrap UCL	124.6
430					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	171.6
431											97.5% Chebyshev(Mean, Sd) UCL	216.9
432					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	306.1
433					95% Approximate Gamma UCL	119						
434					95% Adjusted Gamma UCL	126.8						
435												
436					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	119
437												
438												
439	**Lead**											
440												
441					**General Statistics**							
442					Number of Valid Observations	17					Number of Distinct Observations	17
443												
444					**Raw Statistics**						**Log-transformed Statistics**	
445					Minimum	8.3					Minimum of Log Data	2.116
446					Maximum	178					Maximum of Log Data	5.182
447					Mean	42.04					Mean of log Data	3.216
448					Median	17.3					SD of log Data	0.967
449					SD	51.9						
450					Coefficient of Variation	1.235						
451					Skewness	1.866						
452												
453					**Relevant UCL Statistics**							
454					**Normal Distribution Test**						**Lognormal Distribution Test**	
455					Shapiro Wilk Test Statistic	0.662					Shapiro Wilk Test Statistic	0.867
456					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
457					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
458												
459					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
460					95% Student's-t UCL	64.02					95% H-UCL	75.05
461					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	81.42
462					95% Adjusted-CLT UCL	68.83					97.5% Chebyshev (MVUE) UCL	100.1
463					95% Modified-t UCL	64.97					99% Chebyshev (MVUE) UCL	136.7
464												
465					**Gamma Distribution Test**						**Data Distribution**	
466					k star (bias corrected)	0.94					**Data do not follow a Discernable Distribution (0.05)**	
467					Theta Star	44.74						
468					nu star	31.94						
469					Approximate Chi Square Value (.05)	20.03					**Nonparametric Statistics**	
470					Adjusted Level of Significance	0.0346					95% CLT UCL	62.74
471					Adjusted Chi Square Value	19.04					95% Jackknife UCL	64.02
472											95% Standard Bootstrap UCL	62.41
473					Anderson-Darling Test Statistic	1.475					95% Bootstrap-t UCL	77.84
474					Anderson-Darling 5% Critical Value	0.764					95% Hall's Bootstrap UCL	60.76
475					Kolmogorov-Smirnov Test Statistic	0.244					95% Percentile Bootstrap UCL	62.7
476					Kolmogorov-Smirnov 5% Critical Value	0.215					95% BCA Bootstrap UCL	66.79
477					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	96.91

478											97.5% Chebyshev(Mean, Sd) UCL	120.6
479				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	167.3
480					95% Approximate Gamma UCL	67.05						
481					95% Adjusted Gamma UCL	70.52						
482												
483				**Potential UCL to Use**							Use 95% Chebyshev (Mean, Sd) UCL	96.91
484												
485												
486	**Mercury**											
487												
488						**General Statistics**							
489					Number of Valid Observations	17					Number of Distinct Observations	15
490												
491				**Raw Statistics**							**Log-transformed Statistics**	
492					Minimum	0.047					Minimum of Log Data	-3.058
493					Maximum	0.407					Maximum of Log Data	-0.899
494					Mean	0.123					Mean of log Data	-2.357
495					Median	0.081					SD of log Data	0.687
496					SD	0.105						
497					Coefficient of Variation	0.86						
498					Skewness	1.726						
499												
500						**Relevant UCL Statistics**						
501				**Normal Distribution Test**							**Lognormal Distribution Test**	
502					Shapiro Wilk Test Statistic	0.723					Shapiro Wilk Test Statistic	0.852
503					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
504				**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**	
505												
506				**Assuming Normal Distribution**							**Assuming Lognormal Distribution**	
507					95% Student's-t UCL	0.167					95% H-UCL	0.176
508				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	0.209
509					95% Adjusted-CLT UCL	0.176					97.5% Chebyshev (MVUE) UCL	0.248
510					95% Modified-t UCL	0.169					99% Chebyshev (MVUE) UCL	0.325
511												
512				**Gamma Distribution Test**							**Data Distribution**	
513					k star (bias corrected)	1.758					**Data do not follow a Discernable Distribution (0.05)**	
514					Theta Star	0.0698						
515					nu star	59.77						
516					Approximate Chi Square Value (.05)	42.99					**Nonparametric Statistics**	
517					Adjusted Level of Significance	0.0346					95% CLT UCL	0.165
518					Adjusted Chi Square Value	41.5					95% Jackknife UCL	0.167
519											95% Standard Bootstrap UCL	0.164
520					Anderson-Darling Test Statistic	1.383					95% Bootstrap-t UCL	0.199
521					Anderson-Darling 5% Critical Value	0.749					95% Hall's Bootstrap UCL	0.169
522					Kolmogorov-Smirnov Test Statistic	0.244					95% Percentile Bootstrap UCL	0.166
523					Kolmogorov-Smirnov 5% Critical Value	0.212					95% BCA Bootstrap UCL	0.177
524				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	0.234
525											97.5% Chebyshev(Mean, Sd) UCL	0.282
526				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	0.377
527					95% Approximate Gamma UCL	0.171						
528					95% Adjusted Gamma UCL	0.177						
529												
530				**Potential UCL to Use**							Use 95% Chebyshev (Mean, Sd) UCL	0.234

	A	B	C	D	E	F	G	H	I	J	K	L
531												
532												
533	**Naphthalene**											
534												
535						**General Statistics**						
536					Number of Valid Data	17			Number of Detected Data	10		
537					Number of Distinct Detected Data	9			Number of Non-Detect Data	7		
538									Percent Non-Detects	41.18%		
539												
540					**Raw Statistics**				**Log-transformed Statistics**			
541					Minimum Detected	5.5			Minimum Detected	1.705		
542					Maximum Detected	67			Maximum Detected	4.205		
543					Mean of Detected	25.44			Mean of Detected	3.01		
544					SD of Detected	18.04			SD of Detected	0.735		
545					Minimum Non-Detect	3.3			Minimum Non-Detect	1.194		
546					Maximum Non-Detect	20			Maximum Non-Detect	2.996		
547												
548	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	12		
549	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	5		
550	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	70.59%		
551												
552						**UCL Statistics**						
553					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
554					Shapiro Wilk Test Statistic	0.887			Shapiro Wilk Test Statistic	0.986		
555					5% Shapiro Wilk Critical Value	0.842			5% Shapiro Wilk Critical Value	0.842		
556					**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
557												
558					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
559					DL/2 Substitution Method				DL/2 Substitution Method			
560					Mean	16.87			Mean	2.308		
561					SD	17.3			SD	1.111		
562					95% DL/2 (t) UCL	24.19			95% H-Stat (DL/2) UCL	24.68		
563												
564					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
565					Mean	41.63			Mean in Log Scale	2.377		
566					SD	15.07			SD in Log Scale	0.975		
567					95% MLE (t) UCL	48.01			Mean in Original Scale	16.84		
568					95% MLE (Tiku) UCL	53.01			SD in Original Scale	17.21		
569									95% Percentile Bootstrap UCL	23.94		
570									95% BCA Bootstrap UCL	25.07		
571												
572					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
573					k star (bias corrected)	1.719			**Data appear Normal at 5% Significance Level**			
574					Theta Star	14.8						
575					nu star	34.39						
576												
577					A-D Test Statistic	0.157			**Nonparametric Statistics**			
578					5% A-D Critical Value	0.734			Kaplan-Meier (KM) Method			
579					K-S Test Statistic	0.734			Mean	17.64		
580					5% K-S Critical Value	0.269			SD	16.21		
581					**Data appear Gamma Distributed at 5% Significance Level**				SE of Mean	4.171		
582									95% KM (t) UCL	24.92		
583					**Assuming Gamma Distribution**				95% KM (z) UCL	24.5		

584	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					24.26
585	Minimum					5.5	95% KM (bootstrap t) UCL					27.74
586	Maximum					67	95% KM (BCA) UCL					28.42
587	Mean					21.65	95% KM (Percentile Bootstrap) UCL					25.67
588	Median					17	95% KM (Chebyshev) UCL					35.82
589	SD					15.05	97.5% KM (Chebyshev) UCL					43.69
590	k star					2.3	99% KM (Chebyshev) UCL					59.14
591	Theta star					9.41						
592	Nu star					78.21	**Potential UCLs to Use**					
593	AppChi2					58.84	95% KM (t) UCL					24.92
594	95% Gamma Approximate UCL					28.77	95% KM (Percentile Bootstrap) UCL					25.67
595	95% Adjusted Gamma UCL					29.66						
596	**Note: DL/2 is not a recommended method.**											
597												
598												
599	**Total Aroclors**											
600												
601	**General Statistics**											
602	Number of Valid Data					16	Number of Detected Data					16
603	Number of Distinct Detected Data					16	Number of Non-Detect Data					0
604	Number of Missing Values					1	Percent Non-Detects					0.00%
605												
606	**Raw Statistics**						**Log-transformed Statistics**					
607	Minimum Detected					17.9	Minimum Detected					2.885
608	Maximum Detected					2482	Maximum Detected					7.817
609	Mean of Detected					452.9	Mean of Detected					4.729
610	SD of Detected					751.5	SD of Detected					1.692
611	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
612	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
613												
614												
615	**UCL Statistics**											
616	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
617	Shapiro Wilk Test Statistic					0.645	Shapiro Wilk Test Statistic					0.847
618	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
619	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
620												
621	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
622	DL/2 Substitution Method						DL/2 Substitution Method					
623	Mean					452.9	Mean					4.729
624	SD					751.5	SD					1.692
625	95% DL/2 (t) UCL					782.3	95% H-Stat (DL/2) UCL					2592
626												
627	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
628	**MLE method failed to converge properly**						Mean in Log Scale					N/A
629							SD in Log Scale					N/A
630							Mean in Original Scale					N/A
631							SD in Original Scale					N/A
632							95% Percentile Bootstrap UCL					N/A
633							95% BCA Bootstrap UCL					N/A
634												
635	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
636	k star (bias corrected)					0.418	**Data do not follow a Discernable Distribution (0.05)**					

637					Theta Star	1083						
638					nu star	13.38						
639												
640					A-D Test Statistic	1.609	**Nonparametric Statistics**					
641					5% A-D Critical Value	0.804	Kaplan-Meier (KM) Method					
642					K-S Test Statistic	0.804	Mean	452.9				
643					5% K-S Critical Value	0.228	SD	727.6				
644	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	187.9				
645							95% KM (t) UCL	782.3				
646	**Assuming Gamma Distribution**						95% KM (z) UCL	761.9				
647	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	782.3				
648					Minimum	17.9	95% KM (bootstrap t) UCL	1016				
649					Maximum	2482	95% KM (BCA) UCL	801.9				
650					Mean	452.9	95% KM (Percentile Bootstrap) UCL	776.9				
651					Median	54.29	95% KM (Chebyshev) UCL	1272				
652					SD	751.5	97.5% KM (Chebyshev) UCL	1626				
653					k star	0.418	99% KM (Chebyshev) UCL	2322				
654					Theta star	1083						
655					Nu star	13.38	**Potential UCLs to Use**					
656					AppChi2	6.151	99% KM (Chebyshev) UCL	2322				
657					95% Gamma Approximate UCL	985.4						
658					95% Adjusted Gamma UCL	1082						
659	**Note: DL/2 is not a recommended method.**											
660												
661												
662	**Total DDT**											
663												
664	**General Statistics**											
665					Number of Valid Data	16	Number of Detected Data	14				
666					Number of Distinct Detected Data	14	Number of Non-Detect Data	2				
667					Number of Missing Values	1	Percent Non-Detects	12.50%				
668												
669	**Raw Statistics**						**Log-transformed Statistics**					
670					Minimum Detected	0.142	Minimum Detected	-1.951				
671					Maximum Detected	19	Maximum Detected	2.944				
672					Mean of Detected	4.328	Mean of Detected	0.665				
673					SD of Detected	5.513	SD of Detected	1.401				
674					Minimum Non-Detect	0.0886	Minimum Non-Detect	-2.424				
675					Maximum Non-Detect	19	Maximum Non-Detect	2.944				
676												
677	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	15				
678	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	1				
679	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	93.75%				
680												
681	**UCL Statistics**											
682	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
683					Shapiro Wilk Test Statistic	0.744	Shapiro Wilk Test Statistic	0.964				
684					5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874				
685	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
686												
687	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
688					DL/2 Substitution Method		DL/2 Substitution Method					
689					Mean	4.383	Mean	0.528				

690					SD	5.417					SD	1.674
691					95% DL/2 (t) UCL	6.757					95% H-Stat (DL/2) UCL	28.51
692												
693					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
694					**MLE method failed to converge properly**						Mean in Log Scale	0.441
695											SD in Log Scale	1.533
696											Mean in Original Scale	3.877
697											SD in Original Scale	5.283
698											95% Percentile Bootstrap UCL	6.065
699											95% BCA Bootstrap UCL	6.706
700												
701					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
702					k star (bias corrected)	0.636					**Data appear Gamma Distributed at 5% Significance Level**	
703					Theta Star	6.805						
704					nu star	17.81						
705												
706					A-D Test Statistic	0.527					**Nonparametric Statistics**	
707					5% A-D Critical Value	0.771					Kaplan-Meier (KM) Method	
708					K-S Test Statistic	0.771					Mean	3.982
709					5% K-S Critical Value	0.238					SD	5.152
710					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	1.357
711											95% KM (t) UCL	6.361
712					**Assuming Gamma Distribution**						95% KM (z) UCL	6.215
713					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	6.348
714					Minimum	1E-09					95% KM (bootstrap t) UCL	7.645
715					Maximum	19					95% KM (BCA) UCL	6.314
716					Mean	4.008					95% KM (Percentile Bootstrap) UCL	6.516
717					Median	1.585					95% KM (Chebyshev) UCL	9.898
718					SD	5.246					97.5% KM (Chebyshev) UCL	12.46
719					k star	0.314					99% KM (Chebyshev) UCL	17.49
720					Theta star	12.77						
721					Nu star	10.04					**Potential UCLs to Use**	
722					AppChi2	3.967					95% KM (Chebyshev) UCL	9.898
723					95% Gamma Approximate UCL	10.14						
724					95% Adjusted Gamma UCL	11.36						
725	**Note: DL/2 is not a recommended method.**											
726												
727												
728	**Total Dioxin-like PCBs**											
729												
730											**General Statistics**	
731					Number of Valid Data	6					Number of Detected Data	6
732					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
733					Number of Missing Values	7					Percent Non-Detects	0.00%
734												
735					**Raw Statistics**						**Log-transformed Statistics**	
736					Minimum Detected	2277					Minimum Detected	7.731
737					Maximum Detected	140950					Maximum Detected	11.86
738					Mean of Detected	50308					Mean of Detected	9.714
739					SD of Detected	58677					SD of Detected	1.894
740					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
741					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743												
744	**Warning: There are only 6 Detected Values in this data**											
745	**Note: It should be noted that even though bootstrap may be performed on this data set**											
746	**the resulting calculations may not be reliable enough tp draw conclusions**											
747												
748	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
749												
750												
751	**UCL Statistics**											
752	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
753	Shapiro Wilk Test Statistic					0.84	Shapiro Wilk Test Statistic					0.828
754	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
755	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
756												
757	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
758	DL/2 Substitution Method						DL/2 Substitution Method					
759	Mean					50308	Mean					9.714
760	SD					58677	SD					1.894
761	95% DL/2 (t) UCL					98578	95% H-Stat (DL/2) UCL					48846481
762												
763	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
764	**MLE method failed to converge properly**						Mean in Log Scale					N/A
765							SD in Log Scale					N/A
766							Mean in Original Scale					N/A
767							SD in Original Scale					N/A
768							95% Percentile Bootstrap UCL					N/A
769							95% BCA Bootstrap UCL					N/A
770												
771	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
772	k star (bias corrected)					0.392	**Data appear Normal at 5% Significance Level**					
773	Theta Star					128452						
774	nu star					4.7						
775												
776	A-D Test Statistic					0.554	**Nonparametric Statistics**					
777	5% A-D Critical Value					0.732	Kaplan-Meier (KM) Method					
778	K-S Test Statistic					0.732	Mean					50308
779	5% K-S Critical Value					0.347	SD					53564
780	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					23955
781							95% KM (t) UCL					98578
782	**Assuming Gamma Distribution**						95% KM (z) UCL					89710
783	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					98578
784	Minimum					2277	95% KM (bootstrap t) UCL					119382
785	Maximum					140950	95% KM (BCA) UCL					89138
786	Mean					50308	95% KM (Percentile Bootstrap) UCL					88199
787	Median					28630	95% KM (Chebyshev) UCL					154724
788	SD					58677	97.5% KM (Chebyshev) UCL					199904
789	k star					0.392	99% KM (Chebyshev) UCL					288653
790	Theta star					128452						
791	Nu star					4.7	**Potential UCLs to Use**					
792	AppChi2					1.016	95% KM (t) UCL					98578
793	95% Gamma Approximate UCL					232692	95% KM (Percentile Bootstrap) UCL					88199
794	95% Adjusted Gamma UCL					444883						
795	**Note: DL/2 is not a recommended method.**											

796												
797												
798	**Total PCB TEQ**											
799												
800						**General Statistics**							
801						Number of Valid Data	6				Number of Detected Data	6
802						Number of Distinct Detected Data	6				Number of Non-Detect Data	0
803						Number of Missing Values	7				Percent Non-Detects	0.00%
804												
805						**Raw Statistics**					**Log-transformed Statistics**	
806						Minimum Detected	1.045				Minimum Detected	0.0441
807						Maximum Detected	48.43				Maximum Detected	3.88
808						Mean of Detected	15.63				Mean of Detected	1.694
809						SD of Detected	20.01				SD of Detected	1.742
810						Minimum Non-Detect	N/A				Minimum Non-Detect	N/A
811						Maximum Non-Detect	N/A				Maximum Non-Detect	N/A
812												
813												
814						**Warning: There are only 6 Detected Values in this data**							
815						**Note: It should be noted that even though bootstrap may be performed on this data set**						
816						**the resulting calculations may not be reliable enough tp draw conclusions**						
817												
818						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
819												
820												
821						**UCL Statistics**							
822						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
823						Shapiro Wilk Test Statistic	0.793				Shapiro Wilk Test Statistic	0.832
824						5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value	0.788
825						**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
826												
827						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
828						DL/2 Substitution Method					DL/2 Substitution Method	
829						Mean	15.63				Mean	1.694
830						SD	20.01				SD	1.742
831						95% DL/2 (t) UCL	32.09				95% H-Stat (DL/2) UCL	4803
832												
833						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
834						**MLE method failed to converge properly**					Mean in Log Scale	N/A
835											SD in Log Scale	N/A
836											Mean in Original Scale	N/A
837											SD in Original Scale	N/A
838											95% Percentile Bootstrap UCL	N/A
839											95% BCA Bootstrap UCL	N/A
840												
841						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
842						k star (bias corrected)	0.405				**Data appear Normal at 5% Significance Level**	
843						Theta Star	38.62					
844						nu star	4.857					
845												
846						A-D Test Statistic	0.55				**Nonparametric Statistics**	
847						5% A-D Critical Value	0.731				Kaplan-Meier (KM) Method	
848						K-S Test Statistic	0.731				Mean	15.63

849					5% K-S Critical Value	0.347					SD	18.26
850					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	8.167
851											95% KM (t) UCL	32.09
852					**Assuming Gamma Distribution**						95% KM (z) UCL	29.07
853					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	32.09
854					Minimum	1.045					95% KM (bootstrap t) UCL	67.77
855					Maximum	48.43					95% KM (BCA) UCL	29.6
856					Mean	15.63					95% KM (Percentile Bootstrap) UCL	29.11
857					Median	5.559					95% KM (Chebyshev) UCL	51.23
858					SD	20.01					97.5% KM (Chebyshev) UCL	66.64
859					k star	0.405					99% KM (Chebyshev) UCL	96.89
860					Theta star	38.62						
861					Nu star	4.857					**Potential UCLs to Use**	
862					AppChi2	1.087					95% KM (t) UCL	32.09
863					95% Gamma Approximate UCL	69.87					95% KM (Percentile Bootstrap) UCL	29.11
864					95% Adjusted Gamma UCL	131.7						
865	**Note: DL/2 is not a recommended method.**											
866												
867												
868	**Total PCB_Congeners**											
869												
870					**General Statistics**							
871					Number of Valid Data	6					Number of Detected Data	6
872					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
873					Number of Missing Values	7					Percent Non-Detects	0.00%
874												
875					**Raw Statistics**						**Log-transformed Statistics**	
876					Minimum Detected	60876					Minimum Detected	11.02
877					Maximum Detected	2506665					Maximum Detected	14.73
878					Mean of Detected	887463					Mean of Detected	12.73
879					SD of Detected	1057347					SD of Detected	1.689
880					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
881					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
882												
883												
884					**Warning: There are only 6 Detected Values in this data**							
885					**Note: It should be noted that even though bootstrap may be performed on this data set**							
886					**the resulting calculations may not be reliable enough tp draw conclusions**							
887												
888					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
889												
890												
891					**UCL Statistics**							
892					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
893					Shapiro Wilk Test Statistic	0.813					Shapiro Wilk Test Statistic	0.854
894					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
895					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
896												
897					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
898					DL/2 Substitution Method						DL/2 Substitution Method	
899					Mean	887463					Mean	12.73
900					SD	1057347					SD	1.689
901					95% DL/2 (t) UCL	1757279					95% H-Stat (DL/2) UCL	200400000

902												
903					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
904					**MLE method failed to converge properly**					Mean in Log Scale		N/A
905										SD in Log Scale		N/A
906										Mean in Original Scale		N/A
907										SD in Original Scale		N/A
908										95% Percentile Bootstrap UCL		N/A
909										95% BCA Bootstrap UCL		N/A
910												
911					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
912					k star (bias corrected)	0.429				**Data appear Normal at 5% Significance Level**		
913					Theta Star	2066734						
914					nu star	5.153						
915												
916					A-D Test Statistic	0.488				**Nonparametric Statistics**		
917					5% A-D Critical Value	0.728				Kaplan-Meier (KM) Method		
918					K-S Test Statistic	0.728				Mean		887463
919					5% K-S Critical Value	0.346				SD		965221
920					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		431660
921										95% KM (t) UCL		1757279
922					**Assuming Gamma Distribution**					95% KM (z) UCL		1597480
923					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1757279
924					Minimum	60876				95% KM (bootstrap t) UCL		2867618
925					Maximum	2506665				95% KM (BCA) UCL		1586373
926					Mean	887463				95% KM (Percentile Bootstrap) UCL		1589244
927					Median	407521				95% KM (Chebyshev) UCL		2769025
928					SD	1057347				97.5% KM (Chebyshev) UCL		3583179
929					k star	0.429				99% KM (Chebyshev) UCL		5182426
930					Theta star	2066734						
931					Nu star	5.153				**Potential UCLs to Use**		
932					AppChi2	1.223				95% KM (t) UCL		1757279
933					95% Gamma Approximate UCL	3737755				95% KM (Percentile Bootstrap) UCL		1589244
934					95% Adjusted Gamma UCL	6866483						
935	**Note: DL/2 is not a recommended method.**											
936												
937												
938	**Total PCBs, Adjusted**											
939												
940						**General Statistics**						
941					Number of Valid Data	6				Number of Detected Data		6
942					Number of Distinct Detected Data	6				Number of Non-Detect Data		0
943					Number of Missing Values	7				Percent Non-Detects		0.00%
944												
945					**Raw Statistics**					**Log-transformed Statistics**		
946					Minimum Detected	56864				Minimum Detected		10.95
947					Maximum Detected	2408343				Maximum Detected		14.69
948					Mean of Detected	837155				Mean of Detected		12.68
949					SD of Detected	1004495				SD of Detected		1.682
950					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
951					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
952												
953												
954	**Warning: There are only 6 Detected Values in this data**											

	A	B	C	D	E	F	G	H	I	J	K	L
955	Note: It should be noted that even though bootstrap may be performed on this data set											
956	the resulting calculations may not be reliable enough tp draw conclusions											
957												
958	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
959												
960												
961	UCL Statistics											
962	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
963	Shapiro Wilk Test Statistic					0.815	Shapiro Wilk Test Statistic					0.862
964	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
965	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
966												
967	Assuming Normal Distribution						Assuming Lognormal Distribution					
968	DL/2 Substitution Method						DL/2 Substitution Method					
969	Mean					837155	Mean					12.68
970	SD					1004495	SD					1.682
971	95% DL/2 (t) UCL					1663493	95% H-Stat (DL/2) UCL					180900000
972												
973	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
974	MLE method failed to converge properly						Mean in Log Scale					N/A
975							SD in Log Scale					N/A
976							Mean in Original Scale					N/A
977							SD in Original Scale					N/A
978							95% Percentile Bootstrap UCL					N/A
979							95% BCA Bootstrap UCL					N/A
980												
981	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
982	k star (bias corrected)					0.43	Data appear Normal at 5% Significance Level					
983	Theta Star					1945760						
984	nu star					5.163						
985												
986	A-D Test Statistic					0.468	Nonparametric Statistics					
987	5% A-D Critical Value					0.728	Kaplan-Meier (KM) Method					
988	K-S Test Statistic					0.728	Mean					837155
989	5% K-S Critical Value					0.346	SD					916975
990	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					410083
991							95% KM (t) UCL					1663493
992	Assuming Gamma Distribution						95% KM (z) UCL					1511682
993	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1663493
994	Minimum					56864	95% KM (bootstrap t) UCL					3685083
995	Maximum					2408343	95% KM (BCA) UCL					1507881
996	Mean					837155	95% KM (Percentile Bootstrap) UCL					1499474
997	Median					379758	95% KM (Chebyshev) UCL					2624667
998	SD					1004495	97.5% KM (Chebyshev) UCL					3398125
999	k star					0.43	99% KM (Chebyshev) UCL					4917434
1000	Theta star					1945760						
1001	Nu star					5.163	Potential UCLs to Use					
1002	AppChi2					1.228	95% KM (t) UCL					1663493
1003	95% Gamma Approximate UCL					3519103	95% KM (Percentile Bootstrap) UCL					1499474
1004	95% Adjusted Gamma UCL					6459405						
1005	Note: DL/2 is not a recommended method.											
1006												
1007												

	A	B	C	D	E	F	G	H	I	J	K	L
1008	**Tributyltin ion**											
1009												
1010	**General Statistics**											
1011	Number of Valid Data					9	Number of Detected Data					8
1012	Number of Distinct Detected Data					8	Number of Non-Detect Data					1
1013	Number of Missing Values					8	Percent Non-Detects					11.11%
1014												
1015	**Raw Statistics**						**Log-transformed Statistics**					
1016	Minimum Detected					0.97	Minimum Detected					-0.0305
1017	Maximum Detected					31	Maximum Detected					3.434
1018	Mean of Detected					11	Mean of Detected					1.868
1019	SD of Detected					11	SD of Detected					1.188
1020	Minimum Non-Detect					1.7	Minimum Non-Detect					0.531
1021	Maximum Non-Detect					1.7	Maximum Non-Detect					0.531
1022												
1023												
1024	**Warning: There are only 8 Detected Values in this data**											
1025	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1026	**the resulting calculations may not be reliable enough tp draw conclusions**											
1027												
1028	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1029												
1030												
1031	**UCL Statistics**											
1032	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1033	Shapiro Wilk Test Statistic					0.846	Shapiro Wilk Test Statistic					0.962
1034	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
1035	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1036												
1037	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1038	DL/2 Substitution Method						DL/2 Substitution Method					
1039	Mean					9.869	Mean					1.642
1040	SD					10.83	SD					1.301
1041	95% DL/2 (t) UCL					16.58	95% H-Stat (DL/2) UCL					44.02
1042												
1043	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
1044	Mean					8.34	Mean in Log Scale					1.644
1045	SD					12.19	SD in Log Scale					1.298
1046	95% MLE (t) UCL					15.89	Mean in Original Scale					9.871
1047	95% MLE (Tiku) UCL					16	SD in Original Scale					10.83
1048							95% Percentile Bootstrap UCL					16.24
1049							95% BCA Bootstrap UCL					17.05
1050												
1051	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1052	k star (bias corrected)					0.758	**Data appear Normal at 5% Significance Level**					
1053	Theta Star					14.51						
1054	nu star					12.13						
1055												
1056	A-D Test Statistic					0.251	**Nonparametric Statistics**					
1057	5% A-D Critical Value					0.734	Kaplan-Meier (KM) Method					
1058	K-S Test Statistic					0.734	Mean					9.882
1059	5% K-S Critical Value					0.301	SD					10.2
1060	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					3.636

	A	B	C	D	E	F	G	H	I	J	K	L
1061										95% KM (t) UCL		16.64
1062	**Assuming Gamma Distribution**									95% KM (z) UCL		15.86
1063	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		16.52
1064	Minimum					1E-09				95% KM (bootstrap t) UCL		23.19
1065	Maximum					31				95% KM (BCA) UCL		16.44
1066	Mean					9.774				95% KM (Percentile Bootstrap) UCL		15.87
1067	Median					6.7				95% KM (Chebyshev) UCL		25.73
1068	SD					10.93				97.5% KM (Chebyshev) UCL		32.59
1069	k star					0.237				99% KM (Chebyshev) UCL		46.06
1070	Theta star					41.29						
1071	Nu star					4.261				**Potential UCLs to Use**		
1072	AppChi2					0.828				95% KM (t) UCL		16.64
1073	95% Gamma Approximate UCL					50.33				95% KM (Percentile Bootstrap) UCL		15.87
1074	95% Adjusted Gamma UCL					74.24						
1075	**Note: DL/2 is not a recommended method.**											
1076												

1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM9.5E.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Arsenic											
10												
11	General Statistics											
12	Number of Valid Observations			20			Number of Distinct Observations				19	
13												
14	Raw Statistics						Log-transformed Statistics					
15	Minimum			1.5			Minimum of Log Data				0.405	
16	Maximum			6.42			Maximum of Log Data				1.859	
17	Mean			3.282			Mean of log Data				1.149	
18	Median			3.255			SD of log Data				0.29	
19	SD			0.961								
20	Coefficient of Variation			0.293								
21	Skewness			1.47								
22												
23	Relevant UCL Statistics											
24	Normal Distribution Test						Lognormal Distribution Test					
25	Shapiro Wilk Test Statistic			0.823			Shapiro Wilk Test Statistic				0.871	
26	Shapiro Wilk Critical Value			0.905			Shapiro Wilk Critical Value				0.905	
27	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
28												
29	Assuming Normal Distribution						Assuming Lognormal Distribution					
30	95% Student's-t UCL			3.654			95% H-UCL				3.72	
31	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				4.227	
32	95% Adjusted-CLT UCL			3.711			97.5% Chebyshev (MVUE) UCL				4.634	
33	95% Modified-t UCL			3.665			99% Chebyshev (MVUE) UCL				5.435	
34												
35	Gamma Distribution Test						Data Distribution					
36	k star (bias corrected)			11.07			Data do not follow a Discernable Distribution (0.05)					
37	Theta Star			0.296								
38	nu star			443								
39	Approximate Chi Square Value (.05)			395.2			Nonparametric Statistics					
40	Adjusted Level of Significance			0.038			95% CLT UCL				3.635	
41	Adjusted Chi Square Value			391.6			95% Jackknife UCL				3.654	
42							95% Standard Bootstrap UCL				3.626	
43	Anderson-Darling Test Statistic			1.144			95% Bootstrap-t UCL				3.734	
44	Anderson-Darling 5% Critical Value			0.742			95% Hall's Bootstrap UCL				4.211	
45	Kolmogorov-Smirnov Test Statistic			0.207			95% Percentile Bootstrap UCL				3.653	
46	Kolmogorov-Smirnov 5% Critical Value			0.194			95% BCA Bootstrap UCL				3.702	
47	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				4.219	
48							97.5% Chebyshev(Mean, Sd) UCL				4.624	
49	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL				5.42	
50	95% Approximate Gamma UCL			3.679								
51	95% Adjusted Gamma UCL			3.712								
52												
53	Potential UCL to Use						Use 95% Student's-t UCL				3.654	

54											or 95% Modified-t UCL	3.665
55												
56												
57	**Benzo(a)anthracene**											
58												
59						**General Statistics**							
60						Number of Valid Observations	20				Number of Distinct Observations	18
61												
62						**Raw Statistics**					**Log-transformed Statistics**	
63						Minimum	3.7				Minimum of Log Data	1.308
64						Maximum	84				Maximum of Log Data	4.431
65						Mean	21.83				Mean of log Data	2.782
66						Median	15.5				SD of log Data	0.764
67						SD	20.24					
68						Coefficient of Variation	0.927					
69						Skewness	2.067					
70												
71						**Relevant UCL Statistics**						
72						**Normal Distribution Test**					**Lognormal Distribution Test**	
73						Shapiro Wilk Test Statistic	0.733				Shapiro Wilk Test Statistic	0.967
74						Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value	0.905
75						**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
76												
77						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
78						95% Student's-t UCL	29.65				95% H-UCL	32.24
79						**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	38.27
80						95% Adjusted-CLT UCL	31.51				97.5% Chebyshev (MVUE) UCL	45.64
81						95% Modified-t UCL	30				99% Chebyshev (MVUE) UCL	60.11
82												
83						**Gamma Distribution Test**					**Data Distribution**	
84						k star (bias corrected)	1.571				**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
85						Theta Star	13.89					
86						nu star	62.85					
87						Approximate Chi Square Value (.05)	45.62				**Nonparametric Statistics**	
88						Adjusted Level of Significance	0.038				95% CLT UCL	29.27
89						Adjusted Chi Square Value	44.46				95% Jackknife UCL	29.65
90											95% Standard Bootstrap UCL	29.13
91						Anderson-Darling Test Statistic	0.767				95% Bootstrap-t UCL	34.71
92						Anderson-Darling 5% Critical Value	0.754				95% Hall's Bootstrap UCL	31.8
93						Kolmogorov-Smirnov Test Statistic	0.174				95% Percentile Bootstrap UCL	29.19
94						Kolmogorov-Smirnov 5% Critical Value	0.197				95% BCA Bootstrap UCL	31.9
95						**Data follow Appr. Gamma Distribution at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	41.55
96											97.5% Chebyshev(Mean, Sd) UCL	50.09
97						**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	66.85
98						95% Approximate Gamma UCL	30.08					
99						95% Adjusted Gamma UCL	30.86					
100												
101						**Potential UCL to Use**					Use 95% Approximate Gamma UCL	30.08
102												
103												
104	**Benzo(a)pyrene**											
105												
106						**General Statistics**						

	A	B	C	D	E	F	G	H	I	J	K	L
107	Number of Valid Observations					20	Number of Distinct Observations					17
108												
109	**Raw Statistics**						**Log-transformed Statistics**					
110	Minimum					5.2	Minimum of Log Data					1.649
111	Maximum					110	Maximum of Log Data					4.7
112	Mean					24.58	Mean of log Data					2.912
113	Median					16.5	SD of log Data					0.719
114	SD					24.59						
115	Coefficient of Variation					1						
116	Skewness					2.703						
117												
118	**Relevant UCL Statistics**											
119	**Normal Distribution Test**						**Lognormal Distribution Test**					
120	Shapiro Wilk Test Statistic					0.651	Shapiro Wilk Test Statistic					0.944
121	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905
122	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
123												
124	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
125	95% Student's-t UCL					34.09	95% H-UCL					34.37
126	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					41
127	95% Adjusted-CLT UCL					37.17	97.5% Chebyshev (MVUE) UCL					48.6
128	95% Modified-t UCL					34.64	99% Chebyshev (MVUE) UCL					63.53
129												
130	**Gamma Distribution Test**						**Data Distribution**					
131	k star (bias corrected)					1.625	**Data appear Lognormal at 5% Significance Level**					
132	Theta Star					15.12						
133	nu star					65.01						
134	Approximate Chi Square Value (.05)					47.46	**Nonparametric Statistics**					
135	Adjusted Level of Significance					0.038	95% CLT UCL					33.62
136	Adjusted Chi Square Value					46.27	95% Jackknife UCL					34.09
137							95% Standard Bootstrap UCL					33.37
138	Anderson-Darling Test Statistic					1.071	95% Bootstrap-t UCL					46.86
139	Anderson-Darling 5% Critical Value					0.754	95% Hall's Bootstrap UCL					75.91
140	Kolmogorov-Smirnov Test Statistic					0.259	95% Percentile Bootstrap UCL					33.54
141	Kolmogorov-Smirnov 5% Critical Value					0.196	95% BCA Bootstrap UCL					36.73
142	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					48.54
143							97.5% Chebyshev(Mean, Sd) UCL					58.91
144	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					79.28
145	95% Approximate Gamma UCL					33.67						
146	95% Adjusted Gamma UCL					34.53						
147												
148	**Potential UCL to Use**						Use 95% H-UCL					34.37
149												
150												
151	**Benzo(b)fluoranthene**											
152												
153	**General Statistics**											
154	Number of Valid Observations					20	Number of Distinct Observations					18
155												
156	**Raw Statistics**						**Log-transformed Statistics**					
157	Minimum					6.4	Minimum of Log Data					1.856
158	Maximum					110	Maximum of Log Data					4.7
159	Mean					29.31	Mean of log Data					3.097

160					Median	19.5					SD of log Data	0.727
161					SD	26.75						
162					Coefficient of Variation	0.913						
163					Skewness	2.156						
164												
165					**Relevant UCL Statistics**							
166					**Normal Distribution Test**						**Lognormal Distribution Test**	
167					Shapiro Wilk Test Statistic	0.72					Shapiro Wilk Test Statistic	0.959
168					Shapiro Wilk Critical Value	0.905					Shapiro Wilk Critical Value	0.905
169					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
170												
171					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
172					95% Student's-t UCL	39.65					95% H-UCL	41.88
173					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	49.93
174					95% Adjusted-CLT UCL	42.22					97.5% Chebyshev (MVUE) UCL	59.25
175					95% Modified-t UCL	40.13					99% Chebyshev (MVUE) UCL	77.57
176												
177					**Gamma Distribution Test**						**Data Distribution**	
178					k star (bias corrected)	1.676					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
179					Theta Star	17.48						
180					nu star	67.05						
181					Approximate Chi Square Value (.05)	49.21					**Nonparametric Statistics**	
182					Adjusted Level of Significance	0.038					95% CLT UCL	39.14
183					Adjusted Chi Square Value	48					95% Jackknife UCL	39.65
184											95% Standard Bootstrap UCL	39.05
185					Anderson-Darling Test Statistic	0.795					95% Bootstrap-t UCL	51.4
186					Anderson-Darling 5% Critical Value	0.753					95% Hall's Bootstrap UCL	86.56
187					Kolmogorov-Smirnov Test Statistic	0.175					95% Percentile Bootstrap UCL	40.15
188					Kolmogorov-Smirnov 5% Critical Value	0.196					95% BCA Bootstrap UCL	43.75
189					**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	55.38
190											97.5% Chebyshev(Mean, Sd) UCL	66.66
191					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	88.82
192					95% Approximate Gamma UCL	39.93						
193					95% Adjusted Gamma UCL	40.94						
194												
195					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	39.93
196												
197												
198	**Benzo(k)fluoranthene**											
199												
200					**General Statistics**							
201					Number of Valid Observations	20					Number of Distinct Observations	17
202												
203					**Raw Statistics**						**Log-transformed Statistics**	
204					Minimum	2.1					Minimum of Log Data	0.742
205					Maximum	79					Maximum of Log Data	4.369
206					Mean	16.96					Mean of log Data	2.479
207					Median	12.5					SD of log Data	0.852
208					SD	17.15						
209					Coefficient of Variation	1.011						
210					Skewness	2.728						
211												
212					**Relevant UCL Statistics**							

213	**Normal Distribution Test**						**Lognormal Distribution Test**					
214	Shapiro Wilk Test Statistic				0.707		Shapiro Wilk Test Statistic				0.984	
215	Shapiro Wilk Critical Value				0.905		Shapiro Wilk Critical Value				0.905	
216	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
217												
218	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
219	95% Student's-t UCL				23.58		95% H-UCL				27.37	
220	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL				31.96	
221	95% Adjusted-CLT UCL				25.76		97.5% Chebyshev (MVUE) UCL				38.54	
222	95% Modified-t UCL				23.97		99% Chebyshev (MVUE) UCL				51.47	
223												
224	**Gamma Distribution Test**						**Data Distribution**					
225	k star (bias corrected)				1.365		**Data appear Gamma Distributed at 5% Significance Level**					
226	Theta Star				12.42							
227	nu star				54.61							
228	Approximate Chi Square Value (.05)				38.63		**Nonparametric Statistics**					
229	Adjusted Level of Significance				0.038		95% CLT UCL				23.26	
230	Adjusted Chi Square Value				37.57		95% Jackknife UCL				23.58	
231							95% Standard Bootstrap UCL				23.06	
232	Anderson-Darling Test Statistic				0.369		95% Bootstrap-t UCL				28.48	
233	Anderson-Darling 5% Critical Value				0.757		95% Hall's Bootstrap UCL				51.64	
234	Kolmogorov-Smirnov Test Statistic				0.14		95% Percentile Bootstrap UCL				23.49	
235	Kolmogorov-Smirnov 5% Critical Value				0.197		95% BCA Bootstrap UCL				25.91	
236	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL				33.67	
237							97.5% Chebyshev(Mean, Sd) UCL				40.9	
238	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL				55.1	
239	95% Approximate Gamma UCL				23.97							
240	95% Adjusted Gamma UCL				24.65							
241												
242	**Potential UCL to Use**						Use 95% Approximate Gamma UCL				23.97	
243												
244												
245	**Bis(2-ethylhexyl) phthalate**											
246												
247	**General Statistics**											
248	Number of Valid Data				20		Number of Detected Data				17	
249	Number of Distinct Detected Data				17		Number of Non-Detect Data				3	
250							Percent Non-Detects				15.00%	
251												
252	**Raw Statistics**						**Log-transformed Statistics**					
253	Minimum Detected				37		Minimum Detected				3.611	
254	Maximum Detected				920		Maximum Detected				6.824	
255	Mean of Detected				187.8		Mean of Detected				4.791	
256	SD of Detected				221.8		SD of Detected				0.91	
257	Minimum Non-Detect				33		Minimum Non-Detect				3.497	
258	Maximum Non-Detect				120		Maximum Non-Detect				4.787	
259												
260	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				13	
261	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				7	
262	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				65.00%	
263												
264	**UCL Statistics**											
265	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

	A	B	C	D	E	F	G	H	I	J	K	L
266					Shapiro Wilk Test Statistic	0.676				Shapiro Wilk Test Statistic		0.937
267					5% Shapiro Wilk Critical Value	0.892				5% Shapiro Wilk Critical Value		0.892
268	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
269												
270	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
271					DL/2 Substitution Method					DL/2 Substitution Method		
272					Mean	164.6				Mean		4.574
273					SD	211.4				SD		1.013
274					95% DL/2 (t) UCL	246.3				95% H-Stat (DL/2) UCL		294
275												
276					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
277	**MLE yields a negative mean**									Mean in Log Scale		4.576
278										SD in Log Scale		1.016
279										Mean in Original Scale		164.7
280										SD in Original Scale		211.3
281										95% Percentile Bootstrap UCL		243.9
282										95% BCA Bootstrap UCL		275
283												
284	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
285					k star (bias corrected)	1.082	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
286					Theta Star	173.5						
287					nu star	36.8						
288												
289					A-D Test Statistic	0.79	**Nonparametric Statistics**					
290					5% A-D Critical Value	0.76				Kaplan-Meier (KM) Method		
291					K-S Test Statistic	0.76				Mean		166.6
292					5% K-S Critical Value	0.214				SD		204.8
293	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		47.22
294										95% KM (t) UCL		248.3
295	**Assuming Gamma Distribution**									95% KM (z) UCL		244.3
296					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		247.5
297					Minimum	1E-09				95% KM (bootstrap t) UCL		328.1
298					Maximum	920				95% KM (BCA) UCL		258.6
299					Mean	165.7				95% KM (Percentile Bootstrap) UCL		249.2
300					Median	85				95% KM (Chebyshev) UCL		372.4
301					SD	211.8				97.5% KM (Chebyshev) UCL		461.5
302					k star	0.244				99% KM (Chebyshev) UCL		636.4
303					Theta star	679.2						
304					Nu star	9.76				**Potential UCLs to Use**		
305					AppChi2	3.793				95% KM (BCA) UCL		258.6
306					95% Gamma Approximate UCL	426.5						
307					95% Adjusted Gamma UCL	461.8						
308	**Note: DL/2 is not a recommended method.**											
309												
310												
311	**Dibenzo(a,h)anthracene**											
312												
313	**General Statistics**											
314					Number of Valid Data	20				Number of Detected Data		17
315					Number of Distinct Detected Data	13				Number of Non-Detect Data		3
316										Percent Non-Detects		15.00%
317												
318	**Raw Statistics**						**Log-transformed Statistics**					

	A	B	C	D	E	F	G	H	I	J	K	L
319					Minimum Detected	1.1					Minimum Detected	0.0953
320					Maximum Detected	22					Maximum Detected	3.091
321					Mean of Detected	4.494					Mean of Detected	1.09
322					SD of Detected	5.405					SD of Detected	0.842
323					Minimum Non-Detect	1.9					Minimum Non-Detect	0.642
324					Maximum Non-Detect	10					Maximum Non-Detect	2.303
325												
326	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
327	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
328	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	90.00%
329												
330	**UCL Statistics**											
331	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
332					Shapiro Wilk Test Statistic	0.632					Shapiro Wilk Test Statistic	0.891
333					5% Shapiro Wilk Critical Value	0.892					5% Shapiro Wilk Critical Value	0.892
334	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
335												
336	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
337					DL/2 Substitution Method						DL/2 Substitution Method	
338					Mean	4.368					Mean	1.084
339					SD	5.027					SD	0.833
340					95% DL/2 (t) UCL	6.311					95% H-Stat (DL/2) UCL	7.66
341												
342					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
343	**MLE method failed to converge properly**										Mean in Log Scale	1.031
344											SD in Log Scale	0.801
345											Mean in Original Scale	4.147
346											SD in Original Scale	5.045
347											95% Percentile Bootstrap UCL	6.152
348											95% BCA Bootstrap UCL	6.819
349												
350	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
351					k star (bias corrected)	1.153	**Data do not follow a Discernable Distribution (0.05)**					
352					Theta Star	3.898						
353					nu star	39.2						
354												
355					A-D Test Statistic	1.257	**Nonparametric Statistics**					
356					5% A-D Critical Value	0.759					Kaplan-Meier (KM) Method	
357					K-S Test Statistic	0.759					Mean	4.162
358					5% K-S Critical Value	0.214					SD	4.932
359	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	1.144
360											95% KM (t) UCL	6.141
361	**Assuming Gamma Distribution**										95% KM (z) UCL	6.045
362					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	6.134
363					Minimum	1.1					95% KM (bootstrap t) UCL	8.603
364					Maximum	22					95% KM (BCA) UCL	6.52
365					Mean	4.424					95% KM (Percentile Bootstrap) UCL	6.154
366					Median	2.7					95% KM (Chebyshev) UCL	9.15
367					SD	4.983					97.5% KM (Chebyshev) UCL	11.31
368					k star	1.346					99% KM (Chebyshev) UCL	15.55
369					Theta star	3.287						
370					Nu star	53.83	**Potential UCLs to Use**					
371					AppChi2	37.97					95% KM (Chebyshev) UCL	9.15

372				95% Gamma Approximate UCL	6.271							
373				95% Adjusted Gamma UCL	6.45							
374	**Note: DL/2 is not a recommended method.**											
375												
376												
377	**Indeno(1,2,3-cd)pyrene**											
378												
379	**General Statistics**											
380	Number of Valid Observations				20	Number of Distinct Observations						17
381												
382	**Raw Statistics**					**Log-transformed Statistics**						
383	Minimum				4.4	Minimum of Log Data						1.482
384	Maximum				100	Maximum of Log Data						4.605
385	Mean				19.73	Mean of log Data						2.67
386	Median				13.5	SD of log Data						0.726
387	SD				21.74							
388	Coefficient of Variation				1.102							
389	Skewness				3.09							
390												
391	**Relevant UCL Statistics**											
392	**Normal Distribution Test**					**Lognormal Distribution Test**						
393	Shapiro Wilk Test Statistic				0.595	Shapiro Wilk Test Statistic						0.934
394	Shapiro Wilk Critical Value				0.905	Shapiro Wilk Critical Value						0.905
395	**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**						
396												
397	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
398	95% Student's-t UCL				28.14	95% H-UCL						27.29
399	**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL						32.53
400	95% Adjusted-CLT UCL				31.32	97.5% Chebyshev (MVUE) UCL						38.6
401	95% Modified-t UCL				28.7	99% Chebyshev (MVUE) UCL						50.53
402												
403	**Gamma Distribution Test**					**Data Distribution**						
404	k star (bias corrected)				1.52	**Data appear Lognormal at 5% Significance Level**						
405	Theta Star				12.98							
406	nu star				60.79							
407	Approximate Chi Square Value (.05)				43.86	**Nonparametric Statistics**						
408	Adjusted Level of Significance				0.038	95% CLT UCL						27.73
409	Adjusted Chi Square Value				42.72	95% Jackknife UCL						28.14
410						95% Standard Bootstrap UCL						27.41
411	Anderson-Darling Test Statistic				1.138	95% Bootstrap-t UCL						43.48
412	Anderson-Darling 5% Critical Value				0.755	95% Hall's Bootstrap UCL						66.16
413	Kolmogorov-Smirnov Test Statistic				0.219	95% Percentile Bootstrap UCL						27.92
414	Kolmogorov-Smirnov 5% Critical Value				0.197	95% BCA Bootstrap UCL						31.97
415	**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL						40.92
416						97.5% Chebyshev(Mean, Sd) UCL						50.09
417	**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL						68.1
418	95% Approximate Gamma UCL				27.35							
419	95% Adjusted Gamma UCL				28.07							
420												
421	**Potential UCL to Use**					Use 95% H-UCL						27.29
422												
423												
424	**Lead**											

425												
426						**General Statistics**						
427						Number of Valid Observations	20				Number of Distinct Observations	17
428												
429						**Raw Statistics**					**Log-transformed Statistics**	
430						Minimum	9.2				Minimum of Log Data	2.219
431						Maximum	55				Maximum of Log Data	4.007
432						Mean	15.6				Mean of log Data	2.627
433						Median	12.25				SD of log Data	0.433
434						SD	10.68					
435						Coefficient of Variation	0.684					
436						Skewness	3.154					
437												
438						**Relevant UCL Statistics**						
439						**Normal Distribution Test**					**Lognormal Distribution Test**	
440						Shapiro Wilk Test Statistic	0.538				Shapiro Wilk Test Statistic	0.715
441						Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value	0.905
442						**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**	
443												
444						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
445						95% Student's-t UCL	19.73				95% H-UCL	18.43
446						**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	21.69
447						95% Adjusted-CLT UCL	21.33				97.5% Chebyshev (MVUE) UCL	24.53
448						95% Modified-t UCL	20.01				99% Chebyshev (MVUE) UCL	30.11
449												
450						**Gamma Distribution Test**					**Data Distribution**	
451						k star (bias corrected)	3.712				**Data do not follow a Discernable Distribution (0.05)**	
452						Theta Star	4.203					
453						nu star	148.5					
454						Approximate Chi Square Value (.05)	121.3				**Nonparametric Statistics**	
455						Adjusted Level of Significance	0.038				95% CLT UCL	19.53
456						Adjusted Chi Square Value	119.4				95% Jackknife UCL	19.73
457											95% Standard Bootstrap UCL	19.34
458						Anderson-Darling Test Statistic	2.735				95% Bootstrap-t UCL	30.34
459						Anderson-Darling 5% Critical Value	0.745				95% Hall's Bootstrap UCL	35.82
460						Kolmogorov-Smirnov Test Statistic	0.337				95% Percentile Bootstrap UCL	19.77
461						Kolmogorov-Smirnov 5% Critical Value	0.195				95% BCA Bootstrap UCL	21.93
462						**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	26.01
463											97.5% Chebyshev(Mean, Sd) UCL	30.51
464						**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	39.36
465						95% Approximate Gamma UCL	19.09					
466						95% Adjusted Gamma UCL	19.4					
467												
468						**Potential UCL to Use**					Use 95% Student's-t UCL	19.73
469											or 95% Modified-t UCL	20.01
470												
471												
472	**Mercury**											
473												
474						**General Statistics**						
475						Number of Valid Data	20				Number of Detected Data	18
476						Number of Distinct Detected Data	18				Number of Non-Detect Data	2
477											Percent Non-Detects	10.00%

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	**Raw Statistics**						**Log-transformed Statistics**					
480					Minimum Detected	0.023					Minimum Detected	-3.772
481					Maximum Detected	0.311					Maximum Detected	-1.168
482					Mean of Detected	0.0663					Mean of Detected	-2.9
483					SD of Detected	0.0629					SD of Detected	0.529
484					Minimum Non-Detect	0.05					Minimum Non-Detect	-2.996
485					Maximum Non-Detect	0.07					Maximum Non-Detect	-2.659
486												
487	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	17
488	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
489	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	85.00%
490												
491	**UCL Statistics**											
492	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
493					Shapiro Wilk Test Statistic	0.475					Shapiro Wilk Test Statistic	0.814
494					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
495	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
496												
497	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
498					DL/2 Substitution Method						DL/2 Substitution Method	
499					Mean	0.0627					Mean	-2.962
500					SD	0.0606					SD	0.538
501					95% DL/2 (t) UCL	0.0861					95% H-Stat (DL/2) UCL	0.078
502												
503					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
504	**MLE yields a negative mean**										Mean in Log Scale	-2.925
505											SD in Log Scale	0.508
506											Mean in Original Scale	0.064
507											SD in Original Scale	0.06
508											95% Percentile Bootstrap UCL	0.0901
509											95% BCA Bootstrap UCL	0.103
510												
511	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
512					k star (bias corrected)	2.396	**Data do not follow a Discernable Distribution (0.05)**					
513					Theta Star	0.0277						
514					nu star	86.27						
515												
516					A-D Test Statistic	1.848	**Nonparametric Statistics**					
517					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
518					K-S Test Statistic	0.747					Mean	0.0641
519					5% K-S Critical Value	0.205					SD	0.0585
520	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0135
521											95% KM (t) UCL	0.0874
522	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0862
523					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0873
524					Minimum	0.023					95% KM (bootstrap t) UCL	0.141
525					Maximum	0.311					95% KM (BCA) UCL	0.0905
526					Mean	0.0652					95% KM (Percentile Bootstrap) UCL	0.0893
527					Median	0.0505					95% KM (Chebyshev) UCL	0.123
528					SD	0.0597					97.5% KM (Chebyshev) UCL	0.148
529					k star	2.628					99% KM (Chebyshev) UCL	0.198
530					Theta star	0.0248						

531					Nu star	105.1	**Potential UCLs to Use**					
532					AppChi2	82.46				95% KM (Chebyshev) UCL		0.123
533					95% Gamma Approximate UCL	0.0831						
534					95% Adjusted Gamma UCL	0.0847						
535	**Note: DL/2 is not a recommended method.**											
536												
537												
538	**Naphthalene**											
539												
540	**General Statistics**											
541					Number of Valid Data	19				Number of Detected Data		6
542					Number of Distinct Detected Data	6				Number of Non-Detect Data		13
543					Number of Missing Values	1				Percent Non-Detects		68.42%
544												
545	**Raw Statistics**						**Log-transformed Statistics**					
546					Minimum Detected	2.4				Minimum Detected		0.875
547					Maximum Detected	12				Maximum Detected		2.485
548					Mean of Detected	6.017				Mean of Detected		1.633
549					SD of Detected	3.686				SD of Detected		0.628
550					Minimum Non-Detect	2.2				Minimum Non-Detect		0.788
551					Maximum Non-Detect	10				Maximum Non-Detect		2.303
552												
553	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		18
554	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
555	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		94.74%
556												
557	**Warning: There are only 6 Detected Values in this data**											
558	**Note: It should be noted that even though bootstrap may be performed on this data set**											
559	**the resulting calculations may not be reliable enough tp draw conclusions**											
560												
561	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
562												
563												
564	**UCL Statistics**											
565	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
566					Shapiro Wilk Test Statistic	0.902				Shapiro Wilk Test Statistic		0.934
567					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
568	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
569												
570	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
571					DL/2 Substitution Method					DL/2 Substitution Method		
572					Mean	3.382				Mean		0.964
573					SD	2.876				SD		0.686
574					95% DL/2 (t) UCL	4.526				95% H-Stat (DL/2) UCL		3.936
575												
576					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
577	**MLE method failed to converge properly**									Mean in Log Scale		0.839
578										SD in Log Scale		0.693
579										Mean in Original Scale		3.046
580										SD in Original Scale		2.874
581										95% Percentile Bootstrap UCL		4.155
582										95% BCA Bootstrap UCL		4.407
583												

584	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
585					k star (bias corrected)	1.74	**Data appear Normal at 5% Significance Level**					
586					Theta Star	3.458						
587					nu star	20.88						
588												
589					A-D Test Statistic	0.328	**Nonparametric Statistics**					
590					5% A-D Critical Value	0.701				Kaplan-Meier (KM) Method		
591					K-S Test Statistic	0.701				Mean		3.675
592					5% K-S Critical Value	0.334				SD		2.547
593	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.659
594										95% KM (t) UCL		4.818
595	**Assuming Gamma Distribution**									95% KM (z) UCL		4.759
596					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		4.634
597					Minimum	2.4				95% KM (bootstrap t) UCL		5.057
598					Maximum	12				95% KM (BCA) UCL		7.616
599					Mean	6.25				95% KM (Percentile Bootstrap) UCL		5.275
600					Median	6.482				95% KM (Chebyshev) UCL		6.549
601					SD	2.091				97.5% KM (Chebyshev) UCL		7.792
602					k star	7.414				99% KM (Chebyshev) UCL		10.23
603					Theta star	0.843						
604					Nu star	281.8	**Potential UCLs to Use**					
605					AppChi2	243.9				95% KM (t) UCL		4.818
606					95% Gamma Approximate UCL	7.221				95% KM (Percentile Bootstrap) UCL		5.275
607					95% Adjusted Gamma UCL	7.313						
608	**Note: DL/2 is not a recommended method.**											
609												
610												
611	**Total Aroclors**											
612												
613							**General Statistics**					
614					Number of Valid Data	20				Number of Detected Data		17
615					Number of Distinct Detected Data	17				Number of Non-Detect Data		3
616										Percent Non-Detects		15.00%
617												
618	**Raw Statistics**						**Log-transformed Statistics**					
619					Minimum Detected	11.8				Minimum Detected		2.468
620					Maximum Detected	142.8				Maximum Detected		4.961
621					Mean of Detected	46.55				Mean of Detected		3.623
622					SD of Detected	35				SD of Detected		0.658
623					Minimum Non-Detect	3.4				Minimum Non-Detect		1.224
624					Maximum Non-Detect	10				Maximum Non-Detect		2.303
625												
626	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		3
627	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		17
628	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		15.00%
629												
630	**UCL Statistics**											
631	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
632					Shapiro Wilk Test Statistic	0.804				Shapiro Wilk Test Statistic		0.949
633					5% Shapiro Wilk Critical Value	0.892				5% Shapiro Wilk Critical Value		0.892
634	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
635												
636	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

637				DL/2 Substitution Method						DL/2 Substitution Method		
638				Mean	40.15					Mean		3.267
639				SD	35.72					SD		1.078
640				95% DL/2 (t) UCL	53.96					95% H-Stat (DL/2) UCL		67.15
641												
642				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
643				Mean	37.69					Mean in Log Scale		3.395
644				SD	38.42					SD in Log Scale		0.824
645				95% MLE (t) UCL	52.55					Mean in Original Scale		40.8
646				95% MLE (Tiku) UCL	52.36					SD in Original Scale		35.05
647										95% Percentile Bootstrap UCL		54.24
648										95% BCA Bootstrap UCL		57.77
649												
650	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
651				k star (bias corrected)	2.059					**Data appear Gamma Distributed at 5% Significance Level**		
652				Theta Star	22.61							
653				nu star	70							
654												
655				A-D Test Statistic	0.672					**Nonparametric Statistics**		
656				5% A-D Critical Value	0.748					Kaplan-Meier (KM) Method		
657				K-S Test Statistic	0.748					Mean		41.34
658				5% K-S Critical Value	0.211					SD		33.67
659	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		7.761
660										95% KM (t) UCL		54.76
661	**Assuming Gamma Distribution**									95% KM (z) UCL		54.1
662				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		54
663				Minimum	1E-09					95% KM (bootstrap t) UCL		61.31
664				Maximum	142.8					95% KM (BCA) UCL		56.19
665				Mean	40.01					95% KM (Percentile Bootstrap) UCL		55.49
666				Median	26.3					95% KM (Chebyshev) UCL		75.16
667				SD	35.89					97.5% KM (Chebyshev) UCL		89.8
668				k star	0.398					99% KM (Chebyshev) UCL		118.6
669				Theta star	100.6							
670				Nu star	15.91					**Potential UCLs to Use**		
671				AppChi2	7.895					95% KM (BCA) UCL		56.19
672				95% Gamma Approximate UCL	80.6							
673				95% Adjusted Gamma UCL	85.4							
674	**Note: DL/2 is not a recommended method.**											
675												
676												
677	**Total DDT**											
678												
679	**General Statistics**											
680				Number of Valid Data	17					Number of Detected Data		15
681				Number of Distinct Detected Data	15					Number of Non-Detect Data		2
682				Number of Missing Values	3					Percent Non-Detects		11.76%
683												
684	**Raw Statistics**									**Log-transformed Statistics**		
685				Minimum Detected	0.208					Minimum Detected		-1.57
686				Maximum Detected	2.75					Maximum Detected		1.012
687				Mean of Detected	1.283					Mean of Detected		-0.071
688				SD of Detected	0.919					SD of Detected		0.913
689				Minimum Non-Detect	0.06					Minimum Non-Detect		-2.813

690					Maximum Non-Detect	0.0783				Maximum Non-Detect		-2.547
691												
692	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		2
693	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		15
694	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		11.76%
695												
696	**UCL Statistics**											
697	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
698					Shapiro Wilk Test Statistic	0.889				Shapiro Wilk Test Statistic		0.896
699					5% Shapiro Wilk Critical Value	0.881				5% Shapiro Wilk Critical Value		0.881
700	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
701												
702	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
703					DL/2 Substitution Method					DL/2 Substitution Method		
704					Mean	1.136				Mean		-0.46
705					SD	0.954				SD		1.391
706					95% DL/2 (t) UCL	1.54				95% H-Stat (DL/2) UCL		4.797
707												
708					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
709					Mean	1.078				Mean in Log Scale		-0.313
710					SD	1.017				SD in Log Scale		1.094
711					95% MLE (t) UCL	1.508				Mean in Original Scale		1.146
712					95% MLE (Tiku) UCL	1.506				SD in Original Scale		0.942
713										95% Percentile Bootstrap UCL		1.51
714										95% BCA Bootstrap UCL		1.541
715												
716	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
717					k star (bias corrected)	1.413	**Data appear Normal at 5% Significance Level**					
718					Theta Star	0.907						
719					nu star	42.4						
720												
721					A-D Test Statistic	0.403	**Nonparametric Statistics**					
722					5% A-D Critical Value	0.751				Kaplan-Meier (KM) Method		
723					K-S Test Statistic	0.751				Mean		1.156
724					5% K-S Critical Value	0.225				SD		0.903
725	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.227
726										95% KM (t) UCL		1.552
727	**Assuming Gamma Distribution**									95% KM (z) UCL		1.529
728					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1.55
729					Minimum	1E-09				95% KM (bootstrap t) UCL		1.602
730					Maximum	2.75				95% KM (BCA) UCL		1.545
731					Mean	1.132				95% KM (Percentile Bootstrap) UCL		1.512
732					Median	0.975				95% KM (Chebyshev) UCL		2.144
733					SD	0.959				97.5% KM (Chebyshev) UCL		2.571
734					k star	0.26				99% KM (Chebyshev) UCL		3.411
735					Theta star	4.358						
736					Nu star	8.828	**Potential UCLs to Use**					
737					AppChi2	3.224				95% KM (t) UCL		1.552
738					95% Gamma Approximate UCL	3.099				95% KM (Percentile Bootstrap) UCL		1.512
739					95% Adjusted Gamma UCL	3.471						
740	**Note: DL/2 is not a recommended method.**											
741												

1				**General UCL Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM9.5W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Arsenic**											
10												
11						**General Statistics**							
12					Number of Valid Observations	12				Number of Distinct Observations	12	
13												
14				**Raw Statistics**						**Log-transformed Statistics**		
15					Minimum	2				Minimum of Log Data	0.693	
16					Maximum	7.76				Maximum of Log Data	2.049	
17					Mean	3.777				Mean of log Data	1.28	
18					Median	3.575				SD of log Data	0.313	
19					SD	1.387						
20					Coefficient of Variation	0.367						
21					Skewness	2.297						
22												
23						**Relevant UCL Statistics**						
24				**Normal Distribution Test**						**Lognormal Distribution Test**		
25					Shapiro Wilk Test Statistic	0.736				Shapiro Wilk Test Statistic	0.873	
26					Shapiro Wilk Critical Value	0.859				Shapiro Wilk Critical Value	0.859	
27				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
28												
29				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
30					95% Student's-t UCL	4.496				95% H-UCL	4.537	
31				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	5.259	
32					95% Adjusted-CLT UCL	4.719				97.5% Chebyshev (MVUE) UCL	5.907	
33					95% Modified-t UCL	4.54				99% Chebyshev (MVUE) UCL	7.179	
34												
35				**Gamma Distribution Test**						**Data Distribution**		
36					k star (bias corrected)	7.859				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
37					Theta Star	0.481						
38					nu star	188.6						
39					Approximate Chi Square Value (.05)	157.8				**Nonparametric Statistics**		
40					Adjusted Level of Significance	0.029				95% CLT UCL	4.435	
41					Adjusted Chi Square Value	153.5				95% Jackknife UCL	4.496	
42										95% Standard Bootstrap UCL	4.387	
43					Anderson-Darling Test Statistic	0.882				95% Bootstrap-t UCL	5.053	
44					Anderson-Darling 5% Critical Value	0.73				95% Hall's Bootstrap UCL	7.74	
45					Kolmogorov-Smirnov Test Statistic	0.241				95% Percentile Bootstrap UCL	4.455	
46					Kolmogorov-Smirnov 5% Critical Value	0.245				95% BCA Bootstrap UCL	4.733	
47				**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	5.522	
48										97.5% Chebyshev(Mean, Sd) UCL	6.277	
49				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	7.761	
50					95% Approximate Gamma UCL	4.513						
51					95% Adjusted Gamma UCL	4.639						
52												
53				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	4.513	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Benzo(a)anthracene**											
57												
58	**General Statistics**											
59	Number of Valid Observations					12	Number of Distinct Observations					12
60												
61	**Raw Statistics**						**Log-transformed Statistics**					
62	Minimum					10	Minimum of Log Data					2.303
63	Maximum					570	Maximum of Log Data					6.346
64	Mean					120.9	Mean of log Data					3.954
65	Median					40	SD of log Data					1.332
66	SD					172						
67	Coefficient of Variation					1.422						
68	Skewness					1.973						
69												
70	**Relevant UCL Statistics**											
71	**Normal Distribution Test**						**Lognormal Distribution Test**					
72	Shapiro Wilk Test Statistic					0.695	Shapiro Wilk Test Statistic					0.919
73	Shapiro Wilk Critical Value					0.859	Shapiro Wilk Critical Value					0.859
74	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
75												
76	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
77	95% Student's-t UCL					210.1	95% H-UCL					527.1
78	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					318
79	95% Adjusted-CLT UCL					232.8	97.5% Chebyshev (MVUE) UCL					406.9
80	95% Modified-t UCL					214.8	99% Chebyshev (MVUE) UCL					581.6
81												
82	**Gamma Distribution Test**						**Data Distribution**					
83	k star (bias corrected)					0.593	**Data appear Gamma Distributed at 5% Significance Level**					
84	Theta Star					204						
85	nu star					14.23						
86	Approximate Chi Square Value (.05)					6.726	**Nonparametric Statistics**					
87	Adjusted Level of Significance					0.029	95% CLT UCL					202.6
88	Adjusted Chi Square Value					5.956	95% Jackknife UCL					210.1
89							95% Standard Bootstrap UCL					198.1
90	Anderson-Darling Test Statistic					0.75	95% Bootstrap-t UCL					281.9
91	Anderson-Darling 5% Critical Value					0.768	95% Hall's Bootstrap UCL					223.4
92	Kolmogorov-Smirnov Test Statistic					0.222	95% Percentile Bootstrap UCL					205.4
93	Kolmogorov-Smirnov 5% Critical Value					0.255	95% BCA Bootstrap UCL					234.8
94	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					337.3
95							97.5% Chebyshev(Mean, Sd) UCL					430.9
96	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					614.8
97	95% Approximate Gamma UCL					255.7						
98	95% Adjusted Gamma UCL					288.8						
99												
100	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					255.7
101												
102												
103	**Benzo(a)pyrene**											
104												
105	**General Statistics**											
106	Number of Valid Observations					12	Number of Distinct Observations					12

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	**Raw Statistics**						**Log-transformed Statistics**					
109	Minimum	12					Minimum of Log Data	2.485				
110	Maximum	840					Maximum of Log Data	6.733				
111	Mean	165.6					Mean of log Data	4.209				
112	Median	53.5					SD of log Data	1.4				
113	SD	245.8										
114	Coefficient of Variation	1.484										
115	Skewness	2.216										
116												
117	**Relevant UCL Statistics**											
118	**Normal Distribution Test**						**Lognormal Distribution Test**					
119	Shapiro Wilk Test Statistic	0.676					Shapiro Wilk Test Statistic	0.93				
120	Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859				
121	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
122												
123	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
124	95% Student's-t UCL	293					95% H-UCL	850.1				
125	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	457.7				
126	95% Adjusted-CLT UCL	330.8					97.5% Chebyshev (MVUE) UCL	588.1				
127	95% Modified-t UCL	300.6					99% Chebyshev (MVUE) UCL	844.1				
128												
129	**Gamma Distribution Test**						**Data Distribution**					
130	k star (bias corrected)	0.561					**Data appear Gamma Distributed at 5% Significance Level**					
131	Theta Star	295.1										
132	nu star	13.47										
133	Approximate Chi Square Value (.05)	6.209					**Nonparametric Statistics**					
134	Adjusted Level of Significance	0.029					95% CLT UCL	282.3				
135	Adjusted Chi Square Value	5.474					95% Jackknife UCL	293				
136							95% Standard Bootstrap UCL	274.4				
137	Anderson-Darling Test Statistic	0.639					95% Bootstrap-t UCL	423.4				
138	Anderson-Darling 5% Critical Value	0.771					95% Hall's Bootstrap UCL	353.1				
139	Kolmogorov-Smirnov Test Statistic	0.185					95% Percentile Bootstrap UCL	295.3				
140	Kolmogorov-Smirnov 5% Critical Value	0.256					95% BCA Bootstrap UCL	332.4				
141	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	474.9				
142							97.5% Chebyshev(Mean, Sd) UCL	608.7				
143	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	871.5				
144	95% Approximate Gamma UCL	359.3										
145	95% Adjusted Gamma UCL	407.5										
146												
147	**Potential UCL to Use**						Use 95% Approximate Gamma UCL	359.3				
148												
149												
150	**Benzo(b)fluoranthene**											
151												
152	**General Statistics**											
153	Number of Valid Observations	12					Number of Distinct Observations	12				
154												
155	**Raw Statistics**						**Log-transformed Statistics**					
156	Minimum	14					Minimum of Log Data	2.639				
157	Maximum	1300					Maximum of Log Data	7.17				
158	Mean	230.8					Mean of log Data	4.403				
159	Median	64.5					SD of log Data	1.487				

160					SD	376.5						
161					Coefficient of Variation	1.632						
162					Skewness	2.445						
163												
164					**Relevant UCL Statistics**							
165					**Normal Distribution Test**					**Lognormal Distribution Test**		
166					Shapiro Wilk Test Statistic	0.637				Shapiro Wilk Test Statistic	0.923	
167					Shapiro Wilk Critical Value	0.859				Shapiro Wilk Critical Value	0.859	
168					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
169												
170					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
171					95% Student's-t UCL	425.9				95% H-UCL	1397	
172					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	641.3	
173					95% Adjusted-CLT UCL	491.5				97.5% Chebyshev (MVUE) UCL	827.8	
174					95% Modified-t UCL	438.7				99% Chebyshev (MVUE) UCL	1194	
175												
176					**Gamma Distribution Test**					**Data Distribution**		
177					k star (bias corrected)	0.502				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
178					Theta Star	459.2						
179					nu star	12.06						
180					Approximate Chi Square Value (.05)	5.266				**Nonparametric Statistics**		
181					Adjusted Level of Significance	0.029				95% CLT UCL	409.5	
182					Adjusted Chi Square Value	4.6				95% Jackknife UCL	425.9	
183										95% Standard Bootstrap UCL	404.8	
184					Anderson-Darling Test Statistic	0.733				95% Bootstrap-t UCL	676.9	
185					Anderson-Darling 5% Critical Value	0.778				95% Hall's Bootstrap UCL	927.9	
186					Kolmogorov-Smirnov Test Statistic	0.261				95% Percentile Bootstrap UCL	422.4	
187					Kolmogorov-Smirnov 5% Critical Value	0.257				95% BCA Bootstrap UCL	528.3	
188					**Data follow Appr. Gamma Distribution at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	704.5	
189										97.5% Chebyshev(Mean, Sd) UCL	909.5	
190					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	1312	
191					95% Approximate Gamma UCL	528.4						
192					95% Adjusted Gamma UCL	605						
193												
194					**Potential UCL to Use**					Use 95% Approximate Gamma UCL	528.4	
195												
196												
197	**Benzo(k)fluoranthene**											
198												
199					**General Statistics**							
200					Number of Valid Observations	12				Number of Distinct Observations	12	
201												
202					**Raw Statistics**					**Log-transformed Statistics**		
203					Minimum	4.4				Minimum of Log Data	1.482	
204					Maximum	470				Maximum of Log Data	6.153	
205					Mean	103.7				Mean of log Data	3.611	
206					Median	23.5				SD of log Data	1.481	
207					SD	161						
208					Coefficient of Variation	1.553						
209					Skewness	1.835						
210												
211					**Relevant UCL Statistics**							
212					**Normal Distribution Test**					**Lognormal Distribution Test**		

213					Shapiro Wilk Test Statistic	0.645					Shapiro Wilk Test Statistic	0.929
214					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
215					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
216												
217					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
218					95% Student's-t UCL	187.2					95% H-UCL	619.3
219					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	287.6
220					95% Adjusted-CLT UCL	206.4					97.5% Chebyshev (MVUE) UCL	371.1
221					95% Modified-t UCL	191.3					99% Chebyshev (MVUE) UCL	535.2
222												
223					**Gamma Distribution Test**						**Data Distribution**	
224					k star (bias corrected)	0.505					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
225					Theta Star	205.1						
226					nu star	12.13						
227					Approximate Chi Square Value (.05)	5.314					**Nonparametric Statistics**	
228					Adjusted Level of Significance	0.029					95% CLT UCL	180.1
229					Adjusted Chi Square Value	4.644					95% Jackknife UCL	187.2
230											95% Standard Bootstrap UCL	175.2
231					Anderson-Darling Test Statistic	0.877					95% Bootstrap-t UCL	364.9
232					Anderson-Darling 5% Critical Value	0.777					95% Hall's Bootstrap UCL	429.7
233					Kolmogorov-Smirnov Test Statistic	0.248					95% Percentile Bootstrap UCL	182.7
234					Kolmogorov-Smirnov 5% Critical Value	0.257					95% BCA Bootstrap UCL	203
235					**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	306.3
236											97.5% Chebyshev(Mean, Sd) UCL	393.9
237					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	566.1
238					95% Approximate Gamma UCL	236.7						
239					95% Adjusted Gamma UCL	270.9						
240												
241					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	236.7
242												
243												
244	**Bis(2-ethylhexyl) phthalate**											
245												
246					**General Statistics**							
247					Number of Valid Data	12					Number of Detected Data	11
248					Number of Distinct Detected Data	10					Number of Non-Detect Data	1
249											Percent Non-Detects	8.33%
250												
251					**Raw Statistics**						**Log-transformed Statistics**	
252					Minimum Detected	48					Minimum Detected	3.871
253					Maximum Detected	3900					Maximum Detected	8.269
254					Mean of Detected	878.6					Mean of Detected	5.834
255					SD of Detected	1243					SD of Detected	1.487
256					Minimum Non-Detect	1200					Minimum Non-Detect	7.09
257					Maximum Non-Detect	1200					Maximum Non-Detect	7.09
258												
259												
260					**UCL Statistics**							
261					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
262					Shapiro Wilk Test Statistic	0.717					Shapiro Wilk Test Statistic	0.934
263					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
264					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
267					DL/2 Substitution Method						DL/2 Substitution Method	
268					Mean	855.4					Mean	5.881
269					SD	1187					SD	1.427
270					95% DL/2 (t) UCL	1471					95% H-Stat (DL/2) UCL	6770
271												
272					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
273	**MLE method failed to converge properly**										Mean in Log Scale	5.8
274											SD in Log Scale	1.422
275											Mean in Original Scale	824.4
276											SD in Original Scale	1200
277											95% Percentile Bootstrap UCL	1390
278											95% BCA Bootstrap UCL	1590
279												
280	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
281					k star (bias corrected)	0.531	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
282					Theta Star	1654						
283					nu star	11.68						
284												
285					A-D Test Statistic	0.563	**Nonparametric Statistics**					
286					5% A-D Critical Value	0.77					Kaplan-Meier (KM) Method	
287					K-S Test Statistic	0.77					Mean	835.6
288					5% K-S Critical Value	0.267					SD	1148
289	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	349.4
290											95% KM (t) UCL	1463
291	**Assuming Gamma Distribution**										95% KM (z) UCL	1410
292					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1461
293					Minimum	48					95% KM (bootstrap t) UCL	2295
294					Maximum	3900					95% KM (BCA) UCL	1500
295					Mean	851.2					95% KM (Percentile Bootstrap) UCL	1422
296					Median	330					95% KM (Chebyshev) UCL	2359
297					SD	1189					97.5% KM (Chebyshev) UCL	3018
298					k star	0.575					99% KM (Chebyshev) UCL	4313
299					Theta star	1480						
300					Nu star	13.81					**Potential UCLs to Use**	
301					AppChi2	6.44					95% KM (Chebyshev) UCL	2359
302					95% Gamma Approximate UCL	1825						
303					95% Adjusted Gamma UCL	2066						
304	**Note: DL/2 is not a recommended method.**											
305												
306												
307	**Dibenzo(a,h)anthracene**											
308												
309	**General Statistics**											
310					Number of Valid Observations	12					Number of Distinct Observations	12
311												
312	**Raw Statistics**						**Log-transformed Statistics**					
313					Minimum	1.9					Minimum of Log Data	0.642
314					Maximum	130					Maximum of Log Data	4.868
315					Mean	31.86					Mean of log Data	2.356
316					Median	7.25					SD of log Data	1.543
317					SD	47.32						
318					Coefficient of Variation	1.485						

319					Skewness	1.449						
320												
321	**Relevant UCL Statistics**											
322	**Normal Distribution Test**						**Lognormal Distribution Test**					
323					Shapiro Wilk Test Statistic	0.666					Shapiro Wilk Test Statistic	0.865
324					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
325	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
326												
327	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
328					95% Student's-t UCL	56.4					95% H-UCL	221.5
329	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	90.92
330					95% Adjusted-CLT UCL	60.44					97.5% Chebyshev (MVUE) UCL	117.7
331					95% Modified-t UCL	57.35					99% Chebyshev (MVUE) UCL	170.3
332												
333	**Gamma Distribution Test**						**Data Distribution**					
334					k star (bias corrected)	0.479	**Data appear Lognormal at 5% Significance Level**					
335					Theta Star	66.58						
336					nu star	11.49						
337					Approximate Chi Square Value (.05)	4.891	**Nonparametric Statistics**					
338					Adjusted Level of Significance	0.029					95% CLT UCL	54.33
339					Adjusted Chi Square Value	4.253					95% Jackknife UCL	56.4
340											95% Standard Bootstrap UCL	53.05
341					Anderson-Darling Test Statistic	1.112					95% Bootstrap-t UCL	70.91
342					Anderson-Darling 5% Critical Value	0.78					95% Hall's Bootstrap UCL	48.69
343					Kolmogorov-Smirnov Test Statistic	0.31					95% Percentile Bootstrap UCL	54.94
344					Kolmogorov-Smirnov 5% Critical Value	0.258					95% BCA Bootstrap UCL	58.48
345	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	91.41
346											97.5% Chebyshev(Mean, Sd) UCL	117.2
347	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	167.8
348					95% Approximate Gamma UCL	74.83						
349					95% Adjusted Gamma UCL	86.06						
350												
351	**Potential UCL to Use**										Use 99% Chebyshev (MVUE) UCL	170.3
352	**Recommended UCL exceeds the maximum observation**											
353												
354												
355	**Indeno(1,2,3-cd)pyrene**											
356												
357	**General Statistics**											
358					Number of Valid Observations	12					Number of Distinct Observations	12
359												
360	**Raw Statistics**						**Log-transformed Statistics**					
361					Minimum	9.1					Minimum of Log Data	2.208
362					Maximum	680					Maximum of Log Data	6.522
363					Mean	138.2					Mean of log Data	4.032
364					Median	45.5					SD of log Data	1.396
365					SD	206.1						
366					Coefficient of Variation	1.492						
367					Skewness	2.128						
368												
369	**Relevant UCL Statistics**											
370	**Normal Distribution Test**						**Lognormal Distribution Test**					
371					Shapiro Wilk Test Statistic	0.673					Shapiro Wilk Test Statistic	0.945

372					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
373	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
374												
375	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
376					95% Student's-t UCL	245					95% H-UCL	703.6
377	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	381.3
378					95% Adjusted-CLT UCL	275.1					97.5% Chebyshev (MVUE) UCL	489.8
379					95% Modified-t UCL	251.1					99% Chebyshev (MVUE) UCL	703
380												
381	**Gamma Distribution Test**						**Data Distribution**					
382					k star (bias corrected)	0.564	**Data appear Gamma Distributed at 5% Significance Level**					
383					Theta Star	245.2						
384					nu star	13.53						
385					Approximate Chi Square Value (.05)	6.248	**Nonparametric Statistics**					
386					Adjusted Level of Significance	0.029					95% CLT UCL	236
387					Adjusted Chi Square Value	5.51					95% Jackknife UCL	245
388											95% Standard Bootstrap UCL	233.3
389					Anderson-Darling Test Statistic	0.582					95% Bootstrap-t UCL	482.5
390					Anderson-Darling 5% Critical Value	0.771					95% Hall's Bootstrap UCL	701.1
391					Kolmogorov-Smirnov Test Statistic	0.191					95% Percentile Bootstrap UCL	238
392					Kolmogorov-Smirnov 5% Critical Value	0.256					95% BCA Bootstrap UCL	275.3
393	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	397.5
394											97.5% Chebyshev(Mean, Sd) UCL	509.7
395	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	730.1
396					95% Approximate Gamma UCL	299.1						
397					95% Adjusted Gamma UCL	339.2						
398												
399	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	299.1
400												
401												
402	**Lead**											
403												
404					**General Statistics**							
405					Number of Valid Observations	12					Number of Distinct Observations	12
406												
407	**Raw Statistics**						**Log-transformed Statistics**					
408					Minimum	9.5					Minimum of Log Data	2.251
409					Maximum	72					Maximum of Log Data	4.277
410					Mean	25.71					Mean of log Data	3.059
411					Median	17.1					SD of log Data	0.612
412					SD	18.42						
413					Coefficient of Variation	0.717						
414					Skewness	1.721						
415												
416					**Relevant UCL Statistics**							
417	**Normal Distribution Test**						**Lognormal Distribution Test**					
418					Shapiro Wilk Test Statistic	0.798					Shapiro Wilk Test Statistic	0.934
419					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
420	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
421												
422	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
423					95% Student's-t UCL	35.26					95% H-UCL	39.18
424	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	45.32

425				95% Adjusted-CLT UCL	37.28					97.5% Chebyshev (MVUE) UCL	54.01	
426				95% Modified-t UCL	35.7					99% Chebyshev (MVUE) UCL	71.09	
427												
428				**Gamma Distribution Test**						**Data Distribution**		
429				k star (bias corrected)	2.166					**Data appear Gamma Distributed at 5% Significance Level**		
430				Theta Star	11.87							
431				nu star	51.99							
432				Approximate Chi Square Value (.05)	36.43					**Nonparametric Statistics**		
433				Adjusted Level of Significance	0.029					95% CLT UCL	34.46	
434				Adjusted Chi Square Value	34.45					95% Jackknife UCL	35.26	
435										95% Standard Bootstrap UCL	34.17	
436				Anderson-Darling Test Statistic	0.552					95% Bootstrap-t UCL	43.57	
437				Anderson-Darling 5% Critical Value	0.739					95% Hall's Bootstrap UCL	73.63	
438				Kolmogorov-Smirnov Test Statistic	0.233					95% Percentile Bootstrap UCL	34.42	
439				Kolmogorov-Smirnov 5% Critical Value	0.248					95% BCA Bootstrap UCL	36.22	
440				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	48.89	
441										97.5% Chebyshev(Mean, Sd) UCL	58.92	
442				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	78.62	
443				95% Approximate Gamma UCL	36.69							
444				95% Adjusted Gamma UCL	38.8							
445												
446				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	36.69	
447												
448												
449	**Mercury**											
450												
451						**General Statistics**							
452				Number of Valid Data	12					Number of Detected Data	11	
453				Number of Distinct Detected Data	10					Number of Non-Detect Data	1	
454										Percent Non-Detects	8.33%	
455												
456				**Raw Statistics**						**Log-transformed Statistics**		
457				Minimum Detected	0.034					Minimum Detected	-3.381	
458				Maximum Detected	0.118					Maximum Detected	-2.137	
459				Mean of Detected	0.0646					Mean of Detected	-2.788	
460				SD of Detected	0.022					SD of Detected	0.325	
461				Minimum Non-Detect	0.07					Minimum Non-Detect	-2.659	
462				Maximum Non-Detect	0.07					Maximum Non-Detect	-2.659	
463												
464												
465						**UCL Statistics**							
466				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
467				Shapiro Wilk Test Statistic	0.877					Shapiro Wilk Test Statistic	0.946	
468				5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85	
469				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
470												
471				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
472				DL/2 Substitution Method						DL/2 Substitution Method		
473				Mean	0.0622					Mean	-2.835	
474				SD	0.0226					SD	0.351	
475				95% DL/2 (t) UCL	0.0739					95% H-Stat (DL/2) UCL	0.0767	
476												
477				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		

478					Mean	0.0615				Mean in Log Scale		-2.805
479					SD	0.0236				SD in Log Scale		0.316
480					95% MLE (t) UCL	0.0737				Mean in Original Scale		0.0634
481					95% MLE (Tiku) UCL	0.0788				SD in Original Scale		0.0214
482										95% Percentile Bootstrap UCL		0.0742
483										95% BCA Bootstrap UCL		0.0757
484												
485	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
486					k star (bias corrected)	7.645				**Data appear Normal at 5% Significance Level**		
487					Theta Star	0.00845						
488					nu star	168.2						
489												
490					A-D Test Statistic	0.418				**Nonparametric Statistics**		
491					5% A-D Critical Value	0.729				Kaplan-Meier (KM) Method		
492					K-S Test Statistic	0.729				Mean		0.0635
493					5% K-S Critical Value	0.255				SD		0.0206
494	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.00633
495										95% KM (t) UCL		0.0749
496	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0739
497					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0749
498					Minimum	0.034				95% KM (bootstrap t) UCL		0.0775
499					Maximum	0.118				95% KM (BCA) UCL		0.0751
500					Mean	0.0639				95% KM (Percentile Bootstrap) UCL		0.0743
501					Median	0.0626				95% KM (Chebyshev) UCL		0.0911
502					SD	0.0211				97.5% KM (Chebyshev) UCL		0.103
503					k star	8.444				99% KM (Chebyshev) UCL		0.126
504					Theta star	0.00757						
505					Nu star	202.7				**Potential UCLs to Use**		
506					AppChi2	170.7				95% KM (t) UCL		0.0749
507					95% Gamma Approximate UCL	0.0759				95% KM (Percentile Bootstrap) UCL		0.0743
508					95% Adjusted Gamma UCL	0.0779						
509	**Note: DL/2 is not a recommended method.**											
510												
511												
512	**Naphthalene**											
513												
514						**General Statistics**						
515					Number of Valid Data	12				Number of Detected Data		7
516					Number of Distinct Detected Data	7				Number of Non-Detect Data		5
517										Percent Non-Detects		41.67%
518												
519					**Raw Statistics**					**Log-transformed Statistics**		
520					Minimum Detected	7.7				Minimum Detected		2.041
521					Maximum Detected	350				Maximum Detected		5.858
522					Mean of Detected	63.39				Mean of Detected		3.124
523					SD of Detected	126.5				SD of Detected		1.272
524					Minimum Non-Detect	0.65				Minimum Non-Detect		-0.431
525					Maximum Non-Detect	77				Maximum Non-Detect		4.344
526												
527	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		11
528	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
529	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		91.67%
530												

531	Warning: There are only 7 Detected Values in this data											
532	Note: It should be noted that even though bootstrap may be performed on this data set											
533	the resulting calculations may not be reliable enough tp draw conclusions											
534												
535	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
536												
537												
538	UCL Statistics											
539	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
540				Shapiro Wilk Test Statistic	0.499					Shapiro Wilk Test Statistic	0.755	
541				5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803	
542	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
543												
544	Assuming Normal Distribution						Assuming Lognormal Distribution					
545				DL/2 Substitution Method						DL/2 Substitution Method		
546				Mean	41.02					Mean	2.326	
547				SD	97.94					SD	1.702	
548				95% DL/2 (t) UCL	91.8					95% H-Stat (DL/2) UCL	449.4	
549												
550				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
551	MLE method failed to converge properly									Mean in Log Scale	2.076	
552										SD in Log Scale	1.651	
553										Mean in Original Scale	37.94	
554										SD in Original Scale	98.61	
555										95% Percentile Bootstrap UCL	94.43	
556										95% BCA Bootstrap UCL	122.2	
557												
558	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
559				k star (bias corrected)	0.439		Data do not follow a Discernable Distribution (0.05)					
560				Theta Star	144.2							
561				nu star	6.152							
562												
563				A-D Test Statistic	1.31		Nonparametric Statistics					
564				5% A-D Critical Value	0.745					Kaplan-Meier (KM) Method		
565				K-S Test Statistic	0.745					Mean	40.58	
566				5% K-S Critical Value	0.325					SD	93.48	
567	Data not Gamma Distributed at 5% Significance Level									SE of Mean	29.15	
568										95% KM (t) UCL	92.93	
569	Assuming Gamma Distribution									95% KM (z) UCL	88.53	
570				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	90.27	
571				Minimum	1E-09					95% KM (bootstrap t) UCL	665.4	
572				Maximum	350					95% KM (BCA) UCL	124.9	
573				Mean	45.95					95% KM (Percentile Bootstrap) UCL	95.62	
574				Median	11.5					95% KM (Chebyshev) UCL	167.7	
575				SD	100.2					97.5% KM (Chebyshev) UCL	222.6	
576				k star	0.127					99% KM (Chebyshev) UCL	330.6	
577				Theta star	360.7							
578				Nu star	3.058		Potential UCLs to Use					
579				AppChi2	0.39					97.5% KM (Chebyshev) UCL	222.6	
580				95% Gamma Approximate UCL	360.6							
581				95% Adjusted Gamma UCL	501.3							
582	Note: DL/2 is not a recommended method.											
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584												
585	**Total Aroclors**											
586												
587						**General Statistics**							
588					Number of Valid Observations	12				Number of Distinct Observations	12	
589												
590					**Raw Statistics**					**Log-transformed Statistics**		
591					Minimum	23.6				Minimum of Log Data	3.161	
592					Maximum	644.3				Maximum of Log Data	6.468	
593					Mean	211.2				Mean of log Data	4.984	
594					Median	172.2				SD of log Data	0.994	
595					SD	173.8						
596					Coefficient of Variation	0.823						
597					Skewness	1.41						
598												
599						**Relevant UCL Statistics**							
600					**Normal Distribution Test**					**Lognormal Distribution Test**		
601					Shapiro Wilk Test Statistic	0.884				Shapiro Wilk Test Statistic	0.944	
602					Shapiro Wilk Critical Value	0.859				Shapiro Wilk Critical Value	0.859	
603					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
604												
605					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
606					95% Student's-t UCL	301.3				95% H-UCL	571.6	
607					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	529	
608					95% Adjusted-CLT UCL	315.6				97.5% Chebyshev (MVUE) UCL	659.9	
609					95% Modified-t UCL	304.7				99% Chebyshev (MVUE) UCL	917.2	
610												
611					**Gamma Distribution Test**					**Data Distribution**		
612					k star (bias corrected)	1.18				**Data appear Normal at 5% Significance Level**		
613					Theta Star	179						
614					nu star	28.31						
615					Approximate Chi Square Value (.05)	17.17				**Nonparametric Statistics**		
616					Adjusted Level of Significance	0.029				95% CLT UCL	293.7	
617					Adjusted Chi Square Value	15.86				95% Jackknife UCL	301.3	
618										95% Standard Bootstrap UCL	291.9	
619					Anderson-Darling Test Statistic	0.185				95% Bootstrap-t UCL	337.8	
620					Anderson-Darling 5% Critical Value	0.746				95% Hall's Bootstrap UCL	380.5	
621					Kolmogorov-Smirnov Test Statistic	0.101				95% Percentile Bootstrap UCL	299.3	
622					Kolmogorov-Smirnov 5% Critical Value	0.25				95% BCA Bootstrap UCL	322.7	
623					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	429.9	
624										97.5% Chebyshev(Mean, Sd) UCL	524.5	
625					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	710.4	
626					95% Approximate Gamma UCL	348.2						
627					95% Adjusted Gamma UCL	377						
628												
629					**Potential UCL to Use**					Use 95% Student's-t UCL	301.3	
630												
631												
632	**Total DDT**											
633												
634						**General Statistics**							
635					Number of Valid Data	11				Number of Detected Data	10	
636					Number of Distinct Detected Data	10				Number of Non-Detect Data	1	

637					Number of Missing Values	1					Percent Non-Detects	9.09%
638												
639					**Raw Statistics**						**Log-transformed Statistics**	
640					Minimum Detected	0.411					Minimum Detected	-0.89
641					Maximum Detected	9.15					Maximum Detected	2.214
642					Mean of Detected	2.947					Mean of Detected	0.541
643					SD of Detected	2.973					SD of Detected	1.157
644					Minimum Non-Detect	8.3					Minimum Non-Detect	2.116
645					Maximum Non-Detect	8.3					Maximum Non-Detect	2.116
646												
647												
648					**UCL Statistics**							
649					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
650					Shapiro Wilk Test Statistic	0.847					Shapiro Wilk Test Statistic	0.917
651					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
652					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
653												
654					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
655					DL/2 Substitution Method						DL/2 Substitution Method	
656					Mean	3.056					Mean	0.621
657					SD	2.843					SD	1.13
658					95% DL/2 (t) UCL	4.61					95% H-Stat (DL/2) UCL	11.76
659												
660					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
661					**MLE method failed to converge properly**						Mean in Log Scale	0.524
662											SD in Log Scale	1.1
663											Mean in Original Scale	2.809
664											SD in Original Scale	2.857
665											95% Percentile Bootstrap UCL	4.253
666											95% BCA Bootstrap UCL	4.521
667												
668					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
669					k star (bias corrected)	0.81					**Data appear Normal at 5% Significance Level**	
670					Theta Star	3.638						
671					nu star	16.2						
672												
673					A-D Test Statistic	0.362					**Nonparametric Statistics**	
674					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
675					K-S Test Statistic	0.747					Mean	2.884
676					5% K-S Critical Value	0.273					SD	2.764
677					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.902
678											95% KM (t) UCL	4.519
679					**Assuming Gamma Distribution**						95% KM (z) UCL	4.368
680					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.521
681					Minimum	0.411					95% KM (bootstrap t) UCL	5.322
682					Maximum	9.15					95% KM (BCA) UCL	4.441
683					Mean	2.936					95% KM (Percentile Bootstrap) UCL	4.401
684					Median	2.48					95% KM (Chebyshev) UCL	6.816
685					SD	2.82					97.5% KM (Chebyshev) UCL	8.517
686					k star	0.902					99% KM (Chebyshev) UCL	11.86
687					Theta star	3.254						
688					Nu star	19.85					**Potential UCLs to Use**	
689					AppChi2	10.74					95% KM (t) UCL	4.519

	A	B	C	D	E	F	G	H	I	J	K	L
690				95% Gamma Approximate UCL		5.426			95% KM (Percentile Bootstrap) UCL			4.401
691				95% Adjusted Gamma UCL		6.03						
692	**Note: DL/2 is not a recommended method.**											
693												
694												
695	**Total Dioxin-like PCBs**											
696												
697	**General Statistics**											
698				Number of Valid Data		6			Number of Detected Data			6
699				Number of Distinct Detected Data		6			Number of Non-Detect Data			0
700				Number of Missing Values		4			Percent Non-Detects			0.00%
701												
702	**Raw Statistics**						**Log-transformed Statistics**					
703				Minimum Detected		3620			Minimum Detected			8.194
704				Maximum Detected		11455			Maximum Detected			9.346
705				Mean of Detected		7218			Mean of Detected			8.823
706				SD of Detected		2702			SD of Detected			0.394
707				Minimum Non-Detect		N/A			Minimum Non-Detect			N/A
708				Maximum Non-Detect		N/A			Maximum Non-Detect			N/A
709												
710												
711	**Warning: There are only 6 Detected Values in this data**											
712	**Note: It should be noted that even though bootstrap may be performed on this data set**											
713	**the resulting calculations may not be reliable enough tp draw conclusions**											
714												
715	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
716												
717												
718	**UCL Statistics**											
719	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
720				Shapiro Wilk Test Statistic		0.981			Shapiro Wilk Test Statistic			0.981
721				5% Shapiro Wilk Critical Value		0.788			5% Shapiro Wilk Critical Value			0.788
722	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
723												
724	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
725				DL/2 Substitution Method					DL/2 Substitution Method			
726				Mean		7218			Mean			8.823
727				SD		2702			SD			0.394
728				95% DL/2 (t) UCL		9441			95% H-Stat (DL/2) UCL			11194
729												
730				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
731	**MLE method failed to converge properly**								Mean in Log Scale			N/A
732									SD in Log Scale			N/A
733									Mean in Original Scale			N/A
734									SD in Original Scale			N/A
735									95% Percentile Bootstrap UCL			N/A
736									95% BCA Bootstrap UCL			N/A
737												
738	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
739				k star (bias corrected)		4.24	**Data appear Normal at 5% Significance Level**					
740				Theta Star		1702						
741				nu star		50.88						
742												

743				A-D Test Statistic	0.172	**Nonparametric Statistics**						
744				5% A-D Critical Value	0.698					Kaplan-Meier (KM) Method		
745				K-S Test Statistic	0.698					Mean		7218
746				5% K-S Critical Value	0.333					SD		2467
747	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		1103
748										95% KM (t) UCL		9441
749	**Assuming Gamma Distribution**									95% KM (z) UCL		9033
750				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		9441
751				Minimum	3620					95% KM (bootstrap t) UCL		9793
752				Maximum	11455					95% KM (BCA) UCL		8949
753				Mean	7218					95% KM (Percentile Bootstrap) UCL		8880
754				Median	6775					95% KM (Chebyshev) UCL		12027
755				SD	2702					97.5% KM (Chebyshev) UCL		14107
756				k star	4.24					99% KM (Chebyshev) UCL		18194
757				Theta star	1702							
758				Nu star	50.88	**Potential UCLs to Use**						
759				AppChi2	35.5					95% KM (t) UCL		9441
760				95% Gamma Approximate UCL	10346					95% KM (Percentile Bootstrap) UCL		8880
761				95% Adjusted Gamma UCL	11875							
762	**Note: DL/2 is not a recommended method.**											
763												
764												
765	**Total PCB TEQ**											
766												
767	**General Statistics**											
768				Number of Valid Data	6					Number of Detected Data		6
769				Number of Distinct Detected Data	6					Number of Non-Detect Data		0
770				Number of Missing Values	4					Percent Non-Detects		0.00%
771												
772	**Raw Statistics**					**Log-transformed Statistics**						
773				Minimum Detected	2.183					Minimum Detected		0.781
774				Maximum Detected	6.771					Maximum Detected		1.913
775				Mean of Detected	3.64					Mean of Detected		1.227
776				SD of Detected	1.607					SD of Detected		0.377
777				Minimum Non-Detect	N/A					Minimum Non-Detect		N/A
778				Maximum Non-Detect	N/A					Maximum Non-Detect		N/A
779												
780												
781	**Warning: There are only 6 Detected Values in this data**											
782	**Note: It should be noted that even though bootstrap may be performed on this data set**											
783	**the resulting calculations may not be reliable enough tp draw conclusions**											
784												
785	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
786												
787												
788	**UCL Statistics**											
789	**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**						
790				Shapiro Wilk Test Statistic	0.759					Shapiro Wilk Test Statistic		0.861
791				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value		0.788
792	**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**						
793												
794	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
795				DL/2 Substitution Method						DL/2 Substitution Method		

796					Mean	3.64					Mean	1.227
797					SD	1.607					SD	0.377
798					95% DL/2 (t) UCL	4.962					95% H-Stat (DL/2) UCL	5.455
799												
800					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
801					**MLE method failed to converge properly**						Mean in Log Scale	N/A
802											SD in Log Scale	N/A
803											Mean in Original Scale	N/A
804											SD in Original Scale	N/A
805											95% Percentile Bootstrap UCL	N/A
806											95% BCA Bootstrap UCL	N/A
807												
808					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
809					k star (bias corrected)	4.017					**Data appear Gamma Distributed at 5% Significance Level**	
810					Theta Star	0.906						
811					nu star	48.2						
812												
813					A-D Test Statistic	0.645					**Nonparametric Statistics**	
814					5% A-D Critical Value	0.698					Kaplan-Meier (KM) Method	
815					K-S Test Statistic	0.698					Mean	3.64
816					5% K-S Critical Value	0.333					SD	1.467
817					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.656
818											95% KM (t) UCL	4.962
819					**Assuming Gamma Distribution**						95% KM (z) UCL	4.719
820					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.962
821					Minimum	2.183					95% KM (bootstrap t) UCL	6.774
822					Maximum	6.771					95% KM (BCA) UCL	4.775
823					Mean	3.64					95% KM (Percentile Bootstrap) UCL	4.876
824					Median	3.077					95% KM (Chebyshev) UCL	6.5
825					SD	1.607					97.5% KM (Chebyshev) UCL	7.737
826					k star	4.017					99% KM (Chebyshev) UCL	10.17
827					Theta star	0.906						
828					Nu star	48.2					**Potential UCLs to Use**	
829					AppChi2	33.27					95% KM (BCA) UCL	4.775
830					95% Gamma Approximate UCL	5.274						
831					95% Adjusted Gamma UCL	6.081						
832	**Note: DL/2 is not a recommended method.**											
833												
834												
835	**Total PCB_Congeners**											
836												
837						**General Statistics**						
838					Number of Valid Data	6					Number of Detected Data	6
839					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
840					Number of Missing Values	4					Percent Non-Detects	0.00%
841												
842					**Raw Statistics**						**Log-transformed Statistics**	
843					Minimum Detected	187801					Minimum Detected	12.14
844					Maximum Detected	599793					Maximum Detected	13.3
845					Mean of Detected	353098					Mean of Detected	12.67
846					SD of Detected	175672					SD of Detected	0.503
847					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
848					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A

849												
850												
851	**Warning: There are only 6 Detected Values in this data**											
852	**Note: It should be noted that even though bootstrap may be performed on this data set**											
853	**the resulting calculations may not be reliable enough tp draw conclusions**											
854												
855	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
856												
857												
858	**UCL Statistics**											
859	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
860	Shapiro Wilk Test Statistic				0.879		Shapiro Wilk Test Statistic				0.893	
861	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value				0.788	
862	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
863												
864	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
865	DL/2 Substitution Method						DL/2 Substitution Method					
866	Mean				353098		Mean				12.67	
867	SD				175672		SD				0.503	
868	95% DL/2 (t) UCL				497613		95% H-Stat (DL/2) UCL				653530	
869												
870	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
871	**MLE method failed to converge properly**						Mean in Log Scale				N/A	
872							SD in Log Scale				N/A	
873							Mean in Original Scale				N/A	
874							SD in Original Scale				N/A	
875							95% Percentile Bootstrap UCL				N/A	
876							95% BCA Bootstrap UCL				N/A	
877												
878	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
879	k star (bias corrected)				2.576		**Data appear Normal at 5% Significance Level**					
880	Theta Star				137084							
881	nu star				30.91							
882												
883	A-D Test Statistic				0.389		**Nonparametric Statistics**					
884	5% A-D Critical Value				0.698		Kaplan-Meier (KM) Method					
885	K-S Test Statistic				0.698		Mean				353098	
886	5% K-S Critical Value				0.333		SD				160366	
887	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean				71718	
888							95% KM (t) UCL				497613	
889	**Assuming Gamma Distribution**						95% KM (z) UCL				471064	
890	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				497613	
891	Minimum				187801		95% KM (bootstrap t) UCL				554963	
892	Maximum				599793		95% KM (BCA) UCL				460748	
893	Mean				353098		95% KM (Percentile Bootstrap) UCL				467619	
894	Median				307384		95% KM (Chebyshev) UCL				665709	
895	SD				175672		97.5% KM (Chebyshev) UCL				800977	
896	k star				2.576		99% KM (Chebyshev) UCL				1066683	
897	Theta star				137084							
898	Nu star				30.91		**Potential UCLs to Use**					
899	AppChi2				19.21		95% KM (t) UCL				497613	
900	95% Gamma Approximate UCL				568169		95% KM (Percentile Bootstrap) UCL				467619	
901	95% Adjusted Gamma UCL				683386							

902	Note: DL/2 is not a recommended method.											
903												
904												
905	Total PCBs, Adjusted											
906												
907	General Statistics											
908					Number of Valid Data	6			Number of Detected Data	6		
909					Number of Distinct Detected Data	6			Number of Non-Detect Data	0		
910					Number of Missing Values	4			Percent Non-Detects	0.00%		
911												
912	Raw Statistics							Log-transformed Statistics				
913					Minimum Detected	184181			Minimum Detected	12.12		
914					Maximum Detected	590885			Maximum Detected	13.29		
915					Mean of Detected	345880			Mean of Detected	12.65		
916					SD of Detected	173534			SD of Detected	0.507		
917					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
918					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
919												
920												
921	Warning: There are only 6 Detected Values in this data											
922	Note: It should be noted that even though bootstrap may be performed on this data set											
923	the resulting calculations may not be reliable enough tp draw conclusions											
924												
925	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
926												
927												
928	UCL Statistics											
929	Normal Distribution Test with Detected Values Only							Lognormal Distribution Test with Detected Values Only				
930					Shapiro Wilk Test Statistic	0.878			Shapiro Wilk Test Statistic	0.889		
931					5% Shapiro Wilk Critical Value	0.788			5% Shapiro Wilk Critical Value	0.788		
932	Data appear Normal at 5% Significance Level							Data appear Lognormal at 5% Significance Level				
933												
934	Assuming Normal Distribution							Assuming Lognormal Distribution				
935					DL/2 Substitution Method				DL/2 Substitution Method			
936					Mean	345880			Mean	12.65		
937					SD	173534			SD	0.507		
938					95% DL/2 (t) UCL	488635			95% H-Stat (DL/2) UCL	645879		
939												
940					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
941	MLE method failed to converge properly								Mean in Log Scale	N/A		
942									SD in Log Scale	N/A		
943									Mean in Original Scale	N/A		
944									SD in Original Scale	N/A		
945									95% Percentile Bootstrap UCL	N/A		
946									95% BCA Bootstrap UCL	N/A		
947												
948	Gamma Distribution Test with Detected Values Only							Data Distribution Test with Detected Values Only				
949					k star (bias corrected)	2.532		Data appear Normal at 5% Significance Level				
950					Theta Star	136584						
951					nu star	30.39						
952												
953					A-D Test Statistic	0.394		Nonparametric Statistics				
954					5% A-D Critical Value	0.698			Kaplan-Meier (KM) Method			

	A	B	C	D	E	F	G	H	I	J	K	L
955					K-S Test Statistic	0.698					Mean	345880
956					5% K-S Critical Value	0.333					SD	158414
957	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	70845
958											95% KM (t) UCL	488635
959	**Assuming Gamma Distribution**										95% KM (z) UCL	462409
960				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	488635
961					Minimum	184181					95% KM (bootstrap t) UCL	543753
962					Maximum	590885					95% KM (BCA) UCL	458573
963					Mean	345880					95% KM (Percentile Bootstrap) UCL	455194
964					Median	301297					95% KM (Chebyshev) UCL	654685
965					SD	173534					97.5% KM (Chebyshev) UCL	788305
966					k star	2.532					99% KM (Chebyshev) UCL	1050776
967					Theta star	136584						
968					Nu star	30.39				**Potential UCLs to Use**		
969					AppChi2	18.8					95% KM (t) UCL	488635
970				95% Gamma Approximate UCL		559130					95% KM (Percentile Bootstrap) UCL	455194
971				95% Adjusted Gamma UCL		673788						
972	**Note: DL/2 is not a recommended method.**											
973												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM10.0E.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12					Number of Valid Observations	9				Number of Distinct Observations	9	
13												
14					Raw Statistics					Log-transformed Statistics		
15					Minimum	1.27				Minimum of Log Data	0.239	
16					Maximum	3.86				Maximum of Log Data	1.351	
17					Mean	3.042				Mean of log Data	1.074	
18					Median	3.07				SD of log Data	0.328	
19					SD	0.745						
20					Coefficient of Variation	0.245						
21					Skewness	-1.781						
22												
23												
24						Warning: There are only 9 Values in this data						
25						Note: It should be noted that even though bootstrap methods may be performed on this data set,						
26						the resulting calculations may not be reliable enough to draw conclusions						
27												
28						The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.						
29												
30						Relevant UCL Statistics						
31					Normal Distribution Test					Lognormal Distribution Test		
32					Shapiro Wilk Test Statistic	0.782				Shapiro Wilk Test Statistic	0.665	
33					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value	0.829	
34					Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level		
35												
36					Assuming Normal Distribution					Assuming Lognormal Distribution		
37					95% Student's-t UCL	3.504				95% H-UCL	3.914	
38					95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL	4.542	
39					95% Adjusted-CLT UCL	3.293				97.5% Chebyshev (MVUE) UCL	5.18	
40					95% Modified-t UCL	3.48				99% Chebyshev (MVUE) UCL	6.432	
41												
42					Gamma Distribution Test					Data Distribution		
43					k star (bias corrected)	8.712				Data do not follow a Discernable Distribution (0.05)		
44					Theta Star	0.349						
45					nu star	156.8						
46					Approximate Chi Square Value (.05)	128.9				Nonparametric Statistics		
47					Adjusted Level of Significance	0.0231				95% CLT UCL	3.451	
48					Adjusted Chi Square Value	123.5				95% Jackknife UCL	3.504	
49										95% Standard Bootstrap UCL	3.439	
50					Anderson-Darling Test Statistic	1.203				95% Bootstrap-t UCL	3.368	
51					Anderson-Darling 5% Critical Value	0.722				95% Hall's Bootstrap UCL	3.357	
52					Kolmogorov-Smirnov Test Statistic	0.372				95% Percentile Bootstrap UCL	3.396	
53					Kolmogorov-Smirnov 5% Critical Value	0.279				95% BCA Bootstrap UCL	3.324	

	A	B	C	D	E	F	G	H	I	J	K	L
54	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					4.125
55							97.5% Chebyshev(Mean, Sd) UCL					4.594
56	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					5.514
57	95% Approximate Gamma UCL					3.702						
58	95% Adjusted Gamma UCL					3.862						
59												
60	**Potential UCL to Use**						Use 95% Student's-t UCL					3.504
61							or 95% Modified-t UCL					3.48
62												
63												
64	**Benzo(a)anthracene**											
65												
66	**General Statistics**											
67	Number of Valid Observations					9	Number of Distinct Observations					9
68												
69	**Raw Statistics**						**Log-transformed Statistics**					
70	Minimum					3.9	Minimum of Log Data					1.361
71	Maximum					450	Maximum of Log Data					6.109
72	Mean					115.8	Mean of log Data					4.043
73	Median					72	SD of log Data					1.435
74	SD					138.6						
75	Coefficient of Variation					1.197						
76	Skewness					2.054						
77												
78												
79	**Warning: There are only 9 Values in this data**											
80	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
81	**the resulting calculations may not be reliable enough to draw conclusions**											
82												
83	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
84												
85	**Relevant UCL Statistics**											
86	**Normal Distribution Test**						**Lognormal Distribution Test**					
87	Shapiro Wilk Test Statistic					0.769	Shapiro Wilk Test Statistic					0.974
88	Shapiro Wilk Critical Value					0.829	Shapiro Wilk Critical Value					0.829
89	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
90												
91	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
92	95% Student's-t UCL					201.7	95% H-UCL					1399
93	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					419.1
94	95% Adjusted-CLT UCL					225.6	97.5% Chebyshev (MVUE) UCL					543.1
95	95% Modified-t UCL					206.9	99% Chebyshev (MVUE) UCL					786.5
96												
97	**Gamma Distribution Test**						**Data Distribution**					
98	k star (bias corrected)					0.629	**Data appear Gamma Distributed at 5% Significance Level**					
99	Theta Star					184						
100	nu star					11.33						
101	Approximate Chi Square Value (.05)					4.786	**Nonparametric Statistics**					
102	Adjusted Level of Significance					0.0231	95% CLT UCL					191.8
103	Adjusted Chi Square Value					3.929	95% Jackknife UCL					201.7
104							95% Standard Bootstrap UCL					188.6
105	Anderson-Darling Test Statistic					0.147	95% Bootstrap-t UCL					276.8
106	Anderson-Darling 5% Critical Value					0.749	95% Hall's Bootstrap UCL					509.2

107				Kolmogorov-Smirnov Test Statistic	0.103					95% Percentile Bootstrap UCL	192.7	
108				Kolmogorov-Smirnov 5% Critical Value	0.288					95% BCA Bootstrap UCL	228.6	
109				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	317.1	
110										97.5% Chebyshev(Mean, Sd) UCL	404.3	
111				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	575.4	
112				95% Approximate Gamma UCL	273.9							
113				95% Adjusted Gamma UCL	333.7							
114												
115				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	273.9	
116												
117												
118	**Benzo(a)pyrene**											
119												
120				**General Statistics**								
121				Number of Valid Observations	9					Number of Distinct Observations	9	
122												
123				**Raw Statistics**						**Log-transformed Statistics**		
124				Minimum	7.2					Minimum of Log Data	1.974	
125				Maximum	610					Maximum of Log Data	6.413	
126				Mean	144.5					Mean of log Data	4.22	
127				Median	69					SD of log Data	1.391	
128				SD	190.5							
129				Coefficient of Variation	1.318							
130				Skewness	2.191							
131												
132												
133				**Warning: There are only 9 Values in this data**								
134				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
135				**the resulting calculations may not be reliable enough to draw conclusions**								
136												
137				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
138												
139				**Relevant UCL Statistics**								
140				**Normal Distribution Test**						**Lognormal Distribution Test**		
141				Shapiro Wilk Test Statistic	0.73					Shapiro Wilk Test Statistic	0.993	
142				Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829	
143				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
144												
145				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
146				95% Student's-t UCL	262.5					95% H-UCL	1389	
147				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	467.4	
148				95% Adjusted-CLT UCL	298.4					97.5% Chebyshev (MVUE) UCL	604.2	
149				95% Modified-t UCL	270.3					99% Chebyshev (MVUE) UCL	873.1	
150												
151				**Gamma Distribution Test**						**Data Distribution**		
152				k star (bias corrected)	0.601					**Data appear Gamma Distributed at 5% Significance Level**		
153				Theta Star	240.6							
154				nu star	10.81							
155				Approximate Chi Square Value (.05)	4.454					**Nonparametric Statistics**		
156				Adjusted Level of Significance	0.0231					95% CLT UCL	248.9	
157				Adjusted Chi Square Value	3.633					95% Jackknife UCL	262.5	
158										95% Standard Bootstrap UCL	244.8	
159				Anderson-Darling Test Statistic	0.192					95% Bootstrap-t UCL	459.3	

160				Anderson-Darling 5% Critical Value	0.75					95% Hall's Bootstrap UCL	678.2	
161				Kolmogorov-Smirnov Test Statistic	0.131					95% Percentile Bootstrap UCL	247.4	
162				Kolmogorov-Smirnov 5% Critical Value	0.289					95% BCA Bootstrap UCL	313.4	
163				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	421.2	
164										97.5% Chebyshev(Mean, Sd) UCL	541	
165				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	776.2	
166				95% Approximate Gamma UCL	350.6							
167				95% Adjusted Gamma UCL	429.8							
168												
169				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	350.6	
170												
171												
172	**Benzo(b)fluoranthene**											
173												
174				**General Statistics**								
175				Number of Valid Observations	9					Number of Distinct Observations	9	
176												
177				**Raw Statistics**						**Log-transformed Statistics**		
178				Minimum	8.3					Minimum of Log Data	2.116	
179				Maximum	650					Maximum of Log Data	6.477	
180				Mean	173.3					Mean of log Data	4.474	
181				Median	100					SD of log Data	1.362	
182				SD	204.2							
183				Coefficient of Variation	1.179							
184				Skewness	1.869							
185												
186												
187				**Warning: There are only 9 Values in this data**								
188				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
189				**the resulting calculations may not be reliable enough to draw conclusions**								
190												
191				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
192												
193				**Relevant UCL Statistics**								
194				**Normal Distribution Test**						**Lognormal Distribution Test**		
195				Shapiro Wilk Test Statistic	0.791					Shapiro Wilk Test Statistic	0.983	
196				Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829	
197				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
198												
199				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
200				95% Student's-t UCL	299.8					95% H-UCL	1591	
201				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	576.1	
202				95% Adjusted-CLT UCL	330.5					97.5% Chebyshev (MVUE) UCL	743.7	
203				95% Modified-t UCL	306.9					99% Chebyshev (MVUE) UCL	1073	
204												
205				**Gamma Distribution Test**						**Data Distribution**		
206				k star (bias corrected)	0.65					**Data appear Gamma Distributed at 5% Significance Level**		
207				Theta Star	266.7							
208				nu star	11.69							
209				Approximate Chi Square Value (.05)	5.026					**Nonparametric Statistics**		
210				Adjusted Level of Significance	0.0231					95% CLT UCL	285.2	
211				Adjusted Chi Square Value	4.143					95% Jackknife UCL	299.8	
212										95% Standard Bootstrap UCL	279.1	

213				Anderson-Darling Test Statistic	0.157					95% Bootstrap-t UCL	422.5	
214				Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	748	
215				Kolmogorov-Smirnov Test Statistic	0.138					95% Percentile Bootstrap UCL	288.2	
216				Kolmogorov-Smirnov 5% Critical Value	0.288					95% BCA Bootstrap UCL	317.1	
217				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	470	
218										97.5% Chebyshev(Mean, Sd) UCL	598.4	
219				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	850.6	
220				95% Approximate Gamma UCL	403.1							
221				95% Adjusted Gamma UCL	489							
222												
223				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	403.1	
224												
225												
226	**Benzo(k)fluoranthene**											
227												
228				**General Statistics**								
229				Number of Valid Observations	9					Number of Distinct Observations	9	
230												
231				**Raw Statistics**						**Log-transformed Statistics**		
232				Minimum	3					Minimum of Log Data	1.099	
233				Maximum	200					Maximum of Log Data	5.298	
234				Mean	62.83					Mean of log Data	3.506	
235				Median	35					SD of log Data	1.363	
236				SD	64.61							
237				Coefficient of Variation	1.028							
238				Skewness	1.297							
239												
240												
241				**Warning: There are only 9 Values in this data**								
242				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
243				**the resulting calculations may not be reliable enough to draw conclusions**								
244												
245				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
246												
247				**Relevant UCL Statistics**								
248				**Normal Distribution Test**						**Lognormal Distribution Test**		
249				Shapiro Wilk Test Statistic	0.86					Shapiro Wilk Test Statistic	0.958	
250				Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829	
251				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
252												
253				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
254				95% Student's-t UCL	102.9					95% H-UCL	608.1	
255				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	219.3	
256				95% Adjusted-CLT UCL	108.2					97.5% Chebyshev (MVUE) UCL	283.1	
257				95% Modified-t UCL	104.4					99% Chebyshev (MVUE) UCL	408.5	
258												
259				**Gamma Distribution Test**						**Data Distribution**		
260				k star (bias corrected)	0.687					**Data appear Normal at 5% Significance Level**		
261				Theta Star	91.53							
262				nu star	12.36							
263				Approximate Chi Square Value (.05)	5.463					**Nonparametric Statistics**		
264				Adjusted Level of Significance	0.0231					95% CLT UCL	98.26	
265				Adjusted Chi Square Value	4.535					95% Jackknife UCL	102.9	

	A	B	C	D	E	F	G	H	I	J	K	L
266											95% Standard Bootstrap UCL	96.63
267					Anderson-Darling Test Statistic	0.191					95% Bootstrap-t UCL	117.6
268					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	113.7
269					Kolmogorov-Smirnov Test Statistic	0.142					95% Percentile Bootstrap UCL	100.9
270					Kolmogorov-Smirnov 5% Critical Value	0.288					95% BCA Bootstrap UCL	102.9
271					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	156.7
272											97.5% Chebyshev(Mean, Sd) UCL	197.3
273					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	277.1
274					95% Approximate Gamma UCL	142.1						
275					95% Adjusted Gamma UCL	171.2						
276												
277					**Potential UCL to Use**						Use 95% Student's-t UCL	102.9
278												
279												
280	**Bis(2-ethylhexyl) phthalate**											
281												
282					**General Statistics**							
283					Number of Valid Data	8					Number of Detected Data	7
284					Number of Distinct Detected Data	6					Number of Non-Detect Data	1
285					Number of Missing Values	1					Percent Non-Detects	12.50%
286												
287					**Raw Statistics**						**Log-transformed Statistics**	
288					Minimum Detected	76					Minimum Detected	4.331
289					Maximum Detected	340					Maximum Detected	5.829
290					Mean of Detected	145.6					Mean of Detected	4.85
291					SD of Detected	92.31					SD of Detected	0.516
292					Minimum Non-Detect	25					Minimum Non-Detect	3.219
293					Maximum Non-Detect	25					Maximum Non-Detect	3.219
294												
295												
296					**Warning: There are only 7 Detected Values in this data**							
297					**Note: It should be noted that even though bootstrap may be performed on this data set**							
298					**the resulting calculations may not be reliable enough tp draw conclusions**							
299												
300					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
301												
302												
303					**UCL Statistics**							
304					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
305					Shapiro Wilk Test Statistic	0.757					Shapiro Wilk Test Statistic	0.891
306					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
307					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
308												
309					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
310					DL/2 Substitution Method						DL/2 Substitution Method	
311					Mean	128.9					Mean	4.56
312					SD	97.56					SD	0.951
313					95% DL/2 (t) UCL	194.3					95% H-Stat (DL/2) UCL	297.8
314												
315					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
316					Mean	124					Mean in Log Scale	4.694
317					SD	99.55					SD in Log Scale	0.652
318					95% MLE (t) UCL	190.6					Mean in Original Scale	131.9

319					95% MLE (Tiku) UCL	190.7				SD in Original Scale		93.76
320										95% Percentile Bootstrap UCL		189.1
321										95% BCA Bootstrap UCL		200
322												
323	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
324					k star (bias corrected)	2.377				**Data appear Gamma Distributed at 5% Significance Level**		
325					Theta Star	61.25						
326					nu star	33.27						
327												
328					A-D Test Statistic	0.538				**Nonparametric Statistics**		
329					5% A-D Critical Value	0.71				Kaplan-Meier (KM) Method		
330					K-S Test Statistic	0.71				Mean		136.9
331					5% K-S Critical Value	0.313				SD		83.19
332	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		31.77
333										95% KM (t) UCL		197.1
334	**Assuming Gamma Distribution**									95% KM (z) UCL		189.1
335					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		196
336					Minimum	24.33				95% KM (bootstrap t) UCL		331.1
337					Maximum	340				95% KM (BCA) UCL		191.5
338					Mean	130.4				95% KM (Percentile Bootstrap) UCL		193.5
339					Median	110				95% KM (Chebyshev) UCL		275.3
340					SD	95.61				97.5% KM (Chebyshev) UCL		335.3
341					k star	1.551				99% KM (Chebyshev) UCL		453
342					Theta star	84.1						
343					Nu star	24.81				**Potential UCLs to Use**		
344					AppChi2	14.47				95% KM (BCA) UCL		191.5
345					95% Gamma Approximate UCL	223.7						
346					95% Adjusted Gamma UCL	258.6						
347	**Note: DL/2 is not a recommended method.**											
348												
349												
350	**Dibenzo(a,h)anthracene**											
351												
352	**General Statistics**											
353					Number of Valid Observations	9				Number of Distinct Observations		9
354												
355	**Raw Statistics**									**Log-transformed Statistics**		
356					Minimum	2.3				Minimum of Log Data		0.833
357					Maximum	85				Maximum of Log Data		4.443
358					Mean	23.36				Mean of log Data		2.541
359					Median	18				SD of log Data		1.26
360					SD	26.37						
361					Coefficient of Variation	1.129						
362					Skewness	1.859						
363												
364												
365	**Warning: There are only 9 Values in this data**											
366	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
367	**the resulting calculations may not be reliable enough to draw conclusions**											
368												
369	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
370												
371	**Relevant UCL Statistics**											

372	**Normal Distribution Test**						**Lognormal Distribution Test**					
373	Shapiro Wilk Test Statistic				0.793		Shapiro Wilk Test Statistic					0.943
374	Shapiro Wilk Critical Value				0.829		Shapiro Wilk Critical Value					0.829
375	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
376												
377	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
378	95% Student's-t UCL				39.7		95% H-UCL					155.6
379	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					71.42
380	95% Adjusted-CLT UCL				43.63		97.5% Chebyshev (MVUE) UCL					91.68
381	95% Modified-t UCL				40.61		99% Chebyshev (MVUE) UCL					131.5
382												
383	**Gamma Distribution Test**						**Data Distribution**					
384	k star (bias corrected)				0.709		**Data appear Gamma Distributed at 5% Significance Level**					
385	Theta Star				32.94							
386	nu star				12.76							
387	Approximate Chi Square Value (.05)				5.734		**Nonparametric Statistics**					
388	Adjusted Level of Significance				0.0231		95% CLT UCL					37.81
389	Adjusted Chi Square Value				4.778		95% Jackknife UCL					39.7
390							95% Standard Bootstrap UCL					36.98
391	Anderson-Darling Test Statistic				0.246		95% Bootstrap-t UCL					56.21
392	Anderson-Darling 5% Critical Value				0.745		95% Hall's Bootstrap UCL					108.1
393	Kolmogorov-Smirnov Test Statistic				0.148		95% Percentile Bootstrap UCL					38.82
394	Kolmogorov-Smirnov 5% Critical Value				0.287		95% BCA Bootstrap UCL					45.93
395	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					61.66
396							97.5% Chebyshev(Mean, Sd) UCL					78.24
397	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					110.8
398	95% Approximate Gamma UCL				51.99							
399	95% Adjusted Gamma UCL				62.39							
400												
401	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					51.99
402												
403												
404	**Indeno(1,2,3-cd)pyrene**											
405												
406	**General Statistics**											
407	Number of Valid Observations				9		Number of Distinct Observations					9
408												
409	**Raw Statistics**						**Log-transformed Statistics**					
410	Minimum				10		Minimum of Log Data					2.303
411	Maximum				480		Maximum of Log Data					6.174
412	Mean				118.9		Mean of log Data					4.093
413	Median				70		SD of log Data					1.313
414	SD				149.1							
415	Coefficient of Variation				1.254							
416	Skewness				2.119							
417												
418												
419	**Warning: There are only 9 Values in this data**											
420	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
421	**the resulting calculations may not be reliable enough to draw conclusions**											
422												
423	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425	**Relevant UCL Statistics**											
426	**Normal Distribution Test**						**Lognormal Distribution Test**					
427	Shapiro Wilk Test Statistic					0.746	Shapiro Wilk Test Statistic					0.958
428	Shapiro Wilk Critical Value					0.829	Shapiro Wilk Critical Value					0.829
429	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
430												
431	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
432	95% Student's-t UCL					211.3	95% H-UCL					896.2
433	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					365.1
434	95% Adjusted-CLT UCL					238.1	97.5% Chebyshev (MVUE) UCL					470.1
435	95% Modified-t UCL					217.1	99% Chebyshev (MVUE) UCL					676.3
436												
437	**Gamma Distribution Test**						**Data Distribution**					
438	k star (bias corrected)					0.646	**Data appear Gamma Distributed at 5% Significance Level**					
439	Theta Star					184						
440	nu star					11.63						
441	Approximate Chi Square Value (.05)					4.986	**Nonparametric Statistics**					
442	Adjusted Level of Significance					0.0231	95% CLT UCL					200.6
443	Adjusted Chi Square Value					4.108	95% Jackknife UCL					211.3
444							95% Standard Bootstrap UCL					197.1
445	Anderson-Darling Test Statistic					0.247	95% Bootstrap-t UCL					347.8
446	Anderson-Darling 5% Critical Value					0.748	95% Hall's Bootstrap UCL					550.1
447	Kolmogorov-Smirnov Test Statistic					0.153	95% Percentile Bootstrap UCL					199.8
448	Kolmogorov-Smirnov 5% Critical Value					0.288	95% BCA Bootstrap UCL					228.8
449	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					335.5
450							97.5% Chebyshev(Mean, Sd) UCL					429.2
451	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					613.3
452	95% Approximate Gamma UCL					277.4						
453	95% Adjusted Gamma UCL					336.7						
454												
455	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					277.4
456												
457												
458	**Lead**											
459												
460	**General Statistics**											
461	Number of Valid Observations					9	Number of Distinct Observations					9
462												
463	**Raw Statistics**						**Log-transformed Statistics**					
464	Minimum					12	Minimum of Log Data					2.485
465	Maximum					30.4	Maximum of Log Data					3.414
466	Mean					17.76	Mean of log Data					2.84
467	Median					17.1	SD of log Data					0.28
468	SD					5.532						
469	Coefficient of Variation					0.312						
470	Skewness					1.615						
471												
472												
473	**Warning: There are only 9 Values in this data**											
474	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
475	**the resulting calculations may not be reliable enough to draw conclusions**											
476												
477	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

478												
479	**Relevant UCL Statistics**											
480	**Normal Distribution Test**						**Lognormal Distribution Test**					
481					Shapiro Wilk Test Statistic	0.856					Shapiro Wilk Test Statistic	0.937
482					Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829
483	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
484												
485	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
486					95% Student's-t UCL	21.18					95% H-UCL	21.67
487	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	24.96
488					95% Adjusted-CLT UCL	21.85					97.5% Chebyshev (MVUE) UCL	28.09
489					95% Modified-t UCL	21.35					99% Chebyshev (MVUE) UCL	34.25
490												
491	**Gamma Distribution Test**						**Data Distribution**					
492					k star (bias corrected)	9.15	**Data appear Normal at 5% Significance Level**					
493					Theta Star	1.941						
494					nu star	164.7						
495					Approximate Chi Square Value (.05)	136	**Nonparametric Statistics**					
496					Adjusted Level of Significance	0.0231					95% CLT UCL	20.79
497					Adjusted Chi Square Value	130.5					95% Jackknife UCL	21.18
498											95% Standard Bootstrap UCL	20.62
499					Anderson-Darling Test Statistic	0.361					95% Bootstrap-t UCL	23.37
500					Anderson-Darling 5% Critical Value	0.721					95% Hall's Bootstrap UCL	37.24
501					Kolmogorov-Smirnov Test Statistic	0.174					95% Percentile Bootstrap UCL	20.68
502					Kolmogorov-Smirnov 5% Critical Value	0.279					95% BCA Bootstrap UCL	21.62
503	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	25.79
504											97.5% Chebyshev(Mean, Sd) UCL	29.27
505	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	36.1
506					95% Approximate Gamma UCL	21.5						
507					95% Adjusted Gamma UCL	22.4						
508												
509	**Potential UCL to Use**										Use 95% Student's-t UCL	21.18
510												
511												
512	**Mercury**											
513												
514	**General Statistics**											
515					Number of Valid Observations	9					Number of Distinct Observations	9
516												
517	**Raw Statistics**						**Log-transformed Statistics**					
518					Minimum	0.01					Minimum of Log Data	-4.605
519					Maximum	0.144					Maximum of Log Data	-1.938
520					Mean	0.0677					Mean of log Data	-2.867
521					Median	0.067					SD of log Data	0.728
522					SD	0.0357						
523					Coefficient of Variation	0.528						
524					Skewness	0.863						
525												
526												
527	**Warning: There are only 9 Values in this data**											
528	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
529	**the resulting calculations may not be reliable enough to draw conclusions**											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
532												
533	**Relevant UCL Statistics**											
534	**Normal Distribution Test**						**Lognormal Distribution Test**					
535	Shapiro Wilk Test Statistic					0.905	Shapiro Wilk Test Statistic					0.803
536	Shapiro Wilk Critical Value					0.829	Shapiro Wilk Critical Value					0.829
537	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
538												
539	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
540	95% Student's-t UCL					0.0898	95% H-UCL					0.147
541	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.149
542	95% Adjusted-CLT UCL					0.0909	97.5% Chebyshev (MVUE) UCL					0.183
543	95% Modified-t UCL					0.0904	99% Chebyshev (MVUE) UCL					0.249
544												
545	**Gamma Distribution Test**						**Data Distribution**					
546	k star (bias corrected)					2.097	**Data appear Normal at 5% Significance Level**					
547	Theta Star					0.0323						
548	nu star					37.74						
549	Approximate Chi Square Value (.05)					24.67	**Nonparametric Statistics**					
550	Adjusted Level of Significance					0.0231	95% CLT UCL					0.0873
551	Adjusted Chi Square Value					22.47	95% Jackknife UCL					0.0898
552							95% Standard Bootstrap UCL					0.0863
553	Anderson-Darling Test Statistic					0.607	95% Bootstrap-t UCL					0.0948
554	Anderson-Darling 5% Critical Value					0.727	95% Hall's Bootstrap UCL					0.118
555	Kolmogorov-Smirnov Test Statistic					0.217	95% Percentile Bootstrap UCL					0.087
556	Kolmogorov-Smirnov 5% Critical Value					0.281	95% BCA Bootstrap UCL					0.089
557	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.12
558							97.5% Chebyshev(Mean, Sd) UCL					0.142
559	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.186
560	95% Approximate Gamma UCL					0.104						
561	95% Adjusted Gamma UCL					0.114						
562												
563	**Potential UCL to Use**						Use 95% Student's-t UCL					0.0898
564												
565												
566	**Naphthalene**											
567												
568	**General Statistics**											
569	Number of Valid Data					9	Number of Detected Data					6
570	Number of Distinct Detected Data					6	Number of Non-Detect Data					3
571							Percent Non-Detects					33.33%
572												
573	**Raw Statistics**						**Log-transformed Statistics**					
574	Minimum Detected					6.7	Minimum Detected					1.902
575	Maximum Detected					45	Maximum Detected					3.807
576	Mean of Detected					17.9	Mean of Detected					2.679
577	SD of Detected					14.11	SD of Detected					0.667
578	Minimum Non-Detect					0.83	Minimum Non-Detect					-0.186
579	Maximum Non-Detect					5.3	Maximum Non-Detect					1.668
580												
581	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					3
582	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					6
583	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					33.33%

584												
585	**Warning: There are only 6 Detected Values in this data**											
586	**Note: It should be noted that even though bootstrap may be performed on this data set**											
587	**the resulting calculations may not be reliable enough tp draw conclusions**											
588												
589	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
590												
591												
592	**UCL Statistics**											
593	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
594	Shapiro Wilk Test Statistic				0.781		Shapiro Wilk Test Statistic				0.943	
595	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value				0.788	
596	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
597												
598	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
599	DL/2 Substitution Method						DL/2 Substitution Method					
600	Mean				12.4		Mean				1.812	
601	SD				13.88		SD				1.478	
602	95% DL/2 (t) UCL				21.01		95% H-Stat (DL/2) UCL				36.1	
603												
604	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
605	Mean				9.861		Mean in Log Scale				2.099	
606	SD				16.35		SD in Log Scale				1.018	
607	95% MLE (t) UCL				19.99		Mean in Original Scale				12.78	
608	95% MLE (Tiku) UCL				20.72		SD in Original Scale				13.54	
609							95% Percentile Bootstrap UCL				20.14	
610							95% BCA Bootstrap UCL				22.08	
611												
612	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
613	k star (bias corrected)				1.404		**Data appear Gamma Distributed at 5% Significance Level**					
614	Theta Star				12.75							
615	nu star				16.85							
616												
617	A-D Test Statistic				0.407		**Nonparametric Statistics**					
618	5% A-D Critical Value				0.703		Kaplan-Meier (KM) Method					
619	K-S Test Statistic				0.703		Mean				14.17	
620	5% K-S Critical Value				0.335		SD				11.77	
621	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean				4.297	
622							95% KM (t) UCL				22.16	
623	**Assuming Gamma Distribution**						95% KM (z) UCL				21.23	
624	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				21.52	
625	Minimum				6.7		95% KM (bootstrap t) UCL				39.35	
626	Maximum				45		95% KM (BCA) UCL				23.67	
627	Mean				14.5		95% KM (Percentile Bootstrap) UCL				22.34	
628	Median				9.7		95% KM (Chebyshev) UCL				32.9	
629	SD				12.27		97.5% KM (Chebyshev) UCL				41	
630	k star				1.781		99% KM (Chebyshev) UCL				56.92	
631	Theta star				8.141							
632	Nu star				32.05		**Potential UCLs to Use**					
633	AppChi2				20.11		95% KM (Percentile Bootstrap) UCL				22.34	
634	95% Gamma Approximate UCL				23.1							
635	95% Adjusted Gamma UCL				25.61							
636	**Note: DL/2 is not a recommended method.**											

Total Aroclors

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	11.82	Minimum of Log Data	2.47
Maximum	85.7	Maximum of Log Data	4.451
Mean	34.19	Mean of log Data	3.364
Median	24.95	SD of log Data	0.603
SD	22.65		
Coefficient of Variation	0.662		
Skewness	1.633		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.843	Shapiro Wilk Test Statistic	0.974
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	48.23	95% H-UCL	58.33
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	64.11
95% Adjusted-CLT UCL	50.99	97.5% Chebyshev (MVUE) UCL	77.19
95% Modified-t UCL	48.91	99% Chebyshev (MVUE) UCL	102.9
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.163	**Data appear Normal at 5% Significance Level**	
Theta Star	15.81		
nu star	38.93		
Approximate Chi Square Value (.05)	25.64	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	46.6
Adjusted Chi Square Value	23.39	95% Jackknife UCL	48.23
		95% Standard Bootstrap UCL	45.9
Anderson-Darling Test Statistic	0.29	95% Bootstrap-t UCL	57.86
Anderson-Darling 5% Critical Value	0.727	95% Hall's Bootstrap UCL	99.49
Kolmogorov-Smirnov Test Statistic	0.187	95% Percentile Bootstrap UCL	47.09
Kolmogorov-Smirnov 5% Critical Value	0.281	95% BCA Bootstrap UCL	51.34
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	67.09
		97.5% Chebyshev(Mean, Sd) UCL	81.33
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	109.3
95% Approximate Gamma UCL	51.91		
95% Adjusted Gamma UCL	56.91		

	A	B	C	D	E	F	G	H	I	J	K	L
690	**Potential UCL to Use**									Use 95% Student's-t UCL		48.23
691												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM10.0W.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenic

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	3.45	Minimum of Log Data	1.238
Maximum	43.2	Maximum of Log Data	3.766
Mean	10.21	Mean of log Data	1.918
Median	4.69	SD of log Data	0.831
SD	12.83		
Coefficient of Variation	1.256		
Skewness	2.639		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.587	Shapiro Wilk Test Statistic	0.798
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	18.16	95% H-UCL	22.38
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	20.57
95% Adjusted-CLT UCL	21.26	97.5% Chebyshev (MVUE) UCL	25.5
95% Modified-t UCL	18.79	99% Chebyshev (MVUE) UCL	35.2
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.99	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	10.31		
nu star	17.83		
Approximate Chi Square Value (.05)	9.267	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	17.24
Adjusted Chi Square Value	7.998	95% Jackknife UCL	18.16
		95% Standard Bootstrap UCL	17.04
Anderson-Darling Test Statistic	1.112	95% Bootstrap-t UCL	48.03
Anderson-Darling 5% Critical Value	0.737	95% Hall's Bootstrap UCL	46.5
Kolmogorov-Smirnov Test Statistic	0.336	95% Percentile Bootstrap UCL	18.21
Kolmogorov-Smirnov 5% Critical Value	0.285	95% BCA Bootstrap UCL	21.16

54	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		28.85
55										97.5% Chebyshev(Mean, Sd) UCL		36.91
56	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		52.75
57					95% Approximate Gamma UCL	19.65						
58					95% Adjusted Gamma UCL	22.76						
59												
60	**Potential UCL to Use**									Use 95% Chebyshev (Mean, Sd) UCL		28.85
61												
62												
63	**Benzo(a)anthracene**											
64												
65	**General Statistics**											
66					Number of Valid Observations	9				Number of Distinct Observations		8
67												
68	**Raw Statistics**									**Log-transformed Statistics**		
69					Minimum	13				Minimum of Log Data		2.565
70					Maximum	620				Maximum of Log Data		6.43
71					Mean	140.8				Mean of log Data		4.295
72					Median	61				SD of log Data		1.17
73					SD	195.3						
74					Coefficient of Variation	1.387						
75					Skewness	2.289						
76												
77												
78	**Warning: There are only 9 Values in this data**											
79	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
80	**the resulting calculations may not be reliable enough to draw conclusions**											
81												
82	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
83												
84	**Relevant UCL Statistics**											
85	**Normal Distribution Test**									**Lognormal Distribution Test**		
86					Shapiro Wilk Test Statistic	0.665				Shapiro Wilk Test Statistic		0.958
87					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
88	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
89												
90	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
91					95% Student's-t UCL	261.8				95% H-UCL		651.2
92	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		360.4
93					95% Adjusted-CLT UCL	301				97.5% Chebyshev (MVUE) UCL		459.9
94					95% Modified-t UCL	270.1				99% Chebyshev (MVUE) UCL		655.4
95												
96	**Gamma Distribution Test**									**Data Distribution**		
97					k star (bias corrected)	0.672				**Data appear Gamma Distributed at 5% Significance Level**		
98					Theta Star	209.5						
99					nu star	12.09						
100					Approximate Chi Square Value (.05)	5.289				**Nonparametric Statistics**		
101					Adjusted Level of Significance	0.0231				95% CLT UCL		247.9
102					Adjusted Chi Square Value	4.378				95% Jackknife UCL		261.8
103										95% Standard Bootstrap UCL		241.7
104					Anderson-Darling Test Statistic	0.577				95% Bootstrap-t UCL		748.3
105					Anderson-Darling 5% Critical Value	0.747				95% Hall's Bootstrap UCL		769.6
106					Kolmogorov-Smirnov Test Statistic	0.28				95% Percentile Bootstrap UCL		245.8

107	Kolmogorov-Smirnov 5% Critical Value					0.288					95% BCA Bootstrap UCL	319.3
108	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	424.6
109											97.5% Chebyshev(Mean, Sd) UCL	547.4
110	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	788.6
111	95% Approximate Gamma UCL					321.9						
112	95% Adjusted Gamma UCL					388.9						
113												
114	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	321.9
115												
116												
117	**Benzo(a)pyrene**											
118												
119	**General Statistics**											
120	Number of Valid Observations					9					Number of Distinct Observations	9
121												
122	**Raw Statistics**										**Log-transformed Statistics**	
123	Minimum					15					Minimum of Log Data	2.708
124	Maximum					810					Maximum of Log Data	6.697
125	Mean					149.8					Mean of log Data	4.23
126	Median					49					SD of log Data	1.172
127	SD					254.8						
128	Coefficient of Variation					1.701						
129	Skewness					2.714						
130												
131												
132	**Warning: There are only 9 Values in this data**											
133	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
134	**the resulting calculations may not be reliable enough to draw conclusions**											
135												
136	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
137												
138	**Relevant UCL Statistics**											
139	**Normal Distribution Test**										**Lognormal Distribution Test**	
140	Shapiro Wilk Test Statistic					0.558					Shapiro Wilk Test Statistic	0.896
141	Shapiro Wilk Critical Value					0.829					Shapiro Wilk Critical Value	0.829
142	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
143												
144	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
145	95% Student's-t UCL					307.7					95% H-UCL	616.7
146	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	339.4
147	95% Adjusted-CLT UCL					371.6					97.5% Chebyshev (MVUE) UCL	433.2
148	95% Modified-t UCL					320.5					99% Chebyshev (MVUE) UCL	617.5
149												
150	**Gamma Distribution Test**										**Data Distribution**	
151	k star (bias corrected)					0.585					**Data appear Lognormal at 5% Significance Level**	
152	Theta Star					256						
153	nu star					10.53						
154	Approximate Chi Square Value (.05)					4.276					**Nonparametric Statistics**	
155	Adjusted Level of Significance					0.0231					95% CLT UCL	289.5
156	Adjusted Chi Square Value					3.476					95% Jackknife UCL	307.7
157											95% Standard Bootstrap UCL	282.7
158	Anderson-Darling Test Statistic					0.983					95% Bootstrap-t UCL	1605
159	Anderson-Darling 5% Critical Value					0.751					95% Hall's Bootstrap UCL	1076

160				Kolmogorov-Smirnov Test Statistic	0.324					95% Percentile Bootstrap UCL	302.8	
161				Kolmogorov-Smirnov 5% Critical Value	0.289					95% BCA Bootstrap UCL	354.9	
162				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	520	
163										97.5% Chebyshev(Mean, Sd) UCL	680.2	
164				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	995	
165				95% Approximate Gamma UCL	368.8							
166				95% Adjusted Gamma UCL	453.8							
167												
168				**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL	339.4	
169												
170												
171	**Benzo(b)fluoranthene**											
172												
173				**General Statistics**								
174				Number of Valid Observations	9					Number of Distinct Observations	9	
175												
176				**Raw Statistics**						**Log-transformed Statistics**		
177				Minimum	23					Minimum of Log Data	3.135	
178				Maximum	910					Maximum of Log Data	6.813	
179				Mean	187.8					Mean of log Data	4.544	
180				Median	69					SD of log Data	1.123	
181				SD	287.9							
182				Coefficient of Variation	1.533							
183				Skewness	2.461							
184												
185												
186				**Warning: There are only 9 Values in this data**								
187				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
188				**the resulting calculations may not be reliable enough to draw conclusions**								
189												
190				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
191												
192				**Relevant UCL Statistics**								
193				**Normal Distribution Test**						**Lognormal Distribution Test**		
194				Shapiro Wilk Test Statistic	0.602					Shapiro Wilk Test Statistic	0.885	
195				Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829	
196				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
197												
198				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
199				95% Student's-t UCL	366.3					95% H-UCL	714.2	
200				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	431.6	
201				95% Adjusted-CLT UCL	429.8					97.5% Chebyshev (MVUE) UCL	549	
202				95% Modified-t UCL	379.4					99% Chebyshev (MVUE) UCL	779.6	
203												
204				**Gamma Distribution Test**						**Data Distribution**		
205				k star (bias corrected)	0.642					**Data appear Lognormal at 5% Significance Level**		
206				Theta Star	292.5							
207				nu star	11.56							
208				Approximate Chi Square Value (.05)	4.936					**Nonparametric Statistics**		
209				Adjusted Level of Significance	0.0231					95% CLT UCL	345.6	
210				Adjusted Chi Square Value	4.063					95% Jackknife UCL	366.3	
211										95% Standard Bootstrap UCL	335.2	
212				Anderson-Darling Test Statistic	0.978					95% Bootstrap-t UCL	1883	

	A	B	C	D	E	F	G	H	I	J	K	L
213					Anderson-Darling 5% Critical Value	0.748				95% Hall's Bootstrap UCL		1455
214					Kolmogorov-Smirnov Test Statistic	0.345				95% Percentile Bootstrap UCL		350.1
215					Kolmogorov-Smirnov 5% Critical Value	0.288				95% BCA Bootstrap UCL		443.2
216					**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL		606.1
217										97.5% Chebyshev(Mean, Sd) UCL		787.2
218					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL		1143
219					95% Approximate Gamma UCL	439.6						
220					95% Adjusted Gamma UCL	534.1						
221												
222					**Potential UCL to Use**					Use 95% Chebyshev (MVUE) UCL		431.6
223												
224												
225	**Benzo(k)fluoranthene**											
226												
227					**General Statistics**							
228					Number of Valid Observations	9				Number of Distinct Observations		9
229												
230					**Raw Statistics**					**Log-transformed Statistics**		
231					Minimum	7.5				Minimum of Log Data		2.015
232					Maximum	370				Maximum of Log Data		5.914
233					Mean	78.61				Mean of log Data		3.67
234					Median	27				SD of log Data		1.205
235					SD	114.6						
236					Coefficient of Variation	1.458						
237					Skewness	2.522						
238												
239												
240					**Warning: There are only 9 Values in this data**							
241					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
242					**the resulting calculations may not be reliable enough to draw conclusions**							
243												
244					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
245												
246					**Relevant UCL Statistics**							
247					**Normal Distribution Test**					**Lognormal Distribution Test**		
248					Shapiro Wilk Test Statistic	0.645				Shapiro Wilk Test Statistic		0.969
249					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
250					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
251												
252					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
253					95% Student's-t UCL	149.6				95% H-UCL		394.5
254					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL		203.3
255					95% Adjusted-CLT UCL	175.7				97.5% Chebyshev (MVUE) UCL		260.1
256					95% Modified-t UCL	155				99% Chebyshev (MVUE) UCL		371.6
257												
258					**Gamma Distribution Test**					**Data Distribution**		
259					k star (bias corrected)	0.639				**Data appear Gamma Distributed at 5% Significance Level**		
260					Theta Star	123						
261					nu star	11.5						
262					Approximate Chi Square Value (.05)	4.903				**Nonparametric Statistics**		
263					Adjusted Level of Significance	0.0231				95% CLT UCL		141.4
264					Adjusted Chi Square Value	4.033				95% Jackknife UCL		149.6
265										95% Standard Bootstrap UCL		138.3

266				Anderson-Darling Test Statistic	0.468					95% Bootstrap-t UCL	294.1	
267				Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	369	
268				Kolmogorov-Smirnov Test Statistic	0.229					95% Percentile Bootstrap UCL	148	
269				Kolmogorov-Smirnov 5% Critical Value	0.288					95% BCA Bootstrap UCL	184.7	
270				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	245.1	
271										97.5% Chebyshev(Mean, Sd) UCL	317.1	
272				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	458.6	
273				95% Approximate Gamma UCL	184.5							
274				95% Adjusted Gamma UCL	224.3							
275												
276				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	184.5	
277												
278												
279	**Bis(2-ethylhexyl) phthalate**											
280												
281				**General Statistics**								
282				Number of Valid Data	9					Number of Detected Data	5	
283				Number of Distinct Detected Data	5					Number of Non-Detect Data	4	
284										Percent Non-Detects	44.44%	
285												
286				**Raw Statistics**						**Log-transformed Statistics**		
287				Minimum Detected	57					Minimum Detected	4.043	
288				Maximum Detected	270					Maximum Detected	5.598	
289				Mean of Detected	167.4					Mean of Detected	4.988	
290				SD of Detected	85.05					SD of Detected	0.616	
291				Minimum Non-Detect	28					Minimum Non-Detect	3.332	
292				Maximum Non-Detect	200					Maximum Non-Detect	5.298	
293												
294	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	7	
295	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	2	
296	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	77.78%	
297												
298	**Warning: There are only 5 Detected Values in this data**											
299	**Note: It should be noted that even though bootstrap may be performed on this data set**											
300	**the resulting calculations may not be reliable enough tp draw conclusions**											
301												
302	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
303												
304												
305				**UCL Statistics**								
306				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
307				Shapiro Wilk Test Statistic	0.977					Shapiro Wilk Test Statistic	0.935	
308				5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762	
309				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
310												
311				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
312				DL/2 Substitution Method						DL/2 Substitution Method		
313				Mean	120.7					Mean	4.512	
314				SD	84.65					SD	0.891	
315				95% DL/2 (t) UCL	173.1					95% H-Stat (DL/2) UCL	376.9	
316												
317				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
318				**MLE method failed to converge properly**						Mean in Log Scale	4.578	

319											SD in Log Scale	0.686
320											Mean in Original Scale	120
321											SD in Original Scale	83.05
322											95% Percentile Bootstrap UCL	163.6
323											95% BCA Bootstrap UCL	172.1
324												
325	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
326					k star (bias corrected)	1.713					**Data appear Normal at 5% Significance Level**	
327					Theta Star	97.74						
328					nu star	17.13						
329												
330					A-D Test Statistic	0.232					**Nonparametric Statistics**	
331					5% A-D Critical Value	0.681					Kaplan-Meier (KM) Method	
332					K-S Test Statistic	0.681					Mean	126.9
333					5% K-S Critical Value	0.358					SD	75.63
334	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	29.77
335											95% KM (t) UCL	182.2
336	**Assuming Gamma Distribution**										95% KM (z) UCL	175.8
337					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	184.1
338					Minimum	57					95% KM (bootstrap t) UCL	174
339					Maximum	270					95% KM (BCA) UCL	204.4
340					Mean	162.9					95% KM (Percentile Bootstrap) UCL	192.2
341					Median	170.1					95% KM (Chebyshev) UCL	256.6
342					SD	64.67					97.5% KM (Chebyshev) UCL	312.8
343					k star	4.086					99% KM (Chebyshev) UCL	423.1
344					Theta star	39.87						
345					Nu star	73.54					**Potential UCLs to Use**	
346					AppChi2	54.79					95% KM (t) UCL	182.2
347					95% Gamma Approximate UCL	218.6					95% KM (Percentile Bootstrap) UCL	192.2
348					95% Adjusted Gamma UCL	233.1						
349	**Note: DL/2 is not a recommended method.**											
350												
351												
352	**Dibenzo(a,h)anthracene**											
353												
354	**General Statistics**											
355					Number of Valid Observations	9					Number of Distinct Observations	9
356												
357	**Raw Statistics**										**Log-transformed Statistics**	
358					Minimum	2.5					Minimum of Log Data	0.916
359					Maximum	230					Maximum of Log Data	5.438
360					Mean	35.42					Mean of log Data	2.48
361					Median	7.3					SD of log Data	1.331
362					SD	73.65						
363					Coefficient of Variation	2.079						
364					Skewness	2.9						
365												
366												
367	**Warning: There are only 9 Values in this data**											
368	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
369	**the resulting calculations may not be reliable enough to draw conclusions**											
370												
371	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

372												
373	**Relevant UCL Statistics**											
374	**Normal Distribution Test**						**Lognormal Distribution Test**					
375					Shapiro Wilk Test Statistic	0.491					Shapiro Wilk Test Statistic	0.867
376					Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829
377	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
378												
379	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
380					95% Student's-t UCL	81.07					95% H-UCL	191.9
381	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	74.84
382					95% Adjusted-CLT UCL	101.2					97.5% Chebyshev (MVUE) UCL	96.45
383					95% Modified-t UCL	85.03					99% Chebyshev (MVUE) UCL	138.9
384												
385	**Gamma Distribution Test**						**Data Distribution**					
386					k star (bias corrected)	0.455	**Data appear Lognormal at 5% Significance Level**					
387					Theta Star	77.77						
388					nu star	8.199						
389					Approximate Chi Square Value (.05)	2.851	**Nonparametric Statistics**					
390					Adjusted Level of Significance	0.0231					95% CLT UCL	75.8
391					Adjusted Chi Square Value	2.229					95% Jackknife UCL	81.07
392											95% Standard Bootstrap UCL	73.25
393					Anderson-Darling Test Statistic	1.203					95% Bootstrap-t UCL	636.5
394					Anderson-Darling 5% Critical Value	0.765					95% Hall's Bootstrap UCL	296.5
395					Kolmogorov-Smirnov Test Statistic	0.335					95% Percentile Bootstrap UCL	82.33
396					Kolmogorov-Smirnov 5% Critical Value	0.293					95% BCA Bootstrap UCL	107.9
397	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	142.4
398											97.5% Chebyshev(Mean, Sd) UCL	188.7
399	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	279.7
400					95% Approximate Gamma UCL	101.9						
401					95% Adjusted Gamma UCL	130.3						
402												
403	**Potential UCL to Use**										Use 95% Chebyshev (MVUE) UCL	74.84
404												
405												
406	**Indeno(1,2,3-cd)pyrene**											
407												
408	**General Statistics**											
409					Number of Valid Observations	9					Number of Distinct Observations	9
410												
411	**Raw Statistics**						**Log-transformed Statistics**					
412					Minimum	12					Minimum of Log Data	2.485
413					Maximum	820					Maximum of Log Data	6.709
414					Mean	138.2					Mean of log Data	4.024
415					Median	37					SD of log Data	1.237
416					SD	259.9						
417					Coefficient of Variation	1.88						
418					Skewness	2.83						
419												
420												
421	**Warning: There are only 9 Values in this data**											
422	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
423	**the resulting calculations may not be reliable enough to draw conclusions**											
424												

425	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
426												
427	Relevant UCL Statistics											
428	Normal Distribution Test						Lognormal Distribution Test					
429	Shapiro Wilk Test Statistic				0.521		Shapiro Wilk Test Statistic				0.883	
430	Shapiro Wilk Critical Value				0.829		Shapiro Wilk Critical Value				0.829	
431	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
432												
433	Assuming Normal Distribution						Assuming Lognormal Distribution					
434	95% Student's-t UCL				299.3		95% H-UCL				630.2	
435	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				304	
436	95% Adjusted-CLT UCL				368		97.5% Chebyshev (MVUE) UCL				389.7	
437	95% Modified-t UCL				312.9		99% Chebyshev (MVUE) UCL				558	
438												
439	Gamma Distribution Test						Data Distribution					
440	k star (bias corrected)				0.522		Data appear Lognormal at 5% Significance Level					
441	Theta Star				264.7							
442	nu star				9.398							
443	Approximate Chi Square Value (.05)				3.569		Nonparametric Statistics					
444	Adjusted Level of Significance				0.0231		95% CLT UCL				280.7	
445	Adjusted Chi Square Value				2.853		95% Jackknife UCL				299.3	
446							95% Standard Bootstrap UCL				269.8	
447	Anderson-Darling Test Statistic				1.089		95% Bootstrap-t UCL				1910	
448	Anderson-Darling 5% Critical Value				0.757		95% Hall's Bootstrap UCL				1116	
449	Kolmogorov-Smirnov Test Statistic				0.342		95% Percentile Bootstrap UCL				300.4	
450	Kolmogorov-Smirnov 5% Critical Value				0.291		95% BCA Bootstrap UCL				394.9	
451	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				515.8	
452							97.5% Chebyshev(Mean, Sd) UCL				679.2	
453	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL				1000	
454	95% Approximate Gamma UCL				364							
455	95% Adjusted Gamma UCL				455.3							
456												
457	Potential UCL to Use						Use 95% Chebyshev (MVUE) UCL				304	
458												
459												
460	Lead											
461												
462	General Statistics											
463	Number of Valid Observations				9		Number of Distinct Observations				9	
464												
465	Raw Statistics						Log-transformed Statistics					
466	Minimum				11.4		Minimum of Log Data				2.434	
467	Maximum				233		Maximum of Log Data				5.451	
468	Mean				66.4		Mean of log Data				3.791	
469	Median				39.3		SD of log Data				0.948	
470	SD				69.33							
471	Coefficient of Variation				1.044							
472	Skewness				2.067							
473												
474												
475	Warning: There are only 9 Values in this data											
476	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
477	the resulting calculations may not be reliable enough to draw conclusions											

478												
479	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
480												
481	**Relevant UCL Statistics**											
482	**Normal Distribution Test**						**Lognormal Distribution Test**					
483				Shapiro Wilk Test Statistic	0.762					Shapiro Wilk Test Statistic	0.979	
484				Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829	
485	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
486												
487	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
488				95% Student's-t UCL	109.4					95% H-UCL	198.1	
489	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	157.9	
490				95% Adjusted-CLT UCL	121.4					97.5% Chebyshev (MVUE) UCL	198.1	
491				95% Modified-t UCL	112					99% Chebyshev (MVUE) UCL	277	
492												
493	**Gamma Distribution Test**						**Data Distribution**					
494				k star (bias corrected)	0.994		**Data appear Gamma Distributed at 5% Significance Level**					
495				Theta Star	66.8							
496				nu star	17.89							
497				Approximate Chi Square Value (.05)	9.312		**Nonparametric Statistics**					
498				Adjusted Level of Significance	0.0231					95% CLT UCL	104.4	
499				Adjusted Chi Square Value	8.041					95% Jackknife UCL	109.4	
500										95% Standard Bootstrap UCL	102.9	
501				Anderson-Darling Test Statistic	0.275					95% Bootstrap-t UCL	173.7	
502				Anderson-Darling 5% Critical Value	0.737					95% Hall's Bootstrap UCL	278.9	
503				Kolmogorov-Smirnov Test Statistic	0.162					95% Percentile Bootstrap UCL	105.3	
504				Kolmogorov-Smirnov 5% Critical Value	0.285					95% BCA Bootstrap UCL	125.3	
505	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	167.1	
506										97.5% Chebyshev(Mean, Sd) UCL	210.7	
507	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	296.4	
508				95% Approximate Gamma UCL	127.6							
509				95% Adjusted Gamma UCL	147.7							
510												
511	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	127.6	
512												
513												
514	**Mercury**											
515												
516	**General Statistics**											
517				Number of Valid Observations	9					Number of Distinct Observations	9	
518												
519	**Raw Statistics**						**Log-transformed Statistics**					
520				Minimum	0.041					Minimum of Log Data	-3.194	
521				Maximum	0.139					Maximum of Log Data	-1.973	
522				Mean	0.0896					Mean of log Data	-2.479	
523				Median	0.093					SD of log Data	0.401	
524				SD	0.0325							
525				Coefficient of Variation	0.363							
526				Skewness	0.00915							
527												
528												
529	**Warning: There are only 9 Values in this data**											
530	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											

531	the resulting calculations may not be reliable enough to draw conclusions											
532												
533	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
534												
535	Relevant UCL Statistics											
536	Normal Distribution Test									Lognormal Distribution Test		
537					Shapiro Wilk Test Statistic	0.966				Shapiro Wilk Test Statistic	0.943	
538					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value	0.829	
539	Data appear Normal at 5% Significance Level									Data appear Lognormal at 5% Significance Level		
540												
541	Assuming Normal Distribution									Assuming Lognormal Distribution		
542					95% Student's-t UCL	0.11				95% H-UCL	0.123	
543	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	0.143	
544					95% Adjusted-CLT UCL	0.107				97.5% Chebyshev (MVUE) UCL	0.166	
545					95% Modified-t UCL	0.11				99% Chebyshev (MVUE) UCL	0.211	
546												
547	Gamma Distribution Test									Data Distribution		
548					k star (bias corrected)	5.199				Data appear Normal at 5% Significance Level		
549					Theta Star	0.0172						
550					nu star	93.57						
551					Approximate Chi Square Value (.05)	72.27				Nonparametric Statistics		
552					Adjusted Level of Significance	0.0231				95% CLT UCL	0.107	
553					Adjusted Chi Square Value	68.33				95% Jackknife UCL	0.11	
554										95% Standard Bootstrap UCL	0.106	
555					Anderson-Darling Test Statistic	0.263				95% Bootstrap-t UCL	0.11	
556					Anderson-Darling 5% Critical Value	0.722				95% Hall's Bootstrap UCL	0.109	
557					Kolmogorov-Smirnov Test Statistic	0.183				95% Percentile Bootstrap UCL	0.107	
558					Kolmogorov-Smirnov 5% Critical Value	0.28				95% BCA Bootstrap UCL	0.107	
559	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	0.137	
560										97.5% Chebyshev(Mean, Sd) UCL	0.157	
561	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	0.197	
562					95% Approximate Gamma UCL	0.116						
563					95% Adjusted Gamma UCL	0.123						
564												
565	Potential UCL to Use									Use 95% Student's-t UCL	0.11	
566												
567												
568	Naphthalene											
569												
570	General Statistics											
571					Number of Valid Data	9				Number of Detected Data	7	
572					Number of Distinct Detected Data	7				Number of Non-Detect Data	2	
573										Percent Non-Detects	22.22%	
574												
575	Raw Statistics									Log-transformed Statistics		
576					Minimum Detected	4				Minimum Detected	1.386	
577					Maximum Detected	78				Maximum Detected	4.357	
578					Mean of Detected	24.26				Mean of Detected	2.652	
579					SD of Detected	28.43				SD of Detected	1.077	
580					Minimum Non-Detect	3.1				Minimum Non-Detect	1.131	
581					Maximum Non-Detect	9.7				Maximum Non-Detect	2.272	
582												
583	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	5	

584	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
585	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		55.56%
586												
587	**Warning: There are only 7 Detected Values in this data**											
588	**Note: It should be noted that even though bootstrap may be performed on this data set**											
589	**the resulting calculations may not be reliable enough tp draw conclusions**											
590												
591	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
592												
593												
594	**UCL Statistics**											
595	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
596	Shapiro Wilk Test Statistic					0.731				Shapiro Wilk Test Statistic		0.888
597	5% Shapiro Wilk Critical Value					0.803				5% Shapiro Wilk Critical Value		0.803
598	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
599												
600	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
601	DL/2 Substitution Method									DL/2 Substitution Method		
602	Mean					19.58				Mean		2.287
603	SD					26.33				SD		1.215
604	95% DL/2 (t) UCL					35.9				95% H-Stat (DL/2) UCL		45.99
605												
606	Maximum Likelihood Estimate(MLE) Method									Log ROS Method		
607	Mean					1.431				Mean in Log Scale		2.25
608	SD					42.46				SD in Log Scale		1.265
609	95% MLE (t) UCL					27.75				Mean in Original Scale		19.48
610	95% MLE (Tiku) UCL					36.36				SD in Original Scale		26.4
611										95% Percentile Bootstrap UCL		33.95
612										95% BCA Bootstrap UCL		38.75
613												
614	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
615	k star (bias corrected)					0.706				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
616	Theta Star					34.38						
617	nu star					9.877						
618												
619	A-D Test Statistic					0.687				**Nonparametric Statistics**		
620	5% A-D Critical Value					0.727				Kaplan-Meier (KM) Method		
621	K-S Test Statistic					0.727				Mean		19.98
622	5% K-S Critical Value					0.319				SD		24.57
623	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		8.852
624										95% KM (t) UCL		36.44
625	**Assuming Gamma Distribution**									95% KM (z) UCL		34.54
626	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		35.92
627	Minimum					1E-09				95% KM (bootstrap t) UCL		130.9
628	Maximum					78				95% KM (BCA) UCL		37.57
629	Mean					19.87				95% KM (Percentile Bootstrap) UCL		35.23
630	Median					9.1				95% KM (Chebyshev) UCL		58.56
631	SD					26.22				97.5% KM (Chebyshev) UCL		75.26
632	k star					0.234				99% KM (Chebyshev) UCL		108.1
633	Theta star					84.96						
634	Nu star					4.209				**Potential UCLs to Use**		
635	AppChi2					0.806				95% KM (Chebyshev) UCL		58.56
636	95% Gamma Approximate UCL					103.8						

95% Adjusted Gamma UCL	153.5	

Note: DL/2 is not a recommended method.

Total Aroclors

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	16.77	Minimum of Log Data	2.819
Maximum	934.6	Maximum of Log Data	6.84
Mean	181.7	Mean of log Data	4.442
Median	77.05	SD of log Data	1.229
SD	290.9		
Coefficient of Variation	1.601		
Skewness	2.689		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.597	Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	362	95% H-UCL	930.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	456.2
95% Adjusted-CLT UCL	434.1	97.5% Chebyshev (MVUE) UCL	584.5
95% Modified-t UCL	376.5	99% Chebyshev (MVUE) UCL	836.5
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.596	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	305.1		
nu star	10.72		
Approximate Chi Square Value (.05)	4.397	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	341.2
Adjusted Chi Square Value	3.583	95% Jackknife UCL	362
		95% Standard Bootstrap UCL	334.4
Anderson-Darling Test Statistic	0.557	95% Bootstrap-t UCL	957.1
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	960
Kolmogorov-Smirnov Test Statistic	0.202	95% Percentile Bootstrap UCL	355.8
Kolmogorov-Smirnov 5% Critical Value	0.289	95% BCA Bootstrap UCL	452.8
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	604.3
		97.5% Chebyshev(Mean, Sd) UCL	787.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1146
95% Approximate Gamma UCL	443.1		

690					95% Adjusted Gamma UCL	543.7						
691												
692					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	443.1
693												
694												
695	**Total DDT**											
696												
697						**General Statistics**						
698					Number of Valid Data	9					Number of Detected Data	7
699					Number of Distinct Detected Data	7					Number of Non-Detect Data	2
700											Percent Non-Detects	22.22%
701												
702					**Raw Statistics**						**Log-transformed Statistics**	
703					Minimum Detected	1.014					Minimum Detected	0.0139
704					Maximum Detected	9.3					Maximum Detected	2.23
705					Mean of Detected	5.643					Mean of Detected	1.565
706					SD of Detected	2.678					SD of Detected	0.733
707					Minimum Non-Detect	0.178					Minimum Non-Detect	-1.726
708					Maximum Non-Detect	4.99					Maximum Non-Detect	1.607
709												
710	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	4
711	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
712	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	44.44%
713												
714	**Warning: There are only 7 Detected Values in this data**											
715	**Note: It should be noted that even though bootstrap may be performed on this data set**											
716	**the resulting calculations may not be reliable enough tp draw conclusions**											
717												
718	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
719												
720												
721						**UCL Statistics**							
722					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
723					Shapiro Wilk Test Statistic	0.964					Shapiro Wilk Test Statistic	0.79
724					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
725					**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
726												
727					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
728					DL/2 Substitution Method						DL/2 Substitution Method	
729					Mean	4.676					Mean	1.05
730					SD	3.07					SD	1.463
731					95% DL/2 (t) UCL	6.579					95% H-Stat (DL/2) UCL	79.09
732												
733					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
734					Mean	5.206					Mean in Log Scale	1.287
735					SD	2.36					SD in Log Scale	0.855
736					95% MLE (t) UCL	6.669					Mean in Original Scale	4.707
737					95% MLE (Tiku) UCL	6.913					SD in Original Scale	2.979
738											95% Percentile Bootstrap UCL	6.239
739											95% BCA Bootstrap UCL	6.178
740												
741					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
742					k star (bias corrected)	1.912					**Data appear Normal at 5% Significance Level**	

	A	B	C	D	E	F	G	H	I	J	K	L
743					Theta Star	2.952						
744					nu star	26.76						
745												
746					A-D Test Statistic	0.511	**Nonparametric Statistics**					
747					5% A-D Critical Value	0.712				Kaplan-Meier (KM) Method		
748					K-S Test Statistic	0.712				Mean		4.739
749					5% K-S Critical Value	0.314				SD		2.827
750	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		1.041
751										95% KM (t) UCL		6.675
752	**Assuming Gamma Distribution**									95% KM (z) UCL		6.452
753				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		6.814
754					Minimum	1.014				95% KM (bootstrap t) UCL		6.509
755					Maximum	9.3				95% KM (BCA) UCL		6.878
756					Mean	5.029				95% KM (Percentile Bootstrap) UCL		6.53
757					Median	5				95% KM (Chebyshev) UCL		9.278
758					SD	2.678				97.5% KM (Chebyshev) UCL		11.24
759					k star	2.022				99% KM (Chebyshev) UCL		15.1
760					Theta star	2.488						
761					Nu star	36.39	**Potential UCLs to Use**					
762					AppChi2	23.58				95% KM (t) UCL		6.675
763				95% Gamma Approximate UCL		7.761				95% KM (Percentile Bootstrap) UCL		6.53
764				95% Adjusted Gamma UCL		8.539						
765	**Note: DL/2 is not a recommended method.**											
766												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM10.5E.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Arsenic											
10												
11					General Statistics							
12				Number of Valid Observations	6				Number of Distinct Observations	6		
13												
14				Raw Statistics					Log-transformed Statistics			
15				Minimum	2.56				Minimum of Log Data	0.94		
16				Maximum	3.37				Maximum of Log Data	1.215		
17				Mean	3.083				Mean of log Data	1.121		
18				Median	3.175				SD of log Data	0.106		
19				SD	0.314							
20				Coefficient of Variation	0.102							
21				Skewness	-1.053							
22												
23												
24				Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!								
25												
26				It is suggested to collect at least 8 to 10 observations using these statistical methods!								
27				If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.								
28												
29												
30				Warning: There are only 6 Values in this data								
31				Note: It should be noted that even though bootstrap methods may be performed on this data set,								
32				the resulting calculations may not be reliable enough to draw conclusions								
33												
34				The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.								
35												
36					Relevant UCL Statistics							
37				Normal Distribution Test					Lognormal Distribution Test			
38				Shapiro Wilk Test Statistic	0.89				Shapiro Wilk Test Statistic	0.876		
39				Shapiro Wilk Critical Value	0.788				Shapiro Wilk Critical Value	0.788		
40				Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
41												
42				Assuming Normal Distribution					Assuming Lognormal Distribution			
43				95% Student's-t UCL	3.341				95% H-UCL	3.386		
44				95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL	3.666		
45				95% Adjusted-CLT UCL	3.235				97.5% Chebyshev (MVUE) UCL	3.918		
46				95% Modified-t UCL	3.332				99% Chebyshev (MVUE) UCL	4.414		
47												
48				Gamma Distribution Test					Data Distribution			
49				k star (bias corrected)	54.98				Data appear Normal at 5% Significance Level			
50				Theta Star	0.0561							
51				nu star	659.7							
52				Approximate Chi Square Value (.05)	601.1				Nonparametric Statistics			
53				Adjusted Level of Significance	0.0122				95% CLT UCL	3.294		

54					Adjusted Chi Square Value	580.7					95% Jackknife UCL	3.341
55											95% Standard Bootstrap UCL	3.275
56					Anderson-Darling Test Statistic	0.418					95% Bootstrap-t UCL	3.278
57					Anderson-Darling 5% Critical Value	0.696					95% Hall's Bootstrap UCL	3.229
58					Kolmogorov-Smirnov Test Statistic	0.255					95% Percentile Bootstrap UCL	3.26
59					Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	3.245
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	3.642
61											97.5% Chebyshev(Mean, Sd) UCL	3.883
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	4.357
63					95% Approximate Gamma UCL	3.384						
64					95% Adjusted Gamma UCL	3.503						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	3.341
67												
68												
69	**Benzo(a)anthracene**											
70												
71					**General Statistics**							
72					Number of Valid Observations	6					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	11					Minimum of Log Data	2.398
76					Maximum	130					Maximum of Log Data	4.868
77					Mean	38.67					Mean of log Data	3.243
78					Median	23					SD of log Data	0.914
79					SD	45.58						
80					Coefficient of Variation	1.179						
81					Skewness	2.255						
82												
83												
84					**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 6 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.666					Shapiro Wilk Test Statistic	0.876
99					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
100					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	76.16					95% H-UCL	184.8
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	93.06
105					95% Adjusted-CLT UCL	87.57					97.5% Chebyshev (MVUE) UCL	117.9
106					95% Modified-t UCL	79.02					99% Chebyshev (MVUE) UCL	166.6

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	0.789	**Data appear Gamma Distributed at 5% Significance Level**					
110					Theta Star	48.98						
111					nu star	9.473						
112					Approximate Chi Square Value (.05)	3.615	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0122				95% CLT UCL	69.27	
114					Adjusted Chi Square Value	2.436				95% Jackknife UCL	76.16	
115										95% Standard Bootstrap UCL	66.38	
116					Anderson-Darling Test Statistic	0.606				95% Bootstrap-t UCL	182.9	
117					Anderson-Darling 5% Critical Value	0.71				95% Hall's Bootstrap UCL	211.5	
118					Kolmogorov-Smirnov Test Statistic	0.276				95% Percentile Bootstrap UCL	72.33	
119					Kolmogorov-Smirnov 5% Critical Value	0.338				95% BCA Bootstrap UCL	78.33	
120	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	119.8	
121										97.5% Chebyshev(Mean, Sd) UCL	154.9	
122	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	223.8	
123					95% Approximate Gamma UCL	101.3						
124					95% Adjusted Gamma UCL	150.4						
125												
126	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	101.3	
127												
128												
129	**Benzo(a)pyrene**											
130												
131	**General Statistics**											
132					Number of Valid Observations	6				Number of Distinct Observations	6	
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	12				Minimum of Log Data	2.485	
136					Maximum	89				Maximum of Log Data	4.489	
137					Mean	33.83				Mean of log Data	3.279	
138					Median	24.5				SD of log Data	0.73	
139					SD	28.69						
140					Coefficient of Variation	0.848						
141					Skewness	1.883						
142												
143												
144	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
145												
146	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
147	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
148												
149												
150	**Warning: There are only 6 Values in this data**											
151	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
152	**the resulting calculations may not be reliable enough to draw conclusions**											
153												
154	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
155												
156	**Relevant UCL Statistics**											
157	**Normal Distribution Test**						**Lognormal Distribution Test**					
158					Shapiro Wilk Test Statistic	0.779				Shapiro Wilk Test Statistic	0.936	
159					Shapiro Wilk Critical Value	0.788				Shapiro Wilk Critical Value	0.788	

160	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
161												
162	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
163				95% Student's-t UCL	57.43					95% H-UCL	100.5	
164	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	75.47	
165				95% Adjusted-CLT UCL	62.72					97.5% Chebyshev (MVUE) UCL	93.88	
166				95% Modified-t UCL	58.93					99% Chebyshev (MVUE) UCL	130	
167												
168	**Gamma Distribution Test**						**Data Distribution**					
169				k star (bias corrected)	1.218		**Data appear Gamma Distributed at 5% Significance Level**					
170				Theta Star	27.78							
171				nu star	14.61							
172				Approximate Chi Square Value (.05)	6.993		**Nonparametric Statistics**					
173				Adjusted Level of Significance	0.0122					95% CLT UCL	53.1	
174				Adjusted Chi Square Value	5.208					95% Jackknife UCL	57.43	
175										95% Standard Bootstrap UCL	51.85	
176				Anderson-Darling Test Statistic	0.386					95% Bootstrap-t UCL	101.6	
177				Anderson-Darling 5% Critical Value	0.704					95% Hall's Bootstrap UCL	150.4	
178				Kolmogorov-Smirnov Test Statistic	0.245					95% Percentile Bootstrap UCL	53.17	
179				Kolmogorov-Smirnov 5% Critical Value	0.336					95% BCA Bootstrap UCL	59.33	
180	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	84.88	
181										97.5% Chebyshev(Mean, Sd) UCL	107	
182	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	150.4	
183				95% Approximate Gamma UCL	70.7							
184				95% Adjusted Gamma UCL	94.93							
185												
186	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	70.7	
187												
188												
189	**Benzo(b)fluoranthene**											
190												
191	**General Statistics**											
192				Number of Valid Observations	6					Number of Distinct Observations	6	
193												
194	**Raw Statistics**						**Log-transformed Statistics**					
195				Minimum	17					Minimum of Log Data	2.833	
196				Maximum	140					Maximum of Log Data	4.942	
197				Mean	50.17					Mean of log Data	3.636	
198				Median	36					SD of log Data	0.78	
199				SD	46.11							
200				Coefficient of Variation	0.919							
201				Skewness	1.987							
202												
203												
204	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
205												
206	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
207	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
208												
209												
210	**Warning: There are only 6 Values in this data**											
211	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
212	**the resulting calculations may not be reliable enough to draw conclusions**											

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218					Shapiro Wilk Test Statistic	0.755					Shapiro Wilk Test Statistic	0.921
219					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
220	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223					95% Student's-t UCL	88.1					95% H-UCL	169.2
224	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	115.3
225					95% Adjusted-CLT UCL	97.44					97.5% Chebyshev (MVUE) UCL	144.2
226					95% Modified-t UCL	90.64					99% Chebyshev (MVUE) UCL	201
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229					k star (bias corrected)	1.082	**Data appear Gamma Distributed at 5% Significance Level**					
230					Theta Star	46.35						
231					nu star	12.99						
232					Approximate Chi Square Value (.05)	5.884	**Nonparametric Statistics**					
233					Adjusted Level of Significance	0.0122					95% CLT UCL	81.13
234					Adjusted Chi Square Value	4.279					95% Jackknife UCL	88.1
235											95% Standard Bootstrap UCL	79.37
236					Anderson-Darling Test Statistic	0.417					95% Bootstrap-t UCL	159.2
237					Anderson-Darling 5% Critical Value	0.705					95% Hall's Bootstrap UCL	222.9
238					Kolmogorov-Smirnov Test Statistic	0.216					95% Percentile Bootstrap UCL	81.67
239					Kolmogorov-Smirnov 5% Critical Value	0.336					95% BCA Bootstrap UCL	90.33
240	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	132.2
241											97.5% Chebyshev(Mean, Sd) UCL	167.7
242	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	237.5
243					95% Approximate Gamma UCL	110.7						
244					95% Adjusted Gamma UCL	152.3						
245												
246	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	110.7
247												
248												
249	**Benzo(k)fluoranthene**											
250												
251	**General Statistics**											
252					Number of Valid Observations	6					Number of Distinct Observations	6
253												
254	**Raw Statistics**						**Log-transformed Statistics**					
255					Minimum	5.5					Minimum of Log Data	1.705
256					Maximum	86					Maximum of Log Data	4.454
257					Mean	25.2					Mean of log Data	2.742
258					Median	15					SD of log Data	1.029
259					SD	30.63						
260					Coefficient of Variation	1.216						
261					Skewness	2.16						
262												
263												
264	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
265												

266	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
267	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
268												
269												
270	Warning: There are only 6 Values in this data											
271	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
272	the resulting calculations may not be reliable enough to draw conclusions											
273												
274	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
275												
276	Relevant UCL Statistics											
277	Normal Distribution Test						Lognormal Distribution Test					
278	Shapiro Wilk Test Statistic	0.703					Shapiro Wilk Test Statistic	0.921				
279	Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788				
280	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
281												
282	Assuming Normal Distribution						Assuming Lognormal Distribution					
283	95% Student's-t UCL	50.4					95% H-UCL	184.1				
284	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	65.81				
285	95% Adjusted-CLT UCL	57.56					97.5% Chebyshev (MVUE) UCL	84.11				
286	95% Modified-t UCL	52.24					99% Chebyshev (MVUE) UCL	120				
287												
288	Gamma Distribution Test						Data Distribution					
289	k star (bias corrected)	0.696					Data appear Gamma Distributed at 5% Significance Level					
290	Theta Star	36.2										
291	nu star	8.354										
292	Approximate Chi Square Value (.05)	2.942					Nonparametric Statistics					
293	Adjusted Level of Significance	0.0122					95% CLT UCL	45.77				
294	Adjusted Chi Square Value	1.912					95% Jackknife UCL	50.4				
295							95% Standard Bootstrap UCL	44.1				
296	Anderson-Darling Test Statistic	0.444					95% Bootstrap-t UCL	99.26				
297	Anderson-Darling 5% Critical Value	0.713					95% Hall's Bootstrap UCL	136.7				
298	Kolmogorov-Smirnov Test Statistic	0.231					95% Percentile Bootstrap UCL	47.83				
299	Kolmogorov-Smirnov 5% Critical Value	0.34					95% BCA Bootstrap UCL	52				
300	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	79.72				
301							97.5% Chebyshev(Mean, Sd) UCL	103.3				
302	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	149.6				
303	95% Approximate Gamma UCL	71.56										
304	95% Adjusted Gamma UCL	110.1										
305												
306	Potential UCL to Use						Use 95% Approximate Gamma UCL	71.56				
307												
308												
309	Dibenzo(a,h)anthracene											
310												
311	General Statistics											
312	Number of Valid Observations	6					Number of Distinct Observations	6				
313												
314	Raw Statistics						Log-transformed Statistics					
315	Minimum	1.8					Minimum of Log Data	0.588				
316	Maximum	14					Maximum of Log Data	2.639				
317	Mean	5.5					Mean of log Data	1.466				
318	Median	3.9					SD of log Data	0.733				

319					SD	4.518						
320					Coefficient of Variation	0.821						
321					Skewness	1.728						
322												
323												
324	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
325												
326	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
327	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
328												
329												
330	**Warning: There are only 6 Values in this data**											
331	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
332	**the resulting calculations may not be reliable enough to draw conclusions**											
333												
334	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
335												
336	**Relevant UCL Statistics**											
337	**Normal Distribution Test**						**Lognormal Distribution Test**					
338					Shapiro Wilk Test Statistic	0.811					Shapiro Wilk Test Statistic	0.962
339					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
340	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
341												
342	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
343					95% Student's-t UCL	9.216					95% H-UCL	16.58
344	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	12.37
345					95% Adjusted-CLT UCL	9.923					97.5% Chebyshev (MVUE) UCL	15.39
346					95% Modified-t UCL	9.433					99% Chebyshev (MVUE) UCL	21.33
347												
348	**Gamma Distribution Test**						**Data Distribution**					
349					k star (bias corrected)	1.234	**Data appear Normal at 5% Significance Level**					
350					Theta Star	4.455						
351					nu star	14.81						
352					Approximate Chi Square Value (.05)	7.132	**Nonparametric Statistics**					
353					Adjusted Level of Significance	0.0122					95% CLT UCL	8.534
354					Adjusted Chi Square Value	5.325					95% Jackknife UCL	9.216
355											95% Standard Bootstrap UCL	8.239
356					Anderson-Darling Test Statistic	0.328					95% Bootstrap-t UCL	17.5
357					Anderson-Darling 5% Critical Value	0.703					95% Hall's Bootstrap UCL	25.99
358					Kolmogorov-Smirnov Test Statistic	0.255					95% Percentile Bootstrap UCL	8.467
359					Kolmogorov-Smirnov 5% Critical Value	0.336					95% BCA Bootstrap UCL	9.967
360	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	13.54
361											97.5% Chebyshev(Mean, Sd) UCL	17.02
362	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	23.85
363					95% Approximate Gamma UCL	11.42						
364					95% Adjusted Gamma UCL	15.3						
365												
366	**Potential UCL to Use**										Use 95% Student's-t UCL	9.216
367												
368												
369	**Indeno(1,2,3-cd)pyrene**											
370												
371	**General Statistics**											

Number of Valid Observations	6	Number of Distinct Observations 6

Raw Statistics		Log-transformed Statistics	
Minimum	8.8	Minimum of Log Data	2.175
Maximum	72	Maximum of Log Data	4.277
Mean	27.47	Mean of log Data	3.062
Median	19.5	SD of log Data	0.749
SD	23.36		
Coefficient of Variation	0.851		
Skewness	1.818		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.797	Shapiro Wilk Test Statistic	0.96
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	46.69	95% H-UCL	85.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	62.29
95% Adjusted-CLT UCL	50.72	97.5% Chebyshev (MVUE) UCL	77.65
95% Modified-t UCL	47.86	99% Chebyshev (MVUE) UCL	107.8

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.184	**Data appear Normal at 5% Significance Level**	
Theta Star	23.2		
nu star	14.21		
Approximate Chi Square Value (.05)	6.712	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	43.15
Adjusted Chi Square Value	4.971	95% Jackknife UCL	46.69
		95% Standard Bootstrap UCL	41.83
Anderson-Darling Test Statistic	0.339	95% Bootstrap-t UCL	88.5
Anderson-Darling 5% Critical Value	0.704	95% Hall's Bootstrap UCL	126.2
Kolmogorov-Smirnov Test Statistic	0.248	95% Percentile Bootstrap UCL	43.33
Kolmogorov-Smirnov 5% Critical Value	0.336	95% BCA Bootstrap UCL	48.17
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	69.04
		97.5% Chebyshev(Mean, Sd) UCL	87.03
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	122.4
95% Approximate Gamma UCL	58.13		
95% Adjusted Gamma UCL	78.49		

425												
426	**Potential UCL to Use**									Use 95% Student's-t UCL	46.69	
427												
428												
429	**Lead**											
430												
431	**General Statistics**											
432	Number of Valid Observations				6			Number of Distinct Observations			6	
433												
434	**Raw Statistics**							**Log-transformed Statistics**				
435	Minimum				9.73			Minimum of Log Data			2.275	
436	Maximum				15.1			Maximum of Log Data			2.715	
437	Mean				12.01			Mean of log Data			2.475	
438	Median				11.45			SD of log Data			0.154	
439	SD				1.901							
440	Coefficient of Variation				0.158							
441	Skewness				0.816							
442												
443												
444	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
445												
446	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
447	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
448												
449												
450	**Warning: There are only 6 Values in this data**											
451	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
452	**the resulting calculations may not be reliable enough to draw conclusions**											
453												
454	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
455												
456	**Relevant UCL Statistics**											
457	**Normal Distribution Test**							**Lognormal Distribution Test**				
458	Shapiro Wilk Test Statistic				0.934			Shapiro Wilk Test Statistic			0.954	
459	Shapiro Wilk Critical Value				0.788			Shapiro Wilk Critical Value			0.788	
460	**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
461												
462	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
463	95% Student's-t UCL				13.57			95% H-UCL			13.81	
464	**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL			15.3	
465	95% Adjusted-CLT UCL				13.56			97.5% Chebyshev (MVUE) UCL			16.72	
466	95% Modified-t UCL				13.61			99% Chebyshev (MVUE) UCL			19.52	
467												
468	**Gamma Distribution Test**							**Data Distribution**				
469	k star (bias corrected)				25.02			**Data appear Normal at 5% Significance Level**				
470	Theta Star				0.48							
471	nu star				300.3							
472	Approximate Chi Square Value (.05)				261.1			**Nonparametric Statistics**				
473	Adjusted Level of Significance				0.0122			95% CLT UCL			13.28	
474	Adjusted Chi Square Value				247.9			95% Jackknife UCL			13.57	
475								95% Standard Bootstrap UCL			13.16	
476	Anderson-Darling Test Statistic				0.304			95% Bootstrap-t UCL			14.81	
477	Anderson-Darling 5% Critical Value				0.697			95% Hall's Bootstrap UCL			26.04	

478				Kolmogorov-Smirnov Test Statistic	0.267					95% Percentile Bootstrap UCL	13.27	
479				Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	13.29	
480				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	15.39	
481										97.5% Chebyshev(Mean, Sd) UCL	16.85	
482				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	19.73	
483				95% Approximate Gamma UCL	13.8							
484				95% Adjusted Gamma UCL	14.54							
485												
486				**Potential UCL to Use**						Use 95% Student's-t UCL	13.57	
487												
488												
489	**Mercury**											
490												
491				**General Statistics**								
492				Number of Valid Observations	6					Number of Distinct Observations	5	
493												
494				**Raw Statistics**						**Log-transformed Statistics**		
495				Minimum	0.044					Minimum of Log Data	-3.124	
496				Maximum	0.08					Maximum of Log Data	-2.526	
497				Mean	0.0612					Mean of log Data	-2.819	
498				Median	0.055					SD of log Data	0.242	
499				SD	0.0152							
500				Coefficient of Variation	0.248							
501				Skewness	0.625							
502												
503												
504				**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
505												
506				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
507				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
508												
509												
510				**Warning: There are only 6 Values in this data**								
511				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
512				**the resulting calculations may not be reliable enough to draw conclusions**								
513												
514				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
515												
516				**Relevant UCL Statistics**								
517				**Normal Distribution Test**						**Lognormal Distribution Test**		
518				Shapiro Wilk Test Statistic	0.831					Shapiro Wilk Test Statistic	0.865	
519				Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788	
520				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
521												
522				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
523				95% Student's-t UCL	0.0736					95% H-UCL	0.0774	
524				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.0875	
525				95% Adjusted-CLT UCL	0.073					97.5% Chebyshev (MVUE) UCL	0.0989	
526				95% Modified-t UCL	0.0739					99% Chebyshev (MVUE) UCL	0.121	
527												
528				**Gamma Distribution Test**						**Data Distribution**		
529				k star (bias corrected)	10.28					**Data appear Normal at 5% Significance Level**		
530				Theta Star	0.00595							

531					nu star	123.3						
532					Approximate Chi Square Value (.05)	98.69	**Nonparametric Statistics**					
533					Adjusted Level of Significance	0.0122				95% CLT UCL	0.0713	
534					Adjusted Chi Square Value	90.73				95% Jackknife UCL	0.0736	
535										95% Standard Bootstrap UCL	0.0704	
536					Anderson-Darling Test Statistic	0.563				95% Bootstrap-t UCL	0.0901	
537					Anderson-Darling 5% Critical Value	0.697				95% Hall's Bootstrap UCL	0.206	
538					Kolmogorov-Smirnov Test Statistic	0.291				95% Percentile Bootstrap UCL	0.0712	
539					Kolmogorov-Smirnov 5% Critical Value	0.332				95% BCA Bootstrap UCL	0.071	
540					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	0.0881	
541										97.5% Chebyshev(Mean, Sd) UCL	0.0998	
542					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	0.123	
543					95% Approximate Gamma UCL	0.0764						
544					95% Adjusted Gamma UCL	0.0831						
545												
546					**Potential UCL to Use**					Use 95% Student's-t UCL	0.0736	
547												
548												
549	**Total Aroclors**											
550												
551					**General Statistics**							
552					Number of Valid Observations	6				Number of Distinct Observations	6	
553												
554					**Raw Statistics**		**Log-transformed Statistics**					
555					Minimum	12.5				Minimum of Log Data	2.526	
556					Maximum	197.2				Maximum of Log Data	5.284	
557					Mean	51.52				Mean of log Data	3.401	
558					Median	23.49				SD of log Data	1.008	
559					SD	71.97						
560					Coefficient of Variation	1.397						
561					Skewness	2.36						
562												
563												
564	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
565												
566	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
567	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
568												
569												
570	**Warning: There are only 6 Values in this data**											
571	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
572	**the resulting calculations may not be reliable enough to draw conclusions**											
573												
574	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
575												
576	**Relevant UCL Statistics**											
577	**Normal Distribution Test**						**Lognormal Distribution Test**					
578					Shapiro Wilk Test Statistic	0.613				Shapiro Wilk Test Statistic	0.845	
579					Shapiro Wilk Critical Value	0.788				Shapiro Wilk Critical Value	0.788	
580	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
581												
582	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
583					95% Student's-t UCL	110.7				95% H-UCL	324.8	

584	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	123.8	
585	95% Adjusted-CLT UCL	130.1								97.5% Chebyshev (MVUE) UCL	158	
586	95% Modified-t UCL	115.4								99% Chebyshev (MVUE) UCL	225.1	
587												
588	**Gamma Distribution Test**									**Data Distribution**		
589	k star (bias corrected)	0.641								**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
590	Theta Star	80.34										
591	nu star	7.696										
592	Approximate Chi Square Value (.05)	2.56								**Nonparametric Statistics**		
593	Adjusted Level of Significance	0.0122								95% CLT UCL	99.85	
594	Adjusted Chi Square Value	1.622								95% Jackknife UCL	110.7	
595										95% Standard Bootstrap UCL	96.49	
596	Anderson-Darling Test Statistic	0.767								95% Bootstrap-t UCL	459.5	
597	Anderson-Darling 5% Critical Value	0.714								95% Hall's Bootstrap UCL	338.2	
598	Kolmogorov-Smirnov Test Statistic	0.317								95% Percentile Bootstrap UCL	107.9	
599	Kolmogorov-Smirnov 5% Critical Value	0.34								95% BCA Bootstrap UCL	115.7	
600	**Data follow Appr. Gamma Distribution at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	179.6	
601										97.5% Chebyshev(Mean, Sd) UCL	235	
602	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	343.9	
603	95% Approximate Gamma UCL	154.9										
604	95% Adjusted Gamma UCL	244.5										
605												
606	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	154.9	
607												
608												
609	**Total DDT**											
610												
611	**General Statistics**											
612	Number of Valid Data	6								Number of Detected Data	5	
613	Number of Distinct Detected Data	5								Number of Non-Detect Data	1	
614										Percent Non-Detects	16.67%	
615												
616	**Raw Statistics**									**Log-transformed Statistics**		
617	Minimum Detected	0.268								Minimum Detected	-1.319	
618	Maximum Detected	13.1								Maximum Detected	2.573	
619	Mean of Detected	3.333								Mean of Detected	0.158	
620	SD of Detected	5.515								SD of Detected	1.558	
621	Minimum Non-Detect	0.144								Minimum Non-Detect	-1.938	
622	Maximum Non-Detect	0.144								Maximum Non-Detect	-1.938	
623												
624												
625	**Warning: There are only 5 Detected Values in this data**											
626	**Note: It should be noted that even though bootstrap may be performed on this data set**											
627	**the resulting calculations may not be reliable enough tp draw conclusions**											
628												
629	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
630												
631												
632	**UCL Statistics**											
633	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
634	Shapiro Wilk Test Statistic	0.659								Shapiro Wilk Test Statistic	0.904	
635	5% Shapiro Wilk Critical Value	0.762								5% Shapiro Wilk Critical Value	0.762	
636	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		

637												
638	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
639	DL/2 Substitution Method						DL/2 Substitution Method					
640	Mean				2.79		Mean				-0.307	
641	SD				5.11		SD				1.799	
642	95% DL/2 (t) UCL				6.993		95% H-Stat (DL/2) UCL				494.6	
643												
644	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
645	Mean				2.211		Mean in Log Scale				-0.501	
646	SD				5.284		SD in Log Scale				2.132	
647	95% MLE (t) UCL				6.557		Mean in Original Scale				2.782	
648	95% MLE (Tiku) UCL				6.41		SD in Original Scale				5.115	
649							95% Percentile Bootstrap UCL				6.71	
650							95% BCA Bootstrap UCL				7.1	
651												
652	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
653	k star (bias corrected)				0.37		**Data appear Gamma Distributed at 5% Significance Level**					
654	Theta Star				9.008							
655	nu star				3.7							
656												
657	A-D Test Statistic				0.541		**Nonparametric Statistics**					
658	5% A-D Critical Value				0.706		Kaplan-Meier (KM) Method					
659	K-S Test Statistic				0.706		Mean				2.822	
660	5% K-S Critical Value				0.37		SD				4.646	
661	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean				2.121	
662							95% KM (t) UCL				7.096	
663	**Assuming Gamma Distribution**						95% KM (z) UCL				6.31	
664	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				6.993	
665	Minimum				1E-09		95% KM (bootstrap t) UCL				86.82	
666	Maximum				13.1		95% KM (BCA) UCL				6.828	
667	Mean				2.778		95% KM (Percentile Bootstrap) UCL				6.739	
668	Median				0.535		95% KM (Chebyshev) UCL				12.07	
669	SD				5.117		97.5% KM (Chebyshev) UCL				16.07	
670	k star				0.198		99% KM (Chebyshev) UCL				23.92	
671	Theta star				14.05							
672	Nu star				2.372		**Potential UCLs to Use**					
673	AppChi2				0.214		95% KM (Chebyshev) UCL				12.07	
674	95% Gamma Approximate UCL				30.84							
675	95% Adjusted Gamma UCL				63.66							
676	**Note: DL/2 is not a recommended method.**											
677												

1				**General UCL Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM10.5W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Arsenic**											
10												
11						**General Statistics**							
12				Number of Valid Observations	11				Number of Distinct Observations	11		
13												
14				**Raw Statistics**					**Log-transformed Statistics**			
15				Minimum	3.12				Minimum of Log Data	1.138		
16				Maximum	7.71				Maximum of Log Data	2.043		
17				Mean	3.974				Mean of log Data	1.346		
18				Median	3.49				SD of log Data	0.252		
19				SD	1.296							
20				Coefficient of Variation	0.326							
21				Skewness	2.851							
22												
23						**Relevant UCL Statistics**							
24				**Normal Distribution Test**					**Lognormal Distribution Test**			
25				Shapiro Wilk Test Statistic	0.592				Shapiro Wilk Test Statistic	0.687		
26				Shapiro Wilk Critical Value	0.85				Shapiro Wilk Critical Value	0.85		
27				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
28												
29				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
30				95% Student's-t UCL	4.682				95% H-UCL	4.612		
31				**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	5.267		
32				95% Adjusted-CLT UCL	4.975				97.5% Chebyshev (MVUE) UCL	5.836		
33				95% Modified-t UCL	4.738				99% Chebyshev (MVUE) UCL	6.953		
34												
35				**Gamma Distribution Test**					**Data Distribution**			
36				k star (bias corrected)	10.82				**Data do not follow a Discernable Distribution (0.05)**			
37				Theta Star	0.367							
38				nu star	238.1							
39				Approximate Chi Square Value (.05)	203.3				**Nonparametric Statistics**			
40				Adjusted Level of Significance	0.0278				95% CLT UCL	4.616		
41				Adjusted Chi Square Value	198.1				95% Jackknife UCL	4.682		
42									95% Standard Bootstrap UCL	4.577		
43				Anderson-Darling Test Statistic	1.578				95% Bootstrap-t UCL	6.851		
44				Anderson-Darling 5% Critical Value	0.729				95% Hall's Bootstrap UCL	7.458		
45				Kolmogorov-Smirnov Test Statistic	0.328				95% Percentile Bootstrap UCL	4.695		
46				Kolmogorov-Smirnov 5% Critical Value	0.255				95% BCA Bootstrap UCL	5.155		
47				**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	5.677		
48									97.5% Chebyshev(Mean, Sd) UCL	6.413		
49				**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	7.861		
50				95% Approximate Gamma UCL	4.652							
51				95% Adjusted Gamma UCL	4.775							
52												
53				**Potential UCL to Use**					Use 95% Student's-t UCL	4.682		

54											or 95% Modified-t UCL	4.738
55												
56												
57	**Benzo(a)anthracene**											
58												
59						**General Statistics**							
60					Number of Valid Observations	11					Number of Distinct Observations	11
61												
62					**Raw Statistics**						**Log-transformed Statistics**	
63					Minimum	4.7					Minimum of Log Data	1.548
64					Maximum	130					Maximum of Log Data	4.868
65					Mean	27.61					Mean of log Data	2.737
66					Median	12					SD of log Data	1.04
67					SD	37.74						
68					Coefficient of Variation	1.367						
69					Skewness	2.402						
70												
71						**Relevant UCL Statistics**						
72					**Normal Distribution Test**						**Lognormal Distribution Test**	
73					Shapiro Wilk Test Statistic	0.648					Shapiro Wilk Test Statistic	0.909
74					Shapiro Wilk Critical Value	0.85					Shapiro Wilk Critical Value	0.85
75					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
76												
77					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
78					95% Student's-t UCL	48.23					95% H-UCL	72.95
79					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	60.78
80					95% Adjusted-CLT UCL	55.13					97.5% Chebyshev (MVUE) UCL	76.35
81					95% Modified-t UCL	49.61					99% Chebyshev (MVUE) UCL	106.9
82												
83					**Gamma Distribution Test**						**Data Distribution**	
84					k star (bias corrected)	0.783					**Data appear Lognormal at 5% Significance Level**	
85					Theta Star	35.26						
86					nu star	17.23						
87					Approximate Chi Square Value (.05)	8.835					**Nonparametric Statistics**	
88					Adjusted Level of Significance	0.0278					95% CLT UCL	46.33
89					Adjusted Chi Square Value	7.874					95% Jackknife UCL	48.23
90											95% Standard Bootstrap UCL	45.81
91					Anderson-Darling Test Statistic	0.815					95% Bootstrap-t UCL	95.01
92					Anderson-Darling 5% Critical Value	0.752					95% Hall's Bootstrap UCL	115.8
93					Kolmogorov-Smirnov Test Statistic	0.286					95% Percentile Bootstrap UCL	45.82
94					Kolmogorov-Smirnov 5% Critical Value	0.262					95% BCA Bootstrap UCL	58.02
95					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	77.21
96											97.5% Chebyshev(Mean, Sd) UCL	98.67
97					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	140.8
98					95% Approximate Gamma UCL	53.84						
99					95% Adjusted Gamma UCL	60.41						
100												
101					**Potential UCL to Use**						Use 95% Chebyshev (MVUE) UCL	60.78
102												
103												
104	**Benzo(a)pyrene**											
105												
106						**General Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
107	Number of Valid Observations					11	Number of Distinct Observations					10
108												
109	**Raw Statistics**						**Log-transformed Statistics**					
110	Minimum					5.1	Minimum of Log Data					1.629
111	Maximum					110	Maximum of Log Data					4.7
112	Mean					26.43	Mean of log Data					2.812
113	Median					14	SD of log Data					0.957
114	SD					31.13						
115	Coefficient of Variation					1.178						
116	Skewness					2.283						
117												
118	**Relevant UCL Statistics**											
119	**Normal Distribution Test**						**Lognormal Distribution Test**					
120	Shapiro Wilk Test Statistic					0.7	Shapiro Wilk Test Statistic					0.943
121	Shapiro Wilk Critical Value					0.85	Shapiro Wilk Critical Value					0.85
122	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
123												
124	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
125	95% Student's-t UCL					43.44	95% H-UCL					63.61
126	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					58
127	95% Adjusted-CLT UCL					48.77	97.5% Chebyshev (MVUE) UCL					72.32
128	95% Modified-t UCL					44.52	99% Chebyshev (MVUE) UCL					100.5
129												
130	**Gamma Distribution Test**						**Data Distribution**					
131	k star (bias corrected)					0.948	**Data appear Gamma Distributed at 5% Significance Level**					
132	Theta Star					27.88						
133	nu star					20.85						
134	Approximate Chi Square Value (.05)					11.48	**Nonparametric Statistics**					
135	Adjusted Level of Significance					0.0278	95% CLT UCL					41.87
136	Adjusted Chi Square Value					10.37	95% Jackknife UCL					43.44
137							95% Standard Bootstrap UCL					41.08
138	Anderson-Darling Test Statistic					0.54	95% Bootstrap-t UCL					69.25
139	Anderson-Darling 5% Critical Value					0.747	95% Hall's Bootstrap UCL					99.1
140	Kolmogorov-Smirnov Test Statistic					0.201	95% Percentile Bootstrap UCL					42.75
141	Kolmogorov-Smirnov 5% Critical Value					0.261	95% BCA Bootstrap UCL					50.06
142	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					67.35
143							97.5% Chebyshev(Mean, Sd) UCL					85.05
144	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					119.8
145	95% Approximate Gamma UCL					47.99						
146	95% Adjusted Gamma UCL					53.17						
147												
148	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					47.99
149												
150												
151	**Benzo(b)fluoranthene**											
152												
153	**General Statistics**											
154	Number of Valid Observations					11	Number of Distinct Observations					11
155												
156	**Raw Statistics**						**Log-transformed Statistics**					
157	Minimum					5.5	Minimum of Log Data					1.705
158	Maximum					150	Maximum of Log Data					5.011
159	Mean					35.39	Mean of log Data					3.016

160					Median	18				SD of log Data	1.075	
161					SD	43.27						
162					Coefficient of Variation	1.223						
163					Skewness	2.173						
164												
165					**Relevant UCL Statistics**							
166					**Normal Distribution Test**					**Lognormal Distribution Test**		
167					Shapiro Wilk Test Statistic	0.715				Shapiro Wilk Test Statistic	0.942	
168					Shapiro Wilk Critical Value	0.85				Shapiro Wilk Critical Value	0.85	
169					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
170												
171					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
172					95% Student's-t UCL	59.04				95% H-UCL	105.8	
173					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	84.56	
174					95% Adjusted-CLT UCL	65.99				97.5% Chebyshev (MVUE) UCL	106.5	
175					95% Modified-t UCL	60.46				99% Chebyshev (MVUE) UCL	149.7	
176												
177					**Gamma Distribution Test**					**Data Distribution**		
178					k star (bias corrected)	0.82				**Data appear Gamma Distributed at 5% Significance Level**		
179					Theta Star	43.19						
180					nu star	18.03						
181					Approximate Chi Square Value (.05)	9.412				**Nonparametric Statistics**		
182					Adjusted Level of Significance	0.0278				95% CLT UCL	56.85	
183					Adjusted Chi Square Value	8.415				95% Jackknife UCL	59.04	
184										95% Standard Bootstrap UCL	55.86	
185					Anderson-Darling Test Statistic	0.482				95% Bootstrap-t UCL	84.86	
186					Anderson-Darling 5% Critical Value	0.751				95% Hall's Bootstrap UCL	127.8	
187					Kolmogorov-Smirnov Test Statistic	0.199				95% Percentile Bootstrap UCL	57.44	
188					Kolmogorov-Smirnov 5% Critical Value	0.262				95% BCA Bootstrap UCL	68.45	
189					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	92.26	
190										97.5% Chebyshev(Mean, Sd) UCL	116.9	
191					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	165.2	
192					95% Approximate Gamma UCL	67.79						
193					95% Adjusted Gamma UCL	75.83						
194												
195					**Potential UCL to Use**					Use 95% Approximate Gamma UCL	67.79	
196												
197												
198	**Benzo(k)fluoranthene**											
199												
200					**General Statistics**							
201					Number of Valid Observations	11				Number of Distinct Observations	11	
202												
203					**Raw Statistics**					**Log-transformed Statistics**		
204					Minimum	4.3				Minimum of Log Data	1.459	
205					Maximum	42				Maximum of Log Data	3.738	
206					Mean	12.82				Mean of log Data	2.277	
207					Median	7.6				SD of log Data	0.726	
208					SD	11.52						
209					Coefficient of Variation	0.898						
210					Skewness	1.944						
211												
212					**Relevant UCL Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
213	**Normal Distribution Test**						**Lognormal Distribution Test**					
214					Shapiro Wilk Test Statistic	0.741					Shapiro Wilk Test Statistic	0.902
215					Shapiro Wilk Critical Value	0.85					Shapiro Wilk Critical Value	0.85
216	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
217												
218	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
219					95% Student's-t UCL	19.11					95% H-UCL	22.57
220	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	24.56
221					95% Adjusted-CLT UCL	20.7					97.5% Chebyshev (MVUE) UCL	29.85
222					95% Modified-t UCL	19.45					99% Chebyshev (MVUE) UCL	40.24
223												
224	**Gamma Distribution Test**						**Data Distribution**					
225					k star (bias corrected)	1.499	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
226					Theta Star	8.554						
227					nu star	32.97						
228					Approximate Chi Square Value (.05)	20.84	**Nonparametric Statistics**					
229					Adjusted Level of Significance	0.0278					95% CLT UCL	18.53
230					Adjusted Chi Square Value	19.28					95% Jackknife UCL	19.11
231											95% Standard Bootstrap UCL	18.27
232					Anderson-Darling Test Statistic	0.722					95% Bootstrap-t UCL	25.53
233					Anderson-Darling 5% Critical Value	0.739					95% Hall's Bootstrap UCL	27.59
234					Kolmogorov-Smirnov Test Statistic	0.28					95% Percentile Bootstrap UCL	18.64
235					Kolmogorov-Smirnov 5% Critical Value	0.259					95% BCA Bootstrap UCL	20.83
236	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	27.95
237											97.5% Chebyshev(Mean, Sd) UCL	34.5
238	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	47.37
239					95% Approximate Gamma UCL	20.28						
240					95% Adjusted Gamma UCL	21.92						
241												
242	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	20.28
243												
244												
245	**Bis(2-ethylhexyl) phthalate**											
246												
247	**General Statistics**											
248					Number of Valid Data	11					Number of Detected Data	7
249					Number of Distinct Detected Data	7					Number of Non-Detect Data	4
250											Percent Non-Detects	36.36%
251												
252	**Raw Statistics**						**Log-transformed Statistics**					
253					Minimum Detected	90					Minimum Detected	4.5
254					Maximum Detected	590					Maximum Detected	6.38
255					Mean of Detected	178.4					Mean of Detected	4.93
256					SD of Detected	182.2					SD of Detected	0.656
257					Minimum Non-Detect	63					Minimum Non-Detect	4.143
258					Maximum Non-Detect	220					Maximum Non-Detect	5.394
259												
260	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
261	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
262	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	90.91%
263												
264	**Warning: There are only 7 Detected Values in this data**											
265	**Note: It should be noted that even though bootstrap may be performed on this data set**											

	A	B	C	D	E	F	G	H	I	J	K	L
266	the resulting calculations may not be reliable enough tp draw conclusions											
267												
268	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
269												
270												
271	UCL Statistics											
272	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
273					Shapiro Wilk Test Statistic	0.536				Shapiro Wilk Test Statistic		0.658
274					5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value		0.803
275	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
276												
277	Assuming Normal Distribution						Assuming Lognormal Distribution					
278					DL/2 Substitution Method					DL/2 Substitution Method		
279					Mean	136.6				Mean		4.609
280					SD	153.7				SD		0.735
281					95% DL/2 (t) UCL	220.6				95% H-Stat (DL/2) UCL		268.1
282												
283					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
284	MLE method failed to converge properly									Mean in Log Scale		4.648
285										SD in Log Scale		0.681
286										Mean in Original Scale		138.3
287										SD in Original Scale		152.5
288										95% Percentile Bootstrap UCL		225
289										95% BCA Bootstrap UCL		274.6
290												
291	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
292					k star (bias corrected)	1.306	Data do not follow a Discernable Distribution (0.05)					
293					Theta Star	136.6						
294					nu star	18.28						
295												
296					A-D Test Statistic	1.397	Nonparametric Statistics					
297					5% A-D Critical Value	0.715				Kaplan-Meier (KM) Method		
298					K-S Test Statistic	0.715				Mean		148.5
299					5% K-S Critical Value	0.315				SD		140.5
300	Data not Gamma Distributed at 5% Significance Level									SE of Mean		45.79
301										95% KM (t) UCL		231.5
302	Assuming Gamma Distribution									95% KM (z) UCL		223.8
303					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		227.6
304					Minimum	18.25				95% KM (bootstrap t) UCL		762.3
305					Maximum	590				95% KM (BCA) UCL		245
306					Mean	157.1				95% KM (Percentile Bootstrap) UCL		235
307					Median	110				95% KM (Chebyshev) UCL		348.1
308					SD	152.6				97.5% KM (Chebyshev) UCL		434.5
309					k star	1.336				99% KM (Chebyshev) UCL		604.1
310					Theta star	117.6						
311					Nu star	29.38	Potential UCLs to Use					
312					AppChi2	18.01				95% KM (BCA) UCL		245
313					95% Gamma Approximate UCL	256.3						
314					95% Adjusted Gamma UCL	278.5						
315	Note: DL/2 is not a recommended method.											
316												
317												
318	Dibenzo(a,h)anthracene											

	A	B	C	D	E	F	G	H	I	J	K	L
319												
320	**General Statistics**											
321	Number of Valid Observations					11	Number of Distinct Observations					11
322												
323	**Raw Statistics**						**Log-transformed Statistics**					
324	Minimum					0.98	Minimum of Log Data					-0.0202
325	Maximum					20	Maximum of Log Data					2.996
326	Mean					4.407	Mean of log Data					1.04
327	Median					2.2	SD of log Data					0.909
328	SD					5.487						
329	Coefficient of Variation					1.245						
330	Skewness					2.699						
331												
332	**Relevant UCL Statistics**											
333	**Normal Distribution Test**						**Lognormal Distribution Test**					
334	Shapiro Wilk Test Statistic					0.632	Shapiro Wilk Test Statistic					0.927
335	Shapiro Wilk Critical Value					0.85	Shapiro Wilk Critical Value					0.85
336	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
337												
338	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
339	95% Student's-t UCL					7.406	95% H-UCL					9.631
340	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					9.195
341	95% Adjusted-CLT UCL					8.567	97.5% Chebyshev (MVUE) UCL					11.41
342	95% Modified-t UCL					7.63	99% Chebyshev (MVUE) UCL					15.77
343												
344	**Gamma Distribution Test**						**Data Distribution**					
345	k star (bias corrected)					0.983	**Data appear Gamma Distributed at 5% Significance Level**					
346	Theta Star					4.486						
347	nu star					21.62						
348	Approximate Chi Square Value (.05)					12.05	**Nonparametric Statistics**					
349	Adjusted Level of Significance					0.0278	95% CLT UCL					7.128
350	Adjusted Chi Square Value					10.9	95% Jackknife UCL					7.406
351							95% Standard Bootstrap UCL					7.079
352	Anderson-Darling Test Statistic					0.635	95% Bootstrap-t UCL					12.41
353	Anderson-Darling 5% Critical Value					0.747	95% Hall's Bootstrap UCL					16.45
354	Kolmogorov-Smirnov Test Statistic					0.197	95% Percentile Bootstrap UCL					7.482
355	Kolmogorov-Smirnov 5% Critical Value					0.261	95% BCA Bootstrap UCL					9.1
356	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					11.62
357							97.5% Chebyshev(Mean, Sd) UCL					14.74
358	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					20.87
359	95% Approximate Gamma UCL					7.906						
360	95% Adjusted Gamma UCL					8.738						
361												
362	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					7.906
363												
364												
365	**Indeno(1,2,3-cd)pyrene**											
366												
367	**General Statistics**											
368	Number of Valid Observations					11	Number of Distinct Observations					10
369												
370	**Raw Statistics**						**Log-transformed Statistics**					
371	Minimum					4.6	Minimum of Log Data					1.526

372					Maximum	93				Maximum of Log Data		4.533
373					Mean	21.52				Mean of log Data		2.672
374					Median	12				SD of log Data		0.867
375					SD	25.21						
376					Coefficient of Variation	1.171						
377					Skewness	2.678						
378												
379	**Relevant UCL Statistics**											
380	**Normal Distribution Test**						**Lognormal Distribution Test**					
381					Shapiro Wilk Test Statistic	0.644				Shapiro Wilk Test Statistic		0.943
382					Shapiro Wilk Critical Value	0.85				Shapiro Wilk Critical Value		0.85
383	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
384												
385	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
386					95% Student's-t UCL	35.29				95% H-UCL		44.73
387	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		44.28
388					95% Adjusted-CLT UCL	40.58				97.5% Chebyshev (MVUE) UCL		54.72
389					95% Modified-t UCL	36.32				99% Chebyshev (MVUE) UCL		75.22
390												
391	**Gamma Distribution Test**						**Data Distribution**					
392					k star (bias corrected)	1.081	**Data appear Gamma Distributed at 5% Significance Level**					
393					Theta Star	19.91						
394					nu star	23.78						
395					Approximate Chi Square Value (.05)	13.68	**Nonparametric Statistics**					
396					Adjusted Level of Significance	0.0278				95% CLT UCL		34.02
397					Adjusted Chi Square Value	12.45				95% Jackknife UCL		35.29
398										95% Standard Bootstrap UCL		33.49
399					Anderson-Darling Test Statistic	0.59				95% Bootstrap-t UCL		58.36
400					Anderson-Darling 5% Critical Value	0.744				95% Hall's Bootstrap UCL		79.28
401					Kolmogorov-Smirnov Test Statistic	0.194				95% Percentile Bootstrap UCL		34.85
402					Kolmogorov-Smirnov 5% Critical Value	0.26				95% BCA Bootstrap UCL		41.64
403	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		54.64
404										97.5% Chebyshev(Mean, Sd) UCL		68.98
405	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		97.13
406					95% Approximate Gamma UCL	37.4						
407					95% Adjusted Gamma UCL	41.11						
408												
409	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		37.4
410												
411												
412	**Lead**											
413												
414	**General Statistics**											
415					Number of Valid Observations	11				Number of Distinct Observations		11
416												
417	**Raw Statistics**						**Log-transformed Statistics**					
418					Minimum	10.3				Minimum of Log Data		2.332
419					Maximum	18				Maximum of Log Data		2.89
420					Mean	12.91				Mean of log Data		2.546
421					Median	12.7				SD of log Data		0.161
422					SD	2.193						
423					Coefficient of Variation	0.17						
424					Skewness	1.217						

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426	**Relevant UCL Statistics**											
427	**Normal Distribution Test**						**Lognormal Distribution Test**					
428	Shapiro Wilk Test Statistic					0.913	Shapiro Wilk Test Statistic					0.952
429	Shapiro Wilk Critical Value					0.85	Shapiro Wilk Critical Value					0.85
430	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
431												
432	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
433	95% Student's-t UCL					14.11	95% H-UCL					14.18
434	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					15.64
435	95% Adjusted-CLT UCL					14.26	97.5% Chebyshev (MVUE) UCL					16.82
436	95% Modified-t UCL					14.15	99% Chebyshev (MVUE) UCL					19.14
437												
438	**Gamma Distribution Test**						**Data Distribution**					
439	k star (bias corrected)					30.09	**Data appear Normal at 5% Significance Level**					
440	Theta Star					0.429						
441	nu star					662						
442	Approximate Chi Square Value (.05)					603.3	**Nonparametric Statistics**					
443	Adjusted Level of Significance					0.0278	95% CLT UCL					14
444	Adjusted Chi Square Value					594.2	95% Jackknife UCL					14.11
445							95% Standard Bootstrap UCL					13.92
446	Anderson-Darling Test Statistic					0.272	95% Bootstrap-t UCL					14.57
447	Anderson-Darling 5% Critical Value					0.728	95% Hall's Bootstrap UCL					15
448	Kolmogorov-Smirnov Test Statistic					0.131	95% Percentile Bootstrap UCL					14
449	Kolmogorov-Smirnov 5% Critical Value					0.255	95% BCA Bootstrap UCL					14.14
450	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					15.79
451							97.5% Chebyshev(Mean, Sd) UCL					17.04
452	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					19.49
453	95% Approximate Gamma UCL					14.16						
454	95% Adjusted Gamma UCL					14.38						
455												
456	**Potential UCL to Use**						Use 95% Student's-t UCL					14.11
457												
458												
459	**Mercury**											
460												
461	**General Statistics**											
462	Number of Valid Observations					11	Number of Distinct Observations					10
463												
464	**Raw Statistics**						**Log-transformed Statistics**					
465	Minimum					0.05	Minimum of Log Data					-2.996
466	Maximum					0.099	Maximum of Log Data					-2.313
467	Mean					0.0689	Mean of log Data					-2.695
468	Median					0.068	SD of log Data					0.206
469	SD					0.0148						
470	Coefficient of Variation					0.215						
471	Skewness					0.958						
472												
473	**Relevant UCL Statistics**											
474	**Normal Distribution Test**						**Lognormal Distribution Test**					
475	Shapiro Wilk Test Statistic					0.907	Shapiro Wilk Test Statistic					0.945
476	Shapiro Wilk Critical Value					0.85	Shapiro Wilk Critical Value					0.85
477	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

478												
479	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
480					95% Student's-t UCL	0.077					95% H-UCL	0.0779
481	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.0876
482					95% Adjusted-CLT UCL	0.0777					97.5% Chebyshev (MVUE) UCL	0.0957
483					95% Modified-t UCL	0.0772					99% Chebyshev (MVUE) UCL	0.112
484												
485	**Gamma Distribution Test**						**Data Distribution**					
486					k star (bias corrected)	18.57	**Data appear Normal at 5% Significance Level**					
487					Theta Star	0.00371						
488					nu star	408.4						
489					Approximate Chi Square Value (.05)	362.6	**Nonparametric Statistics**					
490					Adjusted Level of Significance	0.0278					95% CLT UCL	0.0763
491					Adjusted Chi Square Value	355.6					95% Jackknife UCL	0.077
492											95% Standard Bootstrap UCL	0.076
493					Anderson-Darling Test Statistic	0.381					95% Bootstrap-t UCL	0.081
494					Anderson-Darling 5% Critical Value	0.729					95% Hall's Bootstrap UCL	0.0907
495					Kolmogorov-Smirnov Test Statistic	0.178					95% Percentile Bootstrap UCL	0.076
496					Kolmogorov-Smirnov 5% Critical Value	0.255					95% BCA Bootstrap UCL	0.0771
497	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0884
498											97.5% Chebyshev(Mean, Sd) UCL	0.0969
499	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.113
500					95% Approximate Gamma UCL	0.0776						
501					95% Adjusted Gamma UCL	0.0792						
502												
503	**Potential UCL to Use**										Use 95% Student's-t UCL	0.077
504												
505												
506	**Total Aroclors**											
507												
508	**General Statistics**											
509					Number of Valid Observations	11					Number of Distinct Observations	11
510												
511	**Raw Statistics**						**Log-transformed Statistics**					
512					Minimum	16.18					Minimum of Log Data	2.784
513					Maximum	55.75					Maximum of Log Data	4.021
514					Mean	31.74					Mean of log Data	3.38
515					Median	27.2					SD of log Data	0.413
516					SD	13.25						
517					Coefficient of Variation	0.417						
518					Skewness	0.669						
519												
520	**Relevant UCL Statistics**											
521	**Normal Distribution Test**						**Lognormal Distribution Test**					
522					Shapiro Wilk Test Statistic	0.914					Shapiro Wilk Test Statistic	0.949
523					Shapiro Wilk Critical Value	0.85					Shapiro Wilk Critical Value	0.85
524	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
525												
526	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
527					95% Student's-t UCL	38.98					95% H-UCL	41.9
528	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	49.19
529					95% Adjusted-CLT UCL	39.17					97.5% Chebyshev (MVUE) UCL	56.75
530					95% Modified-t UCL	39.12					99% Chebyshev (MVUE) UCL	71.6

531												
532	**Gamma Distribution Test**						**Data Distribution**					
533					k star (bias corrected)	4.853	**Data appear Normal at 5% Significance Level**					
534					Theta Star	6.541						
535					nu star	106.8						
536					Approximate Chi Square Value (.05)	83.91	**Nonparametric Statistics**					
537					Adjusted Level of Significance	0.0278				95% CLT UCL	38.31	
538					Adjusted Chi Square Value	80.61				95% Jackknife UCL	38.98	
539										95% Standard Bootstrap UCL	37.89	
540					Anderson-Darling Test Statistic	0.327				95% Bootstrap-t UCL	40.81	
541					Anderson-Darling 5% Critical Value	0.731				95% Hall's Bootstrap UCL	38.84	
542					Kolmogorov-Smirnov Test Statistic	0.146				95% Percentile Bootstrap UCL	38.36	
543					Kolmogorov-Smirnov 5% Critical Value	0.256				95% BCA Bootstrap UCL	39.07	
544	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	49.16	
545										97.5% Chebyshev(Mean, Sd) UCL	56.69	
546	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	71.49	
547					95% Approximate Gamma UCL	40.38						
548					95% Adjusted Gamma UCL	42.03						
549												
550	**Potential UCL to Use**									Use 95% Student's-t UCL	38.98	
551												
552												
553	**Total DDT**											
554												
555	**General Statistics**											
556					Number of Valid Data	11				Number of Detected Data	8	
557					Number of Distinct Detected Data	8				Number of Non-Detect Data	3	
558										Percent Non-Detects	27.27%	
559												
560	**Raw Statistics**						**Log-transformed Statistics**					
561					Minimum Detected	0.299				Minimum Detected	-1.207	
562					Maximum Detected	6				Maximum Detected	1.792	
563					Mean of Detected	2.07				Mean of Detected	0.305	
564					SD of Detected	1.938				SD of Detected	1.03	
565					Minimum Non-Detect	0.404				Minimum Non-Detect	-0.906	
566					Maximum Non-Detect	1.7				Maximum Non-Detect	0.531	
567												
568	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	8	
569	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	3	
570	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	72.73%	
571												
572	**Warning: There are only 8 Detected Values in this data**											
573	**Note: It should be noted that even though bootstrap may be performed on this data set**											
574	**the resulting calculations may not be reliable enough tp draw conclusions**											
575												
576	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
577												
578												
579	**UCL Statistics**											
580	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
581					Shapiro Wilk Test Statistic	0.861				Shapiro Wilk Test Statistic	0.973	
582					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value	0.818	
583	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

584												
585	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
586				DL/2 Substitution Method						DL/2 Substitution Method		
587				Mean		1.669				Mean		0.0354
588				SD		1.768				SD		1.041
589				95% DL/2 (t) UCL		2.635				95% H-Stat (DL/2) UCL		3.412
590												
591				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
592	**MLE yields a negative mean**									Mean in Log Scale		0.0006944
593										SD in Log Scale		1.032
594										Mean in Original Scale		1.636
595										SD in Original Scale		1.786
596										95% Percentile Bootstrap UCL		2.537
597										95% BCA Bootstrap UCL		2.753
598												
599	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
600				k star (bias corrected)		0.912	**Data appear Normal at 5% Significance Level**					
601				Theta Star		2.27						
602				nu star		14.59						
603												
604				A-D Test Statistic		0.216	**Nonparametric Statistics**					
605				5% A-D Critical Value		0.731				Kaplan-Meier (KM) Method		
606				K-S Test Statistic		0.731				Mean		1.652
607				5% K-S Critical Value		0.3				SD		1.701
608	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.552
609										95% KM (t) UCL		2.652
610	**Assuming Gamma Distribution**									95% KM (z) UCL		2.56
611				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		2.624
612				Minimum		0.299				95% KM (bootstrap t) UCL		3.29
613				Maximum		6				95% KM (BCA) UCL		2.723
614				Mean		1.962				95% KM (Percentile Bootstrap) UCL		2.665
615				Median		1.685				95% KM (Chebyshev) UCL		4.057
616				SD		1.646				97.5% KM (Chebyshev) UCL		5.097
617				k star		1.304				99% KM (Chebyshev) UCL		7.141
618				Theta star		1.504						
619				Nu star		28.69	**Potential UCLs to Use**					
620				AppChi2		17.46				95% KM (t) UCL		2.652
621				95% Gamma Approximate UCL		3.222				95% KM (Percentile Bootstrap) UCL		2.665
622				95% Adjusted Gamma UCL		3.506						
623	**Note: DL/2 is not a recommended method.**											
624												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM11.0E.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Arsenic											
10												
11					General Statistics							
12				Number of Valid Observations	5			Number of Distinct Observations	5			
13												
14				Raw Statistics				Log-transformed Statistics				
15				Minimum	2.15			Minimum of Log Data	0.765			
16				Maximum	3.34			Maximum of Log Data	1.206			
17				Mean	2.708			Mean of log Data	0.98			
18				Median	2.84			SD of log Data	0.2			
19				SD	0.531							
20				Coefficient of Variation	0.196							
21				Skewness	-0.106							
22												
23												
24				Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!								
25												
26				It is suggested to collect at least 8 to 10 observations using these statistical methods!								
27				If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.								
28												
29												
30				Warning: There are only 5 Values in this data								
31				Note: It should be noted that even though bootstrap methods may be performed on this data set,								
32				the resulting calculations may not be reliable enough to draw conclusions								
33												
34				The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.								
35												
36					Relevant UCL Statistics							
37				Normal Distribution Test				Lognormal Distribution Test				
38				Shapiro Wilk Test Statistic	0.888			Shapiro Wilk Test Statistic	0.871			
39				Shapiro Wilk Critical Value	0.762			Shapiro Wilk Critical Value	0.762			
40				Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level				
41												
42				Assuming Normal Distribution				Assuming Lognormal Distribution				
43				95% Student's-t UCL	3.214			95% H-UCL	3.39			
44				95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	3.765			
45				95% Adjusted-CLT UCL	3.087			97.5% Chebyshev (MVUE) UCL	4.223			
46				95% Modified-t UCL	3.212			99% Chebyshev (MVUE) UCL	5.121			
47												
48				Gamma Distribution Test				Data Distribution				
49				k star (bias corrected)	12.82			Data appear Normal at 5% Significance Level				
50				Theta Star	0.211							
51				nu star	128.2							
52				Approximate Chi Square Value (.05)	103.1			Nonparametric Statistics				
53				Adjusted Level of Significance	0.0086			95% CLT UCL	3.099			

54					Adjusted Chi Square Value	93.2					95% Jackknife UCL	3.214
55											95% Standard Bootstrap UCL	3.054
56					Anderson-Darling Test Statistic	0.432					95% Bootstrap-t UCL	3.207
57					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	2.943
58					Kolmogorov-Smirnov Test Statistic	0.273					95% Percentile Bootstrap UCL	3.06
59					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	3.02
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	3.743
61											97.5% Chebyshev(Mean, Sd) UCL	4.191
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	5.071
63					95% Approximate Gamma UCL	3.369						
64					95% Adjusted Gamma UCL	3.725						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	3.214
67												
68												
69	**Benzo(a)anthracene**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	25					Minimum of Log Data	3.219
76					Maximum	220					Maximum of Log Data	5.394
77					Mean	83.4					Mean of log Data	4.124
78					Median	46					SD of log Data	0.827
79					SD	79.22						
80					Coefficient of Variation	0.95						
81					Skewness	1.87						
82												
83												
84	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
85												
86	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
87	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
88												
89												
90	**Warning: There are only 5 Values in this data**											
91	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
92	**the resulting calculations may not be reliable enough to draw conclusions**											
93												
94	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
95												
96	**Relevant UCL Statistics**											
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.772					Shapiro Wilk Test Statistic	0.94
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	158.9					95% H-UCL	489.1
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	206.4
105					95% Adjusted-CLT UCL	173.3					97.5% Chebyshev (MVUE) UCL	261
106					95% Modified-t UCL	163.9					99% Chebyshev (MVUE) UCL	368.1

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	0.861	**Data appear Normal at 5% Significance Level**					
110					Theta Star	96.88						
111					nu star	8.609						
112					Approximate Chi Square Value (.05)	3.092	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0086				95% CLT UCL	141.7	
114					Adjusted Chi Square Value	1.838				95% Jackknife UCL	158.9	
115										95% Standard Bootstrap UCL	135.5	
116					Anderson-Darling Test Statistic	0.408				95% Bootstrap-t UCL	448.8	
117					Anderson-Darling 5% Critical Value	0.685				95% Hall's Bootstrap UCL	522	
118					Kolmogorov-Smirnov Test Statistic	0.281				95% Percentile Bootstrap UCL	145.6	
119					Kolmogorov-Smirnov 5% Critical Value	0.361				95% BCA Bootstrap UCL	153.6	
120	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	237.8	
121										97.5% Chebyshev(Mean, Sd) UCL	304.6	
122	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	435.9	
123					95% Approximate Gamma UCL	232.2						
124					95% Adjusted Gamma UCL	390.6						
125												
126	**Potential UCL to Use**									Use 95% Student's-t UCL	158.9	
127												
128												
129	**Benzo(a)pyrene**											
130												
131	**General Statistics**											
132					Number of Valid Observations	5				Number of Distinct Observations	5	
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	32				Minimum of Log Data	3.466	
136					Maximum	120				Maximum of Log Data	4.787	
137					Mean	55.4				Mean of log Data	3.886	
138					Median	43				SD of log Data	0.521	
139					SD	36.47						
140					Coefficient of Variation	0.658						
141					Skewness	2.125						
142												
143												
144	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
145												
146	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
147	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
148												
149												
150	**Warning: There are only 5 Values in this data**											
151	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
152	**the resulting calculations may not be reliable enough to draw conclusions**											
153												
154	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
155												
156	**Relevant UCL Statistics**											
157	**Normal Distribution Test**						**Lognormal Distribution Test**					
158					Shapiro Wilk Test Statistic	0.686				Shapiro Wilk Test Statistic	0.788	
159					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	

160	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
161												
162	Assuming Normal Distribution						Assuming Lognormal Distribution					
163					95% Student's-t UCL	90.17					95% H-UCL	122.5
164	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	108.8
165					95% Adjusted-CLT UCL	98.8					97.5% Chebyshev (MVUE) UCL	132.4
166					95% Modified-t UCL	92.76					99% Chebyshev (MVUE) UCL	178.8
167												
168	Gamma Distribution Test						Data Distribution					
169					k star (bias corrected)	1.757	Data appear Lognormal at 5% Significance Level					
170					Theta Star	31.52						
171					nu star	17.57						
172					Approximate Chi Square Value (.05)	9.083	Nonparametric Statistics					
173					Adjusted Level of Significance	0.0086					95% CLT UCL	82.23
174					Adjusted Chi Square Value	6.586					95% Jackknife UCL	90.17
175											95% Standard Bootstrap UCL	79.78
176					Anderson-Darling Test Statistic	0.749					95% Bootstrap-t UCL	206.7
177					Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	247
178					Kolmogorov-Smirnov Test Statistic	0.393					95% Percentile Bootstrap UCL	75
179					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	89.2
180	Data not Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	126.5
181											97.5% Chebyshev(Mean, Sd) UCL	157.3
182	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	217.7
183					95% Approximate Gamma UCL	107.2						
184					95% Adjusted Gamma UCL	147.8						
185												
186	Potential UCL to Use										Use 95% H-UCL	122.5
187	Recommended UCL exceeds the maximum observation											
188												
189												
190	Benzo(b)fluoranthene											
191												
192	General Statistics											
193					Number of Valid Observations	5					Number of Distinct Observations	5
194												
195	Raw Statistics						Log-transformed Statistics					
196					Minimum	38					Minimum of Log Data	3.638
197					Maximum	340					Maximum of Log Data	5.829
198					Mean	128.4					Mean of log Data	4.512
199					Median	61					SD of log Data	0.895
200					SD	126.1						
201					Coefficient of Variation	0.982						
202					Skewness	1.663						
203												
204												
205	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
206												
207	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
208	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
209												
210												
211	Warning: There are only 5 Values in this data											
212	Note: It should be noted that even though bootstrap methods may be performed on this data set,											

213	the resulting calculations may not be reliable enough to draw conclusions											
214												
215	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
216												
217	Relevant UCL Statistics											
218	Normal Distribution Test						Lognormal Distribution Test					
219	Shapiro Wilk Test Statistic			0.789			Shapiro Wilk Test Statistic			0.91		
220	Shapiro Wilk Critical Value			0.762			Shapiro Wilk Critical Value			0.762		
221	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
222												
223	Assuming Normal Distribution						Assuming Lognormal Distribution					
224	95% Student's-t UCL			248.7			95% H-UCL			997.3		
225	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL			332		
226	95% Adjusted-CLT UCL			266			97.5% Chebyshev (MVUE) UCL			422.2		
227	95% Modified-t UCL			255.6			99% Chebyshev (MVUE) UCL			599.4		
228												
229	Gamma Distribution Test						Data Distribution					
230	k star (bias corrected)			0.774			Data appear Normal at 5% Significance Level					
231	Theta Star			165.9								
232	nu star			7.741								
233	Approximate Chi Square Value (.05)			2.586			Nonparametric Statistics					
234	Adjusted Level of Significance			0.0086			95% CLT UCL			221.2		
235	Adjusted Chi Square Value			1.476			95% Jackknife UCL			248.7		
236							95% Standard Bootstrap UCL			212.6		
237	Anderson-Darling Test Statistic			0.434			95% Bootstrap-t UCL			1097		
238	Anderson-Darling 5% Critical Value			0.686			95% Hall's Bootstrap UCL			965.4		
239	Kolmogorov-Smirnov Test Statistic			0.312			95% Percentile Bootstrap UCL			222.2		
240	Kolmogorov-Smirnov 5% Critical Value			0.361			95% BCA Bootstrap UCL			244.6		
241	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL			374.3		
242							97.5% Chebyshev(Mean, Sd) UCL			480.7		
243	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL			689.7		
244	95% Approximate Gamma UCL			384.3								
245	95% Adjusted Gamma UCL			673.7								
246												
247	Potential UCL to Use						Use 95% Student's-t UCL			248.7		
248												
249												
250	Dibenzo(a,h)anthracene											
251												
252	General Statistics											
253	Number of Valid Observations			5			Number of Distinct Observations			5		
254												
255	Raw Statistics						Log-transformed Statistics					
256	Minimum			4.9			Minimum of Log Data			1.589		
257	Maximum			22			Maximum of Log Data			3.091		
258	Mean			12.12			Mean of log Data			2.296		
259	Median			8.3			SD of log Data			0.712		
260	SD			8.24								
261	Coefficient of Variation			0.68								
262	Skewness			0.535								
263												
264												
265	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.816	Shapiro Wilk Test Statistic	0.853
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	19.98	95% H-UCL	47.83
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28.52
95% Adjusted-CLT UCL	19.12	97.5% Chebyshev (MVUE) UCL	35.63
95% Modified-t UCL	20.12	99% Chebyshev (MVUE) UCL	49.6
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.2	**Data appear Normal at 5% Significance Level**	
Theta Star	10.1		
nu star	12		
Approximate Chi Square Value (.05)	5.225	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	18.18
Adjusted Chi Square Value	3.455	95% Jackknife UCL	19.98
		95% Standard Bootstrap UCL	17.45
Anderson-Darling Test Statistic	0.507	95% Bootstrap-t UCL	39.68
Anderson-Darling 5% Critical Value	0.683	95% Hall's Bootstrap UCL	39.09
Kolmogorov-Smirnov Test Statistic	0.262	95% Percentile Bootstrap UCL	17.78
Kolmogorov-Smirnov 5% Critical Value	0.36	95% BCA Bootstrap UCL	18.18
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	28.18
		97.5% Chebyshev(Mean, Sd) UCL	35.13
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	48.79
95% Approximate Gamma UCL	27.83		
95% Adjusted Gamma UCL	42.08		
Potential UCL to Use		Use 95% Student's-t UCL	19.98

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		Log-transformed Statistics	
Minimum	26	Minimum of Log Data	3.258
Maximum	64	Maximum of Log Data	4.159
Mean	38.2	Mean of log Data	3.582

319					Median	30				SD of log Data	0.376	
320					SD	15.88						
321					Coefficient of Variation	0.416						
322					Skewness	1.441						
323												
324												
325					Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!							
326												
327					It is suggested to collect at least 8 to 10 observations using these statistical methods!							
328					If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.							
329												
330												
331					Warning: There are only 5 Values in this data							
332					Note: It should be noted that even though bootstrap methods may be performed on this data set,							
333					the resulting calculations may not be reliable enough to draw conclusions							
334												
335					The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.							
336												
337					Relevant UCL Statistics							
338					Normal Distribution Test					Lognormal Distribution Test		
339					Shapiro Wilk Test Statistic	0.826				Shapiro Wilk Test Statistic	0.873	
340					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	
341					Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level		
342												
343					Assuming Normal Distribution					Assuming Lognormal Distribution		
344					95% Student's-t UCL	53.34				95% H-UCL	62.74	
345					95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL	65.75	
346					95% Adjusted-CLT UCL	54.77				97.5% Chebyshev (MVUE) UCL	77.74	
347					95% Modified-t UCL	54.1				99% Chebyshev (MVUE) UCL	101.3	
348												
349					Gamma Distribution Test					Data Distribution		
350					k star (bias corrected)	3.503				Data appear Normal at 5% Significance Level		
351					Theta Star	10.9						
352					nu star	35.03						
353					Approximate Chi Square Value (.05)	22.49				Nonparametric Statistics		
354					Adjusted Level of Significance	0.0086				95% CLT UCL	49.88	
355					Adjusted Chi Square Value	18.23				95% Jackknife UCL	53.34	
356										95% Standard Bootstrap UCL	48.78	
357					Anderson-Darling Test Statistic	0.467				95% Bootstrap-t UCL	131.2	
358					Anderson-Darling 5% Critical Value	0.679				95% Hall's Bootstrap UCL	132.7	
359					Kolmogorov-Smirnov Test Statistic	0.311				95% Percentile Bootstrap UCL	49.6	
360					Kolmogorov-Smirnov 5% Critical Value	0.358				95% BCA Bootstrap UCL	50.4	
361					Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL	69.16	
362										97.5% Chebyshev(Mean, Sd) UCL	82.55	
363					Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL	108.9	
364					95% Approximate Gamma UCL	59.5						
365					95% Adjusted Gamma UCL	73.41						
366												
367					Potential UCL to Use					Use 95% Student's-t UCL	53.34	
368												
369												
370	Lead											
371												

372	**General Statistics**											
373	Number of Valid Observations				5		Number of Distinct Observations				5	
374												
375	**Raw Statistics**						**Log-transformed Statistics**					
376	Minimum				15.7		Minimum of Log Data				2.754	
377	Maximum				179		Maximum of Log Data				5.187	
378	Mean				72.08		Mean of log Data				3.836	
379	Median				25.9		SD of log Data				1.059	
380	SD				71.84							
381	Coefficient of Variation				0.997							
382	Skewness				1.033							
383												
384												
385	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
386												
387	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
388	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
389												
390												
391	**Warning: There are only 5 Values in this data**											
392	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
393	**the resulting calculations may not be reliable enough to draw conclusions**											
394												
395	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
396												
397	**Relevant UCL Statistics**											
398	**Normal Distribution Test**						**Lognormal Distribution Test**					
399	Shapiro Wilk Test Statistic				0.816		Shapiro Wilk Test Statistic				0.87	
400	Shapiro Wilk Critical Value				0.762		Shapiro Wilk Critical Value				0.762	
401	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
402												
403	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
404	95% Student's-t UCL				140.6		95% H-UCL				1251	
405	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL				209.3	
406	95% Adjusted-CLT UCL				140.8		97.5% Chebyshev (MVUE) UCL				269.4	
407	95% Modified-t UCL				143		99% Chebyshev (MVUE) UCL				387.4	
408												
409	**Gamma Distribution Test**						**Data Distribution**					
410	k star (bias corrected)				0.643		**Data appear Normal at 5% Significance Level**					
411	Theta Star				112.1							
412	nu star				6.428							
413	Approximate Chi Square Value (.05)				1.862		**Nonparametric Statistics**					
414	Adjusted Level of Significance				0.0086		95% CLT UCL				124.9	
415	Adjusted Chi Square Value				0.98		95% Jackknife UCL				140.6	
416							95% Standard Bootstrap UCL				119.6	
417	Anderson-Darling Test Statistic				0.519		95% Bootstrap-t UCL				725.5	
418	Anderson-Darling 5% Critical Value				0.689		95% Hall's Bootstrap UCL				970.6	
419	Kolmogorov-Smirnov Test Statistic				0.349		95% Percentile Bootstrap UCL				120.3	
420	Kolmogorov-Smirnov 5% Critical Value				0.363		95% BCA Bootstrap UCL				135.4	
421	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL				212.1	
422							97.5% Chebyshev(Mean, Sd) UCL				272.7	
423	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL				391.7	
424	95% Approximate Gamma UCL				248.8							

425				95% Adjusted Gamma UCL	472.6							
426												
427	**Potential UCL to Use**									Use 95% Student's-t UCL	140.6	
428												
429												
430	**Mercury**											
431												
432	**General Statistics**											
433				Number of Valid Observations	5				Number of Distinct Observations	5		
434												
435	**Raw Statistics**						**Log-transformed Statistics**					
436				Minimum	0.035				Minimum of Log Data	-3.352		
437				Maximum	0.13				Maximum of Log Data	-2.04		
438				Mean	0.0703				Mean of log Data	-2.789		
439				Median	0.0555				SD of log Data	0.576		
440				SD	0.0409							
441				Coefficient of Variation	0.582							
442				Skewness	0.863							
443												
444												
445	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
446												
447	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
448	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
449												
450												
451	**Warning: There are only 5 Values in this data**											
452	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
453	**the resulting calculations may not be reliable enough to draw conclusions**											
454												
455	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
456												
457	**Relevant UCL Statistics**											
458	**Normal Distribution Test**						**Lognormal Distribution Test**					
459				Shapiro Wilk Test Statistic	0.882				Shapiro Wilk Test Statistic	0.907		
460				Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762		
461	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
462												
463	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
464				95% Student's-t UCL	0.109				95% H-UCL	0.182		
465	**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	0.148		
466				95% Adjusted-CLT UCL	0.108				97.5% Chebyshev (MVUE) UCL	0.181		
467				95% Modified-t UCL	0.11				99% Chebyshev (MVUE) UCL	0.247		
468												
469	**Gamma Distribution Test**						**Data Distribution**					
470				k star (bias corrected)	1.689		**Data appear Normal at 5% Significance Level**					
471				Theta Star	0.0416							
472				nu star	16.89							
473				Approximate Chi Square Value (.05)	8.591		**Nonparametric Statistics**					
474				Adjusted Level of Significance	0.0086				95% CLT UCL	0.1		
475				Adjusted Chi Square Value	6.177				95% Jackknife UCL	0.109		
476									95% Standard Bootstrap UCL	0.0976		
477				Anderson-Darling Test Statistic	0.355				95% Bootstrap-t UCL	0.171		

478				Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	0.338	
479				Kolmogorov-Smirnov Test Statistic	0.233					95% Percentile Bootstrap UCL	0.1	
480				Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	0.101	
481				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.15	
482										97.5% Chebyshev(Mean, Sd) UCL	0.185	
483				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.252	
484				95% Approximate Gamma UCL	0.138							
485				95% Adjusted Gamma UCL	0.192							
486												
487				**Potential UCL to Use**						Use 95% Student's-t UCL	0.109	
488												
489												
490	**Total Aroclors**											
491												
492				**General Statistics**								
493				Number of Valid Observations	5					Number of Distinct Observations	5	
494												
495				**Raw Statistics**						**Log-transformed Statistics**		
496				Minimum	31.18					Minimum of Log Data	3.44	
497				Maximum	3846					Maximum of Log Data	8.255	
498				Mean	1127					Mean of log Data	6.103	
499				Median	499.5					SD of log Data	1.761	
500				SD	1555							
501				Coefficient of Variation	1.38							
502				Skewness	1.994							
503												
504												
505				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
506												
507				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
508				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
509												
510												
511				**Warning: There are only 5 Values in this data**								
512				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
513				**the resulting calculations may not be reliable enough to draw conclusions**								
514												
515				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
516												
517				**Relevant UCL Statistics**								
518				**Normal Distribution Test**						**Lognormal Distribution Test**		
519				Shapiro Wilk Test Statistic	0.745					Shapiro Wilk Test Statistic	0.966	
520				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
521				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
522												
523				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
524				95% Student's-t UCL	2610					95% H-UCL	3141595	
525				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	5089	
526				95% Adjusted-CLT UCL	2934					97.5% Chebyshev (MVUE) UCL	6735	
527				95% Modified-t UCL	2713					99% Chebyshev (MVUE) UCL	9968	
528												
529				**Gamma Distribution Test**						**Data Distribution**		
530				k star (bias corrected)	0.397					**Data appear Gamma Distributed at 5% Significance Level**		

	A	B	C	D	E	F	G	H	I	J	K	L
531					Theta Star	2837						
532					nu star	3.971						
533					Approximate Chi Square Value (.05)	0.71	**Nonparametric Statistics**					
534					Adjusted Level of Significance	0.0086				95% CLT UCL		2271
535					Adjusted Chi Square Value	0.292				95% Jackknife UCL		2610
536										95% Standard Bootstrap UCL		2145
537					Anderson-Darling Test Statistic	0.23				95% Bootstrap-t UCL		7565
538					Anderson-Darling 5% Critical Value	0.703				95% Hall's Bootstrap UCL		8229
539					Kolmogorov-Smirnov Test Statistic	0.191				95% Percentile Bootstrap UCL		2320
540					Kolmogorov-Smirnov 5% Critical Value	0.368				95% BCA Bootstrap UCL		2559
541			**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL		4159
542										97.5% Chebyshev(Mean, Sd) UCL		5471
543			**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL		8048
544					95% Approximate Gamma UCL	6299						
545					95% Adjusted Gamma UCL	15344						
546												
547			**Potential UCL to Use**							Use 95% Approximate Gamma UCL		6299
548												
549												

Recommended UCL exceeds the maximum observation

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM11.0W.wst								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Arsenic											
10												
11					General Statistics							
12				Number of Valid Observations	7				Number of Distinct Observations	7		
13												
14				Raw Statistics					Log-transformed Statistics			
15				Minimum	3				Minimum of Log Data	1.099		
16				Maximum	3.97				Maximum of Log Data	1.379		
17				Mean	3.41				Mean of log Data	1.223		
18				Median	3.42				SD of log Data	0.0901		
19				SD	0.312							
20				Coefficient of Variation	0.0916							
21				Skewness	0.729							
22												
23												
24				Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!								
25												
26				It is suggested to collect at least 8 to 10 observations using these statistical methods!								
27				If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.								
28												
29												
30				Warning: There are only 7 Values in this data								
31				Note: It should be noted that even though bootstrap methods may be performed on this data set,								
32				the resulting calculations may not be reliable enough to draw conclusions								
33												
34				The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.								
35												
36					Relevant UCL Statistics							
37				Normal Distribution Test					Lognormal Distribution Test			
38				Shapiro Wilk Test Statistic	0.953				Shapiro Wilk Test Statistic	0.965		
39				Shapiro Wilk Critical Value	0.803				Shapiro Wilk Critical Value	0.803		
40				Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
41												
42				Assuming Normal Distribution					Assuming Lognormal Distribution			
43				95% Student's-t UCL	3.639				95% H-UCL	N/A		
44				95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL	3.916		
45				95% Adjusted-CLT UCL	3.639				97.5% Chebyshev (MVUE) UCL	4.135		
46				95% Modified-t UCL	3.645				99% Chebyshev (MVUE) UCL	4.565		
47												
48				Gamma Distribution Test					Data Distribution			
49				k star (bias corrected)	81.48				Data appear Normal at 5% Significance Level			
50				Theta Star	0.0419							
51				nu star	1141							
52				Approximate Chi Square Value (.05)	1063				Nonparametric Statistics			
53				Adjusted Level of Significance	0.0158				95% CLT UCL	3.604		

54				Adjusted Chi Square Value	1040					95% Jackknife UCL	3.639	
55										95% Standard Bootstrap UCL	3.591	
56				Anderson-Darling Test Statistic	0.243					95% Bootstrap-t UCL	3.686	
57				Anderson-Darling 5% Critical Value	0.708					95% Hall's Bootstrap UCL	3.73	
58				Kolmogorov-Smirnov Test Statistic	0.171					95% Percentile Bootstrap UCL	3.59	
59				Kolmogorov-Smirnov 5% Critical Value	0.311					95% BCA Bootstrap UCL	3.63	
60				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	3.925	
61										97.5% Chebyshev(Mean, Sd) UCL	4.147	
62				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	4.585	
63				95% Approximate Gamma UCL	3.658							
64				95% Adjusted Gamma UCL	3.738							
65												
66				**Potential UCL to Use**						Use 95% Student's-t UCL	3.639	
67												
68												
69	**Benzo(a)anthracene**											
70												
71				**General Statistics**								
72				Number of Valid Observations	7					Number of Distinct Observations	7	
73												
74				**Raw Statistics**						**Log-transformed Statistics**		
75				Minimum	7.9					Minimum of Log Data	2.067	
76				Maximum	300					Maximum of Log Data	5.704	
77				Mean	62.31					Mean of log Data	3.297	
78				Median	19					SD of log Data	1.256	
79				SD	105.9							
80				Coefficient of Variation	1.7							
81				Skewness	2.533							
82												
83												
84				**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
85												
86				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
87				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
88												
89												
90				**Warning: There are only 7 Values in this data**								
91				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
92				**the resulting calculations may not be reliable enough to draw conclusions**								
93												
94				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
95												
96				**Relevant UCL Statistics**								
97				**Normal Distribution Test**						**Lognormal Distribution Test**		
98				Shapiro Wilk Test Statistic	0.579					Shapiro Wilk Test Statistic	0.894	
99				Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803	
100				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
101												
102				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
103				95% Student's-t UCL	140.1					95% H-UCL	580.2	
104				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	154.7	
105				95% Adjusted-CLT UCL	169.1					97.5% Chebyshev (MVUE) UCL	199.7	
106				95% Modified-t UCL	146.5					99% Chebyshev (MVUE) UCL	288.1	

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	0.507	**Data appear Gamma Distributed at 5% Significance Level**					
110					Theta Star	122.9						
111					nu star	7.099						
112					Approximate Chi Square Value (.05)	2.225	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0158				95% CLT UCL	128.2	
114					Adjusted Chi Square Value	1.494				95% Jackknife UCL	140.1	
115										95% Standard Bootstrap UCL	124.3	
116					Anderson-Darling Test Statistic	0.727				95% Bootstrap-t UCL	551.8	
117					Anderson-Darling 5% Critical Value	0.738				95% Hall's Bootstrap UCL	416.5	
118					Kolmogorov-Smirnov Test Statistic	0.269				95% Percentile Bootstrap UCL	138	
119					Kolmogorov-Smirnov 5% Critical Value	0.323				95% BCA Bootstrap UCL	178.9	
120	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	236.8	
121										97.5% Chebyshev(Mean, Sd) UCL	312.3	
122	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	460.7	
123					95% Approximate Gamma UCL	198.8						
124					95% Adjusted Gamma UCL	296.1						
125												
126	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	198.8	
127												
128												
129	**Benzo(a)pyrene**											
130												
131	**General Statistics**											
132					Number of Valid Observations	7				Number of Distinct Observations	7	
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	8				Minimum of Log Data	2.079	
136					Maximum	330				Maximum of Log Data	5.799	
137					Mean	66.49				Mean of log Data	3.327	
138					Median	22				SD of log Data	1.266	
139					SD	117.1						
140					Coefficient of Variation	1.761						
141					Skewness	2.567						
142												
143												
144	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
145												
146	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
147	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
148												
149												
150	**Warning: There are only 7 Values in this data**											
151	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
152	**the resulting calculations may not be reliable enough to draw conclusions**											
153												
154	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
155												
156	**Relevant UCL Statistics**											
157	**Normal Distribution Test**						**Lognormal Distribution Test**					
158					Shapiro Wilk Test Statistic	0.562				Shapiro Wilk Test Statistic	0.889	
159					Shapiro Wilk Critical Value	0.803				Shapiro Wilk Critical Value	0.803	

160	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
161												
162	Assuming Normal Distribution						Assuming Lognormal Distribution					
163					95% Student's-t UCL	152.5					95% H-UCL	625.5
164	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	161.6
165					95% Adjusted-CLT UCL	185.1					97.5% Chebyshev (MVUE) UCL	208.7
166					95% Modified-t UCL	159.6					99% Chebyshev (MVUE) UCL	301.3
167												
168	Gamma Distribution Test						Data Distribution					
169					k star (bias corrected)	0.492	Data Follow Appr. Gamma Distribution at 5% Significance Level					
170					Theta Star	135						
171					nu star	6.893						
172					Approximate Chi Square Value (.05)	2.112	Nonparametric Statistics					
173					Adjusted Level of Significance	0.0158					95% CLT UCL	139.3
174					Adjusted Chi Square Value	1.406					95% Jackknife UCL	152.5
175											95% Standard Bootstrap UCL	133.5
176					Anderson-Darling Test Statistic	0.785					95% Bootstrap-t UCL	631.7
177					Anderson-Darling 5% Critical Value	0.74					95% Hall's Bootstrap UCL	478.8
178					Kolmogorov-Smirnov Test Statistic	0.296					95% Percentile Bootstrap UCL	150.2
179					Kolmogorov-Smirnov 5% Critical Value	0.324					95% BCA Bootstrap UCL	198.9
180	Data follow Appr. Gamma Distribution at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	259.3
181											97.5% Chebyshev(Mean, Sd) UCL	342.8
182	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	506.7
183					95% Approximate Gamma UCL	217						
184					95% Adjusted Gamma UCL	325.9						
185												
186	Potential UCL to Use										Use 95% Approximate Gamma UCL	217
187												
188												
189	Benzo(b)fluoranthene											
190												
191	General Statistics											
192					Number of Valid Observations	7					Number of Distinct Observations	7
193												
194	Raw Statistics						Log-transformed Statistics					
195					Minimum	8.1					Minimum of Log Data	2.092
196					Maximum	140					Maximum of Log Data	4.942
197					Mean	39.97					Mean of log Data	3.169
198					Median	18					SD of log Data	1.059
199					SD	47.95						
200					Coefficient of Variation	1.2						
201					Skewness	1.942						
202												
203												
204	Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
205												
206	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
207	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
208												
209												
210	Warning: There are only 7 Values in this data											
211	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
212	the resulting calculations may not be reliable enough to draw conclusions											

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218				Shapiro Wilk Test Statistic	0.736					Shapiro Wilk Test Statistic	0.92	
219				Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803	
220	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223				95% Student's-t UCL	75.19					95% H-UCL	221.5	
224	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	103	
225				95% Adjusted-CLT UCL	83.99					97.5% Chebyshev (MVUE) UCL	131.3	
226				95% Modified-t UCL	77.4					99% Chebyshev (MVUE) UCL	187	
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229				k star (bias corrected)	0.723		**Data appear Gamma Distributed at 5% Significance Level**					
230				Theta Star	55.26							
231				nu star	10.13							
232				Approximate Chi Square Value (.05)	4.021		**Nonparametric Statistics**					
233				Adjusted Level of Significance	0.0158					95% CLT UCL	69.78	
234				Adjusted Chi Square Value	2.946					95% Jackknife UCL	75.19	
235										95% Standard Bootstrap UCL	67.74	
236				Anderson-Darling Test Statistic	0.458					95% Bootstrap-t UCL	169.6	
237				Anderson-Darling 5% Critical Value	0.726					95% Hall's Bootstrap UCL	199.6	
238				Kolmogorov-Smirnov Test Statistic	0.227					95% Percentile Bootstrap UCL	72.1	
239				Kolmogorov-Smirnov 5% Critical Value	0.319					95% BCA Bootstrap UCL	83.16	
240	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	119	
241										97.5% Chebyshev(Mean, Sd) UCL	153.1	
242	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	220.3	
243				95% Approximate Gamma UCL	100.7							
244				95% Adjusted Gamma UCL	137.4							
245												
246	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	100.7	
247												
248												
249	**Benzo(k)fluoranthene**											
250												
251	**General Statistics**											
252				Number of Valid Observations	7					Number of Distinct Observations	7	
253												
254	**Raw Statistics**						**Log-transformed Statistics**					
255				Minimum	7					Minimum of Log Data	1.946	
256				Maximum	170					Maximum of Log Data	5.136	
257				Mean	36.79					Mean of log Data	2.93	
258				Median	16					SD of log Data	1.089	
259				SD	59.16							
260				Coefficient of Variation	1.608							
261				Skewness	2.569							
262												
263												
264	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
267	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
268												
269												
270	Warning: There are only 7 Values in this data											
271	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
272	the resulting calculations may not be reliable enough to draw conclusions											
273												
274	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
275												
276	Relevant UCL Statistics											
277	Normal Distribution Test						Lognormal Distribution Test					
278	Shapiro Wilk Test Statistic					0.562	Shapiro Wilk Test Statistic					0.846
279	Shapiro Wilk Critical Value					0.803	Shapiro Wilk Critical Value					0.803
280	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
281												
282	Assuming Normal Distribution						Assuming Lognormal Distribution					
283	95% Student's-t UCL					80.24	95% H-UCL					196.1
284	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					84.56
285	95% Adjusted-CLT UCL					96.77	97.5% Chebyshev (MVUE) UCL					108.1
286	95% Modified-t UCL					83.86	99% Chebyshev (MVUE) UCL					154.2
287												
288	Gamma Distribution Test						Data Distribution					
289	k star (bias corrected)					0.592	Data Follow Appr. Gamma Distribution at 5% Significance Level					
290	Theta Star					62.14						
291	nu star					8.287						
292	Approximate Chi Square Value (.05)					2.903	Nonparametric Statistics					
293	Adjusted Level of Significance					0.0158	95% CLT UCL					73.57
294	Adjusted Chi Square Value					2.031	95% Jackknife UCL					80.24
295							95% Standard Bootstrap UCL					70.26
296	Anderson-Darling Test Statistic					0.895	95% Bootstrap-t UCL					339.1
297	Anderson-Darling 5% Critical Value					0.732	95% Hall's Bootstrap UCL					252
298	Kolmogorov-Smirnov Test Statistic					0.319	95% Percentile Bootstrap UCL					78.29
299	Kolmogorov-Smirnov 5% Critical Value					0.321	95% BCA Bootstrap UCL					102.4
300	Data follow Appr. Gamma Distribution at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					134.3
301							97.5% Chebyshev(Mean, Sd) UCL					176.4
302	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					259.3
303	95% Approximate Gamma UCL					105						
304	95% Adjusted Gamma UCL					150.1						
305												
306	Potential UCL to Use						Use 95% Approximate Gamma UCL					105
307												
308												
309	Bis(2-ethylhexyl) phthalate											
310												
311	General Statistics											
312	Number of Valid Observations					7	Number of Distinct Observations					7
313												
314	Raw Statistics						Log-transformed Statistics					
315	Minimum					58	Minimum of Log Data					4.06
316	Maximum					1100	Maximum of Log Data					7.003
317	Mean					373.3	Mean of log Data					5.289
318	Median					130	SD of log Data					1.186

319					SD	449.6						
320					Coefficient of Variation	1.204						
321					Skewness	1.227						
322												
323												
324	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
325												
326	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
327	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
328												
329												
330	**Warning: There are only 7 Values in this data**											
331	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
332	**the resulting calculations may not be reliable enough to draw conclusions**											
333												
334	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
335												
336	**Relevant UCL Statistics**											
337	**Normal Distribution Test**						**Lognormal Distribution Test**					
338					Shapiro Wilk Test Statistic	0.709					Shapiro Wilk Test Statistic	0.854
339					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803
340	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
341												
342	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
343					95% Student's-t UCL	703.5					95% H-UCL	3106
344	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1026
345					95% Adjusted-CLT UCL	737					97.5% Chebyshev (MVUE) UCL	1319
346					95% Modified-t UCL	716.6					99% Chebyshev (MVUE) UCL	1896
347												
348	**Gamma Distribution Test**						**Data Distribution**					
349					k star (bias corrected)	0.621	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
350					Theta Star	600.7						
351					nu star	8.7						
352					Approximate Chi Square Value (.05)	3.147	**Nonparametric Statistics**					
353					Adjusted Level of Significance	0.0158					95% CLT UCL	652.8
354					Adjusted Chi Square Value	2.228					95% Jackknife UCL	703.5
355											95% Standard Bootstrap UCL	636.1
356					Anderson-Darling Test Statistic	0.747					95% Bootstrap-t UCL	2827
357					Anderson-Darling 5% Critical Value	0.73					95% Hall's Bootstrap UCL	2880
358					Kolmogorov-Smirnov Test Statistic	0.285					95% Percentile Bootstrap UCL	651.1
359					Kolmogorov-Smirnov 5% Critical Value	0.321					95% BCA Bootstrap UCL	666
360	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	1114
361											97.5% Chebyshev(Mean, Sd) UCL	1434
362	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	2064
363					95% Approximate Gamma UCL	1032						
364					95% Adjusted Gamma UCL	1457						
365												
366	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	1032
367												
368												
369	**Dibenzo(a,h)anthracene**											
370												
371	**General Statistics**											

372	Number of Valid Observations				7	Number of Distinct Observations					7	
373												
374	**Raw Statistics**					**Log-transformed Statistics**						
375	Minimum				1.3	Minimum of Log Data					0.262	
376	Maximum				41	Maximum of Log Data					3.714	
377	Mean				8.8	Mean of log Data					1.408	
378	Median				2.9	SD of log Data					1.205	
379	SD				14.37							
380	Coefficient of Variation				1.633							
381	Skewness				2.516							
382												
383												
384	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
385												
386	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
387	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
388												
389												
390	**Warning: There are only 7 Values in this data**											
391	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
392	**the resulting calculations may not be reliable enough to draw conclusions**											
393												
394	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
395												
396	**Relevant UCL Statistics**											
397	**Normal Distribution Test**					**Lognormal Distribution Test**						
398	Shapiro Wilk Test Statistic				0.589	Shapiro Wilk Test Statistic					0.889	
399	Shapiro Wilk Critical Value				0.803	Shapiro Wilk Critical Value					0.803	
400	**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**						
401												
402	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
403	95% Student's-t UCL				19.36	95% H-UCL					69.65	
404	**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL					21.74	
405	95% Adjusted-CLT UCL				23.26	97.5% Chebyshev (MVUE) UCL					27.98	
406	95% Modified-t UCL				20.22	99% Chebyshev (MVUE) UCL					40.25	
407												
408	**Gamma Distribution Test**					**Data Distribution**						
409	k star (bias corrected)				0.539	**Data appear Gamma Distributed at 5% Significance Level**						
410	Theta Star				16.32							
411	nu star				7.547							
412	Approximate Chi Square Value (.05)				2.476	**Nonparametric Statistics**						
413	Adjusted Level of Significance				0.0158	95% CLT UCL					17.74	
414	Adjusted Chi Square Value				1.69	95% Jackknife UCL					19.36	
415						95% Standard Bootstrap UCL					17.03	
416	Anderson-Darling Test Statistic				0.716	95% Bootstrap-t UCL					70.68	
417	Anderson-Darling 5% Critical Value				0.735	95% Hall's Bootstrap UCL					56.57	
418	Kolmogorov-Smirnov Test Statistic				0.263	95% Percentile Bootstrap UCL					19.33	
419	Kolmogorov-Smirnov 5% Critical Value				0.322	95% BCA Bootstrap UCL					20.66	
420	**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL					32.48	
421						97.5% Chebyshev(Mean, Sd) UCL					42.73	
422	**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL					62.86	
423	95% Approximate Gamma UCL				26.83							
424	95% Adjusted Gamma UCL				39.29							

425												
426	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		26.83
427												
428												
429	**Indeno(1,2,3-cd)pyrene**											
430												
431	**General Statistics**											
432	Number of Valid Observations					7				Number of Distinct Observations		7
433												
434	**Raw Statistics**									**Log-transformed Statistics**		
435	Minimum					6.5				Minimum of Log Data		1.872
436	Maximum					180				Maximum of Log Data		5.193
437	Mean					40.31				Mean of log Data		3.006
438	Median					17				SD of log Data		1.148
439	SD					62.5						
440	Coefficient of Variation					1.55						
441	Skewness					2.493						
442												
443												
444	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
445												
446	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
447	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
448												
449												
450	**Warning: There are only 7 Values in this data**											
451	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
452	**the resulting calculations may not be reliable enough to draw conclusions**											
453												
454	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
455												
456	**Relevant UCL Statistics**											
457	**Normal Distribution Test**									**Lognormal Distribution Test**		
458	Shapiro Wilk Test Statistic					0.602				Shapiro Wilk Test Statistic		0.899
459	Shapiro Wilk Critical Value					0.803				Shapiro Wilk Critical Value		0.803
460	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
461												
462	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
463	95% Student's-t UCL					86.21				95% H-UCL		269.5
464	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		99.18
465	95% Adjusted-CLT UCL					103				97.5% Chebyshev (MVUE) UCL		127.2
466	95% Modified-t UCL					89.92				99% Chebyshev (MVUE) UCL		182.4
467												
468	**Gamma Distribution Test**									**Data Distribution**		
469	k star (bias corrected)					0.582				**Data appear Gamma Distributed at 5% Significance Level**		
470	Theta Star					69.22						
471	nu star					8.154						
472	Approximate Chi Square Value (.05)					2.824				**Nonparametric Statistics**		
473	Adjusted Level of Significance					0.0158				95% CLT UCL		79.17
474	Adjusted Chi Square Value					1.968				95% Jackknife UCL		86.21
475										95% Standard Bootstrap UCL		76.54
476	Anderson-Darling Test Statistic					0.672				95% Bootstrap-t UCL		253.9
477	Anderson-Darling 5% Critical Value					0.733				95% Hall's Bootstrap UCL		237.1

478			Kolmogorov-Smirnov Test Statistic			0.252				95% Percentile Bootstrap UCL		84.17
479			Kolmogorov-Smirnov 5% Critical Value			0.321				95% BCA Bootstrap UCL		94.57
480			**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL		143.3
481										97.5% Chebyshev(Mean, Sd) UCL		187.8
482			**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL		275.3
483			95% Approximate Gamma UCL			116.4						
484			95% Adjusted Gamma UCL			167						
485												
486			**Potential UCL to Use**							Use 95% Approximate Gamma UCL		116.4
487												
488												
489	**Lead**											
490												
491					**General Statistics**							
492			Number of Valid Observations			7				Number of Distinct Observations		7
493												
494			**Raw Statistics**							**Log-transformed Statistics**		
495			Minimum			10.5				Minimum of Log Data		2.351
496			Maximum			19				Maximum of Log Data		2.944
497			Mean			14.06				Mean of log Data		2.622
498			Median			13.3				SD of log Data		0.219
499			SD			3.123						
500			Coefficient of Variation			0.222						
501			Skewness			0.487						
502												
503												
504			**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**									
505												
506			**It is suggested to collect at least 8 to 10 observations using these statistical methods!**									
507			**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**									
508												
509												
510			**Warning: There are only 7 Values in this data**									
511			**Note: It should be noted that even though bootstrap methods may be performed on this data set,**									
512			**the resulting calculations may not be reliable enough to draw conclusions**									
513												
514			**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**									
515												
516					**Relevant UCL Statistics**							
517			**Normal Distribution Test**							**Lognormal Distribution Test**		
518			Shapiro Wilk Test Statistic			0.937				Shapiro Wilk Test Statistic		0.948
519			Shapiro Wilk Critical Value			0.803				Shapiro Wilk Critical Value		0.803
520			**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**		
521												
522			**Assuming Normal Distribution**							**Assuming Lognormal Distribution**		
523			95% Student's-t UCL			16.35				95% H-UCL		16.91
524			**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL		19.14
525			95% Adjusted-CLT UCL			16.23				97.5% Chebyshev (MVUE) UCL		21.34
526			95% Modified-t UCL			16.39				99% Chebyshev (MVUE) UCL		25.67
527												
528			**Gamma Distribution Test**							**Data Distribution**		
529			k star (bias corrected)			13.92				**Data appear Normal at 5% Significance Level**		
530			Theta Star			1.01						

531					nu star	194.9						
532					Approximate Chi Square Value (.05)	163.6	**Nonparametric Statistics**					
533					Adjusted Level of Significance	0.0158				95% CLT UCL	16	
534					Adjusted Chi Square Value	155				95% Jackknife UCL	16.35	
535										95% Standard Bootstrap UCL	15.87	
536					Anderson-Darling Test Statistic	0.275				95% Bootstrap-t UCL	16.83	
537					Anderson-Darling 5% Critical Value	0.707				95% Hall's Bootstrap UCL	15.89	
538					Kolmogorov-Smirnov Test Statistic	0.182				95% Percentile Bootstrap UCL	15.89	
539					Kolmogorov-Smirnov 5% Critical Value	0.311				95% BCA Bootstrap UCL	16.09	
540					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	19.2	
541										97.5% Chebyshev(Mean, Sd) UCL	21.43	
542					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	25.8	
543					95% Approximate Gamma UCL	16.75						
544					95% Adjusted Gamma UCL	17.68						
545												
546					**Potential UCL to Use**					Use 95% Student's-t UCL	16.35	
547												
548												
549	**Mercury**											
550												
551					**General Statistics**							
552					Number of Valid Observations	7				Number of Distinct Observations	6	
553												
554					**Raw Statistics**		**Log-transformed Statistics**					
555					Minimum	0.04				Minimum of Log Data	-3.219	
556					Maximum	0.087				Maximum of Log Data	-2.442	
557					Mean	0.0563				Mean of log Data	-2.913	
558					Median	0.054				SD of log Data	0.284	
559					SD	0.0169						
560					Coefficient of Variation	0.3						
561					Skewness	1.058						
562												
563												
564	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
565												
566	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
567	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
568												
569												
570	**Warning: There are only 7 Values in this data**											
571	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
572	**the resulting calculations may not be reliable enough to draw conclusions**											
573												
574	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
575												
576	**Relevant UCL Statistics**											
577	**Normal Distribution Test**						**Lognormal Distribution Test**					
578					Shapiro Wilk Test Statistic	0.899				Shapiro Wilk Test Statistic	0.933	
579					Shapiro Wilk Critical Value	0.803				Shapiro Wilk Critical Value	0.803	
580	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
581												
582	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
583					95% Student's-t UCL	0.0687				95% H-UCL	0.0727	

584	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.0825	
585	95% Adjusted-CLT UCL	0.0695								97.5% Chebyshev (MVUE) UCL	0.0939	
586	95% Modified-t UCL	0.0691								99% Chebyshev (MVUE) UCL	0.116	
587												
588	**Gamma Distribution Test**									**Data Distribution**		
589	k star (bias corrected)	8.197								**Data appear Normal at 5% Significance Level**		
590	Theta Star	0.00687										
591	nu star	114.8										
592	Approximate Chi Square Value (.05)	91.02								**Nonparametric Statistics**		
593	Adjusted Level of Significance	0.0158								95% CLT UCL	0.0668	
594	Adjusted Chi Square Value	84.65								95% Jackknife UCL	0.0687	
595										95% Standard Bootstrap UCL	0.0657	
596	Anderson-Darling Test Statistic	0.299								95% Bootstrap-t UCL	0.076	
597	Anderson-Darling 5% Critical Value	0.708								95% Hall's Bootstrap UCL	0.133	
598	Kolmogorov-Smirnov Test Statistic	0.187								95% Percentile Bootstrap UCL	0.0663	
599	Kolmogorov-Smirnov 5% Critical Value	0.312								95% BCA Bootstrap UCL	0.0686	
600	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.0841	
601										97.5% Chebyshev(Mean, Sd) UCL	0.0961	
602	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.12	
603	95% Approximate Gamma UCL	0.071										
604	95% Adjusted Gamma UCL	0.0763										
605												
606	**Potential UCL to Use**									Use 95% Student's-t UCL	0.0687	
607												
608												
609	**Total Aroclors**											
610												
611	**General Statistics**											
612	Number of Valid Observations	7								Number of Distinct Observations	7	
613												
614	**Raw Statistics**									**Log-transformed Statistics**		
615	Minimum	17.5								Minimum of Log Data	2.862	
616	Maximum	41								Maximum of Log Data	3.714	
617	Mean	27.72								Mean of log Data	3.275	
618	Median	25.4								SD of log Data	0.329	
619	SD	9.352										
620	Coefficient of Variation	0.337										
621	Skewness	0.698										
622												
623												
624	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
625												
626	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
627	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
628												
629												
630	**Warning: There are only 7 Values in this data**											
631	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
632	**the resulting calculations may not be reliable enough to draw conclusions**											
633												
634	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
635												
636	**Relevant UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
637	**Normal Distribution Test**						**Lognormal Distribution Test**					
638	Shapiro Wilk Test Statistic					0.874	Shapiro Wilk Test Statistic					0.918
639	Shapiro Wilk Critical Value					0.803	Shapiro Wilk Critical Value					0.803
640	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
641												
642	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
643	95% Student's-t UCL					34.59	95% H-UCL					37.75
644	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					42.73
645	95% Adjusted-CLT UCL					34.53	97.5% Chebyshev (MVUE) UCL					49.23
646	95% Modified-t UCL					34.75	99% Chebyshev (MVUE) UCL					62.01
647												
648	**Gamma Distribution Test**						**Data Distribution**					
649	k star (bias corrected)					6.261	**Data appear Normal at 5% Significance Level**					
650	Theta Star					4.427						
651	nu star					87.66						
652	Approximate Chi Square Value (.05)					67.08	**Nonparametric Statistics**					
653	Adjusted Level of Significance					0.0158	95% CLT UCL					33.54
654	Adjusted Chi Square Value					61.66	95% Jackknife UCL					34.59
655							95% Standard Bootstrap UCL					33.21
656	Anderson-Darling Test Statistic					0.383	95% Bootstrap-t UCL					39.84
657	Anderson-Darling 5% Critical Value					0.708	95% Hall's Bootstrap UCL					78.62
658	Kolmogorov-Smirnov Test Statistic					0.202	95% Percentile Bootstrap UCL					33.45
659	Kolmogorov-Smirnov 5% Critical Value					0.312	95% BCA Bootstrap UCL					33.67
660	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					43.13
661							97.5% Chebyshev(Mean, Sd) UCL					49.79
662	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					62.89
663	95% Approximate Gamma UCL					36.23						
664	95% Adjusted Gamma UCL					39.41						
665												
666	**Potential UCL to Use**						Use 95% Student's-t UCL					34.59
667												

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\RM12.0W.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12					Number of Valid Observations	8			Number of Distinct Observations	8		
13												
14				Raw Statistics					Log-transformed Statistics			
15					Minimum	1.89			Minimum of Log Data	0.637		
16					Maximum	4.87			Maximum of Log Data	1.583		
17					Mean	3.158			Mean of log Data	1.102		
18					Median	2.885			SD of log Data	0.33		
19					SD	1.045						
20					Coefficient of Variation	0.331						
21					Skewness	0.497						
22												
23												
24						Warning: There are only 8 Values in this data						
25						Note: It should be noted that even though bootstrap methods may be performed on this data set,						
26						the resulting calculations may not be reliable enough to draw conclusions						
27												
28						The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.						
29												
30						Relevant UCL Statistics						
31				Normal Distribution Test					Lognormal Distribution Test			
32					Shapiro Wilk Test Statistic	0.933			Shapiro Wilk Test Statistic	0.951		
33					Shapiro Wilk Critical Value	0.818			Shapiro Wilk Critical Value	0.818		
34				Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
35												
36				Assuming Normal Distribution					Assuming Lognormal Distribution			
37					95% Student's-t UCL	3.858			95% H-UCL	4.131		
38				95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL	4.772		
39					95% Adjusted-CLT UCL	3.835			97.5% Chebyshev (MVUE) UCL	5.471		
40					95% Modified-t UCL	3.868			99% Chebyshev (MVUE) UCL	6.845		
41												
42				Gamma Distribution Test					Data Distribution			
43					k star (bias corrected)	6.73			Data appear Normal at 5% Significance Level			
44					Theta Star	0.469						
45					nu star	107.7						
46					Approximate Chi Square Value (.05)	84.73			Nonparametric Statistics			
47					Adjusted Level of Significance	0.0195			95% CLT UCL	3.765		
48					Adjusted Chi Square Value	79.59			95% Jackknife UCL	3.858		
49									95% Standard Bootstrap UCL	3.72		
50					Anderson-Darling Test Statistic	0.301			95% Bootstrap-t UCL	4.024		
51					Anderson-Darling 5% Critical Value	0.715			95% Hall's Bootstrap UCL	3.733		
52					Kolmogorov-Smirnov Test Statistic	0.215			95% Percentile Bootstrap UCL	3.74		
53					Kolmogorov-Smirnov 5% Critical Value	0.294			95% BCA Bootstrap UCL	3.785		

54	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		4.768
55										97.5% Chebyshev(Mean, Sd) UCL		5.465
56	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		6.834
57					95% Approximate Gamma UCL	4.013						
58					95% Adjusted Gamma UCL	4.272						
59												
60	Potential UCL to Use									Use 95% Student's-t UCL		3.858
61												
62												
63	Benzo(a)anthracene											
64												
65	General Statistics											
66					Number of Valid Observations	8				Number of Distinct Observations		7
67												
68	Raw Statistics									Log-transformed Statistics		
69					Minimum	11				Minimum of Log Data		2.398
70					Maximum	1700				Maximum of Log Data		7.438
71					Mean	258.1				Mean of log Data		4.034
72					Median	39.5				SD of log Data		1.649
73					SD	584.3						
74					Coefficient of Variation	2.264						
75					Skewness	2.795						
76												
77												
78	Warning: There are only 8 Values in this data											
79	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
80	the resulting calculations may not be reliable enough to draw conclusions											
81												
82	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
83												
84	Relevant UCL Statistics											
85	Normal Distribution Test									Lognormal Distribution Test		
86					Shapiro Wilk Test Statistic	0.483				Shapiro Wilk Test Statistic		0.87
87					Shapiro Wilk Critical Value	0.818				Shapiro Wilk Critical Value		0.818
88	Data not Normal at 5% Significance Level									Data appear Lognormal at 5% Significance Level		
89												
90	Assuming Normal Distribution									Assuming Lognormal Distribution		
91					95% Student's-t UCL	649.5				95% H-UCL		5469
92	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL		579.8
93					95% Adjusted-CLT UCL	816.1				97.5% Chebyshev (MVUE) UCL		759.6
94					95% Modified-t UCL	683.6				99% Chebyshev (MVUE) UCL		1113
95												
96	Gamma Distribution Test									Data Distribution		
97					k star (bias corrected)	0.351				Data appear Lognormal at 5% Significance Level		
98					Theta Star	735.1						
99					nu star	5.618						
100					Approximate Chi Square Value (.05)	1.448				Nonparametric Statistics		
101					Adjusted Level of Significance	0.0195				95% CLT UCL		597.9
102					Adjusted Chi Square Value	0.981				95% Jackknife UCL		649.5
103										95% Standard Bootstrap UCL		577.5
104					Anderson-Darling Test Statistic	1.038				95% Bootstrap-t UCL		3847
105					Anderson-Darling 5% Critical Value	0.775				95% Hall's Bootstrap UCL		3224
106					Kolmogorov-Smirnov Test Statistic	0.342				95% Percentile Bootstrap UCL		661

107				Kolmogorov-Smirnov 5% Critical Value	0.312					95% BCA Bootstrap UCL	876.3	
108				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1159	
109										97.5% Chebyshev(Mean, Sd) UCL	1548	
110				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	2314	
111				95% Approximate Gamma UCL	1002							
112				95% Adjusted Gamma UCL	1479							
113												
114				**Potential UCL to Use**						Use 99% Chebyshev (MVUE) UCL	1113	
115												
116												
117	**Benzo(a)pyrene**											
118												
119				**General Statistics**								
120				Number of Valid Observations	8					Number of Distinct Observations	8	
121												
122				**Raw Statistics**						**Log-transformed Statistics**		
123				Minimum	9.7					Minimum of Log Data	2.272	
124				Maximum	2800					Maximum of Log Data	7.937	
125				Mean	411.1					Mean of log Data	4.298	
126				Median	50.5					SD of log Data	1.784	
127				SD	967.3							
128				Coefficient of Variation	2.353							
129				Skewness	2.805							
130												
131												
132				**Warning: There are only 8 Values in this data**								
133				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
134				**the resulting calculations may not be reliable enough to draw conclusions**								
135												
136				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
137												
138				**Relevant UCL Statistics**								
139				**Normal Distribution Test**						**Lognormal Distribution Test**		
140				Shapiro Wilk Test Statistic	0.475					Shapiro Wilk Test Statistic	0.91	
141				Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818	
142				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
143												
144				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
145				95% Student's-t UCL	1059					95% H-UCL	15012	
146				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	931	
147				95% Adjusted-CLT UCL	1336					97.5% Chebyshev (MVUE) UCL	1225	
148				95% Modified-t UCL	1116					99% Chebyshev (MVUE) UCL	1803	
149												
150				**Gamma Distribution Test**						**Data Distribution**		
151				k star (bias corrected)	0.324					**Data appear Lognormal at 5% Significance Level**		
152				Theta Star	1270							
153				nu star	5.181							
154				Approximate Chi Square Value (.05)	1.237					**Nonparametric Statistics**		
155				Adjusted Level of Significance	0.0195					95% CLT UCL	973.6	
156				Adjusted Chi Square Value	0.819					95% Jackknife UCL	1059	
157										95% Standard Bootstrap UCL	927.7	
158				Anderson-Darling Test Statistic	0.991					95% Bootstrap-t UCL	7879	
159				Anderson-Darling 5% Critical Value	0.782					95% Hall's Bootstrap UCL	5985	

160				Kolmogorov-Smirnov Test Statistic	0.333					95% Percentile Bootstrap UCL	1084	
161				Kolmogorov-Smirnov 5% Critical Value	0.314					95% BCA Bootstrap UCL	1432	
162				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1902	
163										97.5% Chebyshev(Mean, Sd) UCL	2547	
164				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3814	
165				95% Approximate Gamma UCL	1722							
166				95% Adjusted Gamma UCL	2601							
167												
168				**Potential UCL to Use**						Use 99% Chebyshev (MVUE) UCL	1803	
169												
170												
171	**Benzo(b)fluoranthene**											
172												
173				**General Statistics**								
174				Number of Valid Observations	8					Number of Distinct Observations	7	
175												
176				**Raw Statistics**						**Log-transformed Statistics**		
177				Minimum	12					Minimum of Log Data	2.485	
178				Maximum	2400					Maximum of Log Data	7.783	
179				Mean	350.5					Mean of log Data	4.198	
180				Median	43					SD of log Data	1.7	
181				SD	829.5							
182				Coefficient of Variation	2.367							
183				Skewness	2.81							
184												
185												
186				**Warning: There are only 8 Values in this data**								
187				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
188				**the resulting calculations may not be reliable enough to draw conclusions**								
189												
190				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
191												
192				**Relevant UCL Statistics**								
193				**Normal Distribution Test**						**Lognormal Distribution Test**		
194				Shapiro Wilk Test Statistic	0.467					Shapiro Wilk Test Statistic	0.864	
195				Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818	
196				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
197												
198				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
199				95% Student's-t UCL	906.1					95% H-UCL	8481	
200				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	738.8	
201				95% Adjusted-CLT UCL	1144					97.5% Chebyshev (MVUE) UCL	969.7	
202				95% Modified-t UCL	954.7					99% Chebyshev (MVUE) UCL	1423	
203												
204				**Gamma Distribution Test**						**Data Distribution**		
205				k star (bias corrected)	0.331					**Data appear Lognormal at 5% Significance Level**		
206				Theta Star	1058							
207				nu star	5.299							
208				Approximate Chi Square Value (.05)	1.293					**Nonparametric Statistics**		
209				Adjusted Level of Significance	0.0195					95% CLT UCL	832.9	
210				Adjusted Chi Square Value	0.861					95% Jackknife UCL	906.1	
211										95% Standard Bootstrap UCL	807.3	
212				Anderson-Darling Test Statistic	1.143					95% Bootstrap-t UCL	7177	

213				Anderson-Darling 5% Critical Value	0.78					95% Hall's Bootstrap UCL	5966	
214				Kolmogorov-Smirnov Test Statistic	0.369					95% Percentile Bootstrap UCL	930	
215				Kolmogorov-Smirnov 5% Critical Value	0.313					95% BCA Bootstrap UCL	1229	
216				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1629	
217										97.5% Chebyshev(Mean, Sd) UCL	2182	
218				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3268	
219				95% Approximate Gamma UCL	1437							
220				95% Adjusted Gamma UCL	2156							
221												
222				**Potential UCL to Use**						Use 99% Chebyshev (MVUE) UCL	1423	
223												
224												
225	**Benzo(k)fluoranthene**											
226												
227				**General Statistics**								
228				Number of Valid Observations	8					Number of Distinct Observations	8	
229												
230				**Raw Statistics**						**Log-transformed Statistics**		
231				Minimum	4.4					Minimum of Log Data	1.482	
232				Maximum	670					Maximum of Log Data	6.507	
233				Mean	118.4					Mean of log Data	3.498	
234				Median	29					SD of log Data	1.678	
235				SD	226.2							
236				Coefficient of Variation	1.911							
237				Skewness	2.667							
238												
239												
240				**Warning: There are only 8 Values in this data**								
241				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
242				**the resulting calculations may not be reliable enough to draw conclusions**								
243												
244				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
245												
246				**Relevant UCL Statistics**								
247				**Normal Distribution Test**						**Lognormal Distribution Test**		
248				Shapiro Wilk Test Statistic	0.56					Shapiro Wilk Test Statistic	0.916	
249				Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818	
250				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
251												
252				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
253				95% Student's-t UCL	269.9					95% H-UCL	3721	
254				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	354.1	
255				95% Adjusted-CLT UCL	330.6					97.5% Chebyshev (MVUE) UCL	464.4	
256				95% Modified-t UCL	282.5					99% Chebyshev (MVUE) UCL	681.1	
257												
258				**Gamma Distribution Test**						**Data Distribution**		
259				k star (bias corrected)	0.395					**Data appear Gamma Distributed at 5% Significance Level**		
260				Theta Star	300.1							
261				nu star	6.313							
262				Approximate Chi Square Value (.05)	1.802					**Nonparametric Statistics**		
263				Adjusted Level of Significance	0.0195					95% CLT UCL	250	
264				Adjusted Chi Square Value	1.259					95% Jackknife UCL	269.9	
265										95% Standard Bootstrap UCL	238.8	

266				Anderson-Darling Test Statistic	0.665					95% Bootstrap-t UCL	771.3	
267				Anderson-Darling 5% Critical Value	0.763					95% Hall's Bootstrap UCL	768.4	
268				Kolmogorov-Smirnov Test Statistic	0.259					95% Percentile Bootstrap UCL	272.4	
269				Kolmogorov-Smirnov 5% Critical Value	0.309					95% BCA Bootstrap UCL	294.4	
270				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	467.1	
271										97.5% Chebyshev(Mean, Sd) UCL	617.9	
272				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	914.3	
273				95% Approximate Gamma UCL	414.8							
274				95% Adjusted Gamma UCL	593.6							
275												
276				**Potential UCL to Use**						Use 95% Adjusted Gamma UCL	593.6	
277												
278												
279	**Dibenzo(a,h)anthracene**											
280												
281				**General Statistics**								
282				Number of Valid Data	8					Number of Detected Data	6	
283				Number of Distinct Detected Data	6					Number of Non-Detect Data	2	
284										Percent Non-Detects	25.00%	
285												
286				**Raw Statistics**						**Log-transformed Statistics**		
287				Minimum Detected	3.2					Minimum Detected	1.163	
288				Maximum Detected	210					Maximum Detected	5.347	
289				Mean of Detected	43.02					Mean of Detected	2.557	
290				SD of Detected	82.07					SD of Detected	1.556	
291				Minimum Non-Detect	1.7					Minimum Non-Detect	0.531	
292				Maximum Non-Detect	1.8					Maximum Non-Detect	0.588	
293												
294	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	2	
295	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	6	
296	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	25.00%	
297												
298	**Warning: There are only 6 Detected Values in this data**											
299	**Note: It should be noted that even though bootstrap may be performed on this data set**											
300	**the resulting calculations may not be reliable enough tp draw conclusions**											
301												
302	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
303												
304												
305				**UCL Statistics**								
306				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
307				Shapiro Wilk Test Statistic	0.565					Shapiro Wilk Test Statistic	0.865	
308				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788	
309				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
310												
311				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
312				DL/2 Substitution Method						DL/2 Substitution Method		
313				Mean	32.48					Mean	1.884	
314				SD	72.05					SD	1.812	
315				95% DL/2 (t) UCL	80.74					95% H-Stat (DL/2) UCL	610	
316												
317				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
318				Mean	17.82					Mean in Log Scale	1.603	

319					SD	81.55				SD in Log Scale		2.203
320					95% MLE (t) UCL	72.44				Mean in Original Scale		32.33
321					95% MLE (Tiku) UCL	72.8				SD in Original Scale		72.12
322										95% Percentile Bootstrap UCL		81.59
323										95% BCA Bootstrap UCL		108.8
324												
325				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
326					k star (bias corrected)	0.373				**Data appear Lognormal at 5% Significance Level**		
327					Theta Star	115.3						
328					nu star	4.475						
329												
330					A-D Test Statistic	0.768				**Nonparametric Statistics**		
331					5% A-D Critical Value	0.734				Kaplan-Meier (KM) Method		
332					K-S Test Statistic	0.734				Mean		33.06
333					5% K-S Critical Value	0.348				SD		67.13
334				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		26
335										95% KM (t) UCL		82.32
336				**Assuming Gamma Distribution**						95% KM (z) UCL		75.83
337					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		81.08
338					Minimum	1E-09				95% KM (bootstrap t) UCL		428.9
339					Maximum	210				95% KM (BCA) UCL		84.45
340					Mean	32.26				95% KM (Percentile Bootstrap) UCL		82.64
341					Median	4.95				95% KM (Chebyshev) UCL		146.4
342					SD	72.16				97.5% KM (Chebyshev) UCL		195.4
343					k star	0.157				99% KM (Chebyshev) UCL		291.8
344					Theta star	205.4						
345					Nu star	2.513				**Potential UCLs to Use**		
346					AppChi2	0.244				99% KM (Chebyshev) UCL		291.8
347					95% Gamma Approximate UCL	332.1						
348					95% Adjusted Gamma UCL	566						
349						**Warning: Recommended UCL exceeds the maximum observation**						
350	**Note: DL/2 is not a recommended method.**											
351												
352												
353	**Indeno(1,2,3-cd)pyrene**											
354												
355						**General Statistics**						
356					Number of Valid Observations	8				Number of Distinct Observations		8
357												
358				**Raw Statistics**						**Log-transformed Statistics**		
359					Minimum	8.5				Minimum of Log Data		2.14
360					Maximum	2300				Maximum of Log Data		7.741
361					Mean	335.1				Mean of log Data		4.042
362					Median	38.5				SD of log Data		1.817
363					SD	795.5						
364					Coefficient of Variation	2.374						
365					Skewness	2.806						
366												
367												
368						**Warning: There are only 8 Values in this data**						
369						**Note: It should be noted that even though bootstrap methods may be performed on this data set,**						
370						**the resulting calculations may not be reliable enough to draw conclusions**						
371												

372	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
373												
374	**Relevant UCL Statistics**											
375	**Normal Distribution Test**						**Lognormal Distribution Test**					
376	Shapiro Wilk Test Statistic				0.472		Shapiro Wilk Test Statistic				0.893	
377	Shapiro Wilk Critical Value				0.818		Shapiro Wilk Critical Value				0.818	
378	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
379												
380	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
381	95% Student's-t UCL				868		95% H-UCL				14073	
382	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL				759.5	
383	95% Adjusted-CLT UCL				1096		97.5% Chebyshev (MVUE) UCL				1000	
384	95% Modified-t UCL				914.5		99% Chebyshev (MVUE) UCL				1473	
385												
386	**Gamma Distribution Test**						**Data Distribution**					
387	k star (bias corrected)				0.318		**Data appear Lognormal at 5% Significance Level**					
388	Theta Star				1054							
389	nu star				5.085							
390	Approximate Chi Square Value (.05)				1.192		**Nonparametric Statistics**					
391	Adjusted Level of Significance				0.0195		95% CLT UCL				797.8	
392	Adjusted Chi Square Value				0.785		95% Jackknife UCL				868	
393							95% Standard Bootstrap UCL				773.2	
394	Anderson-Darling Test Statistic				1.014		95% Bootstrap-t UCL				7461	
395	Anderson-Darling 5% Critical Value				0.784		95% Hall's Bootstrap UCL				5019	
396	Kolmogorov-Smirnov Test Statistic				0.324		95% Percentile Bootstrap UCL				886.4	
397	Kolmogorov-Smirnov 5% Critical Value				0.314		95% BCA Bootstrap UCL				1169	
398	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL				1561	
399							97.5% Chebyshev(Mean, Sd) UCL				2092	
400	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL				3134	
401	95% Approximate Gamma UCL				1430							
402	95% Adjusted Gamma UCL				2172							
403												
404	**Potential UCL to Use**						Use 99% Chebyshev (MVUE) UCL				1473	
405												
406												
407	**Lead**											
408												
409	**General Statistics**											
410	Number of Valid Observations				8		Number of Distinct Observations				8	
411												
412	**Raw Statistics**						**Log-transformed Statistics**					
413	Minimum				8.93		Minimum of Log Data				2.189	
414	Maximum				85.7		Maximum of Log Data				4.451	
415	Mean				36.62		Mean of log Data				3.315	
416	Median				29.55		SD of log Data				0.836	
417	SD				27.9							
418	Coefficient of Variation				0.762							
419	Skewness				0.808							
420												
421												
422	**Warning: There are only 8 Values in this data**											
423	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
424	**the resulting calculations may not be reliable enough to draw conclusions**											

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
427												
428	**Relevant UCL Statistics**											
429	**Normal Distribution Test**						**Lognormal Distribution Test**					
430	Shapiro Wilk Test Statistic					0.901	Shapiro Wilk Test Statistic					0.943
431	Shapiro Wilk Critical Value					0.818	Shapiro Wilk Critical Value					0.818
432	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
433												
434	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
435	95% Student's-t UCL					55.3	95% H-UCL					101.8
436	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					85.6
437	95% Adjusted-CLT UCL					55.85	97.5% Chebyshev (MVUE) UCL					106.6
438	95% Modified-t UCL					55.77	99% Chebyshev (MVUE) UCL					147.9
439												
440	**Gamma Distribution Test**						**Data Distribution**					
441	k star (bias corrected)					1.271	**Data appear Normal at 5% Significance Level**					
442	Theta Star					28.8						
443	nu star					20.34						
444	Approximate Chi Square Value (.05)					11.1	**Nonparametric Statistics**					
445	Adjusted Level of Significance					0.0195	95% CLT UCL					52.84
446	Adjusted Chi Square Value					9.427	95% Jackknife UCL					55.3
447							95% Standard Bootstrap UCL					51.84
448	Anderson-Darling Test Statistic					0.279	95% Bootstrap-t UCL					60.52
449	Anderson-Darling 5% Critical Value					0.725	95% Hall's Bootstrap UCL					57.2
450	Kolmogorov-Smirnov Test Statistic					0.187	95% Percentile Bootstrap UCL					52.3
451	Kolmogorov-Smirnov 5% Critical Value					0.298	95% BCA Bootstrap UCL					54.24
452	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					79.61
453							97.5% Chebyshev(Mean, Sd) UCL					98.21
454	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					134.7
455	95% Approximate Gamma UCL					67.08						
456	95% Adjusted Gamma UCL					79.02						
457												
458	**Potential UCL to Use**						Use 95% Student's-t UCL					55.3
459												
460												
461	**Mercury**											
462												
463	**General Statistics**											
464	Number of Valid Observations					8	Number of Distinct Observations					7
465												
466	**Raw Statistics**						**Log-transformed Statistics**					
467	Minimum					0.041	Minimum of Log Data					-3.194
468	Maximum					1.28	Maximum of Log Data					0.247
469	Mean					0.291	Mean of log Data					-1.908
470	Median					0.141	SD of log Data					1.198
471	SD					0.415						
472	Coefficient of Variation					1.425						
473	Skewness					2.439						
474												
475												
476	**Warning: There are only 8 Values in this data**											
477	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											

478	the resulting calculations may not be reliable enough to draw conclusions											
479												
480	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
481												
482	Relevant UCL Statistics											
483	Normal Distribution Test						Lognormal Distribution Test					
484				Shapiro Wilk Test Statistic	0.646					Shapiro Wilk Test Statistic	0.909	
485				Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818	
486	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
487												
488	Assuming Normal Distribution						Assuming Lognormal Distribution					
489				95% Student's-t UCL	0.569					95% H-UCL	1.804	
490	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	0.771	
491				95% Adjusted-CLT UCL	0.668					97.5% Chebyshev (MVUE) UCL	0.989	
492				95% Modified-t UCL	0.59					99% Chebyshev (MVUE) UCL	1.417	
493												
494	Gamma Distribution Test						Data Distribution					
495				k star (bias corrected)	0.627		Data appear Gamma Distributed at 5% Significance Level					
496				Theta Star	0.464							
497				nu star	10.03							
498				Approximate Chi Square Value (.05)	3.962		Nonparametric Statistics					
499				Adjusted Level of Significance	0.0195					95% CLT UCL	0.533	
500				Adjusted Chi Square Value	3.057					95% Jackknife UCL	0.569	
501										95% Standard Bootstrap UCL	0.518	
502				Anderson-Darling Test Statistic	0.54					95% Bootstrap-t UCL	1.092	
503				Anderson-Darling 5% Critical Value	0.741					95% Hall's Bootstrap UCL	1.352	
504				Kolmogorov-Smirnov Test Statistic	0.206					95% Percentile Bootstrap UCL	0.556	
505				Kolmogorov-Smirnov 5% Critical Value	0.303					95% BCA Bootstrap UCL	0.688	
506	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	0.931	
507										97.5% Chebyshev(Mean, Sd) UCL	1.208	
508	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	1.751	
509				95% Approximate Gamma UCL	0.737							
510				95% Adjusted Gamma UCL	0.956							
511												
512	Potential UCL to Use									Use 95% Approximate Gamma UCL	0.737	
513												
514												
515	Naphthalene											
516												
517	General Statistics											
518				Number of Valid Data	8					Number of Detected Data	7	
519				Number of Distinct Detected Data	7					Number of Non-Detect Data	1	
520										Percent Non-Detects	12.50%	
521												
522	Raw Statistics						Log-transformed Statistics					
523				Minimum Detected	6.1					Minimum Detected	1.808	
524				Maximum Detected	200					Maximum Detected	5.298	
525				Mean of Detected	51.34					Mean of Detected	3.271	
526				SD of Detected	68.59					SD of Detected	1.243	
527				Minimum Non-Detect	0.62					Minimum Non-Detect	-0.478	
528				Maximum Non-Detect	0.62					Maximum Non-Detect	-0.478	
529												
530												

531	Warning: There are only 7 Detected Values in this data											
532	Note: It should be noted that even though bootstrap may be performed on this data set											
533	the resulting calculations may not be reliable enough tp draw conclusions											
534												
535	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
536												
537												
538	UCL Statistics											
539	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
540	Shapiro Wilk Test Statistic				0.7		Shapiro Wilk Test Statistic				0.932	
541	5% Shapiro Wilk Critical Value				0.803		5% Shapiro Wilk Critical Value				0.803	
542	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
543												
544	Assuming Normal Distribution						Assuming Lognormal Distribution					
545	DL/2 Substitution Method						DL/2 Substitution Method					
546	Mean				44.96		Mean				2.715	
547	SD				66.02		SD				1.947	
548	95% DL/2 (t) UCL				89.18		95% H-Stat (DL/2) UCL				1996	
549												
550	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
551	Mean				39.72		Mean in Log Scale				2.884	
552	SD				67.99		SD in Log Scale				1.587	
553	95% MLE (t) UCL				85.26		Mean in Original Scale				45.07	
554	95% MLE (Tiku) UCL				83.4		SD in Original Scale				65.93	
555							95% Percentile Bootstrap UCL				85.88	
556							95% BCA Bootstrap UCL				103.3	
557												
558	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
559	k star (bias corrected)				0.597		Data appear Gamma Distributed at 5% Significance Level					
560	Theta Star				86							
561	nu star				8.358							
562												
563	A-D Test Statistic				0.427		Nonparametric Statistics					
564	5% A-D Critical Value				0.732		Kaplan-Meier (KM) Method					
565	K-S Test Statistic				0.732		Mean				45.69	
566	5% K-S Critical Value				0.321		SD				61.26	
567	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				23.39	
568							95% KM (t) UCL				90.01	
569	Assuming Gamma Distribution						95% KM (z) UCL				84.17	
570	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				89.33	
571	Minimum				1E-09		95% KM (bootstrap t) UCL				162.8	
572	Maximum				200		95% KM (BCA) UCL				86.33	
573	Mean				44.93		95% KM (Percentile Bootstrap) UCL				87.61	
574	Median				18.35		95% KM (Chebyshev) UCL				147.7	
575	SD				66.05		97.5% KM (Chebyshev) UCL				191.8	
576	k star				0.213		99% KM (Chebyshev) UCL				278.4	
577	Theta star				211.1							
578	Nu star				3.405		Potential UCLs to Use					
579	AppChi2				0.502		95% KM (Chebyshev) UCL				147.7	
580	95% Gamma Approximate UCL				304.8							
581	95% Adjusted Gamma UCL				519.8							
582	Note: DL/2 is not a recommended method.											
583												

584												
585	**Total Aroclors**											
586												
587						**General Statistics**							
588						Number of Valid Data	8				Number of Detected Data	7
589						Number of Distinct Detected Data	7				Number of Non-Detect Data	1
590											Percent Non-Detects	12.50%
591												
592						**Raw Statistics**					**Log-transformed Statistics**	
593						Minimum Detected	17.75				Minimum Detected	2.876
594						Maximum Detected	196.8				Maximum Detected	5.282
595						Mean of Detected	79.89				Mean of Detected	3.984
596						SD of Detected	74.09				SD of Detected	0.972
597						Minimum Non-Detect	2.6				Minimum Non-Detect	0.956
598						Maximum Non-Detect	2.6				Maximum Non-Detect	0.956
599												
600												
601						**Warning: There are only 7 Detected Values in this data**							
602						**Note: It should be noted that even though bootstrap may be performed on this data set**						
603						**the resulting calculations may not be reliable enough tp draw conclusions**						
604												
605						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
606												
607												
608						**UCL Statistics**							
609						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
610						Shapiro Wilk Test Statistic	0.813				Shapiro Wilk Test Statistic	0.898
611						5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value	0.803
612						**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
613												
614						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
615						DL/2 Substitution Method					DL/2 Substitution Method	
616						Mean	70.07				Mean	3.519
617						SD	74.01				SD	1.594
618						95% DL/2 (t) UCL	119.6				95% H-Stat (DL/2) UCL	812.9
619												
620						Maximum Likelihood Estimate(MLE) Method					Log ROS Method	
621						Mean	64.82				Mean in Log Scale	3.683
622						SD	76.61				SD in Log Scale	1.239
623						95% MLE (t) UCL	116.1				Mean in Original Scale	70.51
624						95% MLE (Tiku) UCL	115.2				SD in Original Scale	73.54
625											95% Percentile Bootstrap UCL	113.5
626											95% BCA Bootstrap UCL	119
627												
628						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
629						k star (bias corrected)	0.898				**Data appear Normal at 5% Significance Level**	
630						Theta Star	88.99					
631						nu star	12.57					
632												
633						A-D Test Statistic	0.47				**Nonparametric Statistics**	
634						5% A-D Critical Value	0.722				Kaplan-Meier (KM) Method	
635						K-S Test Statistic	0.722				Mean	72.13
636						5% K-S Critical Value	0.318				SD	67.37

637	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	25.73
638											95% KM (t) UCL	120.9
639	Assuming Gamma Distribution										95% KM (z) UCL	114.4
640	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	120.1
641	Minimum	1E-09									95% KM (bootstrap t) UCL	195.7
642	Maximum	196.8									95% KM (BCA) UCL	115.1
643	Mean	69.91									95% KM (Percentile Bootstrap) UCL	114.5
644	Median	34.73									95% KM (Chebyshev) UCL	184.3
645	SD	74.18									97.5% KM (Chebyshev) UCL	232.8
646	k star	0.219									99% KM (Chebyshev) UCL	328.1
647	Theta star	319.4										
648	Nu star	3.502									Potential UCLs to Use	
649	AppChi2	0.535									95% KM (t) UCL	120.9
650	95% Gamma Approximate UCL	457.3									95% KM (Percentile Bootstrap) UCL	114.5
651	95% Adjusted Gamma UCL	774.6										
652	Note: DL/2 is not a recommended method.											
653												
654												
655	Total DDT											
656												
657	General Statistics											
658	Number of Valid Data	8									Number of Detected Data	7
659	Number of Distinct Detected Data	7									Number of Non-Detect Data	1
660											Percent Non-Detects	12.50%
661												
662	Raw Statistics										Log-transformed Statistics	
663	Minimum Detected	0.94									Minimum Detected	-0.0619
664	Maximum Detected	16.5									Maximum Detected	2.803
665	Mean of Detected	6.684									Mean of Detected	1.604
666	SD of Detected	5.152									SD of Detected	0.909
667	Minimum Non-Detect	1									Minimum Non-Detect	0
668	Maximum Non-Detect	1									Maximum Non-Detect	0
669												
670												
671	Warning: There are only 7 Detected Values in this data											
672	Note: It should be noted that even though bootstrap may be performed on this data set											
673	the resulting calculations may not be reliable enough tp draw conclusions											
674												
675	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
676												
677												
678	UCL Statistics											
679	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
680	Shapiro Wilk Test Statistic	0.905									Shapiro Wilk Test Statistic	0.95
681	5% Shapiro Wilk Critical Value	0.803									5% Shapiro Wilk Critical Value	0.803
682	Data appear Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
683												
684	Assuming Normal Distribution										Assuming Lognormal Distribution	
685	DL/2 Substitution Method										DL/2 Substitution Method	
686	Mean	5.911									Mean	1.317
687	SD	5.247									SD	1.17
688	95% DL/2 (t) UCL	9.426									95% H-Stat (DL/2) UCL	21.79
689												

690	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
691	Mean					5.069	Mean in Log Scale					1.418
692	SD					6.1	SD in Log Scale					0.993
693	95% MLE (t) UCL					9.155	Mean in Original Scale					5.989
694	95% MLE (Tiku) UCL					9.341	SD in Original Scale					5.159
695							95% Percentile Bootstrap UCL					8.96
696							95% BCA Bootstrap UCL					9.645
697												
698	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
699	k star (bias corrected)					1.146	**Data appear Normal at 5% Significance Level**					
700	Theta Star					5.831						
701	nu star					16.05						
702												
703	A-D Test Statistic					0.198	**Nonparametric Statistics**					
704	5% A-D Critical Value					0.717	Kaplan-Meier (KM) Method					
705	K-S Test Statistic					0.717	Mean					5.966
706	5% K-S Critical Value					0.316	SD					4.849
707	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.852
708							95% KM (t) UCL					9.475
709	**Assuming Gamma Distribution**						95% KM (z) UCL					9.012
710	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					9.398
711	Minimum					0.94	95% KM (bootstrap t) UCL					12.1
712	Maximum					16.5	95% KM (BCA) UCL					9.373
713	Mean					5.967	95% KM (Percentile Bootstrap) UCL					9.363
714	Median					4.55	95% KM (Chebyshev) UCL					14.04
715	SD					5.183	97.5% KM (Chebyshev) UCL					17.53
716	k star					0.974	99% KM (Chebyshev) UCL					24.39
717	Theta star					6.124						
718	Nu star					15.59	**Potential UCLs to Use**					
719	AppChi2					7.674	95% KM (t) UCL					9.475
720	95% Gamma Approximate UCL					12.12	95% KM (Percentile Bootstrap) UCL					9.363
721	95% Adjusted Gamma UCL					14.71						
722	**Note: DL/2 is not a recommended method.**											
723												

1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			J:\2001\016033.65_Lower Willamette Group-RIFS\09-Reports\Tables\ProUCLtemp\Site-Wide.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Aldrin											
10												
11	General Statistics											
12	Number of Valid Data			757			Number of Detected Data			190		
13	Number of Distinct Detected Data			176			Number of Non-Detect Data			567		
14	Number of Missing Values			335			Percent Non-Detects			74.90%		
15												
16	Raw Statistics						Log-transformed Statistics					
17	Minimum Detected			0.00333			Minimum Detected			-5.705		
18	Maximum Detected			691			Maximum Detected			6.538		
19	Mean of Detected			6.626			Mean of Detected			-0.451		
20	SD of Detected			51.05			SD of Detected			1.795		
21	Minimum Non-Detect			0.0156			Minimum Non-Detect			-4.16		
22	Maximum Non-Detect			99			Maximum Non-Detect			4.595		
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect			755		
25	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected			2		
26	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage			99.74%		
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
30	Lilliefors Test Statistic			0.448			Lilliefors Test Statistic			0.0735		
31	5% Lilliefors Critical Value			0.0643			5% Lilliefors Critical Value			0.0643		
32	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
33												
34	Assuming Normal Distribution						Assuming Lognormal Distribution					
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean			2.447			Mean			-1.523		
37	SD			25.97			SD			1.752		
38	95% DL/2 (t) UCL			4.001			95% H-Stat (DL/2) UCL			0.886		
39												
40	Maximum Likelihood Estimate(MLE) Method			N/A			Log ROS Method					
41	MLE method failed to converge properly						Mean in Log Scale			-3.224		
42							SD in Log Scale			2.091		
43							Mean in Original Scale			1.685		
44							SD in Original Scale			25.68		
45							95% Percentile Bootstrap UCL			3.548		
46							95% BCA Bootstrap UCL			5.147		
47												
48	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
49	k star (bias corrected)			0.294			Data do not follow a Discernable Distribution (0.05)					
50	Theta Star			22.53								
51	nu star			111.7								
52												
53	A-D Test Statistic			20.17			Nonparametric Statistics					

54					5% A-D Critical Value	0.871				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	0.871				Mean		1.722
56					5% K-S Critical Value	0.072				SD		25.67
57	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.935
58										95% KM (t) UCL		3.263
59	**Assuming Gamma Distribution**									95% KM (z) UCL		3.261
60	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		3.259
61					Minimum	1E-09				95% KM (bootstrap t) UCL		12.29
62					Maximum	691				95% KM (BCA) UCL		3.615
63					Mean	7.158				95% KM (Percentile Bootstrap) UCL		3.564
64					Median	1.978				95% KM (Chebyshev) UCL		5.8
65					SD	26.76				97.5% KM (Chebyshev) UCL		7.564
66					k star	0.28				99% KM (Chebyshev) UCL		11.03
67					Theta star	25.54						
68					Nu star	424.4				**Potential UCLs to Use**		
69					AppChi2	377.6				95% KM (Chebyshev) UCL		5.8
70					95% Gamma Approximate UCL	8.045						
71					95% Adjusted Gamma UCL	8.047						
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Arsenic**											
76												
77						**General Statistics**						
78					Number of Valid Data	1027				Number of Detected Data		915
79					Number of Distinct Detected Data	393				Number of Non-Detect Data		112
80					Number of Missing Values	65				Percent Non-Detects		10.91%
81												
82					**Raw Statistics**					**Log-transformed Statistics**		
83					Minimum Detected	0.97				Minimum Detected		-0.0305
84					Maximum Detected	75.6				Maximum Detected		4.325
85					Mean of Detected	4.932				Mean of Detected		1.415
86					SD of Detected	5.384				SD of Detected		0.494
87					Minimum Non-Detect	3				Minimum Non-Detect		1.099
88					Maximum Non-Detect	10				Maximum Non-Detect		2.303
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		985
91	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		42
92	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		95.91%
93												
94						**UCL Statistics**						
95	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
96					Lilliefors Test Statistic	0.284				Lilliefors Test Statistic		0.145
97					5% Lilliefors Critical Value	0.0293				5% Lilliefors Critical Value		0.0293
98	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
99												
100	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
101					DL/2 Substitution Method					DL/2 Substitution Method		
102					Mean	4.689				Mean		1.366
103					SD	5.133				SD		0.491
104					95% DL/2 (t) UCL	4.952				95% H-Stat (DL/2) UCL		N/A
105												
106					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		

107	**MLE yields a negative mean**									Mean in Log Scale		1.395
108										SD in Log Scale		0.481
109										Mean in Original Scale		4.788
110										SD in Original Scale		5.11
111										95% Percentile Bootstrap UCL		5.071
112										95% BCA Bootstrap UCL		5.078
113												
114	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
115				k star (bias corrected)		2.908				**Data do not follow a Discernable Distribution (0.05)**		
116				Theta Star		1.696						
117				nu star		5322						
118												
119				A-D Test Statistic		1.093E+28				**Nonparametric Statistics**		
120				5% A-D Critical Value		0.761				Kaplan-Meier (KM) Method		
121				K-S Test Statistic		0.761				Mean		4.774
122				5% K-S Critical Value		0.0309				SD		5.107
123	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.16
124										95% KM (t) UCL		5.036
125	**Assuming Gamma Distribution**									95% KM (z) UCL		5.036
126				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		5.036
127				Minimum		1E-09				95% KM (bootstrap t) UCL		5.093
128				Maximum		75.6				95% KM (BCA) UCL		5.044
129				Mean		4.898				95% KM (Percentile Bootstrap) UCL		5.066
130				Median		3.86				95% KM (Chebyshev) UCL		5.47
131				SD		5.118				97.5% KM (Chebyshev) UCL		5.771
132				k star		2.67				99% KM (Chebyshev) UCL		6.363
133				Theta star		1.834						
134				Nu star		5485				**Potential UCLs to Use**		
135				AppChi2		5314				95% KM (BCA) UCL		5.044
136				95% Gamma Approximate UCL		5.056						
137				95% Adjusted Gamma UCL		5.056						
138	**Note: DL/2 is not a recommended method.**											
139												
140												
141	**Benzo(a)anthracene**											
142												
143										**General Statistics**		
144				Number of Valid Data		1062				Number of Detected Data		1032
145				Number of Distinct Detected Data		384				Number of Non-Detect Data		30
146				Number of Missing Values		30				Percent Non-Detects		2.82%
147												
148	**Raw Statistics**									**Log-transformed Statistics**		
149				Minimum Detected		0.5				Minimum Detected		-0.693
150				Maximum Detected		120000				Maximum Detected		11.7
151				Mean of Detected		1471				Mean of Detected		4.713
152				SD of Detected		8741				SD of Detected		1.823
153				Minimum Non-Detect		1.2				Minimum Non-Detect		0.182
154				Maximum Non-Detect		215				Maximum Non-Detect		5.371
155												
156	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		756
157	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		306
158	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		71.19%
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	**UCL Statistics**											
161	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
162					Lilliefors Test Statistic	0.433				Lilliefors Test Statistic		0.0689
163					5% Lilliefors Critical Value	0.0276				5% Lilliefors Critical Value		0.0276
164	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
165												
166	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
167					DL/2 Substitution Method					DL/2 Substitution Method		
168					Mean	1430				Mean		4.637
169					SD	8620				SD		1.865
170					95% DL/2 (t) UCL	1866				95% H-Stat (DL/2) UCL		N/A
171												
172					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
173	**MLE yields a negative mean**									Mean in Log Scale		4.627
174										SD in Log Scale		1.878
175										Mean in Original Scale		1430
176										SD in Original Scale		8620
177										95% Percentile Bootstrap UCL		1874
178										95% BCA Bootstrap UCL		1978
179												
180	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
181					k star (bias corrected)	0.271	**Data do not follow a Discernable Distribution (0.05)**					
182					Theta Star	5421						
183					nu star	560.2						
184												
185					A-D Test Statistic	132.7	**Nonparametric Statistics**					
186					5% A-D Critical Value	0.884				Kaplan-Meier (KM) Method		
187					K-S Test Statistic	0.884				Mean		1430
188					5% K-S Critical Value	0.0311				SD		8616
189	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		264.5
190										95% KM (t) UCL		1866
191	**Assuming Gamma Distribution**									95% KM (z) UCL		1865
192					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1866
193					Minimum	1E-09				95% KM (bootstrap t) UCL		1991
194					Maximum	120000				95% KM (BCA) UCL		1887
195					Mean	1430				95% KM (Percentile Bootstrap) UCL		1876
196					Median	86				95% KM (Chebyshev) UCL		2583
197					SD	8620				97.5% KM (Chebyshev) UCL		3082
198					k star	0.221				99% KM (Chebyshev) UCL		4062
199					Theta star	6457						
200					Nu star	470.3	**Potential UCLs to Use**					
201					AppChi2	421.1				97.5% KM (Chebyshev) UCL		3082
202					95% Gamma Approximate UCL	1597						
203					95% Adjusted Gamma UCL	1598						
204	**Note: DL/2 is not a recommended method.**											
205												
206												
207	**Benzo(a)pyrene**											
208												
209	**General Statistics**											
210					Number of Valid Data	1062				Number of Detected Data		1026
211					Number of Distinct Detected Data	377				Number of Non-Detect Data		36
212					Number of Missing Values	30				Percent Non-Detects		3.39%

213												
214	**Raw Statistics**						**Log-transformed Statistics**					
215					Minimum Detected	0.86					Minimum Detected	-0.151
216					Maximum Detected	160000					Maximum Detected	11.98
217					Mean of Detected	1812					Mean of Detected	4.912
218					SD of Detected	10555					SD of Detected	1.839
219					Minimum Non-Detect	0.33					Minimum Non-Detect	-1.109
220					Maximum Non-Detect	215					Maximum Non-Detect	5.371
221												
222	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	700
223	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	362
224	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	65.91%
225												
226	**UCL Statistics**											
227	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
228					Lilliefors Test Statistic	0.432					Lilliefors Test Statistic	0.0645
229					5% Lilliefors Critical Value	0.0277					5% Lilliefors Critical Value	0.0277
230	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
231												
232	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
233					DL/2 Substitution Method						DL/2 Substitution Method	
234					Mean	1751					Mean	4.81
235					SD	10379					SD	1.905
236					95% DL/2 (t) UCL	2275					95% H-Stat (DL/2) UCL	N/A
237												
238					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
239	**MLE yields a negative mean**										Mean in Log Scale	4.8
240											SD in Log Scale	1.918
241											Mean in Original Scale	1751
242											SD in Original Scale	10379
243											95% Percentile Bootstrap UCL	2287
244											95% BCA Bootstrap UCL	2397
245												
246	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
247					k star (bias corrected)	0.271	**Data do not follow a Discernable Distribution (0.05)**					
248					Theta Star	6695						
249					nu star	555.3						
250												
251					A-D Test Statistic	130.1	**Nonparametric Statistics**					
252					5% A-D Critical Value	0.885	Kaplan-Meier (KM) Method					
253					K-S Test Statistic	0.885					Mean	1751
254					5% K-S Critical Value	0.0311					SD	10374
255	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	318.5
256											95% KM (t) UCL	2275
257	**Assuming Gamma Distribution**										95% KM (z) UCL	2275
258					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2275
259					Minimum	1E-09					95% KM (bootstrap t) UCL	2455
260					Maximum	160000					95% KM (BCA) UCL	2339
261					Mean	1750					95% KM (Percentile Bootstrap) UCL	2320
262					Median	100.5					95% KM (Chebyshev) UCL	3139
263					SD	10379					97.5% KM (Chebyshev) UCL	3740
264					k star	0.213					99% KM (Chebyshev) UCL	4920
265					Theta star	8223						

266					Nu star	452.1	**Potential UCLs to Use**					
267					AppChi2	403.8				97.5% KM (Chebyshev) UCL		3740
268					95% Gamma Approximate UCL	1960						
269					95% Adjusted Gamma UCL	1960						
270	**Note: DL/2 is not a recommended method.**											
271												
272												
273	**Benzo(b)fluoranthene**											
274												
275					**General Statistics**							
276					Number of Valid Data	1062				Number of Detected Data		1037
277					Number of Distinct Detected Data	390				Number of Non-Detect Data		25
278					Number of Missing Values	30				Percent Non-Detects		2.35%
279												
280				**Raw Statistics**					**Log-transformed Statistics**			
281					Minimum Detected	1.1				Minimum Detected		0.0953
282					Maximum Detected	130000				Maximum Detected		11.78
283					Mean of Detected	1448				Mean of Detected		5.035
284					SD of Detected	7973				SD of Detected		1.751
285					Minimum Non-Detect	0.72				Minimum Non-Detect		-0.329
286					Maximum Non-Detect	264				Maximum Non-Detect		5.576
287												
288	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		728
289	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		334
290	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		68.55%
291												
292					**UCL Statistics**							
293				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
294					Lilliefors Test Statistic	0.428				Lilliefors Test Statistic		0.0666
295					5% Lilliefors Critical Value	0.0275				5% Lilliefors Critical Value		0.0275
296				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
297												
298				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
299					DL/2 Substitution Method					DL/2 Substitution Method		
300					Mean	1414				Mean		4.961
301					SD	7882				SD		1.804
302					95% DL/2 (t) UCL	1812				95% H-Stat (DL/2) UCL		N/A
303												
304					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
305				**MLE yields a negative mean**						Mean in Log Scale		4.955
306										SD in Log Scale		1.812
307										Mean in Original Scale		1414
308										SD in Original Scale		7882
309										95% Percentile Bootstrap UCL		1847
310										95% BCA Bootstrap UCL		1930
311												
312				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
313					k star (bias corrected)	0.306			**Data do not follow a Discernable Distribution (0.05)**			
314					Theta Star	4729						
315					nu star	635						
316												
317					A-D Test Statistic	114.6			**Nonparametric Statistics**			
318					5% A-D Critical Value	0.869				Kaplan-Meier (KM) Method		

	A	B	C	D	E	F	G	H	I	J	K	L
319					K-S Test Statistic	0.869					Mean	1414
320					5% K-S Critical Value	0.0308					SD	7878
321				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	241.9
322											95% KM (t) UCL	1812
323				**Assuming Gamma Distribution**							95% KM (z) UCL	1812
324					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1812
325					Minimum	1E-09					95% KM (bootstrap t) UCL	1991
326					Maximum	130000					95% KM (BCA) UCL	1863
327					Mean	1414					95% KM (Percentile Bootstrap) UCL	1857
328					Median	120					95% KM (Chebyshev) UCL	2468
329					SD	7882					97.5% KM (Chebyshev) UCL	2924
330					k star	0.251					99% KM (Chebyshev) UCL	3821
331					Theta star	5629						
332					Nu star	533.4				**Potential UCLs to Use**		
333					AppChi2	480.8					97.5% KM (Chebyshev) UCL	2924
334					95% Gamma Approximate UCL	1568						
335					95% Adjusted Gamma UCL	1568						
336	**Note: DL/2 is not a recommended method.**											
337												
338												
339	**Benzo(k)fluoranthene**											
340												
341						**General Statistics**							
342					Number of Valid Data	958					Number of Detected Data	939
343					Number of Distinct Detected Data	312					Number of Non-Detect Data	19
344					Number of Missing Values	134					Percent Non-Detects	1.98%
345												
346				**Raw Statistics**						**Log-transformed Statistics**		
347					Minimum Detected	0.77					Minimum Detected	-0.261
348					Maximum Detected	89000					Maximum Detected	11.4
349					Mean of Detected	952.1					Mean of Detected	4.345
350					SD of Detected	5349					SD of Detected	1.847
351					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
352					Maximum Non-Detect	20					Maximum Non-Detect	2.996
353												
354	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	235
355	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	723
356	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	24.53%
357												
358						**UCL Statistics**							
359				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
360					Lilliefors Test Statistic	0.429					Lilliefors Test Statistic	0.0563
361					5% Lilliefors Critical Value	0.0289					5% Lilliefors Critical Value	0.0289
362				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
363												
364				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
365					DL/2 Substitution Method						DL/2 Substitution Method	
366					Mean	933.4					Mean	4.292
367					SD	5297					SD	1.872
368					95% DL/2 (t) UCL	1215					95% H-Stat (DL/2) UCL	469.6
369												
370					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
371				**MLE yields a negative mean**							Mean in Log Scale	4.286

372											SD in Log Scale	1.882
373											Mean in Original Scale	933.4
374											SD in Original Scale	5297
375											95% Percentile Bootstrap UCL	1237
376											95% BCA Bootstrap UCL	1275
377												
378	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
379					k star (bias corrected)	0.278					**Data do not follow a Discernable Distribution (0.05)**	
380					Theta Star	3430						
381					nu star	521.4						
382												
383					A-D Test Statistic	112.1					**Nonparametric Statistics**	
384					5% A-D Critical Value	0.881					Kaplan-Meier (KM) Method	
385					K-S Test Statistic	0.881					Mean	933.4
386					5% K-S Critical Value	0.0328					SD	5294
387	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	171.1
388											95% KM (t) UCL	1215
389	**Assuming Gamma Distribution**										95% KM (z) UCL	1215
390					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1215
391					Minimum	1E-09					95% KM (bootstrap t) UCL	1324
392					Maximum	89000					95% KM (BCA) UCL	1257
393					Mean	933.2					95% KM (Percentile Bootstrap) UCL	1237
394					Median	65					95% KM (Chebyshev) UCL	1679
395					SD	5297					97.5% KM (Chebyshev) UCL	2002
396					k star	0.239					99% KM (Chebyshev) UCL	2636
397					Theta star	3903						
398					Nu star	458.2					**Potential UCLs to Use**	
399					AppChi2	409.6					97.5% KM (Chebyshev) UCL	2002
400					95% Gamma Approximate UCL	1044						
401					95% Adjusted Gamma UCL	1044						
402	**Note: DL/2 is not a recommended method.**											
403												
404												
405	**Bis(2-ethylhexyl) phthalate**											
406												
407	**General Statistics**											
408					Number of Valid Data	1003					Number of Detected Data	614
409					Number of Distinct Detected Data	273					Number of Non-Detect Data	389
410					Number of Missing Values	89					Percent Non-Detects	38.78%
411												
412	**Raw Statistics**										**Log-transformed Statistics**	
413					Minimum Detected	7					Minimum Detected	1.946
414					Maximum Detected	440000					Maximum Detected	12.99
415					Mean of Detected	1522					Mean of Detected	5.34
416					SD of Detected	17960					SD of Detected	1.402
417					Minimum Non-Detect	2.3					Minimum Non-Detect	0.833
418					Maximum Non-Detect	19000					Maximum Non-Detect	9.852
419												
420	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	998
421	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
422	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	99.50%
423												
424	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
425	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
426					Lilliefors Test Statistic	0.466					Lilliefors Test Statistic	0.104
427					5% Lilliefors Critical Value	0.0358					5% Lilliefors Critical Value	0.0358
428	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
429												
430	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
431					DL/2 Substitution Method						DL/2 Substitution Method	
432					Mean	961.7					Mean	4.592
433					SD	14068					SD	1.595
434					95% DL/2 (t) UCL	1693					95% H-Stat (DL/2) UCL	N/A
435												
436					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
437	**MLE yields a negative mean**										Mean in Log Scale	4.322
438											SD in Log Scale	1.783
439											Mean in Original Scale	941.2
440											SD in Original Scale	14066
441											95% Percentile Bootstrap UCL	1783
442											95% BCA Bootstrap UCL	2359
443												
444	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
445					k star (bias corrected)	0.339	**Data do not follow a Discernable Distribution (0.05)**					
446					Theta Star	4487						
447					nu star	416.7						
448												
449					A-D Test Statistic	1.629E+28	**Nonparametric Statistics**					
450					5% A-D Critical Value	0.862					Kaplan-Meier (KM) Method	
451					K-S Test Statistic	0.862					Mean	943.9
452					5% K-S Critical Value	0.0408					SD	14059
453	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	444.3
454											95% KM (t) UCL	1675
455	**Assuming Gamma Distribution**										95% KM (z) UCL	1675
456					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1675
457					Minimum	1E-09					95% KM (bootstrap t) UCL	4955
458					Maximum	440000					95% KM (BCA) UCL	1822
459					Mean	1157					95% KM (Percentile Bootstrap) UCL	1823
460					Median	98					95% KM (Chebyshev) UCL	2880
461					SD	14082					97.5% KM (Chebyshev) UCL	3718
462					k star	0.0909					99% KM (Chebyshev) UCL	5364
463					Theta star	12730						
464					Nu star	182.3	**Potential UCLs to Use**					
465					AppChi2	152.1					95% KM (Chebyshev) UCL	2880
466					95% Gamma Approximate UCL	1387						
467					95% Adjusted Gamma UCL	1387						
468	**Note: DL/2 is not a recommended method.**											
469												
470												
471	**Dibenzo(a,h)anthracene**											
472												
473	**General Statistics**											
474					Number of Valid Data	1062					Number of Detected Data	910
475					Number of Distinct Detected Data	315					Number of Non-Detect Data	152
476					Number of Missing Values	30					Percent Non-Detects	14.31%
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478	**Raw Statistics**						**Log-transformed Statistics**					
479	Minimum Detected					0.22	Minimum Detected					-1.514
480	Maximum Detected					15000	Maximum Detected					9.616
481	Mean of Detected					221.4	Mean of Detected					3.152
482	SD of Detected					1063	SD of Detected					1.818
483	Minimum Non-Detect					0.38	Minimum Non-Detect					-0.968
484	Maximum Non-Detect					215	Maximum Non-Detect					5.371
485												
486	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					964
487	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					98
488	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					90.77%
489												
490	**UCL Statistics**											
491	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
492	Lilliefors Test Statistic					0.418	Lilliefors Test Statistic					0.0561
493	5% Lilliefors Critical Value					0.0294	5% Lilliefors Critical Value					0.0294
494	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
495												
496	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
497	DL/2 Substitution Method						DL/2 Substitution Method					
498	Mean					190.9	Mean					2.937
499	SD					986.5	SD					1.812
500	95% DL/2 (t) UCL					240.8	95% H-Stat (DL/2) UCL					N/A
501												
502	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
503	**MLE yields a negative mean**						Mean in Log Scale					2.845
504							SD in Log Scale					1.898
505							Mean in Original Scale					190.4
506							SD in Original Scale					986.6
507							95% Percentile Bootstrap UCL					242.5
508							95% BCA Bootstrap UCL					250.6
509												
510	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
511	k star (bias corrected)					0.306	**Data do not follow a Discernable Distribution (0.05)**					
512	Theta Star					724.4						
513	nu star					556.2						
514												
515	A-D Test Statistic					92.22	**Nonparametric Statistics**					
516	5% A-D Critical Value					0.869	Kaplan-Meier (KM) Method					
517	K-S Test Statistic					0.869	Mean					190.4
518	5% K-S Critical Value					0.0334	SD					986.2
519	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					30.28
520							95% KM (t) UCL					240.3
521	**Assuming Gamma Distribution**						95% KM (z) UCL					240.2
522	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					240.3
523	Minimum					1E-09	95% KM (bootstrap t) UCL					258.6
524	Maximum					15000	95% KM (BCA) UCL					243.4
525	Mean					190.6	95% KM (Percentile Bootstrap) UCL					244.7
526	Median					15	95% KM (Chebyshev) UCL					322.4
527	SD					986.6	97.5% KM (Chebyshev) UCL					379.5
528	k star					0.149	99% KM (Chebyshev) UCL					491.7
529	Theta star					1283						
530	Nu star					315.4	**Potential UCLs to Use**					

531					AppChi2	275.3				97.5% KM (Chebyshev) UCL		379.5
532					95% Gamma Approximate UCL	218.4						
533					95% Adjusted Gamma UCL	218.4						
534	**Note: DL/2 is not a recommended method.**											
535												
536												
537	**Dieldrin**											
538												
539	**General Statistics**											
540					Number of Valid Data	792				Number of Detected Data		169
541					Number of Distinct Detected Data	151				Number of Non-Detect Data		623
542					Number of Missing Values	300				Percent Non-Detects		78.66%
543												
544	**Raw Statistics**						**Log-transformed Statistics**					
545					Minimum Detected	0.00834				Minimum Detected		-4.787
546					Maximum Detected	356				Maximum Detected		5.875
547					Mean of Detected	3.559				Mean of Detected		-0.983
548					SD of Detected	27.53				SD of Detected		1.579
549					Minimum Non-Detect	0.03				Minimum Non-Detect		-3.507
550					Maximum Non-Detect	270				Maximum Non-Detect		5.598
551												
552	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		791
553	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
554	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		99.87%
555												
556	**UCL Statistics**											
557	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
558					Lilliefors Test Statistic	0.449				Lilliefors Test Statistic		0.142
559					5% Lilliefors Critical Value	0.0682				5% Lilliefors Critical Value		0.0682
560	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
561												
562	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
563					DL/2 Substitution Method					DL/2 Substitution Method		
564					Mean	2.131				Mean		-1.599
565					SD	15.62				SD		1.62
566					95% DL/2 (t) UCL	3.045				95% H-Stat (DL/2) UCL		0.781
567												
568					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
569	**MLE method failed to converge properly**									Mean in Log Scale		-3.555
570										SD in Log Scale		1.779
571										Mean in Original Scale		0.78
572										SD in Original Scale		12.77
573										95% Percentile Bootstrap UCL		1.666
574										95% BCA Bootstrap UCL		2.175
575												
576	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
577					k star (bias corrected)	0.304	**Data do not follow a Discernable Distribution (0.05)**					
578					Theta Star	11.72						
579					nu star	102.7						
580												
581					A-D Test Statistic	23.34	**Nonparametric Statistics**					
582					5% A-D Critical Value	0.867				Kaplan-Meier (KM) Method		
583					K-S Test Statistic	0.867				Mean		0.813

584					5% K-S Critical Value	0.0777					SD	12.76
585					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.455
586											95% KM (t) UCL	1.562
587					**Assuming Gamma Distribution**						95% KM (z) UCL	1.561
588					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.55
589					Minimum	1E-09					95% KM (bootstrap t) UCL	5.332
590					Maximum	356					95% KM (BCA) UCL	1.761
591					Mean	3.076					95% KM (Percentile Bootstrap) UCL	1.71
592					Median	2.775					95% KM (Chebyshev) UCL	2.796
593					SD	12.74					97.5% KM (Chebyshev) UCL	3.654
594					k star	0.318					99% KM (Chebyshev) UCL	5.34
595					Theta star	9.658						
596					Nu star	504.5					**Potential UCLs to Use**	
597					AppChi2	453.4					95% KM (Chebyshev) UCL	2.796
598					95% Gamma Approximate UCL	3.423						
599					95% Adjusted Gamma UCL	3.423						
600	**Note: DL/2 is not a recommended method.**											
601												
602												
603	**Indeno(1,2,3-cd)pyrene**											
604												
605						**General Statistics**							
606					Number of Valid Data	1062					Number of Detected Data	1012
607					Number of Distinct Detected Data	369					Number of Non-Detect Data	50
608					Number of Missing Values	30					Percent Non-Detects	4.71%
609												
610					**Raw Statistics**						**Log-transformed Statistics**	
611					Minimum Detected	0.9					Minimum Detected	-0.105
612					Maximum Detected	130000					Maximum Detected	11.78
613					Mean of Detected	1276					Mean of Detected	4.652
614					SD of Detected	7458					SD of Detected	1.804
615					Minimum Non-Detect	0.36					Minimum Non-Detect	-1.022
616					Maximum Non-Detect	215					Maximum Non-Detect	5.371
617												
618	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	760
619	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	302
620	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	71.56%
621												
622						**UCL Statistics**							
623					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
624					Lilliefors Test Statistic	0.432					Lilliefors Test Statistic	0.0715
625					5% Lilliefors Critical Value	0.0279					5% Lilliefors Critical Value	0.0279
626					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
627												
628					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
629					DL/2 Substitution Method						DL/2 Substitution Method	
630					Mean	1216					Mean	4.513
631					SD	7285					SD	1.887
632					95% DL/2 (t) UCL	1584					95% H-Stat (DL/2) UCL	N/A
633												
634					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
635					**MLE yields a negative mean**						Mean in Log Scale	4.498
636											SD in Log Scale	1.906

637											Mean in Original Scale	1216
638											SD in Original Scale	7285
639											95% Percentile Bootstrap UCL	1618
640											95% BCA Bootstrap UCL	1652
641												
642	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
643					k star (bias corrected)	0.279					**Data do not follow a Discernable Distribution (0.05)**	
644					Theta Star	4574						
645					nu star	564.6						
646												
647					A-D Test Statistic	126.8					**Nonparametric Statistics**	
648					5% A-D Critical Value	0.881					Kaplan-Meier (KM) Method	
649					K-S Test Statistic	0.881					Mean	1216
650					5% K-S Critical Value	0.0312					SD	7282
651	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	223.6
652											95% KM (t) UCL	1584
653	**Assuming Gamma Distribution**										95% KM (z) UCL	1584
654	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	1584
655					Minimum	1E-09					95% KM (bootstrap t) UCL	1711
656					Maximum	130000					95% KM (BCA) UCL	1638
657					Mean	1216					95% KM (Percentile Bootstrap) UCL	1610
658					Median	75					95% KM (Chebyshev) UCL	2191
659					SD	7285					97.5% KM (Chebyshev) UCL	2612
660					k star	0.202					99% KM (Chebyshev) UCL	3441
661					Theta star	6029						
662					Nu star	428.3					**Potential UCLs to Use**	
663					AppChi2	381.3					97.5% KM (Chebyshev) UCL	2612
664					95% Gamma Approximate UCL	1366						
665					95% Adjusted Gamma UCL	1366						
666	**Note: DL/2 is not a recommended method.**											
667												
668												
669	**Lead**											
670												
671	**General Statistics**											
672					Number of Valid Data	1015					Number of Detected Data	1012
673					Number of Distinct Detected Data	476					Number of Non-Detect Data	3
674					Number of Missing Values	77					Percent Non-Detects	0.30%
675												
676	**Raw Statistics**										**Log-transformed Statistics**	
677					Minimum Detected	2.2					Minimum Detected	0.788
678					Maximum Detected	13400					Maximum Detected	9.503
679					Mean of Detected	52.23					Mean of Detected	3.064
680					SD of Detected	434.7					SD of Detected	0.874
681					Minimum Non-Detect	5.3					Minimum Non-Detect	1.668
682					Maximum Non-Detect	10					Maximum Non-Detect	2.303
683												
684	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	115
685	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	900
686	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	11.33%
687												
688	**UCL Statistics**											
689	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	

	A	B	C	D	E	F	G	H	I	J	K	L
690					Lilliefors Test Statistic	0.454					Lilliefors Test Statistic	0.129
691					5% Lilliefors Critical Value	0.0279					5% Lilliefors Critical Value	0.0279
692	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
693												
694	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
695					DL/2 Substitution Method						DL/2 Substitution Method	
696					Mean	52.09					Mean	3.059
697					SD	434.1					SD	0.878
698					95% DL/2 (t) UCL	74.52					95% H-Stat (DL/2) UCL	N/A
699												
700					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
701					Mean	10.58					Mean in Log Scale	3.059
702					SD	462.9					SD in Log Scale	0.877
703					95% MLE (t) UCL	34.5					Mean in Original Scale	52.09
704					95% MLE (Tiku) UCL	32.7					SD in Original Scale	434.1
705											95% Percentile Bootstrap UCL	78.21
706											95% BCA Bootstrap UCL	93.29
707												
708	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
709					k star (bias corrected)	0.679	**Data do not follow a Discernable Distribution (0.05)**					
710					Theta Star	76.94						
711					nu star	1374						
712												
713					A-D Test Statistic	9.881E+27	**Nonparametric Statistics**					
714					5% A-D Critical Value	0.804					Kaplan-Meier (KM) Method	
715					K-S Test Statistic	0.804					Mean	52.09
716					5% K-S Critical Value	0.0299					SD	433.9
717	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	13.63
718											95% KM (t) UCL	74.52
719	**Assuming Gamma Distribution**										95% KM (z) UCL	74.5
720				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	74.52
721					Minimum	1E-09					95% KM (bootstrap t) UCL	131.9
722					Maximum	13400					95% KM (BCA) UCL	80.63
723					Mean	52.07					95% KM (Percentile Bootstrap) UCL	78.01
724					Median	16.7					95% KM (Chebyshev) UCL	111.5
725					SD	434.1					97.5% KM (Chebyshev) UCL	137.2
726					k star	0.637					99% KM (Chebyshev) UCL	187.7
727					Theta star	81.75						
728					Nu star	1293	**Potential UCLs to Use**					
729					AppChi2	1211					95% KM (BCA) UCL	80.63
730					95% Gamma Approximate UCL	55.62						
731					95% Adjusted Gamma UCL	55.63						
732	**Note: DL/2 is not a recommended method.**											
733												
734												
735	**Mercury**											
736												
737	**General Statistics**											
738					Number of Valid Data	1003					Number of Detected Data	950
739					Number of Distinct Detected Data	303					Number of Non-Detect Data	53
740					Number of Missing Values	89					Percent Non-Detects	5.28%
741												
742	**Raw Statistics**						**Log-transformed Statistics**					

743					Minimum Detected	0.007					Minimum Detected	-4.962
744					Maximum Detected	65.2					Maximum Detected	4.177
745					Mean of Detected	0.176					Mean of Detected	-2.586
746					SD of Detected	2.121					SD of Detected	0.793
747					Minimum Non-Detect	0.008					Minimum Non-Detect	-4.828
748					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
749												
750	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	737
751	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	266
752	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	73.48%
753												
754	**UCL Statistics**											
755	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
756					Lilliefors Test Statistic	0.468					Lilliefors Test Statistic	0.103
757					5% Lilliefors Critical Value	0.0287					5% Lilliefors Critical Value	0.0287
758	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
759												
760	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
761					DL/2 Substitution Method						DL/2 Substitution Method	
762					Mean	0.168					Mean	-2.666
763					SD	2.065					SD	0.865
764					95% DL/2 (t) UCL	0.276					95% H-Stat (DL/2) UCL	N/A
765												
766					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
767	**MLE yields a negative mean**										Mean in Log Scale	-2.65
768											SD in Log Scale	0.829
769											Mean in Original Scale	0.169
770											SD in Original Scale	2.065
771											95% Percentile Bootstrap UCL	0.298
772											95% BCA Bootstrap UCL	0.425
773												
774	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
775					k star (bias corrected)	0.707	**Data do not follow a Discernable Distribution (0.05)**					
776					Theta Star	0.25						
777					nu star	1343						
778												
779					A-D Test Statistic	1.053E+28	**Nonparametric Statistics**					
780					5% A-D Critical Value	0.801					Kaplan-Meier (KM) Method	
781					K-S Test Statistic	0.801					Mean	0.169
782					5% K-S Critical Value	0.0311					SD	2.064
783	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0652
784											95% KM (t) UCL	0.276
785	**Assuming Gamma Distribution**										95% KM (z) UCL	0.276
786					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.276
787					Minimum	1E-09					95% KM (bootstrap t) UCL	1.412
788					Maximum	65.2					95% KM (BCA) UCL	0.301
789					Mean	0.168					95% KM (Percentile Bootstrap) UCL	0.299
790					Median	0.07					95% KM (Chebyshev) UCL	0.453
791					SD	2.065					97.5% KM (Chebyshev) UCL	0.576
792					k star	0.409					99% KM (Chebyshev) UCL	0.817
793					Theta star	0.411						
794					Nu star	819.7	**Potential UCLs to Use**					
795					AppChi2	754.2					95% KM (BCA) UCL	0.301

796				95% Gamma Approximate UCL		0.182						
797				95% Adjusted Gamma UCL		0.182						
798	**Note: DL/2 is not a recommended method.**											
799												
800												
801	**Naphthalene**											
802												
803					**General Statistics**							
804				Number of Valid Data		1066			Number of Detected Data		755	
805				Number of Distinct Detected Data		281			Number of Non-Detect Data		311	
806				Number of Missing Values		26			Percent Non-Detects		29.17%	
807												
808				**Raw Statistics**					**Log-transformed Statistics**			
809				Minimum Detected		0.27			Minimum Detected		-1.309	
810				Maximum Detected		100000			Maximum Detected		11.51	
811				Mean of Detected		709.9			Mean of Detected		3.664	
812				SD of Detected		5914			SD of Detected		1.633	
813				Minimum Non-Detect		0.43			Minimum Non-Detect		-0.844	
814				Maximum Non-Detect		160			Maximum Non-Detect		5.075	
815												
816	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect		951	
817	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected		115	
818	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage		89.21%	
819												
820					**UCL Statistics**							
821				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
822				Lilliefors Test Statistic		0.455			Lilliefors Test Statistic		0.0999	
823				5% Lilliefors Critical Value		0.0322			5% Lilliefors Critical Value		0.0322	
824				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
825												
826				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
827				DL/2 Substitution Method					DL/2 Substitution Method			
828				Mean		504.6			Mean		2.914	
829				SD		4986			SD		1.943	
830				95% DL/2 (t) UCL		756.1			95% H-Stat (DL/2) UCL		N/A	
831												
832				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
833				**MLE yields a negative mean**					Mean in Log Scale		2.765	
834									SD in Log Scale		2.03	
835									Mean in Original Scale		503.6	
836									SD in Original Scale		4987	
837									95% Percentile Bootstrap UCL		758.7	
838									95% BCA Bootstrap UCL		875	
839												
840				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
841				k star (bias corrected)		0.245			**Data do not follow a Discernable Distribution (0.05)**			
842				Theta Star		2892						
843				nu star		370.7						
844												
845				A-D Test Statistic		1.325E+28			**Nonparametric Statistics**			
846				5% A-D Critical Value		0.897			Kaplan-Meier (KM) Method			
847				K-S Test Statistic		0.897			Mean		503.8	
848				5% K-S Critical Value		0.0378			SD		4984	

849	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	152.8
850											95% KM (t) UCL	755.3
851	**Assuming Gamma Distribution**										95% KM (z) UCL	755
852	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	755.2
853	Minimum	1E-09									95% KM (bootstrap t) UCL	899.3
854	Maximum	100000									95% KM (BCA) UCL	790.1
855	Mean	513									95% KM (Percentile Bootstrap) UCL	771
856	Median	18									95% KM (Chebyshev) UCL	1170
857	SD	4986									97.5% KM (Chebyshev) UCL	1458
858	k star	0.0911									99% KM (Chebyshev) UCL	2024
859	Theta star	5628										
860	Nu star	194.3									**Potential UCLs to Use**	
861	AppChi2	163.1									97.5% KM (Chebyshev) UCL	1458
862	95% Gamma Approximate UCL	611.3										
863	95% Adjusted Gamma UCL	611.4										
864	**Note: DL/2 is not a recommended method.**											
865												
866												
867	**Thallium**											
868												
869	**General Statistics**											
870	Number of Valid Data	190									Number of Detected Data	162
871	Number of Distinct Detected Data	69									Number of Non-Detect Data	28
872	Number of Missing Values	902									Percent Non-Detects	14.74%
873												
874	**Raw Statistics**										**Log-transformed Statistics**	
875	Minimum Detected	0.026									Minimum Detected	-3.65
876	Maximum Detected	27									Maximum Detected	3.296
877	Mean of Detected	7.9									Mean of Detected	0.71
878	SD of Detected	7.494									SD of Detected	2.323
879	Minimum Non-Detect	0.051									Minimum Non-Detect	-2.976
880	Maximum Non-Detect	10									Maximum Non-Detect	2.303
881												
882	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	132
883	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	58
884	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	69.47%
885												
886	**UCL Statistics**											
887	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
888	Lilliefors Test Statistic	0.196									Lilliefors Test Statistic	0.293
889	5% Lilliefors Critical Value	0.0696									5% Lilliefors Critical Value	0.0696
890	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
891												
892	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
893	DL/2 Substitution Method										DL/2 Substitution Method	
894	Mean	7.11									Mean	0.65
895	SD	7.195									SD	2.246
896	95% DL/2 (t) UCL	7.973									95% H-Stat (DL/2) UCL	39.8
897												
898	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
899	Mean	4.937									Mean in Log Scale	0.37
900	SD	9.746									SD in Log Scale	2.336
901	95% MLE (t) UCL	6.106									Mean in Original Scale	6.784

902					95% MLE (Tiku) UCL	6.947					SD in Original Scale	7.422
903											95% Percentile Bootstrap UCL	7.739
904											95% BCA Bootstrap UCL	7.746
905												
906					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
907					k star (bias corrected)	0.468					**Data do not follow a Discernable Distribution (0.05)**	
908					Theta Star	16.89						
909					nu star	151.5						
910												
911					A-D Test Statistic	12.85					**Nonparametric Statistics**	
912					5% A-D Critical Value	0.827					Kaplan-Meier (KM) Method	
913					K-S Test Statistic	0.827					Mean	6.829
914					5% K-S Critical Value	0.078					SD	7.396
915					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.54
916											95% KM (t) UCL	7.722
917					**Assuming Gamma Distribution**						95% KM (z) UCL	7.717
918					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	7.722
919					Minimum	0.026					95% KM (bootstrap t) UCL	7.742
920					Maximum	27					95% KM (BCA) UCL	7.712
921					Mean	7.066					95% KM (Percentile Bootstrap) UCL	7.716
922					Median	6					95% KM (Chebyshev) UCL	9.184
923					SD	7.234					97.5% KM (Chebyshev) UCL	10.2
924					k star	0.493					99% KM (Chebyshev) UCL	12.2
925					Theta star	14.32						
926					Nu star	187.5					**Potential UCLs to Use**	
927					AppChi2	156.8					97.5% KM (Chebyshev) UCL	10.2
928					95% Gamma Approximate UCL	8.448						
929					95% Adjusted Gamma UCL	8.459						
930	**Note: DL/2 is not a recommended method.**											
931												
932												
933	**Total Aroclors**											
934												
935							**General Statistics**					
936					Number of Valid Data	785					Number of Detected Data	626
937					Number of Distinct Detected Data	572					Number of Non-Detect Data	159
938					Number of Missing Values	307					Percent Non-Detects	20.25%
939												
940					**Raw Statistics**						**Log-transformed Statistics**	
941					Minimum Detected	5.136					Minimum Detected	1.636
942					Maximum Detected	30822					Maximum Detected	10.34
943					Mean of Detected	219.9					Mean of Detected	4.101
944					SD of Detected	1290					SD of Detected	1.283
945					Minimum Non-Detect	1.3					Minimum Non-Detect	0.262
946					Maximum Non-Detect	4000					Maximum Non-Detect	8.294
947												
948	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	784
949	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
950	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	99.87%
951												
952							**UCL Statistics**					
953					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
954					Lilliefors Test Statistic	0.434					Lilliefors Test Statistic	0.106

	A	B	C	D	E	F	G	H	I	J	K	L
955					5% Lilliefors Critical Value	0.0354					5% Lilliefors Critical Value	0.0354
956	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
957												
958	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
959					DL/2 Substitution Method						DL/2 Substitution Method	
960					Mean	188.7					Mean	3.673
961					SD	1159					SD	1.618
962					95% DL/2 (t) UCL	256.8					95% H-Stat (DL/2) UCL	129.6
963												
964					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
965	**MLE method failed to converge properly**										Mean in Log Scale	3.66
966											SD in Log Scale	1.502
967											Mean in Original Scale	177.6
968											SD in Original Scale	1155
969											95% Percentile Bootstrap UCL	252.2
970											95% BCA Bootstrap UCL	308.3
971												
972	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
973					k star (bias corrected)	0.491	**Data do not follow a Discernable Distribution (0.05)**					
974					Theta Star	447.5						
975					nu star	615.3						
976												
977					A-D Test Statistic	1.597E+28	**Nonparametric Statistics**					
978					5% A-D Critical Value	0.825					Kaplan-Meier (KM) Method	
979					K-S Test Statistic	0.825					Mean	178.7
980					5% K-S Critical Value	0.0397					SD	1155
981	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	41.25
982											95% KM (t) UCL	246.6
983	**Assuming Gamma Distribution**										95% KM (z) UCL	246.6
984					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	246.6
985					Minimum	1E-09					95% KM (bootstrap t) UCL	379
986					Maximum	30822					95% KM (BCA) UCL	262.6
987					Mean	183.3					95% KM (Percentile Bootstrap) UCL	256.1
988					Median	34.15					95% KM (Chebyshev) UCL	358.5
989					SD	1155					97.5% KM (Chebyshev) UCL	436.3
990					k star	0.15					99% KM (Chebyshev) UCL	589.2
991					Theta star	1226						
992					Nu star	234.8	**Potential UCLs to Use**					
993					AppChi2	200.3					95% KM (Chebyshev) UCL	358.5
994					95% Gamma Approximate UCL	214.8						
995					95% Adjusted Gamma UCL	214.9						
996	**Note: DL/2 is not a recommended method.**											
997												
998												
999	**Total DDT**											
1000												
1001	**General Statistics**											
1002					Number of Valid Data	844					Number of Detected Data	655
1003					Number of Distinct Detected Data	606					Number of Non-Detect Data	189
1004					Number of Missing Values	248					Percent Non-Detects	22.39%
1005												
1006	**Raw Statistics**						**Log-transformed Statistics**					
1007					Minimum Detected	0.077					Minimum Detected	-2.564

	A	B	C	D	E	F	G	H	I	J	K	L
1008					Maximum Detected	23000					Maximum Detected	10.04
1009					Mean of Detected	177.3					Mean of Detected	1.499
1010					SD of Detected	1248					SD of Detected	2.179
1011					Minimum Non-Detect	0.0441					Minimum Non-Detect	-3.121
1012					Maximum Non-Detect	41					Maximum Non-Detect	3.714
1013												
1014	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	744
1015	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	100
1016	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	88.15%
1017												
1018	**UCL Statistics**											
1019	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1020					Lilliefors Test Statistic	0.444					Lilliefors Test Statistic	0.112
1021					5% Lilliefors Critical Value	0.0346					5% Lilliefors Critical Value	0.0346
1022	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1023												
1024	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1025					DL/2 Substitution Method						DL/2 Substitution Method	
1026					Mean	137.9					Mean	1.078
1027					SD	1102					SD	2.198
1028					95% DL/2 (t) UCL	200.4					95% H-Stat (DL/2) UCL	30.87
1029												
1030					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1031	**MLE yields a negative mean**										Mean in Log Scale	0.872
1032											SD in Log Scale	2.341
1033											Mean in Original Scale	137.7
1034											SD in Original Scale	1102
1035											95% Percentile Bootstrap UCL	198.3
1036											95% BCA Bootstrap UCL	228
1037												
1038	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1039					k star (bias corrected)	0.2	**Data do not follow a Discernable Distribution (0.05)**					
1040					Theta Star	885.6						
1041					nu star	262.2						
1042												
1043					A-D Test Statistic	102.3	**Nonparametric Statistics**					
1044					5% A-D Critical Value	0.918					Kaplan-Meier (KM) Method	
1045					K-S Test Statistic	0.918					Mean	137.8
1046					5% K-S Critical Value	0.0408					SD	1101
1047	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	37.93
1048											95% KM (t) UCL	200.2
1049	**Assuming Gamma Distribution**										95% KM (z) UCL	200.1
1050					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	200.2
1051					Minimum	1E-09					95% KM (bootstrap t) UCL	251.4
1052					Maximum	23000					95% KM (BCA) UCL	201.8
1053					Mean	137.7					95% KM (Percentile Bootstrap) UCL	205.8
1054					Median	1.637					95% KM (Chebyshev) UCL	303.1
1055					SD	1102					97.5% KM (Chebyshev) UCL	374.6
1056					k star	0.0983					99% KM (Chebyshev) UCL	515.1
1057					Theta star	1400						
1058					Nu star	165.9	**Potential UCLs to Use**					
1059					AppChi2	137.2					97.5% KM (Chebyshev) UCL	374.6
1060					95% Gamma Approximate UCL	166.6						

1061					95% Adjusted Gamma UCL	166.6						
1062	**Note: DL/2 is not a recommended method.**											
1063												
1064												
1065	**Total Dioxin/Furan TEQ**											
1066												
1067	**General Statistics**											
1068					Number of Valid Data	158			Number of Detected Data	158		
1069					Number of Distinct Detected Data	158			Number of Non-Detect Data	0		
1070					Number of Missing Values	882			Percent Non-Detects	0.00%		
1071												
1072	**Raw Statistics**						**Log-transformed Statistics**					
1073					Minimum Detected	0.0285			Minimum Detected	-3.558		
1074					Maximum Detected	14114			Maximum Detected	9.555		
1075					Mean of Detected	101.3			Mean of Detected	0.795		
1076					SD of Detected	1122			SD of Detected	1.885		
1077					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
1078					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
1079												
1080												
1081	**UCL Statistics**											
1082	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1083					Lilliefors Test Statistic	0.47			Lilliefors Test Statistic	0.0822		
1084					5% Lilliefors Critical Value	0.0705			5% Lilliefors Critical Value	0.0705		
1085	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1086												
1087	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1088					DL/2 Substitution Method				DL/2 Substitution Method			
1089					Mean	101.3			Mean	0.795		
1090					SD	1122			SD	1.885		
1091					95% DL/2 (t) UCL	249.1			95% H-Stat (DL/2) UCL	20.74		
1092												
1093					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1094	**MLE method failed to converge properly**								Mean in Log Scale	N/A		
1095									SD in Log Scale	N/A		
1096									Mean in Original Scale	N/A		
1097									SD in Original Scale	N/A		
1098									95% Percentile Bootstrap UCL	N/A		
1099									95% BCA Bootstrap UCL	N/A		
1100												
1101	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1102					k star (bias corrected)	0.194	**Data do not follow a Discernable Distribution (0.05)**					
1103					Theta Star	522.2						
1104					nu star	61.31						
1105												
1106					A-D Test Statistic	29.7	**Nonparametric Statistics**					
1107					5% A-D Critical Value	0.923			Kaplan-Meier (KM) Method			
1108					K-S Test Statistic	0.923			Mean	101.3		
1109					5% K-S Critical Value	0.0828			SD	1119		
1110	**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	89.3		
1111									95% KM (t) UCL	249.1		
1112	**Assuming Gamma Distribution**								95% KM (z) UCL	248.2		
1113					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL	249.1		

1114					Minimum	0.0285				95% KM (bootstrap t) UCL		4047
1115					Maximum	14114				95% KM (BCA) UCL		283.8
1116					Mean	101.3				95% KM (Percentile Bootstrap) UCL		279.9
1117					Median	1.822				95% KM (Chebyshev) UCL		490.6
1118					SD	1122				97.5% KM (Chebyshev) UCL		659
1119					k star	0.194				99% KM (Chebyshev) UCL		989.8
1120					Theta star	522.2						
1121					Nu star	61.31				**Potential UCLs to Use**		
1122					AppChi2	44.3				97.5% KM (Chebyshev) UCL		659
1123					95% Gamma Approximate UCL	140.2						
1124					95% Adjusted Gamma UCL	140.6						
1125	**Note: DL/2 is not a recommended method.**											
1126												
1127												
1128	**Total Dioxin-like PCBs**											
1129												
1130					**General Statistics**							
1131					Number of Valid Data	200				Number of Detected Data		200
1132					Number of Distinct Detected Data	200				Number of Non-Detect Data		0
1133					Number of Missing Values	405				Percent Non-Detects		0.00%
1134												
1135					**Raw Statistics**					**Log-transformed Statistics**		
1136					Minimum Detected	65.67				Minimum Detected		4.185
1137					Maximum Detected	958845				Maximum Detected		13.77
1138					Mean of Detected	20595				Mean of Detected		7.932
1139					SD of Detected	83139				SD of Detected		1.726
1140					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1141					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1142												
1143												
1144					**UCL Statistics**							
1145					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1146					Lilliefors Test Statistic	0.402				Lilliefors Test Statistic		0.0911
1147					5% Lilliefors Critical Value	0.0626				5% Lilliefors Critical Value		0.0626
1148					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
1149												
1150					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1151					DL/2 Substitution Method					DL/2 Substitution Method		
1152					Mean	20595				Mean		7.932
1153					SD	83139				SD		1.726
1154					95% DL/2 (t) UCL	30310				95% H-Stat (DL/2) UCL		17511
1155												
1156					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1157					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1158										SD in Log Scale		N/A
1159										Mean in Original Scale		N/A
1160										SD in Original Scale		N/A
1161										95% Percentile Bootstrap UCL		N/A
1162										95% BCA Bootstrap UCL		N/A
1163												
1164					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1165					k star (bias corrected)	0.336				**Data do not follow a Discernable Distribution (0.05)**		
1166					Theta Star	61250						

1167					nu star	134.5						
1168												
1169					A-D Test Statistic	20.55	**Nonparametric Statistics**					
1170					5% A-D Critical Value	0.86	Kaplan-Meier (KM) Method					
1171					K-S Test Statistic	0.86	Mean	20595				
1172					5% K-S Critical Value	0.0688	SD	82931				
1173	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	5879				
1174							95% KM (t) UCL	30310				
1175	**Assuming Gamma Distribution**						95% KM (z) UCL	30265				
1176	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	30310				
1177					Minimum	65.67	95% KM (bootstrap t) UCL	38549				
1178					Maximum	958845	95% KM (BCA) UCL	31065				
1179					Mean	20595	95% KM (Percentile Bootstrap) UCL	31468				
1180					Median	1895	95% KM (Chebyshev) UCL	46220				
1181					SD	83139	97.5% KM (Chebyshev) UCL	57308				
1182					k star	0.336	99% KM (Chebyshev) UCL	79088				
1183					Theta star	61250						
1184					Nu star	134.5	**Potential UCLs to Use**					
1185					AppChi2	108.7	97.5% KM (Chebyshev) UCL	57308				
1186					95% Gamma Approximate UCL	25481						
1187					95% Adjusted Gamma UCL	25521						
1188	**Note: DL/2 is not a recommended method.**											
1189												
1190												
1191	**Total PCB TEQ**											
1192												
1193	**General Statistics**											
1194					Number of Valid Data	200	Number of Detected Data	200				
1195					Number of Distinct Detected Data	200	Number of Non-Detect Data	0				
1196					Number of Missing Values	405	Percent Non-Detects	0.00%				
1197												
1198	**Raw Statistics**						**Log-transformed Statistics**					
1199					Minimum Detected	0.0518	Minimum Detected	-2.96				
1200					Maximum Detected	239.2	Maximum Detected	5.477				
1201					Mean of Detected	6.567	Mean of Detected	0.233				
1202					SD of Detected	23.2	SD of Detected	1.517				
1203					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
1204					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1205												
1206												
1207	**UCL Statistics**											
1208	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1209					Lilliefors Test Statistic	0.389	Lilliefors Test Statistic	0.112				
1210					5% Lilliefors Critical Value	0.0626	5% Lilliefors Critical Value	0.0626				
1211	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1212												
1213	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1214					DL/2 Substitution Method		DL/2 Substitution Method					
1215					Mean	6.567	Mean	0.233				
1216					SD	23.2	SD	1.517				
1217					95% DL/2 (t) UCL	9.278	95% H-Stat (DL/2) UCL	5.295				
1218												
1219					Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method					

1220	MLE method failed to converge properly									Mean in Log Scale		N/A
1221										SD in Log Scale		N/A
1222										Mean in Original Scale		N/A
1223										SD in Original Scale		N/A
1224										95% Percentile Bootstrap UCL		N/A
1225										95% BCA Bootstrap UCL		N/A
1226												
1227	Gamma Distribution Test with Detected Values Only									Data Distribution Test with Detected Values Only		
1228					k star (bias corrected)	0.396				Data do not follow a Discernable Distribution (0.05)		
1229					Theta Star	16.56						
1230					nu star	158.6						
1231												
1232					A-D Test Statistic	20.65				Nonparametric Statistics		
1233					5% A-D Critical Value	0.845				Kaplan-Meier (KM) Method		
1234					K-S Test Statistic	0.845				Mean		6.567
1235					5% K-S Critical Value	0.0682				SD		23.14
1236	Data not Gamma Distributed at 5% Significance Level									SE of Mean		1.64
1237										95% KM (t) UCL		9.278
1238	Assuming Gamma Distribution									95% KM (z) UCL		9.265
1239					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		9.278
1240					Minimum	0.0518				95% KM (bootstrap t) UCL		11.25
1241					Maximum	239.2				95% KM (BCA) UCL		9.495
1242					Mean	6.567				95% KM (Percentile Bootstrap) UCL		9.387
1243					Median	0.838				95% KM (Chebyshev) UCL		13.72
1244					SD	23.2				97.5% KM (Chebyshev) UCL		16.81
1245					k star	0.396				99% KM (Chebyshev) UCL		22.89
1246					Theta star	16.56						
1247					Nu star	158.6				Potential UCLs to Use		
1248					AppChi2	130.5				97.5% KM (Chebyshev) UCL		16.81
1249					95% Gamma Approximate UCL	7.982						
1250					95% Adjusted Gamma UCL	7.994						
1251	Note: DL/2 is not a recommended method.											
1252												
1253												
1254	Total PCB_Congeners											
1255												
1256	General Statistics											
1257					Number of Valid Data	200				Number of Detected Data		200
1258					Number of Distinct Detected Data	200				Number of Non-Detect Data		0
1259					Number of Missing Values	405				Percent Non-Detects		0.00%
1260												
1261	Raw Statistics									Log-transformed Statistics		
1262					Minimum Detected	1834				Minimum Detected		7.514
1263					Maximum Detected	35440913				Maximum Detected		17.38
1264					Mean of Detected	558926				Mean of Detected		11.02
1265					SD of Detected	2824271				SD of Detected		1.754
1266					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1267					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1268												
1269												
1270	UCL Statistics											
1271	Normal Distribution Test with Detected Values Only									Lognormal Distribution Test with Detected Values Only		
1272					Lilliefors Test Statistic	0.422				Lilliefors Test Statistic		0.0908

1273					5% Lilliefors Critical Value	0.0626				5% Lilliefors Critical Value		0.0626
1274	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1275												
1276	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1277					DL/2 Substitution Method					DL/2 Substitution Method		
1278					Mean	558926				Mean		11.02
1279					SD	2824271				SD		1.754
1280					95% DL/2 (t) UCL	888950				95% H-Stat (DL/2) UCL		404889
1281												
1282					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1283	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1284										SD in Log Scale		N/A
1285										Mean in Original Scale		N/A
1286										SD in Original Scale		N/A
1287										95% Percentile Bootstrap UCL		N/A
1288										95% BCA Bootstrap UCL		N/A
1289												
1290	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1291					k star (bias corrected)	0.308	**Data do not follow a Discernable Distribution (0.05)**					
1292					Theta Star	1814808						
1293					nu star	123.2						
1294												
1295					A-D Test Statistic	22.57	**Nonparametric Statistics**					
1296					5% A-D Critical Value	0.867				Kaplan-Meier (KM) Method		
1297					K-S Test Statistic	0.867				Mean		558926
1298					5% K-S Critical Value	0.069				SD		2817201
1299	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		199706
1300										95% KM (t) UCL		888950
1301	**Assuming Gamma Distribution**									95% KM (z) UCL		887413
1302					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		888950
1303					Minimum	1834				95% KM (bootstrap t) UCL		1346308
1304					Maximum	35440913				95% KM (BCA) UCL		931288
1305					Mean	558926				95% KM (Percentile Bootstrap) UCL		924388
1306					Median	47340				95% KM (Chebyshev) UCL		1429425
1307					SD	2824271				97.5% KM (Chebyshev) UCL		1806090
1308					k star	0.308				99% KM (Chebyshev) UCL		2545977
1309					Theta star	1814808						
1310					Nu star	123.2	**Potential UCLs to Use**					
1311					AppChi2	98.56				97.5% KM (Chebyshev) UCL		1806090
1312					95% Gamma Approximate UCL	698617						
1313					95% Adjusted Gamma UCL	699744						
1314	**Note: DL/2 is not a recommended method.**											
1315												
1316												
1317	**Total PCBs, Adjusted**											
1318												
1319	**General Statistics**											
1320					Number of Valid Data	200				Number of Detected Data		200
1321					Number of Distinct Detected Data	200				Number of Non-Detect Data		0
1322					Number of Missing Values	405				Percent Non-Detects		0.00%
1323												
1324	**Raw Statistics**						**Log-transformed Statistics**					
1325					Minimum Detected	1768				Minimum Detected		7.478

1326					Maximum Detected	34482068					Maximum Detected	17.36
1327					Mean of Detected	538331					Mean of Detected	10.96
1328					SD of Detected	2745805					SD of Detected	1.756
1329					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1330					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1331												
1332												
1333					**UCL Statistics**							
1334	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1335					Lilliefors Test Statistic	0.423					Lilliefors Test Statistic	0.0942
1336					5% Lilliefors Critical Value	0.0626					5% Lilliefors Critical Value	0.0626
1337	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1338												
1339	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1340					DL/2 Substitution Method						DL/2 Substitution Method	
1341					Mean	538331					Mean	10.96
1342					SD	2745805					SD	1.756
1343					95% DL/2 (t) UCL	859186					95% H-Stat (DL/2) UCL	386101
1344												
1345					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1346	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1347											SD in Log Scale	N/A
1348											Mean in Original Scale	N/A
1349											SD in Original Scale	N/A
1350											95% Percentile Bootstrap UCL	N/A
1351											95% BCA Bootstrap UCL	N/A
1352												
1353	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1354					k star (bias corrected)	0.306	**Data do not follow a Discernable Distribution (0.05)**					
1355					Theta Star	1757131						
1356					nu star	122.5						
1357												
1358					A-D Test Statistic	22.7	**Nonparametric Statistics**					
1359					5% A-D Critical Value	0.867					Kaplan-Meier (KM) Method	
1360					K-S Test Statistic	0.867					Mean	538331
1361					5% K-S Critical Value	0.0691					SD	2738932
1362	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	194158
1363											95% KM (t) UCL	859186
1364	**Assuming Gamma Distribution**										95% KM (z) UCL	857693
1365					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	859186
1366					Minimum	1768					95% KM (bootstrap t) UCL	1357606
1367					Maximum	34482068					95% KM (BCA) UCL	937952
1368					Mean	538331					95% KM (Percentile Bootstrap) UCL	886438
1369					Median	44699					95% KM (Chebyshev) UCL	1384646
1370					SD	2745805					97.5% KM (Chebyshev) UCL	1750846
1371					k star	0.306					99% KM (Chebyshev) UCL	2470177
1372					Theta star	1757131						
1373					Nu star	122.5	**Potential UCLs to Use**					
1374					AppChi2	97.98					97.5% KM (Chebyshev) UCL	1750846
1375					95% Gamma Approximate UCL	673295						
1376					95% Adjusted Gamma UCL	674384						
1377	**Note: DL/2 is not a recommended method.**											
1378												

	A	B	C	D	E	F	G	H	I	J	K	L
1379												
1380	**Total TEQ**											
1381												
1382						**General Statistics**							
1383						Number of Valid Data	89			Number of Detected Data		89
1384						Number of Distinct Detected Data	89			Number of Non-Detect Data		0
1385						Number of Missing Values	516			Percent Non-Detects		0.00%
1386												
1387						**Raw Statistics**				**Log-transformed Statistics**		
1388						Minimum Detected	0.241			Minimum Detected		-1.422
1389						Maximum Detected	14123			Maximum Detected		9.556
1390						Mean of Detected	174			Mean of Detected		1.477
1391						SD of Detected	1496			SD of Detected		1.728
1392						Minimum Non-Detect	N/A			Minimum Non-Detect		N/A
1393						Maximum Non-Detect	N/A			Maximum Non-Detect		N/A
1394												
1395												
1396						**UCL Statistics**						
1397						**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**		
1398						Lilliefors Test Statistic	0.478			Lilliefors Test Statistic		0.123
1399						5% Lilliefors Critical Value	0.0939			5% Lilliefors Critical Value		0.0939
1400						**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**		
1401												
1402						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**		
1403						DL/2 Substitution Method				DL/2 Substitution Method		
1404						Mean	174			Mean		1.477
1405						SD	1496			SD		1.728
1406						95% DL/2 (t) UCL	437.5			95% H-Stat (DL/2) UCL		33.94
1407												
1408						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
1409						**MLE method failed to converge properly**				Mean in Log Scale		N/A
1410										SD in Log Scale		N/A
1411										Mean in Original Scale		N/A
1412										SD in Original Scale		N/A
1413										95% Percentile Bootstrap UCL		N/A
1414										95% BCA Bootstrap UCL		N/A
1415												
1416						**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**		
1417						k star (bias corrected)	0.201			**Data do not follow a Discernable Distribution (0.05)**		
1418						Theta Star	866.9					
1419						nu star	35.72					
1420												
1421						A-D Test Statistic	18.75			**Nonparametric Statistics**		
1422						5% A-D Critical Value	0.911			Kaplan-Meier (KM) Method		
1423						K-S Test Statistic	0.911			Mean		174
1424						5% K-S Critical Value	0.105			SD		1487
1425						**Data not Gamma Distributed at 5% Significance Level**				SE of Mean		158.6
1426										95% KM (t) UCL		437.5
1427						**Assuming Gamma Distribution**				95% KM (z) UCL		434.8
1428						Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL		437.5
1429						Minimum	0.241			95% KM (bootstrap t) UCL		9458
1430						Maximum	14123			95% KM (BCA) UCL		494.1
1431						Mean	174			95% KM (Percentile Bootstrap) UCL		490.6

1432					Median	2.755				95% KM (Chebyshev) UCL		865.1
1433					SD	1496				97.5% KM (Chebyshev) UCL		1164
1434					k star	0.201				99% KM (Chebyshev) UCL		1752
1435					Theta star	866.9						
1436					Nu star	35.72				**Potential UCLs to Use**		
1437					AppChi2	23.04				97.5% KM (Chebyshev) UCL		1164
1438					95% Gamma Approximate UCL	269.7						
1439					95% Adjusted Gamma UCL	271.6						
1440	**Note: DL/2 is not a recommended method.**											
1441												
1442												
1443	**Tributyltin ion**											
1444												
1445					**General Statistics**							
1446					Number of Valid Data	236				Number of Detected Data		223
1447					Number of Distinct Detected Data	147				Number of Non-Detect Data		13
1448					Number of Missing Values	856				Percent Non-Detects		5.51%
1449												
1450					**Raw Statistics**					**Log-transformed Statistics**		
1451					Minimum Detected	0.45				Minimum Detected		-0.799
1452					Maximum Detected	47000				Maximum Detected		10.76
1453					Mean of Detected	642.9				Mean of Detected		3.489
1454					SD of Detected	4459				SD of Detected		2.014
1455					Minimum Non-Detect	0.079				Minimum Non-Detect		-2.538
1456					Maximum Non-Detect	5.8				Maximum Non-Detect		1.758
1457												
1458	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		51
1459	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		185
1460	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		21.61%
1461												
1462					**UCL Statistics**							
1463					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1464					Lilliefors Test Statistic	0.448				Lilliefors Test Statistic		0.0688
1465					5% Lilliefors Critical Value	0.0593				5% Lilliefors Critical Value		0.0593
1466					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
1467												
1468					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1469					DL/2 Substitution Method					DL/2 Substitution Method		
1470					Mean	607.6				Mean		3.268
1471					SD	4336				SD		2.19
1472					95% DL/2 (t) UCL	1074				95% H-Stat (DL/2) UCL		382.1
1473												
1474					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1475					**MLE yields a negative mean**					Mean in Log Scale		3.268
1476										SD in Log Scale		2.172
1477										Mean in Original Scale		607.5
1478										SD in Original Scale		4336
1479										95% Percentile Bootstrap UCL		1090
1480										95% BCA Bootstrap UCL		1350
1481												
1482					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1483					k star (bias corrected)	0.24				**Data do not follow a Discernable Distribution (0.05)**		
1484					Theta Star	2680						

	A	B	C	D	E	F	G	H	I	J	K	L
1485					nu star	107						
1486												
1487					A-D Test Statistic	27.93	**Nonparametric Statistics**					
1488					5% A-D Critical Value	0.897				Kaplan-Meier (KM) Method		
1489					K-S Test Statistic	0.897				Mean		607.6
1490					5% K-S Critical Value	0.067				SD		4327
1491	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		282.3
1492										95% KM (t) UCL		1074
1493	**Assuming Gamma Distribution**									95% KM (z) UCL		1072
1494	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		1074
1495					Minimum	1E-09				95% KM (bootstrap t) UCL		2951
1496					Maximum	47000				95% KM (BCA) UCL		1145
1497					Mean	607.5				95% KM (Percentile Bootstrap) UCL		1143
1498					Median	23				95% KM (Chebyshev) UCL		1838
1499					SD	4336				97.5% KM (Chebyshev) UCL		2370
1500					k star	0.177				99% KM (Chebyshev) UCL		3416
1501					Theta star	3433						
1502					Nu star	83.53	**Potential UCLs to Use**					
1503					AppChi2	63.46				97.5% KM (Chebyshev) UCL		2370
1504					95% Gamma Approximate UCL	799.5						
1505					95% Adjusted Gamma UCL	800.9						
1506	**Note: DL/2 is not a recommended method.**											
1507												

Surface Water

Transients

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	W005								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenicdissolved											
10												
11					General Statistics							
12					Number of Valid Data	7			Number of Detected Data	6		
13					Number of Distinct Detected Data	6			Number of Non-Detect Data	1		
14									Percent Non-Detects	14.29%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	0.2			Minimum Detected	-1.609		
18					Maximum Detected	0.48			Maximum Detected	-0.734		
19					Mean of Detected	0.313			Mean of Detected	-1.214		
20					SD of Detected	0.11			SD of Detected	0.35		
21					Minimum Non-Detect	0.397			Minimum Non-Detect	-0.925		
22					Maximum Non-Detect	0.397			Maximum Non-Detect	-0.925		
23												
24												
25					Warning: There are only 6 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.931			Shapiro Wilk Test Statistic	0.942		
35					5% Shapiro Wilk Critical Value	0.788			5% Shapiro Wilk Critical Value	0.788		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	0.296			Mean	-1.272		
41					SD	0.109			SD	0.354		
42					95% DL/2 (t) UCL	0.377			95% H-Stat (DL/2) UCL	0.414		
43												
44					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
45					MLE method failed to converge properly				Mean in Log Scale	-1.227		
46									SD in Log Scale	0.321		
47									Mean in Original Scale	0.307		
48									SD in Original Scale	0.102		
49									95% Percentile Bootstrap UCL	0.366		
50									95% BCA Bootstrap UCL	0.375		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	5.085			Data appear Normal at 5% Significance Level			

54					Theta Star	0.0615						
55					nu star	61.02						
56												
57					A-D Test Statistic	0.259	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.698				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.698				Mean		0.308
60					5% K-S Critical Value	0.332				SD		0.0977
61				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.0424
62										95% KM (t) UCL		0.39
63				**Assuming Gamma Distribution**						95% KM (z) UCL		0.377
64					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.391
65					Minimum	0.2				95% KM (bootstrap t) UCL		0.423
66					Maximum	0.48				95% KM (BCA) UCL		0.371
67					Mean	0.314				95% KM (Percentile Bootstrap) UCL		0.375
68					Median	0.322				95% KM (Chebyshev) UCL		0.492
69					SD	0.1				97.5% KM (Chebyshev) UCL		0.572
70					k star	6.705				99% KM (Chebyshev) UCL		0.729
71					Theta star	0.0468						
72					Nu star	93.87	**Potential UCLs to Use**					
73					AppChi2	72.52				95% KM (t) UCL		0.39
74					95% Gamma Approximate UCL	0.406				95% KM (Percentile Bootstrap) UCL		0.375
75					95% Adjusted Gamma UCL	0.441						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenictotal**											
80												
81					**General Statistics**							
82					Number of Valid Observations	7				Number of Distinct Observations		7
83												
84				**Raw Statistics**			**Log-transformed Statistics**					
85					Minimum	0.317				Minimum of Log Data		-1.15
86					Maximum	0.55				Maximum of Log Data		-0.598
87					Mean	0.456				Mean of log Data		-0.8
88					Median	0.461				SD of log Data		0.193
89					SD	0.0822						
90					Coefficient of Variation	0.18						
91					Skewness	-0.67						
92												
93												
94	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
95												
96	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
97	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
98												
99												
100	**Warning: There are only 7 Values in this data**											
101	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
102	**the resulting calculations may not be reliable enough to draw conclusions**											
103												
104	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
105												
106	**Relevant UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Normal Distribution Test**						**Lognormal Distribution Test**					
108	Shapiro Wilk Test Statistic					0.943	Shapiro Wilk Test Statistic					0.916
109	Shapiro Wilk Critical Value					0.803	Shapiro Wilk Critical Value					0.803
110	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
111												
112	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
113	95% Student's-t UCL					0.517	95% H-UCL					0.535
114	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.602
115	95% Adjusted-CLT UCL					0.499	97.5% Chebyshev (MVUE) UCL					0.665
116	95% Modified-t UCL					0.515	99% Chebyshev (MVUE) UCL					0.789
117												
118	**Gamma Distribution Test**						**Data Distribution**					
119	k star (bias corrected)					18.93	**Data appear Normal at 5% Significance Level**					
120	Theta Star					0.0241						
121	nu star					265						
122	Approximate Chi Square Value (.05)					228.3	**Nonparametric Statistics**					
123	Adjusted Level of Significance					0.0158	95% CLT UCL					0.507
124	Adjusted Chi Square Value					217.9	95% Jackknife UCL					0.517
125							95% Standard Bootstrap UCL					0.503
126	Anderson-Darling Test Statistic					0.307	95% Bootstrap-t UCL					0.508
127	Anderson-Darling 5% Critical Value					0.707	95% Hall's Bootstrap UCL					0.498
128	Kolmogorov-Smirnov Test Statistic					0.216	95% Percentile Bootstrap UCL					0.501
129	Kolmogorov-Smirnov 5% Critical Value					0.311	95% BCA Bootstrap UCL					0.499
130	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.592
131							97.5% Chebyshev(Mean, Sd) UCL					0.65
132	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.766
133	95% Approximate Gamma UCL					0.53						
134	95% Adjusted Gamma UCL					0.555						
135												
136	**Potential UCL to Use**						Use 95% Student's-t UCL					0.517
137												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	W011								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenictotal											
10												
11					General Statistics							
12					Number of Valid Data	6			Number of Detected Data	5		
13					Number of Distinct Detected Data	5			Number of Non-Detect Data	1		
14									Percent Non-Detects	16.67%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	0.337			Minimum Detected	-1.089		
18					Maximum Detected	0.5			Maximum Detected	-0.693		
19					Mean of Detected	0.421			Mean of Detected	-0.876		
20					SD of Detected	0.0679			SD of Detected	0.165		
21					Minimum Non-Detect	0.435			Minimum Non-Detect	-0.834		
22					Maximum Non-Detect	0.435			Maximum Non-Detect	-0.834		
23												
24												
25					Warning: There are only 5 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.926			Shapiro Wilk Test Statistic	0.917		
35					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value	0.762		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	0.387			Mean	-0.985		
41					SD	0.103			SD	0.304		
42					95% DL/2 (t) UCL	0.472			95% H-Stat (DL/2) UCL	0.512		
43												
44					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
45					Mean	0.435			Mean in Log Scale	-0.903		
46					SD	0.0402			SD in Log Scale	0.162		
47					95% MLE (t) UCL	0.468			Mean in Original Scale	0.41		
48					95% MLE (Tiku) UCL	0.476			SD in Original Scale	0.0663		
49									95% Percentile Bootstrap UCL	0.453		
50									95% BCA Bootstrap UCL	0.451		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	18.78			Data appear Normal at 5% Significance Level			

54					Theta Star	0.0224						
55					nu star	187.8						
56												
57					A-D Test Statistic	0.356	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method	
59					K-S Test Statistic	0.678					Mean	0.409
60					5% K-S Critical Value	0.357					SD	0.0615
61			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.0283
62											95% KM (t) UCL	0.466
63			**Assuming Gamma Distribution**								95% KM (z) UCL	0.456
64					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.466
65					Minimum	0.337					95% KM (bootstrap t) UCL	0.464
66					Maximum	0.5					95% KM (BCA) UCL	0.463
67					Mean	0.415					95% KM (Percentile Bootstrap) UCL	0.461
68					Median	0.416					95% KM (Chebyshev) UCL	0.532
69					SD	0.0624					97.5% KM (Chebyshev) UCL	0.586
70					k star	26.54					99% KM (Chebyshev) UCL	0.691
71					Theta star	0.0156						
72					Nu star	318.5	**Potential UCLs to Use**					
73					AppChi2	278.1					95% KM (t) UCL	0.466
74					95% Gamma Approximate UCL	0.475					95% KM (Percentile Bootstrap) UCL	0.461
75					95% Adjusted Gamma UCL	0.5						
76	**Note: DL/2 is not a recommended method.**											
77												

General UCL Statistics for Data Sets with Non-Detects		
User Selected Options		
From File	W023	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenicdissolved

General Statistics

Number of Valid Data	9	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	11.11%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.207	Minimum Detected	-1.575
Maximum Detected	0.433	Maximum Detected	-0.836
Mean of Detected	0.294	Mean of Detected	-1.275
SD of Detected	0.101	SD of Detected	0.334
Minimum Non-Detect	0.378	Minimum Non-Detect	-0.974
Maximum Non-Detect	0.378	Maximum Non-Detect	-0.974

Warning: There are only 8 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.793	Shapiro Wilk Test Statistic	0.794
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.282	Mean	-1.319
SD	0.101	SD	0.339
95% DL/2 (t) UCL	0.344	95% H-Stat (DL/2) UCL	0.362
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.289
		SD in Log Scale	0.315
		Mean in Original Scale	0.289
		SD in Original Scale	0.0956
		95% Percentile Bootstrap UCL	0.342
		95% BCA Bootstrap UCL	0.346
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	6.444	**Data do not follow a Discernable Distribution (0.05)**	

54					Theta Star	0.0456						
55					nu star	103.1						
56												
57					A-D Test Statistic	0.811	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.715					Kaplan-Meier (KM) Method	
59					K-S Test Statistic	0.715					Mean	0.289
60					5% K-S Critical Value	0.294					SD	0.0922
61					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0337
62											95% KM (t) UCL	0.351
63					**Assuming Gamma Distribution**						95% KM (z) UCL	0.344
64					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.351
65					Minimum	0.207					95% KM (bootstrap t) UCL	0.362
66					Maximum	0.433					95% KM (BCA) UCL	0.346
67					Mean	0.293					95% KM (Percentile Bootstrap) UCL	0.341
68					Median	0.289					95% KM (Chebyshev) UCL	0.435
69					SD	0.0944					97.5% KM (Chebyshev) UCL	0.499
70					k star	7.691					99% KM (Chebyshev) UCL	0.624
71					Theta star	0.0381						
72					Nu star	138.4	**Potential UCLs to Use**					
73					AppChi2	112.2					95% KM (Chebyshev) UCL	0.435
74					95% Gamma Approximate UCL	0.361						
75					95% Adjusted Gamma UCL	0.378						
76	**Warning: Recommended UCL exceeds the maximum observation**											
77	**Note: DL/2 is not a recommended method.**											
78												
79												
80	**Arsenictotal**											
81												
82	**General Statistics**											
83					Number of Valid Data	9					Number of Detected Data	8
84					Number of Distinct Detected Data	8					Number of Non-Detect Data	1
85											Percent Non-Detects	11.11%
86												
87					**Raw Statistics**		**Log-transformed Statistics**					
88					Minimum Detected	0.307					Minimum Detected	-1.181
89					Maximum Detected	0.54					Maximum Detected	-0.616
90					Mean of Detected	0.421					Mean of Detected	-0.885
91					SD of Detected	0.0878					SD of Detected	0.218
92					Minimum Non-Detect	0.408					Minimum Non-Detect	-0.897
93					Maximum Non-Detect	0.408					Maximum Non-Detect	-0.897
94												
95												
96	**Warning: There are only 8 Detected Values in this data**											
97	**Note: It should be noted that even though bootstrap may be performed on this data set**											
98	**the resulting calculations may not be reliable enough tp draw conclusions**											
99												
100	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
101												
102												
103	**UCL Statistics**											
104	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
105					Shapiro Wilk Test Statistic	0.902					Shapiro Wilk Test Statistic	0.885
106					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818

107	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
108												
109	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
110	DL/2 Substitution Method						DL/2 Substitution Method					
111	Mean					0.397	Mean					-0.963
112	SD					0.11	SD					0.311
113	95% DL/2 (t) UCL					0.465	95% H-Stat (DL/2) UCL					0.474
114												
115	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
116	Mean					0.425	Mean in Log Scale					-0.908
117	SD					0.0733	SD in Log Scale					0.216
118	95% MLE (t) UCL					0.47	Mean in Original Scale					0.412
119	95% MLE (Tiku) UCL					0.478	SD in Original Scale					0.0872
120							95% Percentile Bootstrap UCL					0.458
121							95% BCA Bootstrap UCL					0.457
122												
123	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
124	k star (bias corrected)					15.71	**Data appear Normal at 5% Significance Level**					
125	Theta Star					0.0268						
126	nu star					251.4						
127												
128	A-D Test Statistic					0.491	**Nonparametric Statistics**					
129	5% A-D Critical Value					0.716	Kaplan-Meier (KM) Method					
130	K-S Test Statistic					0.716	Mean					0.41
131	5% K-S Critical Value					0.294	SD					0.0836
132	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0299
133							95% KM (t) UCL					0.466
134	**Assuming Gamma Distribution**						95% KM (z) UCL					0.46
135	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.466
136	Minimum					0.307	95% KM (bootstrap t) UCL					0.463
137	Maximum					0.54	95% KM (BCA) UCL					0.46
138	Mean					0.414	95% KM (Percentile Bootstrap) UCL					0.46
139	Median					0.426	95% KM (Chebyshev) UCL					0.541
140	SD					0.0847	97.5% KM (Chebyshev) UCL					0.597
141	k star					17.65	99% KM (Chebyshev) UCL					0.708
142	Theta star					0.0235						
143	Nu star					317.7	**Potential UCLs to Use**					
144	AppChi2					277.4	95% KM (t) UCL					0.466
145	95% Gamma Approximate UCL					0.475	95% KM (Percentile Bootstrap) UCL					0.46
146	95% Adjusted Gamma UCL					0.489						
147	**Note: DL/2 is not a recommended method.**											
148												

1				**General UCL Statistics for Data Sets with Non-Detects**								
2		**User Selected Options**										
3		From File		Study Area Wide								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	**Arsenicdissolved**											
10												
11						**General Statistics**							
12						Number of Valid Data	26			Number of Detected Data	21	
13						Number of Distinct Detected Data	19			Number of Non-Detect Data	5	
14										Percent Non-Detects	19.23%	
15												
16						**Raw Statistics**				**Log-transformed Statistics**		
17						Minimum Detected	0.197			Minimum Detected	-1.623	
18						Maximum Detected	0.567			Maximum Detected	-0.568	
19						Mean of Detected	0.315			Mean of Detected	-1.215	
20						SD of Detected	0.113			SD of Detected	0.349	
21						Minimum Non-Detect	0.378			Minimum Non-Detect	-0.974	
22						Maximum Non-Detect	0.452			Maximum Non-Detect	-0.794	
23												
24						Note: Data have multiple DLs - Use of KM Method is recommended				Number treated as Non-Detect	24	
25						For all methods (except KM, DL/2, and ROS Methods),				Number treated as Detected	2	
26						Observations < Largest ND are treated as NDs				Single DL Non-Detect Percentage	92.31%	
27												
28						**UCL Statistics**						
29						**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**		
30						Shapiro Wilk Test Statistic	0.887			Shapiro Wilk Test Statistic	0.894	
31						5% Shapiro Wilk Critical Value	0.908			5% Shapiro Wilk Critical Value	0.908	
32						**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**		
33												
34						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	0.293			Mean	-1.289	
37						SD	0.111			SD	0.35	
38						95% DL/2 (t) UCL	0.33			95% H-Stat (DL/2) UCL	0.337	
39												
40						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
41						**MLE method failed to converge properly**				Mean in Log Scale	-1.24	
42										SD in Log Scale	0.318	
43										Mean in Original Scale	0.304	
44										SD in Original Scale	0.103	
45										95% Percentile Bootstrap UCL	0.339	
46										95% BCA Bootstrap UCL	0.34	
47												
48						**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**		
49						k star (bias corrected)	7.438			**Data do not follow a Discernable Distribution (0.05)**		
50						Theta Star	0.0423					
51						nu star	312.4					
52												
53						A-D Test Statistic	0.895			**Nonparametric Statistics**		

54				5% A-D Critical Value	0.743					Kaplan-Meier (KM) Method		
55				K-S Test Statistic	0.743					Mean		0.304
56				5% K-S Critical Value	0.19					SD		0.105
57				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		0.0221
58										95% KM (t) UCL		0.342
59				**Assuming Gamma Distribution**						95% KM (z) UCL		0.34
60				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.342
61				Minimum	0.197					95% KM (bootstrap t) UCL		0.344
62				Maximum	0.567					95% KM (BCA) UCL		0.339
63				Mean	0.316					95% KM (Percentile Bootstrap) UCL		0.342
64				Median	0.311					95% KM (Chebyshev) UCL		0.4
65				SD	0.101					97.5% KM (Chebyshev) UCL		0.442
66				k star	9.429					99% KM (Chebyshev) UCL		0.524
67				Theta star	0.0335							
68				Nu star	490.3					**Potential UCLs to Use**		
69				AppChi2	439.9					95% KM (Chebyshev) UCL		0.4
70				95% Gamma Approximate UCL	0.352							
71				95% Adjusted Gamma UCL	0.354							
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**Arsenictotal**											
76												
77										**General Statistics**		
78				Number of Valid Data	26					Number of Detected Data		23
79				Number of Distinct Detected Data	21					Number of Non-Detect Data		3
80										Percent Non-Detects		11.54%
81												
82				**Raw Statistics**						**Log-transformed Statistics**		
83				Minimum Detected	0.257					Minimum Detected		-1.359
84				Maximum Detected	0.603					Maximum Detected		-0.505
85				Mean of Detected	0.426					Mean of Detected		-0.879
86				SD of Detected	0.0959					SD of Detected		0.238
87				Minimum Non-Detect	0.408					Minimum Non-Detect		-0.897
88				Maximum Non-Detect	0.508					Maximum Non-Detect		-0.677
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		22
91	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
92	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		84.62%
93												
94										**UCL Statistics**		
95				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
96				Shapiro Wilk Test Statistic	0.959					Shapiro Wilk Test Statistic		0.941
97				5% Shapiro Wilk Critical Value	0.914					5% Shapiro Wilk Critical Value		0.914
98				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
99												
100				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
101				DL/2 Substitution Method						DL/2 Substitution Method		
102				Mean	0.403					Mean		-0.95
103				SD	0.112					SD		0.302
104				95% DL/2 (t) UCL	0.44					95% H-Stat (DL/2) UCL		0.445
105												
106				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		

107					Mean	0.421					Mean in Log Scale	-0.897
108					SD	0.0868					SD in Log Scale	0.23
109					95% MLE (t) UCL	0.45					Mean in Original Scale	0.418
110					95% MLE (Tiku) UCL	0.507					SD in Original Scale	0.0933
111											95% Percentile Bootstrap UCL	0.447
112											95% BCA Bootstrap UCL	0.449
113												
114	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
115					k star (bias corrected)	16.9					**Data appear Normal at 5% Significance Level**	
116					Theta Star	0.0252						
117					nu star	777.4						
118												
119					A-D Test Statistic	0.55					**Nonparametric Statistics**	
120					5% A-D Critical Value	0.742					Kaplan-Meier (KM) Method	
121					K-S Test Statistic	0.742					Mean	0.417
122					5% K-S Critical Value	0.181					SD	0.0942
123	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0193
124											95% KM (t) UCL	0.45
125	**Assuming Gamma Distribution**										95% KM (z) UCL	0.449
126					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.451
127					Minimum	0.257					95% KM (bootstrap t) UCL	0.451
128					Maximum	0.603					95% KM (BCA) UCL	0.448
129					Mean	0.423					95% KM (Percentile Bootstrap) UCL	0.448
130					Median	0.444					95% KM (Chebyshev) UCL	0.502
131					SD	0.0913					97.5% KM (Chebyshev) UCL	0.538
132					k star	18.84					99% KM (Chebyshev) UCL	0.61
133					Theta star	0.0224						
134					Nu star	979.7					**Potential UCLs to Use**	
135					AppChi2	908.1					95% KM (t) UCL	0.45
136					95% Gamma Approximate UCL	0.456					95% KM (Percentile Bootstrap) UCL	0.448
137					95% Adjusted Gamma UCL	0.458						
138	**Note: DL/2 is not a recommended method.**											
139												

Surface Water

Divers

1				**General UCL Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	RM2E								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Arsenicdissolved**											
10												
11						**General Statistics**							
12						Number of Valid Data	5			Number of Detected Data	4	
13						Number of Distinct Detected Data	4			Number of Non-Detect Data	1	
14										Percent Non-Detects	20.00%	
15												
16						**Raw Statistics**				**Log-transformed Statistics**		
17						Minimum Detected	0.245			Minimum Detected	-1.406	
18						Maximum Detected	0.64			Maximum Detected	-0.446	
19						Mean of Detected	0.383			Mean of Detected	-1.032	
20						SD of Detected	0.178			SD of Detected	0.421	
21						Minimum Non-Detect	0.424			Minimum Non-Detect	-0.859	
22						Maximum Non-Detect	0.424			Maximum Non-Detect	-0.859	
23												
24												
25						**Warning: There are only 4 Distinct Detected Values in this data**							
26						**Note: It should be noted that even though bootstrap may be performed on this data set**						
27						**the resulting calculations may not be reliable enough tp draw conclusions**						
28												
29						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
30												
31												
32						**UCL Statistics**							
33						**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**		
34						Shapiro Wilk Test Statistic	0.846			Shapiro Wilk Test Statistic	0.916	
35						5% Shapiro Wilk Critical Value	0.748			5% Shapiro Wilk Critical Value	0.748	
36						**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**		
37												
38						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**		
39						DL/2 Substitution Method				DL/2 Substitution Method		
40						Mean	0.348			Mean	-1.136	
41						SD	0.172			SD	0.432	
42						95% DL/2 (t) UCL	0.512			95% H-Stat (DL/2) UCL	0.638	
43												
44						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
45						**MLE method failed to converge properly**				Mean in Log Scale	-1.066	
46										SD in Log Scale	0.372	
47										Mean in Original Scale	0.366	
48										SD in Original Scale	0.158	
49										95% Percentile Bootstrap UCL	0.493	
50										95% BCA Bootstrap UCL	0.513	
51												
52						**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**		
53						k star (bias corrected)	1.962			**Data appear Normal at 5% Significance Level**		

54					Theta Star	0.195						
55					nu star	15.7						
56												
57					A-D Test Statistic	0.379	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.658					Kaplan-Meier (KM) Method	
59					K-S Test Statistic	0.658					Mean	0.365
60					5% K-S Critical Value	0.395					SD	0.144
61					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0752
62											95% KM (t) UCL	0.526
63					**Assuming Gamma Distribution**						95% KM (z) UCL	0.489
64					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.523
65					Minimum	0.245					95% KM (bootstrap t) UCL	1
66					Maximum	0.64					95% KM (BCA) UCL	0.471
67					Mean	0.383					95% KM (Percentile Bootstrap) UCL	0.49
68					Median	0.359					95% KM (Chebyshev) UCL	0.693
69					SD	0.154					97.5% KM (Chebyshev) UCL	0.835
70					k star	3.709					99% KM (Chebyshev) UCL	1.114
71					Theta star	0.103						
72					Nu star	37.09	**Potential UCLs to Use**					
73					AppChi2	24.15					95% KM (t) UCL	0.526
74					95% Gamma Approximate UCL	0.588					95% KM (Percentile Bootstrap) UCL	0.49
75					95% Adjusted Gamma UCL	N/A						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenictotal**											
80												
81					**General Statistics**							
82					Number of Valid Observations	5					Number of Distinct Observations	5
83												
84					**Raw Statistics**		**Log-transformed Statistics**					
85					Minimum	0.32					Minimum of Log Data	-1.139
86					Maximum	0.745					Maximum of Log Data	-0.294
87					Mean	0.457					Mean of log Data	-0.832
88					Median	0.425					SD of log Data	0.343
89					SD	0.173						
90					Coefficient of Variation	0.378						
91					Skewness	1.531						
92												
93												
94	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
95												
96	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
97	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
98												
99												
100	**Warning: There are only 5 Values in this data**											
101	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
102	**the resulting calculations may not be reliable enough to draw conclusions**											
103												
104	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
105												
106	**Relevant UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Normal Distribution Test**						**Lognormal Distribution Test**					
108	Shapiro Wilk Test Statistic					0.838	Shapiro Wilk Test Statistic					0.894
109	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
110	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
111												
112	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
113	95% Student's-t UCL					0.622	95% H-UCL					0.708
114	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.759
115	95% Adjusted-CLT UCL					0.641	97.5% Chebyshev (MVUE) UCL					0.89
116	95% Modified-t UCL					0.631	99% Chebyshev (MVUE) UCL					1.148
117												
118	**Gamma Distribution Test**						**Data Distribution**					
119	k star (bias corrected)					4.191	**Data appear Normal at 5% Significance Level**					
120	Theta Star					0.109						
121	nu star					41.91						
122	Approximate Chi Square Value (.05)					28.07	**Nonparametric Statistics**					
123	Adjusted Level of Significance					0.0086	95% CLT UCL					0.585
124	Adjusted Chi Square Value					23.24	95% Jackknife UCL					0.622
125							95% Standard Bootstrap UCL					0.569
126	Anderson-Darling Test Statistic					0.4	95% Bootstrap-t UCL					0.751
127	Anderson-Darling 5% Critical Value					0.679	95% Hall's Bootstrap UCL					1.118
128	Kolmogorov-Smirnov Test Statistic					0.225	95% Percentile Bootstrap UCL					0.58
129	Kolmogorov-Smirnov 5% Critical Value					0.358	95% BCA Bootstrap UCL					0.617
130	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.794
131							97.5% Chebyshev(Mean, Sd) UCL					0.94
132	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					1.227
133	95% Approximate Gamma UCL					0.683						
134	95% Adjusted Gamma UCL					0.825						
135												
136	**Potential UCL to Use**						Use 95% Student's-t UCL					0.622
137												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	RM2W	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenicdissolved

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	4

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.285	Minimum of Log Data	-1.255
Maximum	0.62	Maximum of Log Data	-0.478
Mean	0.501	Mean of log Data	-0.728
Median	0.508	SD of log Data	0.319
SD	0.138		
Coefficient of Variation	0.275		
Skewness	-1.066		

Warning: There are only 4 Distinct Values in this data

There are insufficient Distinct Values to perform some GOF tests and bootstrap methods.

Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values to compute bootstrap methods.

It is recommended to have 10-15 or more observations for accurate and meaningful bootstrap results.

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.881	Shapiro Wilk Test Statistic	0.836
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.632	95% H-UCL	0.75
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.814
95% Adjusted-CLT UCL	0.571	97.5% Chebyshev (MVUE) UCL	0.948
95% Modified-t UCL	0.627	99% Chebyshev (MVUE) UCL	1.213
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.641	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0888		
nu star	56.41		
Approximate Chi Square Value (.05)	40.15	**Nonparametric Statistics**	

54				Adjusted Level of Significance	0.0086					95% CLT UCL	0.602	
55				Adjusted Chi Square Value	34.24					95% Jackknife UCL	0.632	
56										95% Standard Bootstrap UCL	0.589	
57				Anderson-Darling Test Statistic	0.454					95% Bootstrap-t UCL	0.593	
58				Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.587	
59				Kolmogorov-Smirnov Test Statistic	0.246					95% Percentile Bootstrap UCL	0.575	
60				Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.568	
61				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.769	
62										97.5% Chebyshev(Mean, Sd) UCL	0.886	
63				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1.114	
64				95% Approximate Gamma UCL	0.704							
65				95% Adjusted Gamma UCL	0.825							
66												
67				**Potential UCL to Use**						Use 95% Student's-t UCL	0.632	
68				**Recommended UCL exceeds the maximum observation**								
69												
70												
71	**Arsenictotal**											
72												
73				**General Statistics**								
74				Number of Valid Observations	5					Number of Distinct Observations	5	
75												
76				**Raw Statistics**						**Log-transformed Statistics**		
77				Minimum	0.35					Minimum of Log Data	-1.05	
78				Maximum	0.71					Maximum of Log Data	-0.342	
79				Mean	0.558					Mean of log Data	-0.611	
80				Median	0.557					SD of log Data	0.271	
81				SD	0.136							
82				Coefficient of Variation	0.243							
83				Skewness	-0.825							
84												
85												
86				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
87												
88				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
89				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
90												
91												
92				**Warning: There are only 5 Values in this data**								
93				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
94				**the resulting calculations may not be reliable enough to draw conclusions**								
95												
96				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
97												
98				**Relevant UCL Statistics**								
99				**Normal Distribution Test**						**Lognormal Distribution Test**		
100				Shapiro Wilk Test Statistic	0.953					Shapiro Wilk Test Statistic	0.903	
101				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
102				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
103												
104				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
105				95% Student's-t UCL	0.687					95% H-UCL	0.773	
106				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.853	

107				95% Adjusted-CLT UCL	0.634				97.5% Chebyshev (MVUE) UCL	0.98		
108				95% Modified-t UCL	0.684				99% Chebyshev (MVUE) UCL	1.23		
109												
110				**Gamma Distribution Test**					**Data Distribution**			
111				k star (bias corrected)	7.55				**Data appear Normal at 5% Significance Level**			
112				Theta Star	0.0739							
113				nu star	75.5							
114				Approximate Chi Square Value (.05)	56.49				**Nonparametric Statistics**			
115				Adjusted Level of Significance	0.0086				95% CLT UCL	0.658		
116				Adjusted Chi Square Value	49.36				95% Jackknife UCL	0.687		
117									95% Standard Bootstrap UCL	0.649		
118				Anderson-Darling Test Statistic	0.327				95% Bootstrap-t UCL	0.667		
119				Anderson-Darling 5% Critical Value	0.679				95% Hall's Bootstrap UCL	0.656		
120				Kolmogorov-Smirnov Test Statistic	0.253				95% Percentile Bootstrap UCL	0.639		
121				Kolmogorov-Smirnov 5% Critical Value	0.357				95% BCA Bootstrap UCL	0.63		
122				**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	0.823		
123									97.5% Chebyshev(Mean, Sd) UCL	0.937		
124				**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	1.162		
125				95% Approximate Gamma UCL	0.746							
126				95% Adjusted Gamma UCL	0.853							
127												
128				**Potential UCL to Use**					Use 95% Student's-t UCL	0.687		
129												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	RM3.5E	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenictotal

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.32	Minimum of Log Data	-1.141
Maximum	0.489	Maximum of Log Data	-0.715
Mean	0.428	Mean of log Data	-0.862
Median	0.46	SD of log Data	0.18
SD	0.0719		
Coefficient of Variation	0.168		
Skewness	-1.025		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.874	Shapiro Wilk Test Statistic	0.857
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.496	95% H-UCL	0.521
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.578
95% Adjusted-CLT UCL	0.465	97.5% Chebyshev (MVUE) UCL	0.643
95% Modified-t UCL	0.494	99% Chebyshev (MVUE) UCL	0.77
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	16.37	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0261		
nu star	163.7		
Approximate Chi Square Value (.05)	135.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	0.481

	A	B	C	D	E	F	G	H	I	J	K	L
54					Adjusted Chi Square Value	123.7					95% Jackknife UCL	0.496
55											95% Standard Bootstrap UCL	0.474
56					Anderson-Darling Test Statistic	0.452					95% Bootstrap-t UCL	0.482
57					Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	0.459
58					Kolmogorov-Smirnov Test Statistic	0.299					95% Percentile Bootstrap UCL	0.476
59					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.464
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.568
61											97.5% Chebyshev(Mean, Sd) UCL	0.628
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.748
63					95% Approximate Gamma UCL	0.518						
64					95% Adjusted Gamma UCL	0.566						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	0.496
67						**Recommended UCL exceeds the maximum observation**						
68												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	RM5.5E								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenicdissolved											
10												
11					General Statistics							
12					Number of Valid Data	5			Number of Detected Data	4		
13					Number of Distinct Detected Data	4			Number of Non-Detect Data	1		
14									Percent Non-Detects	20.00%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	0.204			Minimum Detected	-1.592		
18					Maximum Detected	0.46			Maximum Detected	-0.777		
19					Mean of Detected	0.336			Mean of Detected	-1.131		
20					SD of Detected	0.106			SD of Detected	0.342		
21					Minimum Non-Detect	0.4			Minimum Non-Detect	-0.916		
22					Maximum Non-Detect	0.4			Maximum Non-Detect	-0.916		
23												
24												
25					Warning: There are only 4 Distinct Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.99			Shapiro Wilk Test Statistic	0.958		
35					5% Shapiro Wilk Critical Value	0.748			5% Shapiro Wilk Critical Value	0.748		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	0.309			Mean	-1.227		
41					SD	0.11			SD	0.365		
42					95% DL/2 (t) UCL	0.414			95% H-Stat (DL/2) UCL	0.5		
43												
44					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
45					MLE method failed to converge properly				Mean in Log Scale	-1.157		
46									SD in Log Scale	0.302		
47									Mean in Original Scale	0.326		
48									SD in Original Scale	0.0948		
49									95% Percentile Bootstrap UCL	0.389		
50									95% BCA Bootstrap UCL	0.389		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	3.231			Data appear Normal at 5% Significance Level			

54					Theta Star	0.104						
55					nu star	25.85						
56												
57					A-D Test Statistic	0.25	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.657				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.657				Mean		0.328
60					5% K-S Critical Value	0.395				SD		0.0889
61			**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean		0.0492
62										95% KM (t) UCL		0.433
63			**Assuming Gamma Distribution**							95% KM (z) UCL		0.409
64			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		0.437
65					Minimum	0.204				95% KM (bootstrap t) UCL		0.422
66					Maximum	0.46				95% KM (BCA) UCL		0.405
67					Mean	0.337				95% KM (Percentile Bootstrap) UCL		0.4
68					Median	0.342				95% KM (Chebyshev) UCL		0.543
69					SD	0.0918				97.5% KM (Chebyshev) UCL		0.636
70					k star	6.243				99% KM (Chebyshev) UCL		0.818
71					Theta star	0.054						
72					Nu star	62.43	**Potential UCLs to Use**					
73					AppChi2	45.26				95% KM (t) UCL		0.433
74					95% Gamma Approximate UCL	0.465				95% KM (Percentile Bootstrap) UCL		0.4
75					95% Adjusted Gamma UCL	N/A						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenictotal**											
80												
81					**General Statistics**							
82					Number of Valid Observations	5				Number of Distinct Observations		5
83												
84					**Raw Statistics**					**Log-transformed Statistics**		
85					Minimum	0.323				Minimum of Log Data		-1.132
86					Maximum	0.54				Maximum of Log Data		-0.616
87					Mean	0.42				Mean of log Data		-0.881
88					Median	0.419				SD of log Data		0.19
89					SD	0.0805						
90					Coefficient of Variation	0.192						
91					Skewness	0.571						
92												
93												
94	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
95												
96	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
97	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
98												
99												
100	**Warning: There are only 5 Values in this data**											
101	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
102	**the resulting calculations may not be reliable enough to draw conclusions**											
103												
104	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
105												
106	**Relevant UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Normal Distribution Test**						**Lognormal Distribution Test**					
108	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Test Statistic					0.991
109	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
110	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
111												
112	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
113	95% Student's-t UCL					0.497	95% H-UCL					0.519
114	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.576
115	95% Adjusted-CLT UCL					0.489	97.5% Chebyshev (MVUE) UCL					0.643
116	95% Modified-t UCL					0.499	99% Chebyshev (MVUE) UCL					0.775
117												
118	**Gamma Distribution Test**						**Data Distribution**					
119	k star (bias corrected)					14.01	**Data appear Normal at 5% Significance Level**					
120	Theta Star					0.03						
121	nu star					140.1						
122	Approximate Chi Square Value (.05)					113.8	**Nonparametric Statistics**					
123	Adjusted Level of Significance					0.0086	95% CLT UCL					0.48
124	Adjusted Chi Square Value					103.4	95% Jackknife UCL					0.497
125							95% Standard Bootstrap UCL					0.473
126	Anderson-Darling Test Statistic					0.191	95% Bootstrap-t UCL					0.504
127	Anderson-Darling 5% Critical Value					0.678	95% Hall's Bootstrap UCL					0.516
128	Kolmogorov-Smirnov Test Statistic					0.169	95% Percentile Bootstrap UCL					0.472
129	Kolmogorov-Smirnov 5% Critical Value					0.357	95% BCA Bootstrap UCL					0.477
130	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.577
131							97.5% Chebyshev(Mean, Sd) UCL					0.645
132	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.779
133	95% Approximate Gamma UCL					0.518						
134	95% Adjusted Gamma UCL					0.57						
135												
136	**Potential UCL to Use**						Use 95% Student's-t UCL					0.497
137												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	RM6W	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenictotal

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.353	Minimum of Log Data	-1.043
Maximum	0.56	Maximum of Log Data	-0.58
Mean	0.441	Mean of log Data	-0.831
Median	0.437	SD of log Data	0.171
SD	0.0771		
Coefficient of Variation	0.175		
Skewness	0.845		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Test Statistic	0.979
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.515	95% H-UCL	0.531
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.588
95% Adjusted-CLT UCL	0.512	97.5% Chebyshev (MVUE) UCL	0.651
95% Modified-t UCL	0.517	99% Chebyshev (MVUE) UCL	0.776
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	17.11	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0258		
nu star	171.1		
Approximate Chi Square Value (.05)	141.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	0.498

	A	B	C	D	E	F	G	H	I	J	K	L
54					Adjusted Chi Square Value	130.1					95% Jackknife UCL	0.515
55											95% Standard Bootstrap UCL	0.492
56					Anderson-Darling Test Statistic	0.224					95% Bootstrap-t UCL	0.535
57					Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	0.627
58					Kolmogorov-Smirnov Test Statistic	0.202					95% Percentile Bootstrap UCL	0.493
59					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.494
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.591
61											97.5% Chebyshev(Mean, Sd) UCL	0.656
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.784
63					95% Approximate Gamma UCL	0.532						
64					95% Adjusted Gamma UCL	0.58						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	0.515
67												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	RM6.5E								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	AldrinNA											
10												
11					General Statistics							
12					Number of Valid Data	7			Number of Detected Data	7		
13					Number of Distinct Detected Data	7			Number of Non-Detect Data	0		
14					Number of Missing Values	10			Percent Non-Detects	0.00%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	3.1E-07			Minimum Detected	-14.99		
18					Maximum Detected	2.442E-06			Maximum Detected	-12.92		
19					Mean of Detected	1.56E-06			Mean of Detected	-13.54		
20					SD of Detected	7.721E-07			SD of Detected	0.725		
21					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
22					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
23												
24												
25					Warning: There are only 7 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.932			Shapiro Wilk Test Statistic	0.83		
35					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value	0.803		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	1.56E-06			Mean	-13.54		
41					SD	7.721E-07			SD	0.725		
42					95% DL/2 (t) UCL	2.127E-06			95% H-Stat (DL/2) UCL	4.114E-06		
43												
44					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
45					MLE method failed to converge properly				Mean in Log Scale	N/A		
46									SD in Log Scale	N/A		
47									Mean in Original Scale	N/A		
48									SD in Original Scale	N/A		
49									95% Percentile Bootstrap UCL	N/A		
50									95% BCA Bootstrap UCL	N/A		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	1.859			Data appear Normal at 5% Significance Level			

54					Theta Star	8.39E-07						
55					nu star	26.03						
56												
57					A-D Test Statistic	0.462	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.712				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.712				Mean		1.56E-06
60					5% K-S Critical Value	0.314				SD		7.149E-07
61			**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean		2.918E-07
62										95% KM (t) UCL		2.127E-06
63			**Assuming Gamma Distribution**							95% KM (z) UCL		2.04E-06
64					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		2.127E-06
65					Minimum	3.1E-07				95% KM (bootstrap t) UCL		2.044E-06
66					Maximum	2.442E-06				95% KM (BCA) UCL		2.001E-06
67					Mean	1.56E-06				95% KM (Percentile Bootstrap) UCL		1.988E-06
68					Median	1.773E-06				95% KM (Chebyshev) UCL		2.832E-06
69					SD	7.721E-07				97.5% KM (Chebyshev) UCL		3.382E-06
70					k star	1.859				99% KM (Chebyshev) UCL		4.464E-06
71					Theta star	8.39E-07						
72					Nu star	26.03	**Potential UCLs to Use**					
73					AppChi2	15.4				95% KM (t) UCL		2.127E-06
74					95% Gamma Approximate UCL	2.636E-06				95% KM (Percentile Bootstrap) UCL		1.988E-06
75					95% Adjusted Gamma UCL	3.123E-06						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenicdissolved**											
80												
81						**General Statistics**						
82					Number of Valid Data	10				Number of Detected Data		10
83					Number of Distinct Detected Data	10				Number of Non-Detect Data		0
84					Number of Missing Values	6				Percent Non-Detects		0.00%
85												
86			**Raw Statistics**				**Log-transformed Statistics**					
87					Minimum Detected	0.22				Minimum Detected		-1.514
88					Maximum Detected	0.46				Maximum Detected		-0.777
89					Mean of Detected	0.33				Mean of Detected		-1.131
90					SD of Detected	0.0712				SD of Detected		0.219
91					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
92					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
93												
94												
95						**UCL Statistics**						
96			**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**					
97					Shapiro Wilk Test Statistic	0.978				Shapiro Wilk Test Statistic		0.982
98					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
99			**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
100												
101			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
102					DL/2 Substitution Method					DL/2 Substitution Method		
103					Mean	0.33				Mean		-1.131
104					SD	0.0712				SD		0.219
105					95% DL/2 (t) UCL	0.371				95% H-Stat (DL/2) UCL		0.38
106												

107				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
108				**MLE method failed to converge properly**						Mean in Log Scale		N/A
109										SD in Log Scale		N/A
110										Mean in Original Scale		N/A
111										SD in Original Scale		N/A
112										95% Percentile Bootstrap UCL		N/A
113										95% BCA Bootstrap UCL		N/A
114												
115				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
116				k star (bias corrected)		16.59				**Data appear Normal at 5% Significance Level**		
117				Theta Star		0.0199						
118				nu star		331.8						
119												
120				A-D Test Statistic		0.176				**Nonparametric Statistics**		
121				5% A-D Critical Value		0.725				Kaplan-Meier (KM) Method		
122				K-S Test Statistic		0.725				Mean		0.33
123				5% K-S Critical Value		0.266				SD		0.0676
124				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.0225
125										95% KM (t) UCL		0.371
126				**Assuming Gamma Distribution**						95% KM (z) UCL		0.367
127				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.371
128				Minimum		0.22				95% KM (bootstrap t) UCL		0.374
129				Maximum		0.46				95% KM (BCA) UCL		0.364
130				Mean		0.33				95% KM (Percentile Bootstrap) UCL		0.366
131				Median		0.316				95% KM (Chebyshev) UCL		0.428
132				SD		0.0712				97.5% KM (Chebyshev) UCL		0.47
133				k star		16.59				99% KM (Chebyshev) UCL		0.554
134				Theta star		0.0199						
135				Nu star		331.8				**Potential UCLs to Use**		
136				AppChi2		290.6				95% KM (t) UCL		0.371
137				95% Gamma Approximate UCL		0.376				95% KM (Percentile Bootstrap) UCL		0.366
138				95% Adjusted Gamma UCL		0.385						
139	**Note: DL/2 is not a recommended method.**											
140												
141												
142	**Arsenictotal**											
143												
144						**General Statistics**						
145				Number of Valid Data		10				Number of Detected Data		10
146				Number of Distinct Detected Data		10				Number of Non-Detect Data		0
147				Number of Missing Values		6				Percent Non-Detects		0.00%
148												
149				**Raw Statistics**						**Log-transformed Statistics**		
150				Minimum Detected		0.313				Minimum Detected		-1.163
151				Maximum Detected		0.52				Maximum Detected		-0.654
152				Mean of Detected		0.39				Mean of Detected		-0.951
153				SD of Detected		0.0594				SD of Detected		0.145
154				Minimum Non-Detect		N/A				Minimum Non-Detect		N/A
155				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
156												
157												
158						**UCL Statistics**						
159				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		

160					Shapiro Wilk Test Statistic	0.909					Shapiro Wilk Test Statistic	0.942
161					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
162					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
163												
164					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
165					DL/2 Substitution Method						DL/2 Substitution Method	
166					Mean	0.39					Mean	-0.951
167					SD	0.0594					SD	0.145
168					95% DL/2 (t) UCL	0.424					95% H-Stat (DL/2) UCL	0.427
169												
170					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
171					**MLE method failed to converge properly**						Mean in Log Scale	N/A
172											SD in Log Scale	N/A
173											Mean in Original Scale	N/A
174											SD in Original Scale	N/A
175											95% Percentile Bootstrap UCL	N/A
176											95% BCA Bootstrap UCL	N/A
177												
178					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
179					k star (bias corrected)	35.93					**Data appear Normal at 5% Significance Level**	
180					Theta Star	0.0109						
181					nu star	718.6						
182												
183					A-D Test Statistic	0.392					**Nonparametric Statistics**	
184					5% A-D Critical Value	0.724					Kaplan-Meier (KM) Method	
185					K-S Test Statistic	0.724					Mean	0.39
186					5% K-S Critical Value	0.266					SD	0.0564
187					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0188
188											95% KM (t) UCL	0.424
189					**Assuming Gamma Distribution**						95% KM (z) UCL	0.421
190					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.424
191					Minimum	0.313					95% KM (bootstrap t) UCL	0.44
192					Maximum	0.52					95% KM (BCA) UCL	0.422
193					Mean	0.39					95% KM (Percentile Bootstrap) UCL	0.421
194					Median	0.367					95% KM (Chebyshev) UCL	0.472
195					SD	0.0594					97.5% KM (Chebyshev) UCL	0.507
196					k star	35.93					99% KM (Chebyshev) UCL	0.577
197					Theta star	0.0109						
198					Nu star	718.6					**Potential UCLs to Use**	
199					AppChi2	657.4					95% KM (t) UCL	0.424
200					95% Gamma Approximate UCL	0.426					95% KM (Percentile Bootstrap) UCL	0.421
201					95% Adjusted Gamma UCL	0.433						
202	**Note: DL/2 is not a recommended method.**											
203												
204												
205	**Benzo(a)anthraceneNA**											
206												
207						**General Statistics**							
208					Number of Valid Data	14					Number of Detected Data	7
209					Number of Distinct Detected Data	7					Number of Non-Detect Data	7
210					Number of Missing Values	3					Percent Non-Detects	50.00%
211												
212					**Raw Statistics**						**Log-transformed Statistics**	

213				Minimum Detected	0.000118					Minimum Detected	-9.045	
214				Maximum Detected	0.0028					Maximum Detected	-5.878	
215				Mean of Detected	0.0008251					Mean of Detected	-7.518	
216				SD of Detected	0.0009117					SD of Detected	0.977	
217				Minimum Non-Detect	0.0003355					Minimum Non-Detect	-8	
218				Maximum Non-Detect	0.00585					Maximum Non-Detect	-5.141	
219												
220	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	14	
221	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	0	
222	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	100.00%	
223												
224	**Warning: There are only 7 Detected Values in this data**											
225	**Note: It should be noted that even though bootstrap may be performed on this data set**											
226	**the resulting calculations may not be reliable enough tp draw conclusions**											
227												
228	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
229												
230												
231	**UCL Statistics**											
232	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
233				Shapiro Wilk Test Statistic	0.721					Shapiro Wilk Test Statistic	0.971	
234				5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803	
235	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
236												
237	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
238				DL/2 Substitution Method						DL/2 Substitution Method		
239				Mean	0.00123					Mean	-7.098	
240				SD	0.0009795					SD	1.031	
241				95% DL/2 (t) UCL	0.0017					95% H-Stat (DL/2) UCL	0.00433	
242												
243				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
244	**MLE method failed to converge properly**									Mean in Log Scale	-7.706	
245										SD in Log Scale	0.792	
246										Mean in Original Scale	0.0006269	
247										SD in Original Scale	0.0006738	
248										95% Percentile Bootstrap UCL	0.0009392	
249										95% BCA Bootstrap UCL	0.00111	
250												
251	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
252				k star (bias corrected)	0.86					**Data appear Gamma Distributed at 5% Significance Level**		
253				Theta Star	0.0009594							
254				nu star	12.04							
255												
256				A-D Test Statistic	0.382					**Nonparametric Statistics**		
257				5% A-D Critical Value	0.723					Kaplan-Meier (KM) Method		
258				K-S Test Statistic	0.723					Mean	0.0006907	
259				5% K-S Critical Value	0.318					SD	0.0007485	
260	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.0002605	
261										95% KM (t) UCL	0.00115	
262	**Assuming Gamma Distribution**									95% KM (z) UCL	0.00112	
263				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00115	
264				Minimum	0.000117					95% KM (bootstrap t) UCL	0.00205	
265				Maximum	0.0028					95% KM (BCA) UCL	0.00119	

266				Mean	0.0008065				95% KM (Percentile Bootstrap) UCL			0.00116
267				Median	0.0005565				95% KM (Chebyshev) UCL			0.00183
268				SD	0.0007284				97.5% KM (Chebyshev) UCL			0.00232
269				k star	1.23				99% KM (Chebyshev) UCL			0.00328
270				Theta star	0.0006555							
271				Nu star	34.45				**Potential UCLs to Use**			
272				AppChi2	22.02				95% KM (t) UCL			0.00115
273				95% Gamma Approximate UCL	0.00126							
274				95% Adjusted Gamma UCL	0.00134							
275	**Note: DL/2 is not a recommended method.**											
276												
277												
278	**Benzo(a)pyreneNA**											
279												
280	**General Statistics**											
281				Number of Valid Data	16				Number of Detected Data			8
282				Number of Distinct Detected Data	8				Number of Non-Detect Data			8
283				Number of Missing Values	1				Percent Non-Detects			50.00%
284												
285	**Raw Statistics**							**Log-transformed Statistics**				
286				Minimum Detected	0.0000183				Minimum Detected			-10.91
287				Maximum Detected	0.0024				Maximum Detected			-6.032
288				Mean of Detected	0.0005897				Mean of Detected			-8.27
289				SD of Detected	0.0007749				SD of Detected			1.614
290				Minimum Non-Detect	0.0016				Minimum Non-Detect			-6.438
291				Maximum Non-Detect	0.00645				Maximum Non-Detect			-5.044
292												
293	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			16
294	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			0
295	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			100.00%
296												
297	**Warning: There are only 8 Detected Values in this data**											
298	**Note: It should be noted that even though bootstrap may be performed on this data set**											
299	**the resulting calculations may not be reliable enough tp draw conclusions**											
300												
301	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
302												
303												
304	**UCL Statistics**											
305	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
306				Shapiro Wilk Test Statistic	0.699				Shapiro Wilk Test Statistic			0.892
307				5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value			0.818
308	**Data not Normal at 5% Significance Level**								**Data appear Lognormal at 5% Significance Level**			
309												
310	**Assuming Normal Distribution**								**Assuming Lognormal Distribution**			
311				DL/2 Substitution Method					DL/2 Substitution Method			
312				Mean	0.0013				Mean			-7.31
313				SD	0.00115				SD			1.535
314				95% DL/2 (t) UCL	0.0018				95% H-Stat (DL/2) UCL			0.0286
315												
316				Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method			
317	**MLE method failed to converge properly**								Mean in Log Scale			-8.354
318									SD in Log Scale			1.231

319											Mean in Original Scale	0.0004357
320											SD in Original Scale	0.0005719
321											95% Percentile Bootstrap UCL	0.0006873
322											95% BCA Bootstrap UCL	0.0008225
323												
324	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
325					k star (bias corrected)	0.534					**Data appear Gamma Distributed at 5% Significance Level**	
326					Theta Star	0.0011						
327					nu star	8.545						
328												
329					A-D Test Statistic	0.431					**Nonparametric Statistics**	
330					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
331					K-S Test Statistic	0.747					Mean	0.000538
332					5% K-S Critical Value	0.305					SD	0.0006664
333	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0002295
334											95% KM (t) UCL	0.0009403
335	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0009155
336	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.0009454
337					Minimum	0.0000183					95% KM (bootstrap t) UCL	0.00174
338					Maximum	0.0024					95% KM (BCA) UCL	0.0009242
339					Mean	0.0005924					95% KM (Percentile Bootstrap) UCL	0.0009583
340					Median	0.0005698					95% KM (Chebyshev) UCL	0.00154
341					SD	0.0005297					97.5% KM (Chebyshev) UCL	0.00197
342					k star	1.13					99% KM (Chebyshev) UCL	0.00282
343					Theta star	0.0005244						
344					Nu star	36.15					**Potential UCLs to Use**	
345					AppChi2	23.39					95% KM (t) UCL	0.0009403
346					95% Gamma Approximate UCL	0.0009156						
347					95% Adjusted Gamma UCL	0.0009636						
348	**Note: DL/2 is not a recommended method.**											
349												
350												
351	**Benzo(b)fluorantheneNA**											
352												
353	**General Statistics**											
354					Number of Valid Data	13					Number of Detected Data	7
355					Number of Distinct Detected Data	7					Number of Non-Detect Data	6
356					Number of Missing Values	4					Percent Non-Detects	46.15%
357												
358	**Raw Statistics**										**Log-transformed Statistics**	
359					Minimum Detected	0.0000453					Minimum Detected	-10
360					Maximum Detected	0.00109					Maximum Detected	-6.824
361					Mean of Detected	0.0005069					Mean of Detected	-7.873
362					SD of Detected	0.0003168					SD of Detected	1.007
363					Minimum Non-Detect	0.002					Minimum Non-Detect	-6.215
364					Maximum Non-Detect	0.0039					Maximum Non-Detect	-5.547
365												
366	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
367	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
368	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
369												
370	**Warning: There are only 7 Detected Values in this data**											
371	**Note: It should be noted that even though bootstrap may be performed on this data set**											

	A	B	C	D	E	F	G	H	I	J	K	L
372	the resulting calculations may not be reliable enough tp draw conclusions											
373												
374	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
375												
376												
377	UCL Statistics											
378	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
379					Shapiro Wilk Test Statistic	0.941					Shapiro Wilk Test Statistic	0.794
380					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
381	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
382												
383	Assuming Normal Distribution						Assuming Lognormal Distribution					
384					DL/2 Substitution Method						DL/2 Substitution Method	
385					Mean	0.0009537					Mean	-7.273
386					SD	0.0006445					SD	1.009
387					95% DL/2 (t) UCL	0.00127					95% H-Stat (DL/2) UCL	0.00547
388												
389					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
390	MLE method failed to converge properly										Mean in Log Scale	-7.873
391											SD in Log Scale	0.831
392											Mean in Original Scale	0.0004826
393											SD in Original Scale	0.0002903
394											95% Percentile Bootstrap UCL	0.0006135
395											95% BCA Bootstrap UCL	0.0006214
396												
397	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
398					k star (bias corrected)	1.181	Data appear Normal at 5% Significance Level					
399					Theta Star	0.0004292						
400					nu star	16.54						
401												
402					A-D Test Statistic	0.501	Nonparametric Statistics					
403					5% A-D Critical Value	0.716	Kaplan-Meier (KM) Method					
404					K-S Test Statistic	0.716					Mean	0.0005069
405					5% K-S Critical Value	0.315					SD	0.0002933
406	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.0001198
407											95% KM (t) UCL	0.0007204
408	Assuming Gamma Distribution										95% KM (z) UCL	0.0007039
409					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0007284
410					Minimum	0.0000453					95% KM (bootstrap t) UCL	0.0007775
411					Maximum	0.00109					95% KM (BCA) UCL	0.0007203
412					Mean	0.0005083					95% KM (Percentile Bootstrap) UCL	0.0006994
413					Median	0.0005121					95% KM (Chebyshev) UCL	0.00103
414					SD	0.000273					97.5% KM (Chebyshev) UCL	0.00125
415					k star	2.046					99% KM (Chebyshev) UCL	0.0017
416					Theta star	0.0002484						
417					Nu star	53.2	Potential UCLs to Use					
418					AppChi2	37.44					95% KM (t) UCL	0.0007204
419					95% Gamma Approximate UCL	0.0007222					95% KM (Percentile Bootstrap) UCL	0.0006994
420					95% Adjusted Gamma UCL	0.0007603						
421	Note: DL/2 is not a recommended method.											
422												
423												
424	Indeno(1,2,3-cd)pyreneNA											

425												
426	**General Statistics**											
427					Number of Valid Data	14				Number of Detected Data		6
428					Number of Distinct Detected Data	6				Number of Non-Detect Data		8
429					Number of Missing Values	3				Percent Non-Detects		57.14%
430												
431	**Raw Statistics**						**Log-transformed Statistics**					
432					Minimum Detected	0.000235				Minimum Detected		-8.356
433					Maximum Detected	0.000625				Maximum Detected		-7.378
434					Mean of Detected	0.0003503				Mean of Detected		-8.015
435					SD of Detected	0.0001447				SD of Detected		0.356
436					Minimum Non-Detect	0.000781				Minimum Non-Detect		-7.155
437					Maximum Non-Detect	0.00495				Maximum Non-Detect		-5.308
438												
439	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		14
440	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
441	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
442												
443	**Warning: There are only 6 Detected Values in this data**											
444	**Note: It should be noted that even though bootstrap may be performed on this data set**											
445	**the resulting calculations may not be reliable enough tp draw conclusions**											
446												
447	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
448												
449												
450	**UCL Statistics**											
451	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
452					Shapiro Wilk Test Statistic	0.797				Shapiro Wilk Test Statistic		0.881
453					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
454	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
455												
456	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
457					DL/2 Substitution Method					DL/2 Substitution Method		
458					Mean	0.00103				Mean		-7.215
459					SD	0.0008232				SD		0.878
460					95% DL/2 (t) UCL	0.00142				95% H-Stat (DL/2) UCL		0.0037
461												
462					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
463	**MLE method failed to converge properly**									Mean in Log Scale		-8.015
464										SD in Log Scale		0.273
465										Mean in Original Scale		0.000343
466										SD in Original Scale		0.000105
467										95% Percentile Bootstrap UCL		0.0003953
468										95% BCA Bootstrap UCL		0.0003998
469												
470	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
471					k star (bias corrected)	4.482	**Data appear Normal at 5% Significance Level**					
472					Theta Star	7.816E-05						
473					nu star	53.79						
474												
475					A-D Test Statistic	0.501	**Nonparametric Statistics**					
476					5% A-D Critical Value	0.698				Kaplan-Meier (KM) Method		
477					K-S Test Statistic	0.698				Mean		0.0003503

478				5% K-S Critical Value	0.333					SD	0.0001321
479	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	5.907E-05
480										95% KM (t) UCL	0.0004549
481	**Assuming Gamma Distribution**									95% KM (z) UCL	0.0004475
482	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL	0.0004608
483				Minimum	0.000235					95% KM (bootstrap t) UCL	0.0007549
484				Maximum	0.000625					95% KM (BCA) UCL	0.0004517
485				Mean	0.0003555					95% KM (Percentile Bootstrap) UCL	0.0004469
486				Median	0.0003675					95% KM (Chebyshev) UCL	0.0006078
487				SD	0.0001066					97.5% KM (Chebyshev) UCL	0.0007192
488				k star	10.51					99% KM (Chebyshev) UCL	0.0009381
489				Theta star	3.382E-05						
490				Nu star	294.3					**Potential UCLs to Use**	
491				AppChi2	255.6					95% KM (t) UCL	0.0004549
492				95% Gamma Approximate UCL	0.0004094					95% KM (Percentile Bootstrap) UCL	0.0004469
493				95% Adjusted Gamma UCL	0.0004172						
494	**Note: DL/2 is not a recommended method.**										
495											
496											
497	**NaphthaleneNA**										
498											
499	**General Statistics**										
500				Number of Valid Data	16					Number of Detected Data	4
501				Number of Distinct Detected Data	4					Number of Non-Detect Data	12
502				Number of Missing Values	1					Percent Non-Detects	75.00%
503											
504	**Raw Statistics**							**Log-transformed Statistics**			
505				Minimum Detected	0.000865					Minimum Detected	-7.053
506				Maximum Detected	0.0169					Maximum Detected	-4.08
507				Mean of Detected	0.00969					Mean of Detected	-5.062
508				SD of Detected	0.00662					SD of Detected	1.347
509				Minimum Non-Detect	0.0032					Minimum Non-Detect	-5.745
510				Maximum Non-Detect	0.0206					Maximum Non-Detect	-3.885
511											
512	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	16
513	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	0
514	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	100.00%
515											
516	**Warning: There are only 4 Distinct Detected Values in this data**										
517	**Note: It should be noted that even though bootstrap may be performed on this data set**										
518	**the resulting calculations may not be reliable enough tp draw conclusions**										
519											
520	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**										
521											
522											
523	**UCL Statistics**										
524	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**			
525				Shapiro Wilk Test Statistic	0.946					Shapiro Wilk Test Statistic	0.777
526				5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
527	**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**			
528											
529	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**			
530				DL/2 Substitution Method						DL/2 Substitution Method	

531					Mean	0.00688					Mean	-5.205
532					SD	0.00411					SD	0.782
533					95% DL/2 (t) UCL	0.00868					95% H-Stat (DL/2) UCL	0.0132
534												
535					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
536					**MLE method failed to converge properly**						Mean in Log Scale	-6.112
537											SD in Log Scale	0.947
538											Mean in Original Scale	0.00371
539											SD in Original Scale	0.0047
540											95% Percentile Bootstrap UCL	0.00567
541											95% BCA Bootstrap UCL	0.00632
542												
543					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
544					k star (bias corrected)	0.496					**Data appear Normal at 5% Significance Level**	
545					Theta Star	0.0195						
546					nu star	3.968						
547												
548					A-D Test Statistic	0.539					**Nonparametric Statistics**	
549					5% A-D Critical Value	0.664					Kaplan-Meier (KM) Method	
550					K-S Test Statistic	0.664					Mean	0.00425
551					5% K-S Critical Value	0.401					SD	0.00534
552					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.00192
553											95% KM (t) UCL	0.00761
554					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0074
555					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00967
556					Minimum	1E-09					95% KM (bootstrap t) UCL	0.00643
557					Maximum	0.0169					95% KM (BCA) UCL	N/A
558					Mean	0.00242					95% KM (Percentile Bootstrap) UCL	0.0118
559					Median	1E-09					95% KM (Chebyshev) UCL	0.0126
560					SD	0.00525					97.5% KM (Chebyshev) UCL	0.0162
561					k star	0.105					99% KM (Chebyshev) UCL	0.0233
562					Theta star	0.0231						
563					Nu star	3.351					**Potential UCLs to Use**	
564					AppChi2	0.484					95% KM (t) UCL	0.00761
565					95% Gamma Approximate UCL	0.0168					95% KM (Percentile Bootstrap) UCL	0.0118
566					95% Adjusted Gamma UCL	N/A						
567	**Note: DL/2 is not a recommended method.**											
568												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	RM7W								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	AldrinNA											
10												
11					General Statistics							
12					Number of Valid Data	5			Number of Detected Data	5		
13					Number of Distinct Detected Data	5			Number of Non-Detect Data	0		
14					Number of Missing Values	8			Percent Non-Detects	0.00%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	7.02E-07			Minimum Detected	-14.17		
18					Maximum Detected	3.618E-06			Maximum Detected	-12.53		
19					Mean of Detected	2.093E-06			Mean of Detected	-13.26		
20					SD of Detected	1.279E-06			SD of Detected	0.717		
21					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
22					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
23												
24												
25					Warning: There are only 5 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.919			Shapiro Wilk Test Statistic	0.911		
35					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value	0.762		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	2.093E-06			Mean	-13.26		
41					SD	1.279E-06			SD	0.717		
42					95% DL/2 (t) UCL	3.313E-06			95% H-Stat (DL/2) UCL	8.559E-06		
43												
44					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
45					MLE method failed to converge properly				Mean in Log Scale	N/A		
46									SD in Log Scale	N/A		
47									Mean in Original Scale	N/A		
48									SD in Original Scale	N/A		
49									95% Percentile Bootstrap UCL	N/A		
50									95% BCA Bootstrap UCL	N/A		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	1.274			Data appear Normal at 5% Significance Level			

54					Theta Star	1.643E-06						
55					nu star	12.74						
56												
57					A-D Test Statistic	0.326	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.683				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.683				Mean		2.093E-06
60					5% K-S Critical Value	0.36				SD		1.144E-06
61					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		5.721E-07
62										95% KM (t) UCL		3.313E-06
63					**Assuming Gamma Distribution**					95% KM (z) UCL		3.034E-06
64					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		3.313E-06
65					Minimum	7.02E-07				95% KM (bootstrap t) UCL		3.554E-06
66					Maximum	3.618E-06				95% KM (BCA) UCL		2.889E-06
67					Mean	2.093E-06				95% KM (Percentile Bootstrap) UCL		2.934E-06
68					Median	2.052E-06				95% KM (Chebyshev) UCL		4.587E-06
69					SD	1.279E-06				97.5% KM (Chebyshev) UCL		5.666E-06
70					k star	1.274				99% KM (Chebyshev) UCL		7.786E-06
71					Theta star	1.643E-06						
72					Nu star	12.74	**Potential UCLs to Use**					
73					AppChi2	5.717				95% KM (t) UCL		3.313E-06
74					95% Gamma Approximate UCL	4.664E-06				95% KM (Percentile Bootstrap) UCL		2.934E-06
75					95% Adjusted Gamma UCL	6.937E-06						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenicdissolved**											
80												
81					**General Statistics**							
82					Number of Valid Data	6				Number of Detected Data		5
83					Number of Distinct Detected Data	5				Number of Non-Detect Data		1
84					Number of Missing Values	6				Percent Non-Detects		16.67%
85												
86					**Raw Statistics**		**Log-transformed Statistics**					
87					Minimum Detected	0.258				Minimum Detected		-1.357
88					Maximum Detected	0.45				Maximum Detected		-0.799
89					Mean of Detected	0.349				Mean of Detected		-1.068
90					SD of Detected	0.0706				SD of Detected		0.204
91					Minimum Non-Detect	0.39				Minimum Non-Detect		-0.941
92					Maximum Non-Detect	0.39				Maximum Non-Detect		-0.941
93												
94												
95	**Warning: There are only 5 Detected Values in this data**											
96	**Note: It should be noted that even though bootstrap may be performed on this data set**											
97	**the resulting calculations may not be reliable enough tp draw conclusions**											
98												
99	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
100												
101												
102					**UCL Statistics**							
103					**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**					
104					Shapiro Wilk Test Statistic	0.97				Shapiro Wilk Test Statistic		0.972
105					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
106					**Data appear Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**					

107												
108	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
109				DL/2 Substitution Method						DL/2 Substitution Method		
110				Mean		0.324				Mean		-1.163
111				SD		0.0891				SD		0.294
112				95% DL/2 (t) UCL		0.397				95% H-Stat (DL/2) UCL		0.437
113												
114				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
115	**MLE method failed to converge properly**									Mean in Log Scale		-1.079
116										SD in Log Scale		0.185
117										Mean in Original Scale		0.345
118										SD in Original Scale		0.0641
119										95% Percentile Bootstrap UCL		0.386
120										95% BCA Bootstrap UCL		0.388
121												
122	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
123				k star (bias corrected)		12.31	**Data appear Normal at 5% Significance Level**					
124				Theta Star		0.0284						
125				nu star		123.1						
126												
127				A-D Test Statistic		0.241	**Nonparametric Statistics**					
128				5% A-D Critical Value		0.679				Kaplan-Meier (KM) Method		
129				K-S Test Statistic		0.679				Mean		0.345
130				5% K-S Critical Value		0.357				SD		0.0609
131	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0292
132										95% KM (t) UCL		0.404
133	**Assuming Gamma Distribution**									95% KM (z) UCL		0.393
134				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.405
135				Minimum		0.258				95% KM (bootstrap t) UCL		0.415
136				Maximum		0.45				95% KM (BCA) UCL		0.391
137				Mean		0.35				95% KM (Percentile Bootstrap) UCL		0.386
138				Median		0.344				95% KM (Chebyshev) UCL		0.472
139				SD		0.0632				97.5% KM (Chebyshev) UCL		0.527
140				k star		18.34				99% KM (Chebyshev) UCL		0.635
141				Theta star		0.0191						
142				Nu star		220.1	**Potential UCLs to Use**					
143				AppChi2		186.7				95% KM (t) UCL		0.404
144				95% Gamma Approximate UCL		0.413				95% KM (Percentile Bootstrap) UCL		0.386
145				95% Adjusted Gamma UCL		0.439						
146	**Note: DL/2 is not a recommended method.**											
147												
148												
149	**Arsenictotal**											
150												
151	**General Statistics**											
152				Number of Valid Data		6				Number of Detected Data		5
153				Number of Distinct Detected Data		5				Number of Non-Detect Data		1
154				Number of Missing Values		6				Percent Non-Detects		16.67%
155												
156	**Raw Statistics**						**Log-transformed Statistics**					
157				Minimum Detected		0.335				Minimum Detected		-1.094
158				Maximum Detected		0.5				Maximum Detected		-0.693
159				Mean of Detected		0.406				Mean of Detected		-0.911

	A	B	C	D	E	F	G	H	I	J	K	L
160					SD of Detected	0.0639					SD of Detected	0.154
161					Minimum Non-Detect	0.433					Minimum Non-Detect	-0.837
162					Maximum Non-Detect	0.433					Maximum Non-Detect	-0.837
163												
164												
165						**Warning: There are only 5 Detected Values in this data**							
166						**Note: It should be noted that even though bootstrap may be performed on this data set**						
167						**the resulting calculations may not be reliable enough tp draw conclusions**						
168												
169						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
170												
171												
172						**UCL Statistics**						
173						**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
174					Shapiro Wilk Test Statistic	0.959					Shapiro Wilk Test Statistic	0.975
175					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
176						**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
177												
178						**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
179					DL/2 Substitution Method						DL/2 Substitution Method	
180					Mean	0.375					Mean	-1.014
181					SD	0.0962					SD	0.288
182					95% DL/2 (t) UCL	0.454					95% H-Stat (DL/2) UCL	0.499
183												
184					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
185						**MLE method failed to converge properly**					Mean in Log Scale	-0.926
186											SD in Log Scale	0.143
187											Mean in Original Scale	0.4
188											SD in Original Scale	0.0594
189											95% Percentile Bootstrap UCL	0.439
190											95% BCA Bootstrap UCL	0.446
191												
192						**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
193					k star (bias corrected)	20.97					**Data appear Normal at 5% Significance Level**	
194					Theta Star	0.0194						
195					nu star	209.7						
196												
197					A-D Test Statistic	0.229					**Nonparametric Statistics**	
198					5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method	
199					K-S Test Statistic	0.678					Mean	0.399
200					5% K-S Critical Value	0.357					SD	0.0551
201						**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean	0.0256
202											95% KM (t) UCL	0.451
203						**Assuming Gamma Distribution**					95% KM (z) UCL	0.441
204					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.451
205					Minimum	0.335					95% KM (bootstrap t) UCL	0.481
206					Maximum	0.5					95% KM (BCA) UCL	0.437
207					Mean	0.404					95% KM (Percentile Bootstrap) UCL	0.443
208					Median	0.389					95% KM (Chebyshev) UCL	0.511
209					SD	0.0574					97.5% KM (Chebyshev) UCL	0.559
210					k star	31.03					99% KM (Chebyshev) UCL	0.654
211					Theta star	0.013						
212					Nu star	372.3					**Potential UCLs to Use**	

213					AppChi2	328.6					95% KM (t) UCL	0.451
214					95% Gamma Approximate UCL	0.458					95% KM (Percentile Bootstrap) UCL	0.443
215					95% Adjusted Gamma UCL	0.479						
216	**Note: DL/2 is not a recommended method.**											
217												
218												
219	**Benzo(a)anthraceneNA**											
220												
221	**General Statistics**											
222					Number of Valid Data	10					Number of Detected Data	6
223					Number of Distinct Detected Data	6					Number of Non-Detect Data	4
224					Number of Missing Values	3					Percent Non-Detects	40.00%
225												
226	**Raw Statistics**						**Log-transformed Statistics**					
227					Minimum Detected	0.0004546					Minimum Detected	-7.696
228					Maximum Detected	0.00695					Maximum Detected	-4.969
229					Mean of Detected	0.00235					Mean of Detected	-6.535
230					SD of Detected	0.00256					SD of Detected	1.062
231					Minimum Non-Detect	0.0042					Minimum Non-Detect	-5.473
232					Maximum Non-Detect	0.0042					Maximum Non-Detect	-5.473
233												
234												
235	**Warning: There are only 6 Detected Values in this data**											
236	**Note: It should be noted that even though bootstrap may be performed on this data set**											
237	**the resulting calculations may not be reliable enough tp draw conclusions**											
238												
239	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
240												
241												
242	**UCL Statistics**											
243	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
244					Shapiro Wilk Test Statistic	0.796					Shapiro Wilk Test Statistic	0.933
245					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
246	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
247												
248	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
249					DL/2 Substitution Method						DL/2 Substitution Method	
250					Mean	0.00225					Mean	-6.387
251					SD	0.00191					SD	0.814
252					95% DL/2 (t) UCL	0.00336					95% H-Stat (DL/2) UCL	0.0146
253												
254					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
255	**MLE method failed to converge properly**										Mean in Log Scale	-6.665
256											SD in Log Scale	0.906
257											Mean in Original Scale	0.00191
258											SD in Original Scale	0.00204
259											95% Percentile Bootstrap UCL	0.00301
260											95% BCA Bootstrap UCL	0.00334
261												
262	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
263					k star (bias corrected)	0.701	**Data appear Normal at 5% Significance Level**					
264					Theta Star	0.00335						
265					nu star	8.412						

266												
267					A-D Test Statistic	0.396	**Nonparametric Statistics**					
268					5% A-D Critical Value	0.712				Kaplan-Meier (KM) Method		
269					K-S Test Statistic	0.712				Mean		0.00198
270					5% K-S Critical Value	0.34				SD		0.00201
271					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		0.0007815
272										95% KM (t) UCL		0.00341
273					**Assuming Gamma Distribution**					95% KM (z) UCL		0.00326
274					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00343
275					Minimum	0.0004546				95% KM (bootstrap t) UCL		0.0072
276					Maximum	0.00695				95% KM (BCA) UCL		0.00336
277					Mean	0.00235				95% KM (Percentile Bootstrap) UCL		0.0032
278					Median	0.00233				95% KM (Chebyshev) UCL		0.00539
279					SD	0.0019				97.5% KM (Chebyshev) UCL		0.00686
280					k star	1.386				99% KM (Chebyshev) UCL		0.00976
281					Theta star	0.00169						
282					Nu star	27.72	**Potential UCLs to Use**					
283					AppChi2	16.71				95% KM (t) UCL		0.00341
284					95% Gamma Approximate UCL	0.00389				95% KM (Percentile Bootstrap) UCL		0.0032
285					95% Adjusted Gamma UCL	0.00427						
286	**Note: DL/2 is not a recommended method.**											
287												
288												
289	**Benzo(a)pyreneNA**											
290												
291	**General Statistics**											
292					Number of Valid Data	10				Number of Detected Data		6
293					Number of Distinct Detected Data	6				Number of Non-Detect Data		4
294					Number of Missing Values	3				Percent Non-Detects		40.00%
295												
296	**Raw Statistics**						**Log-transformed Statistics**					
297					Minimum Detected	0.000574				Minimum Detected		-7.463
298					Maximum Detected	0.00655				Maximum Detected		-5.028
299					Mean of Detected	0.00222				Mean of Detected		-6.478
300					SD of Detected	0.00226				SD of Detected		0.909
301					Minimum Non-Detect	0.0032				Minimum Non-Detect		-5.745
302					Maximum Non-Detect	0.0032				Maximum Non-Detect		-5.745
303												
304												
305	**Warning: There are only 6 Detected Values in this data**											
306	**Note: It should be noted that even though bootstrap may be performed on this data set**											
307	**the resulting calculations may not be reliable enough tp draw conclusions**											
308												
309	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
310												
311												
312	**UCL Statistics**											
313	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
314					Shapiro Wilk Test Statistic	0.772				Shapiro Wilk Test Statistic		0.934
315					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
316	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
317												
318	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

319				DL/2 Substitution Method							DL/2 Substitution Method	
320				Mean	0.00197						Mean	-6.462
321				SD	0.00171						SD	0.678
322				95% DL/2 (t) UCL	0.00296						95% H-Stat (DL/2) UCL	0.00741
323												
324				Maximum Likelihood Estimate(MLE) Method	N/A						Log ROS Method	
325				**MLE method failed to converge properly**							Mean in Log Scale	-6.59
326											SD in Log Scale	0.777
327											Mean in Original Scale	0.00186
328											SD in Original Scale	0.0018
329											95% Percentile Bootstrap UCL	0.0029
330											95% BCA Bootstrap UCL	0.00335
331												
332				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
333				k star (bias corrected)	0.864						**Data appear Gamma Distributed at 5% Significance Level**	
334				Theta Star	0.00257							
335				nu star	10.37							
336												
337				A-D Test Statistic	0.388						**Nonparametric Statistics**	
338				5% A-D Critical Value	0.708						Kaplan-Meier (KM) Method	
339				K-S Test Statistic	0.708						Mean	0.00187
340				5% K-S Critical Value	0.337						SD	0.00172
341				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.000638
342											95% KM (t) UCL	0.00304
343				**Assuming Gamma Distribution**							95% KM (z) UCL	0.00292
344				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.00303
345				Minimum	0.000574						95% KM (bootstrap t) UCL	0.00409
346				Maximum	0.00655						95% KM (BCA) UCL	0.00288
347				Mean	0.0022						95% KM (Percentile Bootstrap) UCL	0.00292
348				Median	0.002						95% KM (Chebyshev) UCL	0.00465
349				SD	0.00169						97.5% KM (Chebyshev) UCL	0.00586
350				k star	1.74						99% KM (Chebyshev) UCL	0.00822
351				Theta star	0.00126							
352				Nu star	34.81						**Potential UCLs to Use**	
353				AppChi2	22.31						95% KM (BCA) UCL	0.00288
354				95% Gamma Approximate UCL	0.00343							
355				95% Adjusted Gamma UCL	0.00371							
356	**Note: DL/2 is not a recommended method.**											
357												
358												
359	**Benzo(b)fluorantheneNA**											
360												
361												
362				Number of Valid Data	9						Number of Detected Data	5
363				Number of Distinct Detected Data	5						Number of Non-Detect Data	4
364				Number of Missing Values	4						Percent Non-Detects	44.44%
365												
366				**Raw Statistics**							**Log-transformed Statistics**	
367				Minimum Detected	0.0005743						Minimum Detected	-7.462
368				Maximum Detected	0.0049						Maximum Detected	-5.319
369				Mean of Detected	0.00186						Mean of Detected	-6.563
370				SD of Detected	0.00173						SD of Detected	0.784
371				Minimum Non-Detect	0.0039						Minimum Non-Detect	-5.547

372				Maximum Non-Detect		0.0039				Maximum Non-Detect		-5.547
373												
374												
375	**Warning: There are only 5 Detected Values in this data**											
376	**Note: It should be noted that even though bootstrap may be performed on this data set**											
377	**the resulting calculations may not be reliable enough tp draw conclusions**											
378												
379	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
380												
381												
382	**UCL Statistics**											
383	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
384				Shapiro Wilk Test Statistic		0.736				Shapiro Wilk Test Statistic		0.923
385				5% Shapiro Wilk Critical Value		0.762				5% Shapiro Wilk Critical Value		0.762
386	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
387												
388	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
389				DL/2 Substitution Method						DL/2 Substitution Method		
390				Mean		0.0019				Mean		-6.419
391				SD		0.00123				SD		0.58
392				95% DL/2 (t) UCL		0.00266				95% H-Stat (DL/2) UCL		0.00934
393												
394				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
395	**MLE method failed to converge properly**									Mean in Log Scale		-6.688
396										SD in Log Scale		0.652
397										Mean in Original Scale		0.00155
398										SD in Original Scale		0.00132
399										95% Percentile Bootstrap UCL		0.00237
400										95% BCA Bootstrap UCL		0.0027
401												
402	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
403				k star (bias corrected)		0.923	**Data appear Gamma Distributed at 5% Significance Level**					
404				Theta Star		0.00201						
405				nu star		9.232						
406												
407				A-D Test Statistic		0.485	**Nonparametric Statistics**					
408				5% A-D Critical Value		0.685				Kaplan-Meier (KM) Method		
409				K-S Test Statistic		0.685				Mean		0.00152
410				5% K-S Critical Value		0.361				SD		0.00124
411	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0004755
412										95% KM (t) UCL		0.0024
413	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0023
414				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.00238
415				Minimum		0.0005743				95% KM (bootstrap t) UCL		0.00336
416				Maximum		0.0049				95% KM (BCA) UCL		0.00235
417				Mean		0.0018				95% KM (Percentile Bootstrap) UCL		0.00235
418				Median		0.00145				95% KM (Chebyshev) UCL		0.00359
419				SD		0.00128				97.5% KM (Chebyshev) UCL		0.00449
420				k star		2.1				99% KM (Chebyshev) UCL		0.00625
421				Theta star		0.0008562						
422				Nu star		37.8	**Potential UCLs to Use**					
423				AppChi2		24.72				95% KM (BCA) UCL		0.00235
424				95% Gamma Approximate UCL		0.00275						

425					95% Adjusted Gamma UCL	0.00302						
426	**Note: DL/2 is not a recommended method.**											
427												
428												
429	**Indeno(1,2,3-cd)pyreneNA**											
430												
431	**General Statistics**											
432					Number of Valid Data	5				Number of Detected Data		5
433					Number of Distinct Detected Data	5				Number of Non-Detect Data		0
434					Number of Missing Values	8				Percent Non-Detects		0.00%
435												
436	**Raw Statistics**						**Log-transformed Statistics**					
437					Minimum Detected	0.0004775				Minimum Detected		-7.647
438					Maximum Detected	0.00281				Maximum Detected		-5.875
439					Mean of Detected	0.00113				Mean of Detected		-7.01
440					SD of Detected	0.0009607				SD of Detected		0.691
441					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
442					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
443												
444												
445	**Warning: There are only 5 Detected Values in this data**											
446	**Note: It should be noted that even though bootstrap may be performed on this data set**											
447	**the resulting calculations may not be reliable enough tp draw conclusions**											
448												
449	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
450												
451												
452	**UCL Statistics**											
453	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
454					Shapiro Wilk Test Statistic	0.735				Shapiro Wilk Test Statistic		0.888
455					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
456	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
457												
458	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
459					DL/2 Substitution Method					DL/2 Substitution Method		
460					Mean	0.00113				Mean		-7.01
461					SD	0.0009607				SD		0.691
462					95% DL/2 (t) UCL	0.00204				95% H-Stat (DL/2) UCL		0.00402
463												
464					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
465	**MLE method failed to converge properly**									Mean in Log Scale		N/A
466										SD in Log Scale		N/A
467										Mean in Original Scale		N/A
468										SD in Original Scale		N/A
469										95% Percentile Bootstrap UCL		N/A
470										95% BCA Bootstrap UCL		N/A
471												
472	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
473					k star (bias corrected)	1.098	**Data appear Gamma Distributed at 5% Significance Level**					
474					Theta Star	0.00103						
475					nu star	10.98						
476												
477					A-D Test Statistic	0.514	**Nonparametric Statistics**					

478				5% A-D Critical Value		0.684				Kaplan-Meier (KM) Method		
479				K-S Test Statistic		0.684				Mean		0.00113
480				5% K-S Critical Value		0.36				SD		0.0008593
481				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.0004297
482										95% KM (t) UCL		0.00204
483				**Assuming Gamma Distribution**						95% KM (z) UCL		0.00183
484				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.00204
485				Minimum		0.0004775				95% KM (bootstrap t) UCL		0.00484
486				Maximum		0.00281				95% KM (BCA) UCL		0.00172
487				Mean		0.00113				95% KM (Percentile Bootstrap) UCL		0.00188
488				Median		0.000767				95% KM (Chebyshev) UCL		0.003
489				SD		0.0009607				97.5% KM (Chebyshev) UCL		0.00381
490				k star		1.098				99% KM (Chebyshev) UCL		0.0054
491				Theta star		0.00103						
492				Nu star		10.98				**Potential UCLs to Use**		
493				AppChi2		4.563				95% KM (Chebyshev) UCL		0.003
494				95% Gamma Approximate UCL		0.00271						
495				95% Adjusted Gamma UCL		0.00421						
496				**Warning: Recommended UCL exceeds the maximum observation**								
497	**Note: DL/2 is not a recommended method.**											
498												
499												
500	**PerchlorateNA**											
501												
502						**General Statistics**						
503				Number of Valid Data		8				Number of Detected Data		5
504				Number of Distinct Detected Data		5				Number of Non-Detect Data		3
505				Number of Missing Values		4				Percent Non-Detects		37.50%
506												
507				**Raw Statistics**						**Log-transformed Statistics**		
508				Minimum Detected		0.9				Minimum Detected		-0.105
509				Maximum Detected		15.7				Maximum Detected		2.754
510				Mean of Detected		4.57				Mean of Detected		0.924
511				SD of Detected		6.285				SD of Detected		1.125
512				Minimum Non-Detect		0.25				Minimum Non-Detect		-1.386
513				Maximum Non-Detect		1				Maximum Non-Detect		0
514												
515	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		4
516	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
517	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		50.00%
518												
519						**Warning: There are only 5 Detected Values in this data**							
520						**Note: It should be noted that even though bootstrap may be performed on this data set**							
521						**the resulting calculations may not be reliable enough tp draw conclusions**							
522												
523						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
524												
525												
526						**UCL Statistics**							
527				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
528				Shapiro Wilk Test Statistic		0.672				Shapiro Wilk Test Statistic		0.888
529				5% Shapiro Wilk Critical Value		0.762				5% Shapiro Wilk Critical Value		0.762
530				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		

531												
532	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
533				DL/2 Substitution Method						DL/2 Substitution Method		
534				Mean		2.959				Mean		0.0297
535				SD		5.247				SD		1.546
536				95% DL/2 (t) UCL		6.474				95% H-Stat (DL/2) UCL		12.38
537												
538				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
539	**MLE yields a negative mean**									Mean in Log Scale		-0.0618
540										SD in Log Scale		1.613
541										Mean in Original Scale		2.927
542										SD in Original Scale		5.265
543										95% Percentile Bootstrap UCL		6.477
544										95% BCA Bootstrap UCL		8.119
545												
546	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
547				k star (bias corrected)		0.522	**Data appear Gamma Distributed at 5% Significance Level**					
548				Theta Star		8.749						
549				nu star		5.223						
550												
551				A-D Test Statistic		0.576	**Nonparametric Statistics**					
552				5% A-D Critical Value		0.692				Kaplan-Meier (KM) Method		
553				K-S Test Statistic		0.692				Mean		3.194
554				5% K-S Critical Value		0.365				SD		4.786
555	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		1.892
556										95% KM (t) UCL		6.778
557	**Assuming Gamma Distribution**									95% KM (z) UCL		6.306
558				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		6.534
559				Minimum		0.414				95% KM (bootstrap t) UCL		31.2
560				Maximum		15.7				95% KM (BCA) UCL		6.994
561				Mean		3.195				95% KM (Percentile Bootstrap) UCL		6.744
562				Median		1.5				95% KM (Chebyshev) UCL		11.44
563				SD		5.136				97.5% KM (Chebyshev) UCL		15.01
564				k star		0.593				99% KM (Chebyshev) UCL		22.02
565				Theta star		5.385						
566				Nu star		9.493	**Potential UCLs to Use**					
567				AppChi2		3.627				95% KM (BCA) UCL		6.994
568				95% Gamma Approximate UCL		8.362						
569				95% Adjusted Gamma UCL		10.94						
570	**Note: DL/2 is not a recommended method.**											
571												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	RM7.5W	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenicdissolved

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.303	Minimum of Log Data	-1.193
Maximum	0.47	Maximum of Log Data	-0.755
Mean	0.363	Mean of log Data	-1.027
Median	0.337	SD of log Data	0.181
SD	0.069		
Coefficient of Variation	0.19		
Skewness	1.13		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.886	Shapiro Wilk Test Statistic	0.907
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.429	95% H-UCL	0.443
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.491
95% Adjusted-CLT UCL	0.43	97.5% Chebyshev (MVUE) UCL	0.546
95% Modified-t UCL	0.431	99% Chebyshev (MVUE) UCL	0.655
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	14.93	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0243		
nu star	149.3		
Approximate Chi Square Value (.05)	122.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	0.414

54					Adjusted Chi Square Value	111.3					95% Jackknife UCL	0.429
55											95% Standard Bootstrap UCL	0.409
56					Anderson-Darling Test Statistic	0.359					95% Bootstrap-t UCL	0.541
57					Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	0.734
58					Kolmogorov-Smirnov Test Statistic	0.253					95% Percentile Bootstrap UCL	0.407
59					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.417
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.498
61											97.5% Chebyshev(Mean, Sd) UCL	0.556
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.67
63					95% Approximate Gamma UCL	0.444						
64					95% Adjusted Gamma UCL	0.487						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	0.429
67												
68												
69	**Arsenictotal**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	0.41					Minimum of Log Data	-0.892
76					Maximum	0.56					Maximum of Log Data	-0.58
77					Mean	0.485					Mean of log Data	-0.731
78					Median	0.492					SD of log Data	0.125
79					SD	0.0602						
80					Coefficient of Variation	0.124						
81					Skewness	-0.0442						
82												
83												
84					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 5 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.974					Shapiro Wilk Test Statistic	0.971
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	0.542					95% H-UCL	0.553
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.603
105					95% Adjusted-CLT UCL	0.528					97.5% Chebyshev (MVUE) UCL	0.654
106					95% Modified-t UCL	0.542					99% Chebyshev (MVUE) UCL	0.755

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	**Gamma Distribution Test**						**Data Distribution**					
109	k star (bias corrected)					32.17	**Data appear Normal at 5% Significance Level**					
110	Theta Star					0.0151						
111	nu star					321.7						
112	Approximate Chi Square Value (.05)					281.2	**Nonparametric Statistics**					
113	Adjusted Level of Significance					0.0086				95% CLT UCL		0.529
114	Adjusted Chi Square Value					264.4				95% Jackknife UCL		0.542
115										95% Standard Bootstrap UCL		0.524
116	Anderson-Darling Test Statistic					0.214				95% Bootstrap-t UCL		0.54
117	Anderson-Darling 5% Critical Value					0.678				95% Hall's Bootstrap UCL		0.528
118	Kolmogorov-Smirnov Test Statistic					0.189				95% Percentile Bootstrap UCL		0.525
119	Kolmogorov-Smirnov 5% Critical Value					0.357				95% BCA Bootstrap UCL		0.522
120	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		0.602
121										97.5% Chebyshev(Mean, Sd) UCL		0.653
122	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		0.752
123	95% Approximate Gamma UCL					0.554						
124	95% Adjusted Gamma UCL					0.589						
125												
126	**Potential UCL to Use**									Use 95% Student's-t UCL		0.542
127												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	RM8.0_SIL								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	AldrinNA											
10												
11					General Statistics							
12					Number of Valid Data	5			Number of Detected Data	5		
13					Number of Distinct Detected Data	5			Number of Non-Detect Data	0		
14					Number of Missing Values	11			Percent Non-Detects	0.00%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	0.0000004			Minimum Detected	-14.73		
18					Maximum Detected	4.88E-06			Maximum Detected	-12.23		
19					Mean of Detected	2.239E-06			Mean of Detected	-13.34		
20					SD of Detected	1.819E-06			SD of Detected	0.981		
21					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
22					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
23												
24												
25					Warning: There are only 5 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.932			Shapiro Wilk Test Statistic	0.973		
35					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value	0.762		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	2.239E-06			Mean	-13.34		
41					SD	1.819E-06			SD	0.981		
42					95% DL/2 (t) UCL	3.973E-06			95% H-Stat (DL/2) UCL	2.774E-05		
43												
44					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
45					MLE method failed to converge properly				Mean in Log Scale	N/A		
46									SD in Log Scale	N/A		
47									Mean in Original Scale	N/A		
48									SD in Original Scale	N/A		
49									95% Percentile Bootstrap UCL	N/A		
50									95% BCA Bootstrap UCL	N/A		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	0.795			Data appear Normal at 5% Significance Level			

54					Theta Star	2.817E-06						
55					nu star	7.947						
56												
57					A-D Test Statistic	0.192	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.686	Kaplan-Meier (KM) Method					
59					K-S Test Statistic	0.686	Mean	2.239E-06				
60					5% K-S Critical Value	0.361	SD	1.627E-06				
61	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	8.134E-07				
62							95% KM (t) UCL	3.973E-06				
63	**Assuming Gamma Distribution**						95% KM (z) UCL	3.577E-06				
64	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.973E-06				
65					Minimum	0.0000004	95% KM (bootstrap t) UCL	6.259E-06				
66					Maximum	4.88E-06	95% KM (BCA) UCL	3.468E-06				
67					Mean	2.239E-06	95% KM (Percentile Bootstrap) UCL	3.468E-06				
68					Median	1.601E-06	95% KM (Chebyshev) UCL	5.785E-06				
69					SD	1.819E-06	97.5% KM (Chebyshev) UCL	7.319E-06				
70					k star	0.795	99% KM (Chebyshev) UCL	1.033E-05				
71					Theta star	2.817E-06						
72					Nu star	7.947	**Potential UCLs to Use**					
73					AppChi2	2.704	95% KM (t) UCL	3.973E-06				
74					95% Gamma Approximate UCL	6.579E-06	95% KM (Percentile Bootstrap) UCL	3.468E-06				
75					95% Adjusted Gamma UCL	1.141E-05						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenicdissolved**											
80												
81	**General Statistics**											
82					Number of Valid Data	11	Number of Detected Data	10				
83					Number of Distinct Detected Data	10	Number of Non-Detect Data	1				
84					Number of Missing Values	4	Percent Non-Detects	9.09%				
85												
86	**Raw Statistics**						**Log-transformed Statistics**					
87					Minimum Detected	0.249	Minimum Detected	-1.39				
88					Maximum Detected	0.44	Maximum Detected	-0.821				
89					Mean of Detected	0.346	Mean of Detected	-1.075				
90					SD of Detected	0.0634	SD of Detected	0.184				
91					Minimum Non-Detect	0.403	Minimum Non-Detect	-0.909				
92					Maximum Non-Detect	0.403	Maximum Non-Detect	-0.909				
93												
94												
95	**UCL Statistics**											
96	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
97					Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Test Statistic	0.959				
98					5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842				
99	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
100												
101	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
102					DL/2 Substitution Method		DL/2 Substitution Method					
103					Mean	0.333	Mean	-1.123				
104					SD	0.0743	SD	0.236				
105					95% DL/2 (t) UCL	0.374	95% H-Stat (DL/2) UCL	0.379				
106												

107					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
108					Mean	0.428					Mean in Log Scale	-1.083
109					SD	0.0125					SD in Log Scale	0.177
110					95% MLE (t) UCL	0.435					Mean in Original Scale	0.344
111					95% MLE (Tiku) UCL	0.441					SD in Original Scale	0.0609
112											95% Percentile Bootstrap UCL	0.372
113											95% BCA Bootstrap UCL	0.374
114												
115					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
116					k star (bias corrected)	23.24					**Data appear Normal at 5% Significance Level**	
117					Theta Star	0.0149						
118					nu star	464.7						
119												
120					A-D Test Statistic	0.25					**Nonparametric Statistics**	
121					5% A-D Critical Value	0.724					Kaplan-Meier (KM) Method	
122					K-S Test Statistic	0.724					Mean	0.343
123					5% K-S Critical Value	0.266					SD	0.0591
124					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0191
125											95% KM (t) UCL	0.378
126					**Assuming Gamma Distribution**						95% KM (z) UCL	0.375
127					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.378
128					Minimum	0.249					95% KM (bootstrap t) UCL	0.382
129					Maximum	0.44					95% KM (BCA) UCL	0.377
130					Mean	0.346					95% KM (Percentile Bootstrap) UCL	0.374
131					Median	0.338					95% KM (Chebyshev) UCL	0.427
132					SD	0.0602					97.5% KM (Chebyshev) UCL	0.463
133					k star	26.49					99% KM (Chebyshev) UCL	0.533
134					Theta star	0.0131						
135					Nu star	582.7					**Potential UCLs to Use**	
136					AppChi2	527.7					95% KM (t) UCL	0.378
137					95% Gamma Approximate UCL	0.382					95% KM (Percentile Bootstrap) UCL	0.374
138					95% Adjusted Gamma UCL	0.388						
139	**Note: DL/2 is not a recommended method.**											
140												
141												
142	**Arsenictotal**											
143												
144						**General Statistics**						
145					Number of Valid Data	11					Number of Detected Data	11
146					Number of Distinct Detected Data	10					Number of Non-Detect Data	0
147					Number of Missing Values	4					Percent Non-Detects	0.00%
148												
149					**Raw Statistics**						**Log-transformed Statistics**	
150					Minimum Detected	0.337					Minimum Detected	-1.088
151					Maximum Detected	0.48					Maximum Detected	-0.734
152					Mean of Detected	0.414					Mean of Detected	-0.889
153					SD of Detected	0.0509					SD of Detected	0.123
154					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
155					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
156												
157												
158						**UCL Statistics**						
159					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	

160					Shapiro Wilk Test Statistic	0.912					Shapiro Wilk Test Statistic	0.921
161					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
162					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
163												
164					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
165					DL/2 Substitution Method						DL/2 Substitution Method	
166					Mean	0.414					Mean	-0.889
167					SD	0.0509					SD	0.123
168					95% DL/2 (t) UCL	0.442					95% H-Stat (DL/2) UCL	0.445
169												
170					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
171					**MLE method failed to converge properly**						Mean in Log Scale	N/A
172											SD in Log Scale	N/A
173											Mean in Original Scale	N/A
174											SD in Original Scale	N/A
175											95% Percentile Bootstrap UCL	N/A
176											95% BCA Bootstrap UCL	N/A
177												
178					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
179					k star (bias corrected)	52.85					**Data appear Normal at 5% Significance Level**	
180					Theta Star	0.00783						
181					nu star	1163						
182												
183					A-D Test Statistic	0.427					**Nonparametric Statistics**	
184					5% A-D Critical Value	0.727					Kaplan-Meier (KM) Method	
185					K-S Test Statistic	0.727					Mean	0.414
186					5% K-S Critical Value	0.255					SD	0.0486
187					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0154
188											95% KM (t) UCL	0.442
189					**Assuming Gamma Distribution**						95% KM (z) UCL	0.439
190					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.442
191					Minimum	0.337					95% KM (bootstrap t) UCL	0.442
192					Maximum	0.48					95% KM (BCA) UCL	0.44
193					Mean	0.414					95% KM (Percentile Bootstrap) UCL	0.438
194					Median	0.407					95% KM (Chebyshev) UCL	0.481
195					SD	0.0509					97.5% KM (Chebyshev) UCL	0.51
196					k star	52.85					99% KM (Chebyshev) UCL	0.567
197					Theta star	0.00783						
198					Nu star	1163					**Potential UCLs to Use**	
199					AppChi2	1085					95% KM (t) UCL	0.442
200					95% Gamma Approximate UCL	0.444					95% KM (Percentile Bootstrap) UCL	0.438
201					95% Adjusted Gamma UCL	0.449						
202	**Note: DL/2 is not a recommended method.**											
203												
204												
205	**Benzo(a)anthraceneNA**											
206												
207						**General Statistics**							
208					Number of Valid Data	16					Number of Detected Data	6
209					Number of Distinct Detected Data	6					Number of Non-Detect Data	10
210											Percent Non-Detects	62.50%
211												
212					**Raw Statistics**						**Log-transformed Statistics**	

213				Minimum Detected	0.000167					Minimum Detected	-8.698	
214				Maximum Detected	0.0108					Maximum Detected	-4.533	
215				Mean of Detected	0.00304					Mean of Detected	-6.81	
216				SD of Detected	0.0042					SD of Detected	1.66	
217				Minimum Non-Detect	0.0021					Minimum Non-Detect	-6.166	
218				Maximum Non-Detect	0.0084					Maximum Non-Detect	-4.78	
219												
220	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	15	
221	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	1	
222	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	93.75%	
223												
224	**Warning: There are only 6 Detected Values in this data**											
225	**Note: It should be noted that even though bootstrap may be performed on this data set**											
226	**the resulting calculations may not be reliable enough tp draw conclusions**											
227												
228	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
229												
230												
231	**UCL Statistics**											
232	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
233				Shapiro Wilk Test Statistic	0.768					Shapiro Wilk Test Statistic	0.924	
234				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788	
235	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
236												
237	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
238				DL/2 Substitution Method						DL/2 Substitution Method		
239				Mean	0.00263					Mean	-6.369	
240				SD	0.00255					SD	1.063	
241				95% DL/2 (t) UCL	0.00375					95% H-Stat (DL/2) UCL	0.0137	
242												
243				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
244	**MLE method failed to converge properly**									Mean in Log Scale	-7.369	
245										SD in Log Scale	1.251	
246										Mean in Original Scale	0.00152	
247										SD in Original Scale	0.00274	
248										95% Percentile Bootstrap UCL	0.00278	
249										95% BCA Bootstrap UCL	0.00357	
250												
251	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
252				k star (bias corrected)	0.415					**Data appear Gamma Distributed at 5% Significance Level**		
253				Theta Star	0.00733							
254				nu star	4.979							
255												
256				A-D Test Statistic	0.396					**Nonparametric Statistics**		
257				5% A-D Critical Value	0.729					Kaplan-Meier (KM) Method		
258				K-S Test Statistic	0.729					Mean	0.00157	
259				5% K-S Critical Value	0.346					SD	0.00268	
260	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.0007785	
261										95% KM (t) UCL	0.00293	
262	**Assuming Gamma Distribution**									95% KM (z) UCL	0.00285	
263				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0029	
264				Minimum	1E-09					95% KM (bootstrap t) UCL	0.00462	
265				Maximum	0.0108					95% KM (BCA) UCL	0.00323	

266					Mean	0.00286				95% KM (Percentile Bootstrap) UCL		0.00296
267					Median	0.00286				95% KM (Chebyshev) UCL		0.00496
268					SD	0.00265				97.5% KM (Chebyshev) UCL		0.00643
269					k star	0.443				99% KM (Chebyshev) UCL		0.00931
270					Theta star	0.00645						
271					Nu star	14.18				**Potential UCLs to Use**		
272					AppChi2	6.698				95% KM (t) UCL		0.00293
273					95% Gamma Approximate UCL	0.00605						
274					95% Adjusted Gamma UCL	0.00662						
275	**Note: DL/2 is not a recommended method.**											
276												
277												
278	**Benzo(b)fluoranthene**	**NA**										
279												
280					**General Statistics**							
281					Number of Valid Data	6				Number of Detected Data		5
282					Number of Distinct Detected Data	5				Number of Non-Detect Data		1
283					Number of Missing Values	10				Percent Non-Detects		16.67%
284												
285					**Raw Statistics**					**Log-transformed Statistics**		
286					Minimum Detected	0.000267				Minimum Detected		-8.228
287					Maximum Detected	0.00383				Maximum Detected		-5.564
288					Mean of Detected	0.00156				Mean of Detected		-6.901
289					SD of Detected	0.00151				SD of Detected		1.098
290					Minimum Non-Detect	0.002				Minimum Non-Detect		-6.215
291					Maximum Non-Detect	0.002				Maximum Non-Detect		-6.215
292												
293												
294					**Warning: There are only 5 Detected Values in this data**							
295					**Note: It should be noted that even though bootstrap may be performed on this data set**							
296					**the resulting calculations may not be reliable enough tp draw conclusions**							
297												
298					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
299												
300												
301					**UCL Statistics**							
302					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
303					Shapiro Wilk Test Statistic	0.877				Shapiro Wilk Test Statistic		0.961
304					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
305					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
306												
307					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
308					DL/2 Substitution Method					DL/2 Substitution Method		
309					Mean	0.00147				Mean		-6.902
310					SD	0.00137				SD		0.982
311					95% DL/2 (t) UCL	0.00259				95% H-Stat (DL/2) UCL		0.0231
312												
313					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
314					**MLE method failed to converge properly**					Mean in Log Scale		-7.015
315										SD in Log Scale		1.021
316										Mean in Original Scale		0.00139
317										SD in Original Scale		0.00141
318										95% Percentile Bootstrap UCL		0.00223

319											95% BCA Bootstrap UCL	0.00253
320												
321	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
322					k star (bias corrected)	0.643	Data appear Normal at 5% Significance Level					
323					Theta Star	0.00243						
324					nu star	6.431						
325												
326					A-D Test Statistic	0.267	Nonparametric Statistics					
327					5% A-D Critical Value	0.689					Kaplan-Meier (KM) Method	
328					K-S Test Statistic	0.689					Mean	0.00139
329					5% K-S Critical Value	0.363					SD	0.00129
330	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.0005918
331											95% KM (t) UCL	0.00259
332	Assuming Gamma Distribution										95% KM (z) UCL	0.00237
333					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00257
334					Minimum	0.000267					95% KM (bootstrap t) UCL	0.00494
335					Maximum	0.00383					95% KM (BCA) UCL	0.00236
336					Mean	0.00147					95% KM (Percentile Bootstrap) UCL	0.00236
337					Median	0.0009515					95% KM (Chebyshev) UCL	0.00397
338					SD	0.00137					97.5% KM (Chebyshev) UCL	0.00509
339					k star	0.842					99% KM (Chebyshev) UCL	0.00728
340					Theta star	0.00175						
341					Nu star	10.1	Potential UCLs to Use					
342					AppChi2	4.006					95% KM (t) UCL	0.00259
343					95% Gamma Approximate UCL	0.00371					95% KM (Percentile Bootstrap) UCL	0.00236
344					95% Adjusted Gamma UCL	0.00542						
345	Note: DL/2 is not a recommended method.											
346												
347												
348	Indeno(1,2,3-cd)pyreneNA											
349												
350	General Statistics											
351					Number of Valid Data	6	Number of Detected Data	5				
352					Number of Distinct Detected Data	5	Number of Non-Detect Data	1				
353					Number of Missing Values	10	Percent Non-Detects	16.67%				
354												
355	Raw Statistics						Log-transformed Statistics					
356					Minimum Detected	0.000219	Minimum Detected	-8.426				
357					Maximum Detected	0.00288	Maximum Detected	-5.85				
358					Mean of Detected	0.0011	Mean of Detected	-7.244				
359					SD of Detected	0.00111	SD of Detected	1.059				
360					Minimum Non-Detect	0.0021	Minimum Non-Detect	-6.166				
361					Maximum Non-Detect	0.0021	Maximum Non-Detect	-6.166				
362												
363												
364	Warning: There are only 5 Detected Values in this data											
365	Note: It should be noted that even though bootstrap may be performed on this data set											
366	the resulting calculations may not be reliable enough tp draw conclusions											
367												
368	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
369												
370												
371	UCL Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
372	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
373					Shapiro Wilk Test Statistic	0.851					Shapiro Wilk Test Statistic	0.959
374					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
375	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
376												
377	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
378					DL/2 Substitution Method						DL/2 Substitution Method	
379					Mean	0.00109					Mean	-7.18
380					SD	0.0009892					SD	0.96
381					95% DL/2 (t) UCL	0.00191					95% H-Stat (DL/2) UCL	0.0209
382												
383					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
384	**MLE method failed to converge properly**										Mean in Log Scale	-7.301
385											SD in Log Scale	0.958
386											Mean in Original Scale	0.001
387											SD in Original Scale	0.00102
388											95% Percentile Bootstrap UCL	0.00165
389											95% BCA Bootstrap UCL	0.00184
390												
391	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
392					k star (bias corrected)	0.653	**Data appear Normal at 5% Significance Level**					
393					Theta Star	0.00169						
394					nu star	6.53						
395												
396					A-D Test Statistic	0.276	**Nonparametric Statistics**					
397					5% A-D Critical Value	0.688					Kaplan-Meier (KM) Method	
398					K-S Test Statistic	0.688					Mean	0.00103
399					5% K-S Critical Value	0.363					SD	0.0009389
400	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0004402
401											95% KM (t) UCL	0.00191
402	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00175
403					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00191
404					Minimum	0.000219					95% KM (bootstrap t) UCL	0.00409
405					Maximum	0.00288					95% KM (BCA) UCL	0.00174
406					Mean	0.00109					95% KM (Percentile Bootstrap) UCL	0.00174
407					Median	0.000845					95% KM (Chebyshev) UCL	0.00295
408					SD	0.0009892					97.5% KM (Chebyshev) UCL	0.00378
409					k star	0.878					99% KM (Chebyshev) UCL	0.00541
410					Theta star	0.00125						
411					Nu star	10.54	**Potential UCLs to Use**					
412					AppChi2	4.282					95% KM (t) UCL	0.00191
413					95% Gamma Approximate UCL	0.00269					95% KM (Percentile Bootstrap) UCL	0.00174
414					95% Adjusted Gamma UCL	0.00388						
415	**Note: DL/2 is not a recommended method.**											
416												

RM8.5W	**General UCL Statistics for Data Sets with Non-Detects**	
User Selected Options		
From File	RM8.5W	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenictotal

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.368	Minimum of Log Data	-1
Maximum	0.54	Maximum of Log Data	-0.616
Mean	0.435	Mean of log Data	-0.844
Median	0.446	SD of log Data	0.158
SD	0.0704		
Coefficient of Variation	0.162		
Skewness	0.75		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.889	Shapiro Wilk Test Statistic	0.896
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

42	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
43	95% Student's-t UCL	0.502					95% H-UCL	0.516				
44	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.569				
45	95% Adjusted-CLT UCL	0.498					97.5% Chebyshev (MVUE) UCL	0.627				
46	95% Modified-t UCL	0.503					99% Chebyshev (MVUE) UCL	0.741				
47												
48	**Gamma Distribution Test**						**Data Distribution**					
49	k star (bias corrected)	19.83					**Data appear Normal at 5% Significance Level**					
50	Theta Star	0.0219										
51	nu star	198.3										
52	Approximate Chi Square Value (.05)	166.7					**Nonparametric Statistics**					
53	Adjusted Level of Significance	0.0086					95% CLT UCL	0.486				
54	Adjusted Chi Square Value	154					95% Jackknife UCL	0.502				
55							95% Standard Bootstrap UCL	0.481				
56	Anderson-Darling Test Statistic	0.391					95% Bootstrap-t UCL	0.534				
57	Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	0.495				
58	Kolmogorov-Smirnov Test Statistic	0.247					95% Percentile Bootstrap UCL	0.485				
59	Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.487				
60	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.572				
61							97.5% Chebyshev(Mean, Sd) UCL	0.631				
62	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.748				
63	95% Approximate Gamma UCL	0.517										
64	95% Adjusted Gamma UCL	0.56										
65												
66	**Potential UCL to Use**						Use 95% Student's-t UCL	0.502				
67												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	RM9.5W	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenicdissolved

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.218	Minimum of Log Data	-1.526
Maximum	0.493	Maximum of Log Data	-0.707
Mean	0.373	Mean of log Data	-1.027
Median	0.397	SD of log Data	0.331
SD	0.111		
Coefficient of Variation	0.298		
Skewness	-0.554		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.925
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.479	95% H-UCL	0.569
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.614
95% Adjusted-CLT UCL	0.441	97.5% Chebyshev (MVUE) UCL	0.718
95% Modified-t UCL	0.477	99% Chebyshev (MVUE) UCL	0.922
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.102	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0731		
nu star	51.02		
Approximate Chi Square Value (.05)	35.62	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	0.455

54					Adjusted Chi Square Value	30.09					95% Jackknife UCL	0.479
55											95% Standard Bootstrap UCL	0.446
56					Anderson-Darling Test Statistic	0.282					95% Bootstrap-t UCL	0.458
57					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.44
58					Kolmogorov-Smirnov Test Statistic	0.225					95% Percentile Bootstrap UCL	0.439
59					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.439
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.59
61											97.5% Chebyshev(Mean, Sd) UCL	0.683
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.868
63					95% Approximate Gamma UCL	0.534						
64					95% Adjusted Gamma UCL	0.632						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	0.479
67												
68												
69	**Arsenictotal**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	0.337					Minimum of Log Data	-1.088
76					Maximum	0.668					Maximum of Log Data	-0.403
77					Mean	0.495					Mean of log Data	-0.728
78					Median	0.476					SD of log Data	0.248
79					SD	0.12						
80					Coefficient of Variation	0.242						
81					Skewness	0.311						
82												
83												
84					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 5 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.969					Shapiro Wilk Test Statistic	0.968
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	0.609					95% H-UCL	0.661
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.733
105					95% Adjusted-CLT UCL	0.591					97.5% Chebyshev (MVUE) UCL	0.836
106					95% Modified-t UCL	0.61					99% Chebyshev (MVUE) UCL	1.039

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	**Gamma Distribution Test**						**Data Distribution**					
109	k star (bias corrected)					8.504	**Data appear Normal at 5% Significance Level**					
110	Theta Star					0.0582						
111	nu star					85.04						
112	Approximate Chi Square Value (.05)					64.78	**Nonparametric Statistics**					
113	Adjusted Level of Significance					0.0086	95% CLT UCL					0.583
114	Adjusted Chi Square Value					57.11	95% Jackknife UCL					0.609
115							95% Standard Bootstrap UCL					0.574
116	Anderson-Darling Test Statistic					0.245	95% Bootstrap-t UCL					0.619
117	Anderson-Darling 5% Critical Value					0.679	95% Hall's Bootstrap UCL					0.696
118	Kolmogorov-Smirnov Test Statistic					0.21	95% Percentile Bootstrap UCL					0.574
119	Kolmogorov-Smirnov 5% Critical Value					0.357	95% BCA Bootstrap UCL					0.574
120	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.728
121							97.5% Chebyshev(Mean, Sd) UCL					0.83
122	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					1.028
123	95% Approximate Gamma UCL					0.649						
124	95% Adjusted Gamma UCL					0.737						
125												
126	**Potential UCL to Use**						Use 95% Student's-t UCL					0.609
127												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	W005								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	AldrinNA											
10												
11					General Statistics							
12					Number of Valid Data	7			Number of Detected Data	7		
13					Number of Distinct Detected Data	7			Number of Non-Detect Data	0		
14					Number of Missing Values	7			Percent Non-Detects	0.00%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	2.96E-07			Minimum Detected	-15.03		
18					Maximum Detected	4.68E-06			Maximum Detected	-12.27		
19					Mean of Detected	2.703E-06			Mean of Detected	-13.07		
20					SD of Detected	1.475E-06			SD of Detected	0.941		
21					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
22					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
23												
24												
25					Warning: There are only 7 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.971			Shapiro Wilk Test Statistic	0.794		
35					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value	0.803		
36					Data appear Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	2.703E-06			Mean	-13.07		
41					SD	1.475E-06			SD	0.941		
42					95% DL/2 (t) UCL	3.787E-06			95% H-Stat (DL/2) UCL	1.272E-05		
43												
44					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
45					MLE method failed to converge properly				Mean in Log Scale	N/A		
46									SD in Log Scale	N/A		
47									Mean in Original Scale	N/A		
48									SD in Original Scale	N/A		
49									95% Percentile Bootstrap UCL	N/A		
50									95% BCA Bootstrap UCL	N/A		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	1.317			Data appear Normal at 5% Significance Level			

54					Theta Star	2.053E-06						
55					nu star	18.44						
56												
57					A-D Test Statistic	0.498	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.715				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.715				Mean		2.703E-06
60					5% K-S Critical Value	0.315				SD		1.366E-06
61			**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean		5.575E-07
62										95% KM (t) UCL		3.787E-06
63			**Assuming Gamma Distribution**							95% KM (z) UCL		3.62E-06
64			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		3.787E-06
65					Minimum	2.96E-07				95% KM (bootstrap t) UCL		3.593E-06
66					Maximum	4.68E-06				95% KM (BCA) UCL		3.483E-06
67					Mean	2.703E-06				95% KM (Percentile Bootstrap) UCL		3.54E-06
68					Median	2.955E-06				95% KM (Chebyshev) UCL		5.134E-06
69					SD	1.475E-06				97.5% KM (Chebyshev) UCL		6.185E-06
70					k star	1.317				99% KM (Chebyshev) UCL		8.251E-06
71					Theta star	2.053E-06						
72					Nu star	18.44	**Potential UCLs to Use**					
73					AppChi2	9.707				95% KM (t) UCL		3.787E-06
74					95% Gamma Approximate UCL	5.135E-06				95% KM (Percentile Bootstrap) UCL		3.54E-06
75					95% Adjusted Gamma UCL	6.333E-06						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenicdissolved**											
80												
81					**General Statistics**							
82					Number of Valid Data	7				Number of Detected Data		6
83					Number of Distinct Detected Data	6				Number of Non-Detect Data		1
84					Number of Missing Values	6				Percent Non-Detects		14.29%
85												
86			**Raw Statistics**				**Log-transformed Statistics**					
87					Minimum Detected	0.2				Minimum Detected		-1.609
88					Maximum Detected	0.48				Maximum Detected		-0.734
89					Mean of Detected	0.313				Mean of Detected		-1.214
90					SD of Detected	0.11				SD of Detected		0.35
91					Minimum Non-Detect	0.397				Minimum Non-Detect		-0.925
92					Maximum Non-Detect	0.397				Maximum Non-Detect		-0.925
93												
94												
95	**Warning: There are only 6 Detected Values in this data**											
96	**Note: It should be noted that even though bootstrap may be performed on this data set**											
97	**the resulting calculations may not be reliable enough tp draw conclusions**											
98												
99	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
100												
101												
102					**UCL Statistics**							
103			**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**					
104					Shapiro Wilk Test Statistic	0.931				Shapiro Wilk Test Statistic		0.942
105					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
106			**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					

107												
108	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
109				DL/2 Substitution Method						DL/2 Substitution Method		
110				Mean		0.296				Mean		-1.272
111				SD		0.109				SD		0.354
112				95% DL/2 (t) UCL		0.377				95% H-Stat (DL/2) UCL		0.414
113												
114				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
115	**MLE method failed to converge properly**									Mean in Log Scale		-1.227
116										SD in Log Scale		0.321
117										Mean in Original Scale		0.307
118										SD in Original Scale		0.102
119										95% Percentile Bootstrap UCL		0.364
120										95% BCA Bootstrap UCL		0.375
121												
122	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
123				k star (bias corrected)		5.085	**Data appear Normal at 5% Significance Level**					
124				Theta Star		0.0615						
125				nu star		61.02						
126												
127				A-D Test Statistic		0.259	**Nonparametric Statistics**					
128				5% A-D Critical Value		0.698				Kaplan-Meier (KM) Method		
129				K-S Test Statistic		0.698				Mean		0.308
130				5% K-S Critical Value		0.332				SD		0.0977
131	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0424
132										95% KM (t) UCL		0.39
133	**Assuming Gamma Distribution**									95% KM (z) UCL		0.377
134				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.391
135				Minimum		0.2				95% KM (bootstrap t) UCL		0.422
136				Maximum		0.48				95% KM (BCA) UCL		0.373
137				Mean		0.314				95% KM (Percentile Bootstrap) UCL		0.374
138				Median		0.322				95% KM (Chebyshev) UCL		0.492
139				SD		0.1				97.5% KM (Chebyshev) UCL		0.572
140				k star		6.705				99% KM (Chebyshev) UCL		0.729
141				Theta star		0.0468						
142				Nu star		93.87	**Potential UCLs to Use**					
143				AppChi2		72.52				95% KM (t) UCL		0.39
144				95% Gamma Approximate UCL		0.406				95% KM (Percentile Bootstrap) UCL		0.374
145				95% Adjusted Gamma UCL		0.441						
146	**Note: DL/2 is not a recommended method.**											
147												
148												
149	**Arsenictotal**											
150												
151	**General Statistics**											
152				Number of Valid Data		7				Number of Detected Data		7
153				Number of Distinct Detected Data		7				Number of Non-Detect Data		0
154				Number of Missing Values		6				Percent Non-Detects		0.00%
155												
156	**Raw Statistics**						**Log-transformed Statistics**					
157				Minimum Detected		0.317				Minimum Detected		-1.15
158				Maximum Detected		0.55				Maximum Detected		-0.598
159				Mean of Detected		0.456				Mean of Detected		-0.8

160				SD of Detected	0.0822					SD of Detected	0.193	
161				Minimum Non-Detect	N/A					Minimum Non-Detect	N/A	
162				Maximum Non-Detect	N/A					Maximum Non-Detect	N/A	
163												
164												
165					**Warning: There are only 7 Detected Values in this data**							
166					**Note: It should be noted that even though bootstrap may be performed on this data set**							
167					**the resulting calculations may not be reliable enough tp draw conclusions**							
168												
169					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
170												
171												
172					**UCL Statistics**							
173				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
174				Shapiro Wilk Test Statistic	0.943					Shapiro Wilk Test Statistic	0.916	
175				5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803	
176				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
177												
178				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
179				DL/2 Substitution Method						DL/2 Substitution Method		
180				Mean	0.456					Mean	-0.8	
181				SD	0.0822					SD	0.193	
182				95% DL/2 (t) UCL	0.517					95% H-Stat (DL/2) UCL	0.535	
183												
184				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
185				**MLE method failed to converge properly**						Mean in Log Scale	N/A	
186										SD in Log Scale	N/A	
187										Mean in Original Scale	N/A	
188										SD in Original Scale	N/A	
189										95% Percentile Bootstrap UCL	N/A	
190										95% BCA Bootstrap UCL	N/A	
191												
192				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
193				k star (bias corrected)	18.93					**Data appear Normal at 5% Significance Level**		
194				Theta Star	0.0241							
195				nu star	265							
196												
197				A-D Test Statistic	0.307					**Nonparametric Statistics**		
198				5% A-D Critical Value	0.707					Kaplan-Meier (KM) Method		
199				K-S Test Statistic	0.707					Mean	0.456	
200				5% K-S Critical Value	0.311					SD	0.0761	
201				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0311	
202										95% KM (t) UCL	0.517	
203				**Assuming Gamma Distribution**						95% KM (z) UCL	0.507	
204				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.517	
205				Minimum	0.317					95% KM (bootstrap t) UCL	0.508	
206				Maximum	0.55					95% KM (BCA) UCL	0.502	
207				Mean	0.456					95% KM (Percentile Bootstrap) UCL	0.501	
208				Median	0.461					95% KM (Chebyshev) UCL	0.592	
209				SD	0.0822					97.5% KM (Chebyshev) UCL	0.65	
210				k star	18.93					99% KM (Chebyshev) UCL	0.766	
211				Theta star	0.0241							
212				Nu star	265					**Potential UCLs to Use**		

213					AppChi2	228.3					95% KM (t) UCL	0.517
214					95% Gamma Approximate UCL	0.53					95% KM (Percentile Bootstrap) UCL	0.501
215					95% Adjusted Gamma UCL	0.555						
216	**Note: DL/2 is not a recommended method.**											
217												
218												
219	**Benzo(a)anthraceneNA**											
220												
221	**General Statistics**											
222					Number of Valid Data	8					Number of Detected Data	8
223					Number of Distinct Detected Data	8					Number of Non-Detect Data	0
224					Number of Missing Values	6					Percent Non-Detects	0.00%
225												
226	**Raw Statistics**						**Log-transformed Statistics**					
227					Minimum Detected	0.000381					Minimum Detected	-7.873
228					Maximum Detected	0.0024					Maximum Detected	-6.032
229					Mean of Detected	0.00115					Mean of Detected	-6.93
230					SD of Detected	0.000692					SD of Detected	0.608
231					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
232					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
233												
234												
235	**Warning: There are only 8 Detected Values in this data**											
236	**Note: It should be noted that even though bootstrap may be performed on this data set**											
237	**the resulting calculations may not be reliable enough tp draw conclusions**											
238												
239	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
240												
241												
242	**UCL Statistics**											
243	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
244					Shapiro Wilk Test Statistic	0.911					Shapiro Wilk Test Statistic	0.98
245					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
246	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
247												
248	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
249					DL/2 Substitution Method						DL/2 Substitution Method	
250					Mean	0.00115					Mean	-6.93
251					SD	0.000692					SD	0.608
252					95% DL/2 (t) UCL	0.00161					95% H-Stat (DL/2) UCL	0.00211
253												
254					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
255	**MLE method failed to converge properly**										Mean in Log Scale	N/A
256											SD in Log Scale	N/A
257											Mean in Original Scale	N/A
258											SD in Original Scale	N/A
259											95% Percentile Bootstrap UCL	N/A
260											95% BCA Bootstrap UCL	N/A
261												
262	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
263					k star (bias corrected)	2.15	**Data appear Normal at 5% Significance Level**					
264					Theta Star	0.0005332						
265					nu star	34.4						

266												
267					A-D Test Statistic	0.208	**Nonparametric Statistics**					
268					5% A-D Critical Value	0.721				Kaplan-Meier (KM) Method		
269					K-S Test Statistic	0.721				Mean		0.00115
270					5% K-S Critical Value	0.296				SD		0.0006473
271					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean		0.0002446
272										95% KM (t) UCL		0.00161
273					**Assuming Gamma Distribution**					95% KM (z) UCL		0.00155
274					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00161
275					Minimum	0.000381				95% KM (bootstrap t) UCL		0.0019
276					Maximum	0.0024				95% KM (BCA) UCL		0.00153
277					Mean	0.00115				95% KM (Percentile Bootstrap) UCL		0.00154
278					Median	0.0009318				95% KM (Chebyshev) UCL		0.00221
279					SD	0.000692				97.5% KM (Chebyshev) UCL		0.00267
280					k star	2.15				99% KM (Chebyshev) UCL		0.00358
281					Theta star	0.0005332						
282					Nu star	34.4	**Potential UCLs to Use**					
283					AppChi2	21.98				95% KM (t) UCL		0.00161
284					95% Gamma Approximate UCL	0.00179				95% KM (Percentile Bootstrap) UCL		0.00154
285					95% Adjusted Gamma UCL	0.00202						
286	**Note: DL/2 is not a recommended method.**											
287												
288												
289	**BenzoNA**											
290												
291	**General Statistics**											
292					Number of Valid Data	8				Number of Detected Data		7
293					Number of Distinct Detected Data	7				Number of Non-Detect Data		1
294					Number of Missing Values	6				Percent Non-Detects		12.50%
295												
296	**Raw Statistics**						**Log-transformed Statistics**					
297					Minimum Detected	0.0004426				Minimum Detected		-7.723
298					Maximum Detected	0.00215				Maximum Detected		-6.143
299					Mean of Detected	0.00101				Mean of Detected		-7.028
300					SD of Detected	0.000591				SD of Detected		0.536
301					Minimum Non-Detect	0.0016				Minimum Non-Detect		-6.438
302					Maximum Non-Detect	0.0016				Maximum Non-Detect		-6.438
303												
304												
305	**Warning: There are only 7 Detected Values in this data**											
306	**Note: It should be noted that even though bootstrap may be performed on this data set**											
307	**the resulting calculations may not be reliable enough tp draw conclusions**											
308												
309	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
310												
311												
312	**UCL Statistics**											
313	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
314					Shapiro Wilk Test Statistic	0.864				Shapiro Wilk Test Statistic		0.967
315					5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value		0.803
316	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
317												
318	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

319				DL/2 Substitution Method						DL/2 Substitution Method		
320				Mean	0.0009831					Mean		-7.041
321				SD	0.0005521					SD		0.497
322				95% DL/2 (t) UCL	0.00135					95% H-Stat (DL/2) UCL		0.00188
323												
324				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
325				**MLE method failed to converge properly**						Mean in Log Scale		-7.044
326										SD in Log Scale		0.498
327										Mean in Original Scale		0.0009808
328										SD in Original Scale		0.000553
329										95% Percentile Bootstrap UCL		0.00129
330										95% BCA Bootstrap UCL		0.00141
331												
332				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
333				k star (bias corrected)	2.396					**Data appear Normal at 5% Significance Level**		
334				Theta Star	0.0004213							
335				nu star	33.54							
336												
337				A-D Test Statistic	0.294					**Nonparametric Statistics**		
338				5% A-D Critical Value	0.71					Kaplan-Meier (KM) Method		
339				K-S Test Statistic	0.71					Mean		0.0009856
340				5% K-S Critical Value	0.313					SD		0.0005272
341				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.0002064
342										95% KM (t) UCL		0.00138
343				**Assuming Gamma Distribution**						95% KM (z) UCL		0.00133
344				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.00138
345				Minimum	0.0004426					95% KM (bootstrap t) UCL		0.00182
346				Maximum	0.00215					95% KM (BCA) UCL		0.00134
347				Mean	0.00101					95% KM (Percentile Bootstrap) UCL		0.00133
348				Median	0.0008955					95% KM (Chebyshev) UCL		0.00189
349				SD	0.0005472					97.5% KM (Chebyshev) UCL		0.00227
350				k star	2.944					99% KM (Chebyshev) UCL		0.00304
351				Theta star	0.0003441							
352				Nu star	47.1					**Potential UCLs to Use**		
353				AppChi2	32.35					95% KM (t) UCL		0.00138
354				95% Gamma Approximate UCL	0.00147					95% KM (Percentile Bootstrap) UCL		0.00133
355				95% Adjusted Gamma UCL	0.00163							
356	**Note: DL/2 is not a recommended method.**											
357												
358												
359	**Benzo(b)fluorantheneNA**											
360												
361					**General Statistics**							
362				Number of Valid Data	8					Number of Detected Data		8
363				Number of Distinct Detected Data	8					Number of Non-Detect Data		0
364				Number of Missing Values	6					Percent Non-Detects		0.00%
365												
366				**Raw Statistics**						**Log-transformed Statistics**		
367				Minimum Detected	0.0004801					Minimum Detected		-7.642
368				Maximum Detected	0.0021					Maximum Detected		-6.166
369				Mean of Detected	0.00108					Mean of Detected		-6.948
370				SD of Detected	0.0005665					SD of Detected		0.514
371				Minimum Non-Detect	N/A					Minimum Non-Detect		N/A

372				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
373												
374												
375						**Warning: There are only 8 Detected Values in this data**							
376						**Note: It should be noted that even though bootstrap may be performed on this data set**							
377						**the resulting calculations may not be reliable enough tp draw conclusions**							
378												
379						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
380												
381												
382						**UCL Statistics**							
383				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
384				Shapiro Wilk Test Statistic		0.913				Shapiro Wilk Test Statistic		0.971
385				5% Shapiro Wilk Critical Value		0.818				5% Shapiro Wilk Critical Value		0.818
386				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
387												
388				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
389				DL/2 Substitution Method						DL/2 Substitution Method		
390				Mean		0.00108				Mean		-6.948
391				SD		0.0005665				SD		0.514
392				95% DL/2 (t) UCL		0.00146				95% H-Stat (DL/2) UCL		0.00174
393												
394				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
395				**MLE method failed to converge properly**						Mean in Log Scale		N/A
396										SD in Log Scale		N/A
397										Mean in Original Scale		N/A
398										SD in Original Scale		N/A
399										95% Percentile Bootstrap UCL		N/A
400										95% BCA Bootstrap UCL		N/A
401												
402				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
403				k star (bias corrected)		2.87				**Data appear Normal at 5% Significance Level**		
404				Theta Star		0.000376						
405				nu star		45.93						
406												
407				A-D Test Statistic		0.213				**Nonparametric Statistics**		
408				5% A-D Critical Value		0.719				Kaplan-Meier (KM) Method		
409				K-S Test Statistic		0.719				Mean		0.00108
410				5% K-S Critical Value		0.295				SD		0.00053
411				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.0002003
412										95% KM (t) UCL		0.00146
413				**Assuming Gamma Distribution**						95% KM (z) UCL		0.00141
414				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.00146
415				Minimum		0.0004801				95% KM (bootstrap t) UCL		0.00167
416				Maximum		0.0021				95% KM (BCA) UCL		0.00142
417				Mean		0.00108				95% KM (Percentile Bootstrap) UCL		0.0014
418				Median		0.000927				95% KM (Chebyshev) UCL		0.00195
419				SD		0.0005665				97.5% KM (Chebyshev) UCL		0.00233
420				k star		2.87				99% KM (Chebyshev) UCL		0.00307
421				Theta star		0.000376						
422				Nu star		45.93				**Potential UCLs to Use**		
423				AppChi2		31.38				95% KM (t) UCL		0.00146
424				95% Gamma Approximate UCL		0.00158				95% KM (Percentile Bootstrap) UCL		0.0014

425					95% Adjusted Gamma UCL	0.00175						
426	**Note: DL/2 is not a recommended method.**											
427												
428												
429	**DibenzoNA**											
430												
431	**General Statistics**											
432					Number of Valid Data	6				Number of Detected Data	5	
433					Number of Distinct Detected Data	5				Number of Non-Detect Data	1	
434					Number of Missing Values	8				Percent Non-Detects	16.67%	
435												
436	**Raw Statistics**						**Log-transformed Statistics**					
437					Minimum Detected	0.0000255				Minimum Detected	-10.58	
438					Maximum Detected	0.000329				Maximum Detected	-8.019	
439					Mean of Detected	0.0001442				Mean of Detected	-9.131	
440					SD of Detected	0.0001125				SD of Detected	0.925	
441					Minimum Non-Detect	0.0000691				Minimum Non-Detect	-9.58	
442					Maximum Non-Detect	0.0000691				Maximum Non-Detect	-9.58	
443												
444												
445	**Warning: There are only 5 Detected Values in this data**											
446	**Note: It should be noted that even though bootstrap may be performed on this data set**											
447	**the resulting calculations may not be reliable enough tp draw conclusions**											
448												
449	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
450												
451												
452	**UCL Statistics**											
453	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
454					Shapiro Wilk Test Statistic	0.888				Shapiro Wilk Test Statistic	0.929	
455					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value	0.762	
456	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
457												
458	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
459					DL/2 Substitution Method					DL/2 Substitution Method		
460					Mean	0.0001259				Mean	-9.322	
461					SD	0.0001101				SD	0.95	
462					95% DL/2 (t) UCL	0.0002165				95% H-Stat (DL/2) UCL	0.00138	
463												
464					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
465					Mean	0.0001112				Mean in Log Scale	-9.354	
466					SD	0.0001217				SD in Log Scale	0.992	
467					95% MLE (t) UCL	0.0002113				Mean in Original Scale	0.0001249	
468					95% MLE (Tiku) UCL	0.000219				SD in Original Scale	0.0001112	
469										95% Percentile Bootstrap UCL	0.0001946	
470										95% BCA Bootstrap UCL	0.000217	
471												
472	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
473					k star (bias corrected)	0.89	**Data appear Normal at 5% Significance Level**					
474					Theta Star	0.0001621						
475					nu star	8.898						
476												
477					A-D Test Statistic	0.289	**Nonparametric Statistics**					

478				5% A-D Critical Value	0.685					Kaplan-Meier (KM) Method		
479				K-S Test Statistic	0.685					Mean		0.0001244
480				5% K-S Critical Value	0.361					SD		0.0001019
481				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		4.652E-05
482										95% KM (t) UCL		0.0002182
483				**Assuming Gamma Distribution**						95% KM (z) UCL		0.000201
484				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.0002172
485				Minimum	0.0000255					95% KM (bootstrap t) UCL		0.0002601
486				Maximum	0.000329					95% KM (BCA) UCL		0.0002165
487				Mean	0.000128					95% KM (Percentile Bootstrap) UCL		0.0001982
488				Median	0.0001117					95% KM (Chebyshev) UCL		0.0003272
489				SD	0.0001082					97.5% KM (Chebyshev) UCL		0.000415
490				k star	0.998					99% KM (Chebyshev) UCL		0.0005873
491				Theta star	0.0001282							
492				Nu star	11.97					**Potential UCLs to Use**		
493				AppChi2	5.21					95% KM (t) UCL		0.0002182
494				95% Gamma Approximate UCL	0.0002941					95% KM (Percentile Bootstrap) UCL		0.0001982
495				95% Adjusted Gamma UCL	0.0004116							
496	**Note: DL/2 is not a recommended method.**											
497												
498												
499	**Indeno(1,2,3-cd)pyreneNA**											
500												
501					**General Statistics**							
502				Number of Valid Data	7					Number of Detected Data		6
503				Number of Distinct Detected Data	6					Number of Non-Detect Data		1
504				Number of Missing Values	7					Percent Non-Detects		14.29%
505												
506				**Raw Statistics**						**Log-transformed Statistics**		
507				Minimum Detected	0.00037					Minimum Detected		-7.902
508				Maximum Detected	0.0015					Maximum Detected		-6.505
509				Mean of Detected	0.0007212					Mean of Detected		-7.354
510				SD of Detected	0.0004171					SD of Detected		0.517
511				Minimum Non-Detect	0.000689					Minimum Non-Detect		-7.28
512				Maximum Non-Detect	0.000689					Maximum Non-Detect		-7.28
513												
514												
515				**Warning: There are only 6 Detected Values in this data**								
516				**Note: It should be noted that even though bootstrap may be performed on this data set**								
517				**the resulting calculations may not be reliable enough tp draw conclusions**								
518												
519				**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**								
520												
521												
522					**UCL Statistics**							
523				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
524				Shapiro Wilk Test Statistic	0.84					Shapiro Wilk Test Statistic		0.939
525				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value		0.788
526				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
527												
528				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
529				DL/2 Substitution Method						DL/2 Substitution Method		
530				Mean	0.0006674					Mean		-7.442

	A	B	C	D	E	F	G	H	I	J	K	L
531					SD	0.0004065					SD	0.527
532					95% DL/2 (t) UCL	0.0009659					95% H-Stat (DL/2) UCL	0.00116
533												
534					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
535					Mean	0.0005651					Mean in Log Scale	-7.409
536					SD	0.0005121					SD in Log Scale	0.494
537					95% MLE (t) UCL	0.0009413					Mean in Original Scale	0.0006801
538					95% MLE (Tiku) UCL	0.00108					SD in Original Scale	0.000396
539											95% Percentile Bootstrap UCL	0.0009309
540											95% BCA Bootstrap UCL	0.00101
541												
542	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
543					k star (bias corrected)	2.29	**Data appear Normal at 5% Significance Level**					
544					Theta Star	0.0003149						
545					nu star	27.48						
546												
547					A-D Test Statistic	0.325	**Nonparametric Statistics**					
548					5% A-D Critical Value	0.699	Kaplan-Meier (KM) Method					
549					K-S Test Statistic	0.699					Mean	0.00068
550					5% K-S Critical Value	0.333					SD	0.0003675
551	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0001526
552											95% KM (t) UCL	0.0009765
553	**Assuming Gamma Distribution**										95% KM (z) UCL	0.000931
554					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0009732
555					Minimum	0.00037					95% KM (bootstrap t) UCL	0.00124
556					Maximum	0.0015					95% KM (BCA) UCL	0.0009449
557					Mean	0.0006946					95% KM (Percentile Bootstrap) UCL	0.000943
558					Median	0.0005354					95% KM (Chebyshev) UCL	0.00135
559					SD	0.0003872					97.5% KM (Chebyshev) UCL	0.00163
560					k star	2.853					99% KM (Chebyshev) UCL	0.0022
561					Theta star	0.0002434						
562					Nu star	39.95	**Potential UCLs to Use**					
563					AppChi2	26.47					95% KM (t) UCL	0.0009765
564					95% Gamma Approximate UCL	0.00105					95% KM (Percentile Bootstrap) UCL	0.000943
565					95% Adjusted Gamma UCL	0.0012						
566	**Note: DL/2 is not a recommended method.**											
567												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	W011								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	AldrinNA											
10												
11					General Statistics							
12					Number of Valid Data	6			Number of Detected Data	5		
13					Number of Distinct Detected Data	5			Number of Non-Detect Data	1		
14					Number of Missing Values	6			Percent Non-Detects	16.67%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	1.203E-06			Minimum Detected	-13.63		
18					Maximum Detected	4.385E-06			Maximum Detected	-12.34		
19					Mean of Detected	2.523E-06			Mean of Detected	-12.99		
20					SD of Detected	1.24E-06			SD of Detected	0.507		
21					Minimum Non-Detect	2.22E-06			Minimum Non-Detect	-13.02		
22					Maximum Non-Detect	2.22E-06			Maximum Non-Detect	-13.02		
23												
24												
25					Warning: There are only 5 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.931			Shapiro Wilk Test Statistic	0.956		
35					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value	0.762		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	2.288E-06			Mean	-13.11		
41					SD	1.25E-06			SD	0.54		
42					95% DL/2 (t) UCL	3.316E-06			95% H-Stat (DL/2) UCL	3.987E-06		
43												
44					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
45					Mean	2.223E-06			Mean in Log Scale	-13.07		
46					SD	1.313E-06			SD in Log Scale	0.494		
47					95% MLE (t) UCL	3.303E-06			Mean in Original Scale	2.337E-06		
48					95% MLE (Tiku) UCL	3.554E-06			SD in Original Scale	1.199E-06		
49									95% Percentile Bootstrap UCL	3.099E-06		
50									95% BCA Bootstrap UCL	3.15E-06		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	2.2			Data appear Normal at 5% Significance Level			

54					Theta Star	1.147E-06						
55					nu star	22						
56												
57					A-D Test Statistic	0.273	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.681				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.681				Mean		2.336E-06
60					5% K-S Critical Value	0.358				SD		1.099E-06
61				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		5.034E-07
62										95% KM (t) UCL		3.35E-06
63				**Assuming Gamma Distribution**						95% KM (z) UCL		3.164E-06
64					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		3.339E-06
65					Minimum	1.203E-06				95% KM (bootstrap t) UCL		3.793E-06
66					Maximum	4.385E-06				95% KM (BCA) UCL		3.273E-06
67					Mean	2.408E-06				95% KM (Percentile Bootstrap) UCL		3.255E-06
68					Median	2.26E-06				95% KM (Chebyshev) UCL		4.53E-06
69					SD	1.144E-06				97.5% KM (Chebyshev) UCL		5.48E-06
70					k star	2.973				99% KM (Chebyshev) UCL		7.345E-06
71					Theta star	8.098E-07						
72					Nu star	35.68	**Potential UCLs to Use**					
73					AppChi2	23.01				95% KM (t) UCL		3.35E-06
74					95% Gamma Approximate UCL	3.733E-06				95% KM (Percentile Bootstrap) UCL		3.255E-06
75					95% Adjusted Gamma UCL	4.423E-06						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenictotal**											
80												
81						**General Statistics**						
82					Number of Valid Data	6				Number of Detected Data		5
83					Number of Distinct Detected Data	5				Number of Non-Detect Data		1
84					Number of Missing Values	5				Percent Non-Detects		16.67%
85												
86				**Raw Statistics**			**Log-transformed Statistics**					
87					Minimum Detected	0.337				Minimum Detected		-1.089
88					Maximum Detected	0.5				Maximum Detected		-0.693
89					Mean of Detected	0.421				Mean of Detected		-0.876
90					SD of Detected	0.0679				SD of Detected		0.165
91					Minimum Non-Detect	0.435				Minimum Non-Detect		-0.834
92					Maximum Non-Detect	0.435				Maximum Non-Detect		-0.834
93												
94												
95	**Warning: There are only 5 Detected Values in this data**											
96	**Note: It should be noted that even though bootstrap may be performed on this data set**											
97	**the resulting calculations may not be reliable enough tp draw conclusions**											
98												
99	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
100												
101												
102						**UCL Statistics**						
103				**Normal Distribution Test with Detected Values Only**			**Lognormal Distribution Test with Detected Values Only**					
104					Shapiro Wilk Test Statistic	0.926				Shapiro Wilk Test Statistic		0.917
105					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
106				**Data appear Normal at 5% Significance Level**			**Data appear Lognormal at 5% Significance Level**					

107												
108	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
109				DL/2 Substitution Method						DL/2 Substitution Method		
110				Mean	0.387					Mean	-0.985	
111				SD	0.103					SD	0.304	
112				95% DL/2 (t) UCL	0.472					95% H-Stat (DL/2) UCL	0.512	
113												
114				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
115				Mean	0.435					Mean in Log Scale	-0.903	
116				SD	0.0402					SD in Log Scale	0.162	
117				95% MLE (t) UCL	0.468					Mean in Original Scale	0.41	
118				95% MLE (Tiku) UCL	0.476					SD in Original Scale	0.0663	
119										95% Percentile Bootstrap UCL	0.453	
120										95% BCA Bootstrap UCL	0.453	
121												
122	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
123				k star (bias corrected)	18.78		**Data appear Normal at 5% Significance Level**					
124				Theta Star	0.0224							
125				nu star	187.8							
126												
127				A-D Test Statistic	0.356		**Nonparametric Statistics**					
128				5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method		
129				K-S Test Statistic	0.678					Mean	0.409	
130				5% K-S Critical Value	0.357					SD	0.0615	
131	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.0283	
132										95% KM (t) UCL	0.466	
133	**Assuming Gamma Distribution**									95% KM (z) UCL	0.456	
134				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.466	
135				Minimum	0.337					95% KM (bootstrap t) UCL	0.47	
136				Maximum	0.5					95% KM (BCA) UCL	0.46	
137				Mean	0.415					95% KM (Percentile Bootstrap) UCL	0.46	
138				Median	0.416					95% KM (Chebyshev) UCL	0.532	
139				SD	0.0624					97.5% KM (Chebyshev) UCL	0.586	
140				k star	26.54					99% KM (Chebyshev) UCL	0.691	
141				Theta star	0.0156							
142				Nu star	318.5					**Potential UCLs to Use**		
143				AppChi2	278.1					95% KM (t) UCL	0.466	
144				95% Gamma Approximate UCL	0.475					95% KM (Percentile Bootstrap) UCL	0.46	
145				95% Adjusted Gamma UCL	0.5							
146	**Note: DL/2 is not a recommended method.**											
147												
148												
149	**Benzo(a)anthraceneNA**											
150												
151	**General Statistics**											
152				Number of Valid Data	12					Number of Detected Data	7	
153				Number of Distinct Detected Data	7					Number of Non-Detect Data	5	
154										Percent Non-Detects	41.67%	
155												
156	**Raw Statistics**						**Log-transformed Statistics**					
157				Minimum Detected	0.000113					Minimum Detected	-9.088	
158				Maximum Detected	0.01					Maximum Detected	-4.605	
159				Mean of Detected	0.00207					Mean of Detected	-7.103	

160					SD of Detected	0.00353					SD of Detected	1.422
161					Minimum Non-Detect	0.0042					Minimum Non-Detect	-5.473
162					Maximum Non-Detect	0.0078					Maximum Non-Detect	-4.854
163												
164	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
165	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
166	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	91.67%
167												
168	**Warning: There are only 7 Detected Values in this data**											
169	**Note: It should be noted that even though bootstrap may be performed on this data set**											
170	**the resulting calculations may not be reliable enough tp draw conclusions**											
171												
172	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
173												
174												
175	**UCL Statistics**											
176	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
177					Shapiro Wilk Test Statistic	0.582					Shapiro Wilk Test Statistic	0.956
178					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
179	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
180												
181	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
182					DL/2 Substitution Method						DL/2 Substitution Method	
183					Mean	0.00253					Mean	-6.558
184					SD	0.00274					SD	1.264
185					95% DL/2 (t) UCL	0.00395					95% H-Stat (DL/2) UCL	0.0201
186												
187					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
188	**MLE method failed to converge properly**										Mean in Log Scale	-7.258
189											SD in Log Scale	1.162
190											Mean in Original Scale	0.0015
191											SD in Original Scale	0.00272
192											95% Percentile Bootstrap UCL	0.00302
193											95% BCA Bootstrap UCL	0.00383
194												
195	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
196					k star (bias corrected)	0.473	**Data appear Gamma Distributed at 5% Significance Level**					
197					Theta Star	0.00437						
198					nu star	6.622						
199												
200					A-D Test Statistic	0.567	**Nonparametric Statistics**					
201					5% A-D Critical Value	0.742					Kaplan-Meier (KM) Method	
202					K-S Test Statistic	0.742					Mean	0.00152
203					5% K-S Critical Value	0.324					SD	0.0026
204	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0008211
205											95% KM (t) UCL	0.00299
206	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00287
207					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00295
208					Minimum	0.000113					95% KM (bootstrap t) UCL	0.0065
209					Maximum	0.01					95% KM (BCA) UCL	0.0031
210					Mean	0.00206					95% KM (Percentile Bootstrap) UCL	0.00299
211					Median	0.00144					95% KM (Chebyshev) UCL	0.0051
212					SD	0.00262					97.5% KM (Chebyshev) UCL	0.00664

213					k star	0.843				99% KM (Chebyshev) UCL		0.00969
214					Theta star	0.00245						
215					Nu star	20.23				**Potential UCLs to Use**		
216					AppChi2	11.02				95% KM (BCA) UCL		0.0031
217					95% Gamma Approximate UCL	0.00379						
218					95% Adjusted Gamma UCL	0.00418						
219	**Note: DL/2 is not a recommended method.**											
220												
221												
222	**Benzo(a)pyreneNA**											
223												
224	**General Statistics**											
225					Number of Valid Data	6				Number of Detected Data		6
226					Number of Distinct Detected Data	6				Number of Non-Detect Data		0
227					Number of Missing Values	6				Percent Non-Detects		0.00%
228												
229	**Raw Statistics**						**Log-transformed Statistics**					
230					Minimum Detected	0.0000401				Minimum Detected		-10.12
231					Maximum Detected	0.00179				Maximum Detected		-6.324
232					Mean of Detected	0.000845				Mean of Detected		-7.558
233					SD of Detected	0.0006253				SD of Detected		1.382
234					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
235					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
236												
237												
238	**Warning: There are only 6 Detected Values in this data**											
239	**Note: It should be noted that even though bootstrap may be performed on this data set**											
240	**the resulting calculations may not be reliable enough tp draw conclusions**											
241												
242	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
243												
244												
245	**UCL Statistics**											
246	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
247					Shapiro Wilk Test Statistic	0.982				Shapiro Wilk Test Statistic		0.839
248					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
249	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
250												
251	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
252					DL/2 Substitution Method					DL/2 Substitution Method		
253					Mean	0.000845				Mean		-7.558
254					SD	0.0006253				SD		1.382
255					95% DL/2 (t) UCL	0.00136				95% H-Stat (DL/2) UCL		0.0395
256												
257					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
258	**MLE method failed to converge properly**									Mean in Log Scale		N/A
259										SD in Log Scale		N/A
260										Mean in Original Scale		N/A
261										SD in Original Scale		N/A
262										95% Percentile Bootstrap UCL		N/A
263										95% BCA Bootstrap UCL		N/A
264												
265	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					

266				k star (bias corrected)	0.699		**Data appear Normal at 5% Significance Level**					
267				Theta Star	0.00121							
268				nu star	8.386							
269												
270				A-D Test Statistic	0.348		**Nonparametric Statistics**					
271				5% A-D Critical Value	0.713					Kaplan-Meier (KM) Method		
272				K-S Test Statistic	0.713					Mean		0.000845
273				5% K-S Critical Value	0.34					SD		0.0005708
274			**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean		0.0002553
275										95% KM (t) UCL		0.00136
276			**Assuming Gamma Distribution**							95% KM (z) UCL		0.00126
277			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		0.00136
278				Minimum	0.0000401					95% KM (bootstrap t) UCL		0.00139
279				Maximum	0.00179					95% KM (BCA) UCL		0.00125
280				Mean	0.000845					95% KM (Percentile Bootstrap) UCL		0.00124
281				Median	0.0008717					95% KM (Chebyshev) UCL		0.00196
282				SD	0.0006253					97.5% KM (Chebyshev) UCL		0.00244
283				k star	0.699					99% KM (Chebyshev) UCL		0.00339
284				Theta star	0.00121							
285				Nu star	8.386		**Potential UCLs to Use**					
286				AppChi2	2.961					95% KM (t) UCL		0.00136
287				95% Gamma Approximate UCL	0.00239					95% KM (Percentile Bootstrap) UCL		0.00124
288				95% Adjusted Gamma UCL	0.00368							
289	**Note: DL/2 is not a recommended method.**											
290												
291												
292	**Benzo(b)fluorantheneNA**											
293												
294					**General Statistics**							
295				Number of Valid Data	6					Number of Detected Data		6
296				Number of Distinct Detected Data	6					Number of Non-Detect Data		0
297				Number of Missing Values	6					Percent Non-Detects		0.00%
298												
299			**Raw Statistics**				**Log-transformed Statistics**					
300				Minimum Detected	0.0003176					Minimum Detected		-8.055
301				Maximum Detected	0.00149					Maximum Detected		-6.511
302				Mean of Detected	0.0007984					Mean of Detected		-7.269
303				SD of Detected	0.0004332					SD of Detected		0.59
304				Minimum Non-Detect	N/A					Minimum Non-Detect		N/A
305				Maximum Non-Detect	N/A					Maximum Non-Detect		N/A
306												
307												
308					**Warning: There are only 6 Detected Values in this data**							
309					**Note: It should be noted that even though bootstrap may be performed on this data set**							
310					**the resulting calculations may not be reliable enough tp draw conclusions**							
311												
312					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
313												
314												
315					**UCL Statistics**							
316			**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**					
317				Shapiro Wilk Test Statistic	0.941					Shapiro Wilk Test Statistic		0.938
318				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value		0.788

	A	B	C	D	E	F	G	H	I	J	K	L
319	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
320												
321	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
322					DL/2 Substitution Method						DL/2 Substitution Method	
323					Mean	0.0007984					Mean	-7.269
324					SD	0.0004332					SD	0.59
325					95% DL/2 (t) UCL	0.00115					95% H-Stat (DL/2) UCL	0.00177
326												
327					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
328	**MLE method failed to converge properly**										Mean in Log Scale	N/A
329											SD in Log Scale	N/A
330											Mean in Original Scale	N/A
331											SD in Original Scale	N/A
332											95% Percentile Bootstrap UCL	N/A
333											95% BCA Bootstrap UCL	N/A
334												
335	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
336					k star (bias corrected)	2.032	**Data appear Normal at 5% Significance Level**					
337					Theta Star	0.0003928						
338					nu star	24.39						
339												
340					A-D Test Statistic	0.274	**Nonparametric Statistics**					
341					5% A-D Critical Value	0.7					Kaplan-Meier (KM) Method	
342					K-S Test Statistic	0.7					Mean	0.0007984
343					5% K-S Critical Value	0.334					SD	0.0003955
344	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0001769
345											95% KM (t) UCL	0.00115
346	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00109
347					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00115
348					Minimum	0.0003176					95% KM (bootstrap t) UCL	0.00123
349					Maximum	0.00149					95% KM (BCA) UCL	0.00107
350					Mean	0.0007984					95% KM (Percentile Bootstrap) UCL	0.00107
351					Median	0.0007805					95% KM (Chebyshev) UCL	0.00157
352					SD	0.0004332					97.5% KM (Chebyshev) UCL	0.0019
353					k star	2.032					99% KM (Chebyshev) UCL	0.00256
354					Theta star	0.0003928						
355					Nu star	24.39	**Potential UCLs to Use**					
356					AppChi2	14.14					95% KM (t) UCL	0.00115
357					95% Gamma Approximate UCL	0.00138					95% KM (Percentile Bootstrap) UCL	0.00107
358					95% Adjusted Gamma UCL	0.0017						
359	**Note: DL/2 is not a recommended method.**											
360												
361												
362	**Indeno(1,2,3-cd)pyreneNA**											
363												
364	**General Statistics**											
365					Number of Valid Data	5					Number of Detected Data	5
366					Number of Distinct Detected Data	5					Number of Non-Detect Data	0
367					Number of Missing Values	7					Percent Non-Detects	0.00%
368												
369	**Raw Statistics**						**Log-transformed Statistics**					
370					Minimum Detected	0.00024					Minimum Detected	-8.335
371					Maximum Detected	0.00131					Maximum Detected	-6.639

372				Mean of Detected	0.0006463					Mean of Detected	-7.546	
373				SD of Detected	0.0004395					SD of Detected	0.728	
374				Minimum Non-Detect	N/A					Minimum Non-Detect	N/A	
375				Maximum Non-Detect	N/A					Maximum Non-Detect	N/A	
376												
377												
378					Warning: There are only 5 Detected Values in this data							
379					Note: It should be noted that even though bootstrap may be performed on this data set							
380					the resulting calculations may not be reliable enough tp draw conclusions							
381												
382					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
383												
384												
385					UCL Statistics							
386				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
387				Shapiro Wilk Test Statistic	0.91					Shapiro Wilk Test Statistic	0.916	
388				5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762	
389				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
390												
391				Assuming Normal Distribution						Assuming Lognormal Distribution		
392				DL/2 Substitution Method						DL/2 Substitution Method		
393				Mean	0.0006463					Mean	-7.546	
394				SD	0.0004395					SD	0.728	
395				95% DL/2 (t) UCL	0.00107					95% H-Stat (DL/2) UCL	0.00272	
396												
397				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
398				MLE method failed to converge properly						Mean in Log Scale	N/A	
399										SD in Log Scale	N/A	
400										Mean in Original Scale	N/A	
401										SD in Original Scale	N/A	
402										95% Percentile Bootstrap UCL	N/A	
403										95% BCA Bootstrap UCL	N/A	
404												
405				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
406				k star (bias corrected)	1.187					Data appear Normal at 5% Significance Level		
407				Theta Star	0.0005446							
408				nu star	11.87							
409												
410				A-D Test Statistic	0.311					Nonparametric Statistics		
411				5% A-D Critical Value	0.683					Kaplan-Meier (KM) Method		
412				K-S Test Statistic	0.683					Mean	0.0006463	
413				5% K-S Critical Value	0.36					SD	0.0003931	
414				Data appear Gamma Distributed at 5% Significance Level						SE of Mean	0.0001966	
415										95% KM (t) UCL	0.00107	
416				Assuming Gamma Distribution						95% KM (z) UCL	0.0009696	
417				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00107	
418				Minimum	0.00024					95% KM (bootstrap t) UCL	0.00118	
419				Maximum	0.00131					95% KM (BCA) UCL	0.0009617	
420				Mean	0.0006463					95% KM (Percentile Bootstrap) UCL	0.0009617	
421				Median	0.0006201					95% KM (Chebyshev) UCL	0.0015	
422				SD	0.0004395					97.5% KM (Chebyshev) UCL	0.00187	
423				k star	1.187					99% KM (Chebyshev) UCL	0.0026	
424				Theta star	0.0005446							

	A	B	C	D	E	F	G	H	I	J	K	L
425					Nu star	11.87	**Potential UCLs to Use**					
426					AppChi2	5.14					95% KM (t) UCL	0.00107
427					95% Gamma Approximate UCL	0.00149					95% KM (Percentile Bootstrap) UCL	0.0009617
428					95% Adjusted Gamma UCL	0.00226						
429	**Note: DL/2 is not a recommended method.**											
430												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	W023								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	AldrinNA											
10												
11					General Statistics							
12					Number of Valid Data	8			Number of Detected Data	7		
13					Number of Distinct Detected Data	7			Number of Non-Detect Data	1		
14					Number of Missing Values	9			Percent Non-Detects	12.50%		
15												
16					Raw Statistics				Log-transformed Statistics			
17					Minimum Detected	8.43E-07			Minimum Detected	-13.99		
18					Maximum Detected	3.89E-06			Maximum Detected	-12.46		
19					Mean of Detected	2.253E-06			Mean of Detected	-13.12		
20					SD of Detected	1.096E-06			SD of Detected	0.557		
21					Minimum Non-Detect	3.41E-07			Minimum Non-Detect	-14.89		
22					Maximum Non-Detect	3.41E-07			Maximum Non-Detect	-14.89		
23												
24												
25					Warning: There are only 7 Detected Values in this data							
26					Note: It should be noted that even though bootstrap may be performed on this data set							
27					the resulting calculations may not be reliable enough tp draw conclusions							
28												
29					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
30												
31												
32					UCL Statistics							
33					Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only			
34					Shapiro Wilk Test Statistic	0.963			Shapiro Wilk Test Statistic	0.936		
35					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value	0.803		
36					Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level			
37												
38					Assuming Normal Distribution				Assuming Lognormal Distribution			
39					DL/2 Substitution Method				DL/2 Substitution Method			
40					Mean	1.993E-06			Mean	-13.43		
41					SD	1.254E-06			SD	1.011		
42					95% DL/2 (t) UCL	2.832E-06			95% H-Stat (DL/2) UCL	9.171E-06		
43												
44					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
45					Mean	1.937E-06			Mean in Log Scale	-13.29		
46					SD	1.278E-06			SD in Log Scale	0.706		
47					95% MLE (t) UCL	2.793E-06			Mean in Original Scale	2.035E-06		
48					95% MLE (Tiku) UCL	2.812E-06			SD in Original Scale	1.187E-06		
49									95% Percentile Bootstrap UCL	2.683E-06		
50									95% BCA Bootstrap UCL	2.721E-06		
51												
52					Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only			
53					k star (bias corrected)	2.562			Data appear Normal at 5% Significance Level			

54					Theta Star	8.794E-07						
55					nu star	35.86						
56												
57					A-D Test Statistic	0.247	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.71				Kaplan-Meier (KM) Method		
59					K-S Test Statistic	0.71				Mean		2.077E-06
60					5% K-S Critical Value	0.313				SD		1.058E-06
61			**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean		4.039E-07
62										95% KM (t) UCL		2.842E-06
63			**Assuming Gamma Distribution**							95% KM (z) UCL		2.741E-06
64			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		2.831E-06
65					Minimum	4.222E-07				95% KM (bootstrap t) UCL		2.96E-06
66					Maximum	3.89E-06				95% KM (BCA) UCL		2.768E-06
67					Mean	2.024E-06				95% KM (Percentile Bootstrap) UCL		2.731E-06
68					Median	2.105E-06				95% KM (Chebyshev) UCL		3.837E-06
69					SD	1.204E-06				97.5% KM (Chebyshev) UCL		4.599E-06
70					k star	1.686				99% KM (Chebyshev) UCL		6.096E-06
71					Theta star	1.2E-06						
72					Nu star	26.98	**Potential UCLs to Use**					
73					AppChi2	16.13				95% KM (t) UCL		2.842E-06
74					95% Gamma Approximate UCL	3.384E-06				95% KM (Percentile Bootstrap) UCL		2.731E-06
75					95% Adjusted Gamma UCL	3.884E-06						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Arsenicdissolved**											
80												
81					**General Statistics**							
82					Number of Valid Data	9				Number of Detected Data		8
83					Number of Distinct Detected Data	7				Number of Non-Detect Data		1
84					Number of Missing Values	7				Percent Non-Detects		11.11%
85												
86			**Raw Statistics**				**Log-transformed Statistics**					
87					Minimum Detected	0.207				Minimum Detected		-1.575
88					Maximum Detected	0.433				Maximum Detected		-0.836
89					Mean of Detected	0.294				Mean of Detected		-1.275
90					SD of Detected	0.101				SD of Detected		0.334
91					Minimum Non-Detect	0.378				Minimum Non-Detect		-0.974
92					Maximum Non-Detect	0.378				Maximum Non-Detect		-0.974
93												
94												
95	**Warning: There are only 8 Detected Values in this data**											
96	**Note: It should be noted that even though bootstrap may be performed on this data set**											
97	**the resulting calculations may not be reliable enough tp draw conclusions**											
98												
99	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
100												
101												
102					**UCL Statistics**							
103			**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**					
104					Shapiro Wilk Test Statistic	0.793				Shapiro Wilk Test Statistic		0.794
105					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value		0.818
106			**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**					

107												
108	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
109				DL/2 Substitution Method						DL/2 Substitution Method		
110				Mean		0.282				Mean		-1.319
111				SD		0.101				SD		0.339
112				95% DL/2 (t) UCL		0.344				95% H-Stat (DL/2) UCL		0.362
113												
114				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
115	**MLE method failed to converge properly**									Mean in Log Scale		-1.289
116										SD in Log Scale		0.315
117										Mean in Original Scale		0.289
118										SD in Original Scale		0.0956
119										95% Percentile Bootstrap UCL		0.337
120										95% BCA Bootstrap UCL		0.35
121												
122	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
123				k star (bias corrected)		6.444	**Data do not follow a Discernable Distribution (0.05)**					
124				Theta Star		0.0456						
125				nu star		103.1						
126												
127				A-D Test Statistic		0.811	**Nonparametric Statistics**					
128				5% A-D Critical Value		0.715				Kaplan-Meier (KM) Method		
129				K-S Test Statistic		0.715				Mean		0.289
130				5% K-S Critical Value		0.294				SD		0.0922
131	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0337
132										95% KM (t) UCL		0.351
133	**Assuming Gamma Distribution**									95% KM (z) UCL		0.344
134				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.351
135				Minimum		0.207				95% KM (bootstrap t) UCL		0.363
136				Maximum		0.433				95% KM (BCA) UCL		0.335
137				Mean		0.293				95% KM (Percentile Bootstrap) UCL		0.343
138				Median		0.289				95% KM (Chebyshev) UCL		0.435
139				SD		0.0944				97.5% KM (Chebyshev) UCL		0.499
140				k star		7.691				99% KM (Chebyshev) UCL		0.624
141				Theta star		0.0381						
142				Nu star		138.4	**Potential UCLs to Use**					
143				AppChi2		112.2				95% KM (Chebyshev) UCL		0.435
144				95% Gamma Approximate UCL		0.361						
145				95% Adjusted Gamma UCL		0.378						
146	**Warning: Recommended UCL exceeds the maximum observation**											
147	**Note: DL/2 is not a recommended method.**											
148												
149												
150	**Arsenictotal**											
151												
152	**General Statistics**											
153				Number of Valid Data		9				Number of Detected Data		8
154				Number of Distinct Detected Data		8				Number of Non-Detect Data		1
155				Number of Missing Values		7				Percent Non-Detects		11.11%
156												
157	**Raw Statistics**						**Log-transformed Statistics**					
158				Minimum Detected		0.307				Minimum Detected		-1.181
159				Maximum Detected		0.54				Maximum Detected		-0.616

160				Mean of Detected	0.421					Mean of Detected	-0.885	
161				SD of Detected	0.0878					SD of Detected	0.218	
162				Minimum Non-Detect	0.408					Minimum Non-Detect	-0.897	
163				Maximum Non-Detect	0.408					Maximum Non-Detect	-0.897	
164												
165												
166				Warning: There are only 8 Detected Values in this data								
167				Note: It should be noted that even though bootstrap may be performed on this data set								
168				the resulting calculations may not be reliable enough tp draw conclusions								
169												
170				It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.								
171												
172												
173				UCL Statistics								
174				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
175				Shapiro Wilk Test Statistic	0.902					Shapiro Wilk Test Statistic	0.885	
176				5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818	
177				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
178												
179				Assuming Normal Distribution						Assuming Lognormal Distribution		
180				DL/2 Substitution Method						DL/2 Substitution Method		
181				Mean	0.397					Mean	-0.963	
182				SD	0.11					SD	0.311	
183				95% DL/2 (t) UCL	0.465					95% H-Stat (DL/2) UCL	0.474	
184												
185				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
186				Mean	0.425					Mean in Log Scale	-0.908	
187				SD	0.0733					SD in Log Scale	0.216	
188				95% MLE (t) UCL	0.47					Mean in Original Scale	0.412	
189				95% MLE (Tiku) UCL	0.478					SD in Original Scale	0.0872	
190										95% Percentile Bootstrap UCL	0.458	
191										95% BCA Bootstrap UCL	0.456	
192												
193				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
194				k star (bias corrected)	15.71					Data appear Normal at 5% Significance Level		
195				Theta Star	0.0268							
196				nu star	251.4							
197												
198				A-D Test Statistic	0.491					Nonparametric Statistics		
199				5% A-D Critical Value	0.716					Kaplan-Meier (KM) Method		
200				K-S Test Statistic	0.716					Mean	0.41	
201				5% K-S Critical Value	0.294					SD	0.0836	
202				Data appear Gamma Distributed at 5% Significance Level						SE of Mean	0.0299	
203										95% KM (t) UCL	0.466	
204				Assuming Gamma Distribution						95% KM (z) UCL	0.46	
205				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.466	
206				Minimum	0.307					95% KM (bootstrap t) UCL	0.464	
207				Maximum	0.54					95% KM (BCA) UCL	0.46	
208				Mean	0.414					95% KM (Percentile Bootstrap) UCL	0.461	
209				Median	0.426					95% KM (Chebyshev) UCL	0.541	
210				SD	0.0847					97.5% KM (Chebyshev) UCL	0.597	
211				k star	17.65					99% KM (Chebyshev) UCL	0.708	
212				Theta star	0.0235							

213					Nu star	317.7	**Potential UCLs to Use**					
214					AppChi2	277.4					95% KM (t) UCL	0.466
215					95% Gamma Approximate UCL	0.475					95% KM (Percentile Bootstrap) UCL	0.461
216					95% Adjusted Gamma UCL	0.489						
217	**Note: DL/2 is not a recommended method.**											
218												
219												
220	**Benzo(a)anthraceneNA**											
221												
222	**General Statistics**											
223					Number of Valid Data	17					Number of Detected Data	9
224					Number of Distinct Detected Data	9					Number of Non-Detect Data	8
225											Percent Non-Detects	47.06%
226												
227	**Raw Statistics**						**Log-transformed Statistics**					
228					Minimum Detected	0.000052					Minimum Detected	-9.864
229					Maximum Detected	0.01					Maximum Detected	-4.605
230					Mean of Detected	0.00133					Mean of Detected	-8.08
231					SD of Detected	0.00325					SD of Detected	1.495
232					Minimum Non-Detect	0.0021					Minimum Non-Detect	-6.166
233					Maximum Non-Detect	0.0078					Maximum Non-Detect	-4.854
234												
235	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	16
236	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
237	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.12%
238												
239	**Warning: There are only 9 Detected Values in this data**											
240	**Note: It should be noted that even though bootstrap may be performed on this data set**											
241	**the resulting calculations may not be reliable enough tp draw conclusions**											
242												
243	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
244												
245												
246	**UCL Statistics**											
247	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
248					Shapiro Wilk Test Statistic	0.428					Shapiro Wilk Test Statistic	0.826
249					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
250	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
251												
252	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
253					DL/2 Substitution Method						DL/2 Substitution Method	
254					Mean	0.00199					Mean	-7.115
255					SD	0.00256					SD	1.542
256					95% DL/2 (t) UCL	0.00308					95% H-Stat (DL/2) UCL	0.0272
257												
258					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
259	**MLE method failed to converge properly**										Mean in Log Scale	-8.22
260											SD in Log Scale	1.154
261											Mean in Original Scale	0.000835
262											SD in Original Scale	0.00237
263											95% Percentile Bootstrap UCL	0.00197
264											95% BCA Bootstrap UCL	0.00256
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
267					k star (bias corrected)	0.37	**Data do not follow a Discernable Distribution (0.05)**					
268					Theta Star	0.0036						
269					nu star	6.658						
270												
271					A-D Test Statistic	1.546	**Nonparametric Statistics**					
272					5% A-D Critical Value	0.781	Kaplan-Meier (KM) Method					
273					K-S Test Statistic	0.781	Mean					0.0008219
274					5% K-S Critical Value	0.296	SD					0.0023
275	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0005921
276							95% KM (t) UCL					0.00186
277	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0018
278					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL					0.00183
279					Minimum	0.000052	95% KM (bootstrap t) UCL					0.0106
280					Maximum	0.01	95% KM (BCA) UCL					0.00198
281					Mean	0.00137	95% KM (Percentile Bootstrap) UCL					0.00196
282					Median	0.0006594	95% KM (Chebyshev) UCL					0.0034
283					SD	0.00232	97.5% KM (Chebyshev) UCL					0.00452
284					k star	0.656	99% KM (Chebyshev) UCL					0.00671
285					Theta star	0.00209						
286					Nu star	22.31	**Potential UCLs to Use**					
287					AppChi2	12.57	97.5% KM (Chebyshev) UCL					0.00452
288					95% Gamma Approximate UCL	0.00243						
289					95% Adjusted Gamma UCL	0.00259						
290	**Note: DL/2 is not a recommended method.**											
291												
292												
293	**Benzo(a)pyreneNA**											
294												
295	**General Statistics**											
296					Number of Valid Data	8	Number of Detected Data					8
297					Number of Distinct Detected Data	8	Number of Non-Detect Data					0
298					Number of Missing Values	9	Percent Non-Detects					0.00%
299												
300	**Raw Statistics**						**Log-transformed Statistics**					
301					Minimum Detected	0.0000263	Minimum Detected					-10.55
302					Maximum Detected	0.0006287	Maximum Detected					-7.372
303					Mean of Detected	0.0002794	Mean of Detected					-8.608
304					SD of Detected	0.0001971	SD of Detected					1.21
305					Minimum Non-Detect	N/A	Minimum Non-Detect					N/A
306					Maximum Non-Detect	N/A	Maximum Non-Detect					N/A
307												
308												
309	**Warning: There are only 8 Detected Values in this data**											
310	**Note: It should be noted that even though bootstrap may be performed on this data set**											
311	**the resulting calculations may not be reliable enough tp draw conclusions**											
312												
313	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
314												
315												
316	**UCL Statistics**											
317	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
318					Shapiro Wilk Test Statistic	0.932	Shapiro Wilk Test Statistic					0.781

319					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
320	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
321												
322	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
323					DL/2 Substitution Method						DL/2 Substitution Method	
324					Mean	0.0002794					Mean	-8.608
325					SD	0.0001971					SD	1.21
326					95% DL/2 (t) UCL	0.0004115					95% H-Stat (DL/2) UCL	0.00232
327												
328					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
329	**MLE method failed to converge properly**										Mean in Log Scale	N/A
330											SD in Log Scale	N/A
331											Mean in Original Scale	N/A
332											SD in Original Scale	N/A
333											95% Percentile Bootstrap UCL	N/A
334											95% BCA Bootstrap UCL	N/A
335												
336	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
337					k star (bias corrected)	0.906	**Data appear Normal at 5% Significance Level**					
338					Theta Star	0.0003083						
339					nu star	14.5						
340												
341					A-D Test Statistic	0.698	**Nonparametric Statistics**					
342					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
343					K-S Test Statistic	0.731					Mean	0.0002794
344					5% K-S Critical Value	0.3					SD	0.0001843
345	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	6.968E-05
346											95% KM (t) UCL	0.0004115
347	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0003941
348					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0004115
349					Minimum	0.0000263					95% KM (bootstrap t) UCL	0.0004134
350					Maximum	0.0006287					95% KM (BCA) UCL	0.0003816
351					Mean	0.0002794					95% KM (Percentile Bootstrap) UCL	0.0003877
352					Median	0.0002813					95% KM (Chebyshev) UCL	0.0005832
353					SD	0.0001971					97.5% KM (Chebyshev) UCL	0.0007146
354					k star	0.906					99% KM (Chebyshev) UCL	0.0009727
355					Theta star	0.0003083						
356					Nu star	14.5	**Potential UCLs to Use**					
357					AppChi2	6.917					95% KM (t) UCL	0.0004115
358					95% Gamma Approximate UCL	0.0005859					95% KM (Percentile Bootstrap) UCL	0.0003877
359					95% Adjusted Gamma UCL	0.0007178						
360	**Note: DL/2 is not a recommended method.**											
361												
362												
363	**Benzo(b)fluorantheneNA**											
364												
365	**General Statistics**											
366					Number of Valid Data	8					Number of Detected Data	8
367					Number of Distinct Detected Data	8					Number of Non-Detect Data	0
368					Number of Missing Values	9					Percent Non-Detects	0.00%
369												
370	**Raw Statistics**						**Log-transformed Statistics**					
371					Minimum Detected	0.0000238					Minimum Detected	-10.65

	A	B	C	D	E	F	G	H	I	J	K	L
372					Maximum Detected	0.00082					Maximum Detected	-7.106
373					Mean of Detected	0.0003633					Mean of Detected	-8.217
374					SD of Detected	0.000227					SD of Detected	1.046
375					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
376					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
377												
378												
379					**Warning: There are only 8 Detected Values in this data**							
380					**Note: It should be noted that even though bootstrap may be performed on this data set**							
381					**the resulting calculations may not be reliable enough tp draw conclusions**							
382												
383					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
384												
385												
386					**UCL Statistics**							
387					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
388					Shapiro Wilk Test Statistic	0.893				Shapiro Wilk Test Statistic		0.736
389					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value		0.818
390					**Data appear Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
391												
392					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
393					DL/2 Substitution Method					DL/2 Substitution Method		
394					Mean	0.0003633				Mean		-8.217
395					SD	0.000227				SD		1.046
396					95% DL/2 (t) UCL	0.0005153				95% H-Stat (DL/2) UCL		0.00189
397												
398					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
399					**MLE method failed to converge properly**					Mean in Log Scale		N/A
400										SD in Log Scale		N/A
401										Mean in Original Scale		N/A
402										SD in Original Scale		N/A
403										95% Percentile Bootstrap UCL		N/A
404										95% BCA Bootstrap UCL		N/A
405												
406					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
407					k star (bias corrected)	1.231				**Data appear Normal at 5% Significance Level**		
408					Theta Star	0.0002952						
409					nu star	19.69						
410												
411					A-D Test Statistic	0.723				**Nonparametric Statistics**		
412					5% A-D Critical Value	0.725				Kaplan-Meier (KM) Method		
413					K-S Test Statistic	0.725				Mean		0.0003633
414					5% K-S Critical Value	0.298				SD		0.0002123
415					**Data follow Appr. Gamma Distribution at 5% Significance Level**					SE of Mean		8.025E-05
416										95% KM (t) UCL		0.0005153
417					**Assuming Gamma Distribution**					95% KM (z) UCL		0.0004953
418					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0005153
419					Minimum	0.0000238				95% KM (bootstrap t) UCL		0.0005732
420					Maximum	0.00082				95% KM (BCA) UCL		0.0004922
421					Mean	0.0003633				95% KM (Percentile Bootstrap) UCL		0.0004893
422					Median	0.0003112				95% KM (Chebyshev) UCL		0.0007131
423					SD	0.000227				97.5% KM (Chebyshev) UCL		0.0008645
424					k star	1.231				99% KM (Chebyshev) UCL		0.00116

425					Theta star	0.0002952						
426					Nu star	19.69			**Potential UCLs to Use**			
427					AppChi2	10.63					95% KM (t) UCL	0.0005153
428					95% Gamma Approximate UCL	0.0006734					95% KM (Percentile Bootstrap) UCL	0.0004893
429					95% Adjusted Gamma UCL	0.0007959						
430	**Note: DL/2 is not a recommended method.**											
431												
432												
433	**Indeno(1,2,3-cd)pyreneNA**											
434												
435					**General Statistics**							
436					Number of Valid Data	17			Number of Detected Data			7
437					Number of Distinct Detected Data	7			Number of Non-Detect Data			10
438									Percent Non-Detects			58.82%
439												
440					**Raw Statistics**				**Log-transformed Statistics**			
441					Minimum Detected	0.000184			Minimum Detected			-8.601
442					Maximum Detected	0.0086			Maximum Detected			-4.756
443					Mean of Detected	0.00142			Mean of Detected			-7.901
444					SD of Detected	0.00317			SD of Detected			1.393
445					Minimum Non-Detect	0.000382			Minimum Non-Detect			-7.87
446					Maximum Non-Detect	0.0084			Maximum Non-Detect			-4.78
447												
448	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			16
449	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			1
450	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			94.12%
451												
452	**Warning: There are only 7 Detected Values in this data**											
453	**Note: It should be noted that even though bootstrap may be performed on this data set**											
454	**the resulting calculations may not be reliable enough tp draw conclusions**											
455												
456	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
457												
458												
459					**UCL Statistics**							
460					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
461					Shapiro Wilk Test Statistic	0.462			Shapiro Wilk Test Statistic			0.545
462					5% Shapiro Wilk Critical Value	0.803			5% Shapiro Wilk Critical Value			0.803
463					**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**			
464												
465					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
466					DL/2 Substitution Method				DL/2 Substitution Method			
467					Mean	0.00183			Mean			-7.05
468					SD	0.00222			SD			1.336
469					95% DL/2 (t) UCL	0.00277			95% H-Stat (DL/2) UCL			0.0146
470												
471					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
472					**MLE method failed to converge properly**				Mean in Log Scale			-8.081
473									SD in Log Scale			0.933
474									Mean in Original Scale			0.0007598
475									SD in Original Scale			0.00202
476									95% Percentile Bootstrap UCL			0.00174
477									95% BCA Bootstrap UCL			0.00226

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
480					k star (bias corrected)	0.368	**Data do not follow a Discernable Distribution (0.05)**					
481					Theta Star	0.00386						
482					nu star	5.146						
483												
484					A-D Test Statistic	1.897	**Nonparametric Statistics**					
485					5% A-D Critical Value	0.755					Kaplan-Meier (KM) Method	
486					K-S Test Statistic	0.755					Mean	0.0007142
487					5% K-S Critical Value	0.328					SD	0.00197
488	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0005166
489											95% KM (t) UCL	0.00162
490	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00156
491				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.00157
492					Minimum	0.000184					95% KM (bootstrap t) UCL	0.0297
493					Maximum	0.0086					95% KM (BCA) UCL	0.0017
494					Mean	0.00146					95% KM (Percentile Bootstrap) UCL	0.0017
495					Median	0.00123					95% KM (Chebyshev) UCL	0.00297
496					SD	0.00195					97.5% KM (Chebyshev) UCL	0.00394
497					k star	0.884					99% KM (Chebyshev) UCL	0.00585
498					Theta star	0.00165						
499					Nu star	30.04	**Potential UCLs to Use**					
500					AppChi2	18.52					95% KM (BCA) UCL	0.0017
501					95% Gamma Approximate UCL	0.00236						
502					95% Adjusted Gamma UCL	0.00249						
503	**Note: DL/2 is not a recommended method.**											
504												

Surface Water

Potential Future Use of Untreated Drinking Water

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	Sheet1.wst	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

VAI (w005aldrin)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.96E-07	Minimum of Log Data	-15.03
Maximum	4.68E-06	Maximum of Log Data	-12.27
Mean	2.703E-06	Mean of log Data	-13.07
Median	2.955E-06	SD of log Data	0.941
SD	1.475E-06		
Coefficient of Variation	N/A		
Skewness	-0.484		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.971	Shapiro Wilk Test Statistic	0.794
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.787E-06	95% H-UCL	1.272E-05
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.733E-06
95% Adjusted-CLT UCL (Chen-1995)	3.511E-06	97.5% Chebyshev (MVUE) UCL	9.771E-06
95% Modified-t UCL (Johnson-1978)	3.77E-06	99% Chebyshev (MVUE) UCL	1.377E-05
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.317	**Data appear Normal at 5% Significance Level**	
Theta Star	2.053E-06		
MLE of Mean	2.703E-06		
MLE of Standard Deviation	2.356E-06		

53					nu star	18.44						
54					Approximate Chi Square Value (.05)	9.707			Nonparametric Statistics			
55					Adjusted Level of Significance	0.0158					95% CLT UCL	3.62E-06
56					Adjusted Chi Square Value	7.869					95% Jackknife UCL	3.787E-06
57											95% Standard Bootstrap UCL	3.547E-06
58					Anderson-Darling Test Statistic	0.498					95% Bootstrap-t UCL	3.721E-06
59					Anderson-Darling 5% Critical Value	0.715					95% Hall's Bootstrap UCL	3.529E-06
60					Kolmogorov-Smirnov Test Statistic	0.217					95% Percentile Bootstrap UCL	3.539E-06
61					Kolmogorov-Smirnov 5% Critical Value	0.315					95% BCA Bootstrap UCL	3.483E-06
62					Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	5.134E-06
63											97.5% Chebyshev(Mean, Sd) UCL	6.185E-06
64					Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	8.251E-06
65					95% Approximate Gamma UCL	5.135E-06						
66					95% Adjusted Gamma UCL	6.333E-06						
67												
68					Potential UCL to Use						Use 95% Student's-t UCL	3.787E-06
69												
70	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
71	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
72	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.											
73												
74												
75	VAI (w005arsenic)											
76												
77	General Statistics											
78					Number of Valid Observations	7					Number of Distinct Observations	7
79												
80					Raw Statistics				Log-transformed Statistics			
81					Minimum	0.317					Minimum of Log Data	-1.15
82					Maximum	0.55					Maximum of Log Data	-0.598
83					Mean	0.456					Mean of log Data	-0.8
84					Median	0.461					SD of log Data	0.193
85					SD	0.0822						
86					Coefficient of Variation	0.18						
87					Skewness	-0.67						
88												
89												
90	Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
91												
92	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
93	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
94												
95												
96	Warning: There are only 7 Values in this data											
97	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
98	the resulting calculations may not be reliable enough to draw conclusions											
99												
100	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
101												
102	Relevant UCL Statistics											
103					Normal Distribution Test				Lognormal Distribution Test			
104					Shapiro Wilk Test Statistic	0.943					Shapiro Wilk Test Statistic	0.916

105				Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803	
106	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
107												
108	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
109				95% Student's-t UCL	0.517					95% H-UCL	0.535	
110	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.602	
111				95% Adjusted-CLT UCL (Chen-1995)	0.499					97.5% Chebyshev (MVUE) UCL	0.665	
112				95% Modified-t UCL (Johnson-1978)	0.515					99% Chebyshev (MVUE) UCL	0.789	
113												
114	**Gamma Distribution Test**						**Data Distribution**					
115				k star (bias corrected)	18.93		**Data appear Normal at 5% Significance Level**					
116				Theta Star	0.0241							
117				MLE of Mean	0.456							
118				MLE of Standard Deviation	0.105							
119				nu star	265							
120				Approximate Chi Square Value (.05)	228.3		**Nonparametric Statistics**					
121				Adjusted Level of Significance	0.0158					95% CLT UCL	0.507	
122				Adjusted Chi Square Value	217.9					95% Jackknife UCL	0.517	
123										95% Standard Bootstrap UCL	0.504	
124				Anderson-Darling Test Statistic	0.307					95% Bootstrap-t UCL	0.507	
125				Anderson-Darling 5% Critical Value	0.707					95% Hall's Bootstrap UCL	0.504	
126				Kolmogorov-Smirnov Test Statistic	0.216					95% Percentile Bootstrap UCL	0.5	
127				Kolmogorov-Smirnov 5% Critical Value	0.311					95% BCA Bootstrap UCL	0.498	
128	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.592	
129										97.5% Chebyshev(Mean, Sd) UCL	0.65	
130	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.766	
131				95% Approximate Gamma UCL	0.53							
132				95% Adjusted Gamma UCL	0.555							
133												
134	**Potential UCL to Use**									Use 95% Student's-t UCL	0.517	
135												
136	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
137	**These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)**											
138	**and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.**											
139												
140												
141	**VAI (w005arsenic_diss)**											
142												
143	**General Statistics**											
144				Number of Valid Data	7					Number of Detected Data	6	
145				Number of Distinct Detected Data	6					Number of Non-Detect Data	1	
146										Percent Non-Detects	14.29%	
147												
148	**Raw Statistics**						**Log-transformed Statistics**					
149				Minimum Detected	0.2					Minimum Detected	-1.609	
150				Maximum Detected	0.48					Maximum Detected	-0.734	
151				Mean of Detected	0.313					Mean of Detected	-1.214	
152				SD of Detected	0.11					SD of Detected	0.35	
153				Minimum Non-Detect	0.397					Minimum Non-Detect	-0.925	
154				Maximum Non-Detect	0.397					Maximum Non-Detect	-0.925	
155												
156												

157	Warning: There are only 6 Detected Values in this data											
158	Note: It should be noted that even though bootstrap may be performed on this data set											
159	the resulting calculations may not be reliable enough to draw conclusions											
160												
161	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
162												
163												
164	UCL Statistics											
165	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
166	Shapiro Wilk Test Statistic				0.931		Shapiro Wilk Test Statistic					0.942
167	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value					0.788
168	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
169												
170	Assuming Normal Distribution						Assuming Lognormal Distribution					
171	DL/2 Substitution Method						DL/2 Substitution Method					
172	Mean				0.296		Mean					-1.272
173	SD				0.109		SD					0.354
174	95% DL/2 (t) UCL				0.377		95% H-Stat (DL/2) UCL					0.414
175												
176	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
177	MLE method failed to converge properly						Mean in Log Scale					-1.227
178							SD in Log Scale					0.321
179							Mean in Original Scale					0.307
180							SD in Original Scale					0.102
181							95% t UCL					0.381
182							95% Percentile Bootstrap UCL					0.371
183							95% BCA Bootstrap UCL					0.377
184												
185	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
186	k star (bias corrected)				5.085		Data appear Normal at 5% Significance Level					
187	Theta Star				0.0615							
188	nu star				61.02							
189												
190	A-D Test Statistic				0.259		Nonparametric Statistics					
191	5% A-D Critical Value				0.698		Kaplan-Meier (KM) Method					
192	K-S Test Statistic				0.698		Mean					0.308
193	5% K-S Critical Value				0.332		SD					0.0977
194	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0424
195							95% KM (t) UCL					0.39
196	Assuming Gamma Distribution						95% KM (z) UCL					0.377
197	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.391
198	Minimum				0.2		95% KM (bootstrap t) UCL					0.41
199	Maximum				0.48		95% KM (BCA) UCL					0.383
200	Mean				0.314		95% KM (Percentile Bootstrap) UCL					0.373
201	Median				0.322		95% KM (Chebyshev) UCL					0.492
202	SD				0.1		97.5% KM (Chebyshev) UCL					0.572
203	k star				6.705		99% KM (Chebyshev) UCL					0.729
204	Theta star				0.0468							
205	Nu star				93.87		Potential UCLs to Use					
206	AppChi2				72.52		95% KM (t) UCL					0.39
207	95% Gamma Approximate UCL				0.406		95% KM (Percentile Bootstrap) UCL					0.373
208	95% Adjusted Gamma UCL				0.441							

209	Note: DL/2 is not a recommended method.											
210												
211	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
212	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
213	For additional insight, the user may want to consult a statistician.											
214												
215												
216	VAI (w005benzo(a)anthracene)											
217												
218	General Statistics											
219	Number of Valid Observations				8		Number of Distinct Observations					8
220												
221	Raw Statistics						Log-transformed Statistics					
222	Minimum				0.000381		Minimum of Log Data					-7.873
223	Maximum				0.0024		Maximum of Log Data					-6.032
224	Mean				0.00115		Mean of log Data					-6.93
225	Median				0.0009318		SD of log Data					0.608
226	SD				0.000692							
227	Coefficient of Variation				0.604							
228	Skewness				0.959							
229												
230												
231	Warning: There are only 8 Values in this data											
232	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
233	the resulting calculations may not be reliable enough to draw conclusions											
234												
235	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
236												
237	Relevant UCL Statistics											
238	Normal Distribution Test						Lognormal Distribution Test					
239	Shapiro Wilk Test Statistic				0.911		Shapiro Wilk Test Statistic					0.98
240	Shapiro Wilk Critical Value				0.818		Shapiro Wilk Critical Value					0.818
241	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
242												
243	Assuming Normal Distribution						Assuming Lognormal Distribution					
244	95% Student's-t UCL				0.00161		95% H-UCL					0.00211
245	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.00224
246	95% Adjusted-CLT UCL (Chen-1995)				0.00164		97.5% Chebyshev (MVUE) UCL					0.00271
247	95% Modified-t UCL (Johnson-1978)				0.00162		99% Chebyshev (MVUE) UCL					0.00363
248												
249	Gamma Distribution Test						Data Distribution					
250	k star (bias corrected)				2.15		Data appear Normal at 5% Significance Level					
251	Theta Star				0.0005332							
252	MLE of Mean				0.00115							
253	MLE of Standard Deviation				0.0007817							
254	nu star				34.4							
255	Approximate Chi Square Value (.05)				21.98		Nonparametric Statistics					
256	Adjusted Level of Significance				0.0195		95% CLT UCL					0.00155
257	Adjusted Chi Square Value				19.51		95% Jackknife UCL					0.00161
258							95% Standard Bootstrap UCL					0.00152
259	Anderson-Darling Test Statistic				0.208		95% Bootstrap-t UCL					0.0019
260	Anderson-Darling 5% Critical Value				0.721		95% Hall's Bootstrap UCL					0.00197

261				Kolmogorov-Smirnov Test Statistic	0.136					95% Percentile Bootstrap UCL	0.00154	
262				Kolmogorov-Smirnov 5% Critical Value	0.296					95% BCA Bootstrap UCL	0.00161	
263				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.00221	
264										97.5% Chebyshev(Mean, Sd) UCL	0.00267	
265				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.00358	
266				95% Approximate Gamma UCL	0.00179							
267				95% Adjusted Gamma UCL	0.00202							
268												
269				**Potential UCL to Use**						Use 95% Student's-t UCL	0.00161	
270												
271	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
272	**These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)**											
273	**and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.**											
274												
275												
276	**VAl (w005benzo(a)pyrene)**											
277												
278	**General Statistics**											
279				Number of Valid Data	8					Number of Detected Data	7	
280				Number of Distinct Detected Data	7					Number of Non-Detect Data	1	
281										Percent Non-Detects	12.50%	
282												
283				**Raw Statistics**						**Log-transformed Statistics**		
284				Minimum Detected	0.0004426					Minimum Detected	-7.723	
285				Maximum Detected	0.00215					Maximum Detected	-6.143	
286				Mean of Detected	0.00101					Mean of Detected	-7.028	
287				SD of Detected	0.000591					SD of Detected	0.536	
288				Minimum Non-Detect	0.0016					Minimum Non-Detect	-6.438	
289				Maximum Non-Detect	0.0016					Maximum Non-Detect	-6.438	
290												
291												
292	**Warning: There are only 7 Detected Values in this data**											
293	**Note: It should be noted that even though bootstrap may be performed on this data set**											
294	**the resulting calculations may not be reliable enough to draw conclusions**											
295												
296	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
297												
298												
299	**UCL Statistics**											
300				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
301				Shapiro Wilk Test Statistic	0.864					Shapiro Wilk Test Statistic	0.967	
302				5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803	
303				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
304												
305				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
306				DL/2 Substitution Method						DL/2 Substitution Method		
307				Mean	0.0009831					Mean	-7.041	
308				SD	0.0005521					SD	0.497	
309				95% DL/2 (t) UCL	0.00135					95% H-Stat (DL/2) UCL	0.00154	
310												
311				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
312				**MLE method failed to converge properly**						Mean in Log Scale	-7.044	

313											SD in Log Scale	0.498
314											Mean in Original Scale	0.0009808
315											SD in Original Scale	0.000553
316											95% t UCL	0.00135
317											95% Percentile Bootstrap UCL	0.00132
318											95% BCA Bootstrap UCL	0.00138
319												
320	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
321					k star (bias corrected)	2.396					**Data appear Normal at 5% Significance Level**	
322					Theta Star	0.0004213						
323					nu star	33.54						
324												
325					A-D Test Statistic	0.294					**Nonparametric Statistics**	
326					5% A-D Critical Value	0.71					Kaplan-Meier (KM) Method	
327					K-S Test Statistic	0.71					Mean	0.0009856
328					5% K-S Critical Value	0.313					SD	0.0005272
329	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0002064
330											95% KM (t) UCL	0.00138
331	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00133
332					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00138
333					Minimum	0.0004426					95% KM (bootstrap t) UCL	0.00177
334					Maximum	0.00215					95% KM (BCA) UCL	0.00133
335					Mean	0.00101					95% KM (Percentile Bootstrap) UCL	0.00134
336					Median	0.0008955					95% KM (Chebyshev) UCL	0.00189
337					SD	0.0005472					97.5% KM (Chebyshev) UCL	0.00227
338					k star	2.944					99% KM (Chebyshev) UCL	0.00304
339					Theta star	0.0003441						
340					Nu star	47.1					**Potential UCLs to Use**	
341					AppChi2	32.35					95% KM (t) UCL	0.00138
342					95% Gamma Approximate UCL	0.00147					95% KM (Percentile Bootstrap) UCL	0.00134
343					95% Adjusted Gamma UCL	0.00163						
344	**Note: DL/2 is not a recommended method.**											
345												
346	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
347	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
348	**For additional insight, the user may want to consult a statistician.**											
349												
350												
351	**VAI (w005benzo(b)fluoranthene)**											
352												
353	**General Statistics**											
354					Number of Valid Observations	8					Number of Distinct Observations	8
355												
356	**Raw Statistics**										**Log-transformed Statistics**	
357					Minimum	0.0004801					Minimum of Log Data	-7.642
358					Maximum	0.0021					Maximum of Log Data	-6.166
359					Mean	0.00108					Mean of log Data	-6.948
360					Median	0.000927					SD of log Data	0.514
361					SD	0.0005665						
362					Coefficient of Variation	0.525						
363					Skewness	0.931						
364												

365												
366	**Warning: There are only 8 Values in this data**											
367	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
368	**the resulting calculations may not be reliable enough to draw conclusions**											
369												
370	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
371												
372	**Relevant UCL Statistics**											
373	**Normal Distribution Test**						**Lognormal Distribution Test**					
374	Shapiro Wilk Test Statistic	0.913					Shapiro Wilk Test Statistic	0.971				
375	Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818				
376	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
377												
378	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
379	95% Student's-t UCL	0.00146					95% H-UCL	0.00174				
380	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.00194				
381	95% Adjusted-CLT UCL (Chen-1995)	0.00148					97.5% Chebyshev (MVUE) UCL	0.00231				
382	95% Modified-t UCL (Johnson-1978)	0.00147					99% Chebyshev (MVUE) UCL	0.00304				
383												
384	**Gamma Distribution Test**						**Data Distribution**					
385	k star (bias corrected)	2.87					**Data appear Normal at 5% Significance Level**					
386	Theta Star	0.000376										
387	MLE of Mean	0.00108										
388	MLE of Standard Deviation	0.0006371										
389	nu star	45.93										
390	Approximate Chi Square Value (.05)	31.38					**Nonparametric Statistics**					
391	Adjusted Level of Significance	0.0195					95% CLT UCL	0.00141				
392	Adjusted Chi Square Value	28.37					95% Jackknife UCL	0.00146				
393							95% Standard Bootstrap UCL	0.00139				
394	Anderson-Darling Test Statistic	0.213					95% Bootstrap-t UCL	0.00165				
395	Anderson-Darling 5% Critical Value	0.719					95% Hall's Bootstrap UCL	0.00183				
396	Kolmogorov-Smirnov Test Statistic	0.146					95% Percentile Bootstrap UCL	0.00141				
397	Kolmogorov-Smirnov 5% Critical Value	0.295					95% BCA Bootstrap UCL	0.00146				
398	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.00195				
399							97.5% Chebyshev(Mean, Sd) UCL	0.00233				
400	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.00307				
401	95% Approximate Gamma UCL	0.00158										
402	95% Adjusted Gamma UCL	0.00175										
403												
404	**Potential UCL to Use**						Use 95% Student's-t UCL	0.00146				
405												
406	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
407	**These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)**											
408	**and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.**											
409												
410												
411	**VAl (w005dibenzo(a,h)anthracene)**											
412												
413	**General Statistics**											
414	Number of Valid Data	6					Number of Detected Data	5				
415	Number of Distinct Detected Data	5					Number of Non-Detect Data	1				
416							Percent Non-Detects	16.67%				

Raw Statistics		
Minimum Detected	0.0000255	
Maximum Detected	0.000329	
Mean of Detected	0.0001442	
SD of Detected	0.0001125	
Minimum Non-Detect	0.0000691	
Maximum Non-Detect	0.0000691	

Log-transformed Statistics	
Minimum Detected	-10.58
Maximum Detected	-8.019
Mean of Detected	-9.131
SD of Detected	0.925
Minimum Non-Detect	-9.58
Maximum Non-Detect	-9.58

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.888
5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level	
Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	0.0001259
SD	0.0001101
95% DL/2 (t) UCL	0.0002165
Maximum Likelihood Estimate(MLE) Method	
Mean	0.0001112
SD	0.0001217
95% MLE (t) UCL	0.0002113
95% MLE (Tiku) UCL	0.000219

Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.929
5% Shapiro Wilk Critical Value	0.762
Data appear Lognormal at 5% Significance Level	
Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	-9.322
SD	0.95
95% H-Stat (DL/2) UCL	0.0007485
Log ROS Method	
Mean in Log Scale	-9.354
SD in Log Scale	0.992
Mean in Original Scale	0.0001249
SD in Original Scale	0.0001112
95% t UCL	0.0002163
95% Percentile Bootstrap UCL	0.0001978
95% BCA Bootstrap UCL	0.00021

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.89
Theta Star	0.0001621
nu star	8.898
A-D Test Statistic	0.289
5% A-D Critical Value	0.685
K-S Test Statistic	0.685
5% K-S Critical Value	0.361
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0000255

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0001244
SD	0.0001019
SE of Mean	4.652E-05
95% KM (t) UCL	0.0002182
95% KM (z) UCL	0.000201
95% KM (jackknife) UCL	0.0002172
95% KM (bootstrap t) UCL	0.0002601

469					Maximum	0.000329					95% KM (BCA) UCL	0.0002256
470					Mean	0.000128					95% KM (Percentile Bootstrap) UCL	0.000206
471					Median	0.0001117					95% KM (Chebyshev) UCL	0.0003272
472					SD	0.0001082					97.5% KM (Chebyshev) UCL	0.000415
473					k star	0.998					99% KM (Chebyshev) UCL	0.0005873
474					Theta star	0.0001282						
475					Nu star	11.97					**Potential UCLs to Use**	
476					AppChi2	5.21					95% KM (t) UCL	0.0002182
477					95% Gamma Approximate UCL	0.0002941					95% KM (Percentile Bootstrap) UCL	0.000206
478					95% Adjusted Gamma UCL	0.0004116						
479	**Note: DL/2 is not a recommended method.**											
480												
481	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
482	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
483	**For additional insight, the user may want to consult a statistician.**											
484												
485												
486	**VAI (w005indeno(1,2,3-cd)pyrene)**											
487												
488	**General Statistics**											
489					Number of Valid Data	7					Number of Detected Data	6
490					Number of Distinct Detected Data	6					Number of Non-Detect Data	1
491											Percent Non-Detects	14.29%
492												
493	**Raw Statistics**						**Log-transformed Statistics**					
494					Minimum Detected	0.00037					Minimum Detected	-7.902
495					Maximum Detected	0.0015					Maximum Detected	-6.505
496					Mean of Detected	0.0007212					Mean of Detected	-7.354
497					SD of Detected	0.0004171					SD of Detected	0.517
498					Minimum Non-Detect	0.000689					Minimum Non-Detect	-7.28
499					Maximum Non-Detect	0.000689					Maximum Non-Detect	-7.28
500												
501												
502	**Warning: There are only 6 Detected Values in this data**											
503	**Note: It should be noted that even though bootstrap may be performed on this data set**											
504	**the resulting calculations may not be reliable enough to draw conclusions**											
505												
506	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
507												
508												
509	**UCL Statistics**											
510	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
511					Shapiro Wilk Test Statistic	0.84					Shapiro Wilk Test Statistic	0.939
512					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
513	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
514												
515	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
516					DL/2 Substitution Method						DL/2 Substitution Method	
517					Mean	0.0006674					Mean	-7.442
518					SD	0.0004065					SD	0.527
519					95% DL/2 (t) UCL	0.0009659					95% H-Stat (DL/2) UCL	0.00116
520												

521	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
522	Mean					0.0005651	Mean in Log Scale					-7.409
523	SD					0.0005121	SD in Log Scale					0.494
524	95% MLE (t) UCL					0.0009413	Mean in Original Scale					0.0006801
525	95% MLE (Tiku) UCL					0.00108	SD in Original Scale					0.000396
526							95% t UCL					0.000971
527							95% Percentile Bootstrap UCL					0.0009384
528							95% BCA Bootstrap UCL					0.00102
529												
530	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
531	k star (bias corrected)					2.29	**Data appear Normal at 5% Significance Level**					
532	Theta Star					0.0003149						
533	nu star					27.48						
534												
535	A-D Test Statistic					0.325	**Nonparametric Statistics**					
536	5% A-D Critical Value					0.699	Kaplan-Meier (KM) Method					
537	K-S Test Statistic					0.699	Mean					0.00068
538	5% K-S Critical Value					0.333	SD					0.0003675
539	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0001526
540							95% KM (t) UCL					0.0009765
541	**Assuming Gamma Distribution**						95% KM (z) UCL					0.000931
542	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0009732
543	Minimum					0.00037	95% KM (bootstrap t) UCL					0.00125
544	Maximum					0.0015	95% KM (BCA) UCL					0.000953
545	Mean					0.0006946	95% KM (Percentile Bootstrap) UCL					0.0009317
546	Median					0.0005354	95% KM (Chebyshev) UCL					0.00135
547	SD					0.0003872	97.5% KM (Chebyshev) UCL					0.00163
548	k star					2.853	99% KM (Chebyshev) UCL					0.0022
549	Theta star					0.0002434						
550	Nu star					39.95	**Potential UCLs to Use**					
551	AppChi2					26.47	95% KM (t) UCL					0.0009765
552	95% Gamma Approximate UCL					0.00105	95% KM (Percentile Bootstrap) UCL					0.0009317
553	95% Adjusted Gamma UCL					0.0012						
554	**Note: DL/2 is not a recommended method.**											
555												
556	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
557	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
558	**For additional insight, the user may want to consult a statistician.**											
559												
560												
561	**VAI (w005mcpp)**											
562												
563	**General Statistics**											
564	Number of Valid Data					4	Number of Detected Data					1
565	Number of Distinct Detected Data					1	Number of Non-Detect Data					3
566							Percent Non-Detects					75.00%
567												
568	**Warning: This data set only has 4 observations!**											
569	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
570	**The data set for variable VAI (w005mcpp) was not processed!**											
571												
572	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											

	A	B	C	D	E	F	G	H	I	J	K	L
573	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
574												
575												
576												
577	VAI (w010aldrin)											
578												
579	General Statistics											
580					Number of Valid Data	3			Number of Detected Data	0		
581					Number of Distinct Detected Data	0			Number of Non-Detect Data	3		
582									Percent Non-Detects	100.00%		
583												
584	Warning: This data set only has 3 observations!											
585	Data set is too small to compute reliable and meaningful statistics and estimates!											
586	The data set for variable VAI (w010aldrin) was not processed!											
587												
588	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
589	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
590												
591												
592												
593	VAI (w010arsenic)											
594												
595	General Statistics											
596					Number of Valid Observations	3			Number of Distinct Observations	3		
597												
598												
599	Warning: This data set only has 3 observations!											
600	Data set is too small to compute reliable and meaningful statistics and estimates!											
601	The data set for variable VAI (w010arsenic) was not processed!											
602												
603	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
604	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
605												
606												
607												
608	VAI (w010arsenic_diss)											
609												
610	General Statistics											
611					Number of Valid Observations	3			Number of Distinct Observations	3		
612												
613												
614	Warning: This data set only has 3 observations!											
615	Data set is too small to compute reliable and meaningful statistics and estimates!											
616	The data set for variable VAI (w010arsenic_diss) was not processed!											
617												
618	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
619	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
620												
621												
622												
623	VAI (w010benzo(a)anthracene)											
624												

	A	B	C	D	E	F	G	H	I	J	K	L
625	General Statistics											
626					Number of Valid Data	3				Number of Detected Data		0
627					Number of Distinct Detected Data	0				Number of Non-Detect Data		3
628										Percent Non-Detects		100.00%
629												
630	Warning: This data set only has 3 observations!											
631	Data set is too small to compute reliable and meaningful statistics and estimates!											
632	The data set for variable VAI (w010benzo(a)anthracene) was not processed!											
633												
634	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
635	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
636												
637												
638												
639	VAI (w010benzo(a)pyrene)											
640												
641	General Statistics											
642					Number of Valid Data	3				Number of Detected Data		0
643					Number of Distinct Detected Data	0				Number of Non-Detect Data		3
644										Percent Non-Detects		100.00%
645												
646	Warning: This data set only has 3 observations!											
647	Data set is too small to compute reliable and meaningful statistics and estimates!											
648	The data set for variable VAI (w010benzo(a)pyrene) was not processed!											
649												
650	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
651	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
652												
653												
654												
655	VAI (w010benzo(b)fluoranthene)											
656												
657	General Statistics											
658					Number of Valid Data	3				Number of Detected Data		0
659					Number of Distinct Detected Data	0				Number of Non-Detect Data		3
660										Percent Non-Detects		100.00%
661												
662	Warning: This data set only has 3 observations!											
663	Data set is too small to compute reliable and meaningful statistics and estimates!											
664	The data set for variable VAI (w010benzo(b)fluoranthene) was not processed!											
665												
666	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
667	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
668												
669												
670												
671	VAI (w010dibenzo(a,h)anthracene)											
672												
673	General Statistics											
674					Number of Valid Data	3				Number of Detected Data		0
675					Number of Distinct Detected Data	0				Number of Non-Detect Data		3
676										Percent Non-Detects		100.00%

	A	B	C	D	E	F	G	H	I	J	K	L
677												
678	**Warning: This data set only has 3 observations!**											
679	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
680	**The data set for variable VAI (w010dibenzo(a,h)anthracene) was not processed!**											
681												
682	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
683	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
684												
685												
686												
687	**VAI (w010indeno(1,2,3-cd)pyrene)**											
688												
689	**General Statistics**											
690						Number of Valid Data	3			Number of Detected Data	0	
691						Number of Distinct Detected Data	0			Number of Non-Detect Data	3	
692										Percent Non-Detects	100.00%	
693												
694	**Warning: This data set only has 3 observations!**											
695	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
696	**The data set for variable VAI (w010indeno(1,2,3-cd)pyrene) was not processed!**											
697												
698	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
699	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
700												
701												
702												
703	**VAI (w010mcpp)**											
704												
705	**General Statistics**											
706						Number of Valid Data	3			Number of Detected Data	0	
707						Number of Distinct Detected Data	0			Number of Non-Detect Data	3	
708										Percent Non-Detects	100.00%	
709												
710	**Warning: This data set only has 3 observations!**											
711	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
712	**The data set for variable VAI (w010mcpp) was not processed!**											
713												
714	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
715	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
716												
717												
718												
719	**VAI (w011aldrin)**											
720												
721	**General Statistics**											
722						Number of Valid Data	6			Number of Detected Data	5	
723						Number of Distinct Detected Data	5			Number of Non-Detect Data	1	
724										Percent Non-Detects	16.67%	
725												
726	**Raw Statistics**							**Log-transformed Statistics**				
727						Minimum Detected	1.203E-06			Minimum Detected	-13.63	
728						Maximum Detected	4.385E-06			Maximum Detected	-12.34	

	A	B	C	D	E	F	G	H	I	J	K	L
729					Mean of Detected	2.523E-06					Mean of Detected	-12.99
730					SD of Detected	1.24E-06					SD of Detected	0.507
731					Minimum Non-Detect	2.22E-06					Minimum Non-Detect	-13.02
732					Maximum Non-Detect	2.22E-06					Maximum Non-Detect	-13.02
733												
734												
735					**Warning: There are only 5 Detected Values in this data**							
736					**Note: It should be noted that even though bootstrap may be performed on this data set**							
737					**the resulting calculations may not be reliable enough to draw conclusions**							
738												
739					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
740												
741												
742					**UCL Statistics**							
743					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
744					Shapiro Wilk Test Statistic	0.931					Shapiro Wilk Test Statistic	0.956
745					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
746					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
747												
748					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
749					DL/2 Substitution Method						DL/2 Substitution Method	
750					Mean	2.288E-06					Mean	-13.11
751					SD	1.25E-06					SD	0.54
752					95% DL/2 (t) UCL	3.316E-06					95% H-Stat (DL/2) UCL	4.539E-06
753												
754					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
755					Mean	2.223E-06					Mean in Log Scale	-13.07
756					SD	1.313E-06					SD in Log Scale	0.494
757					95% MLE (t) UCL	3.303E-06					Mean in Original Scale	2.337E-06
758					95% MLE (Tiku) UCL	3.554E-06					SD in Original Scale	1.199E-06
759											95% t UCL	3.323E-06
760											95% Percentile Bootstrap UCL	3.099E-06
761											95% BCA Bootstrap UCL	3.299E-06
762												
763					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
764					k star (bias corrected)	2.2					**Data appear Normal at 5% Significance Level**	
765					Theta Star	1.147E-06						
766					nu star	22						
767												
768					A-D Test Statistic	0.273					**Nonparametric Statistics**	
769					5% A-D Critical Value	0.681					Kaplan-Meier (KM) Method	
770					K-S Test Statistic	0.681					Mean	2.336E-06
771					5% K-S Critical Value	0.358					SD	1.099E-06
772					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	5.034E-07
773											95% KM (t) UCL	3.35E-06
774					**Assuming Gamma Distribution**						95% KM (z) UCL	3.164E-06
775					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.339E-06
776					Minimum	1.203E-06					95% KM (bootstrap t) UCL	3.78E-06
777					Maximum	4.385E-06					95% KM (BCA) UCL	3.291E-06
778					Mean	2.408E-06					95% KM (Percentile Bootstrap) UCL	3.264E-06
779					Median	2.26E-06					95% KM (Chebyshev) UCL	4.53E-06
780					SD	1.144E-06					97.5% KM (Chebyshev) UCL	5.48E-06

781					k star	2.973					99% KM (Chebyshev) UCL	7.345E-06
782					Theta star	8.098E-07						
783					Nu star	35.68					**Potential UCLs to Use**	
784					AppChi2	23.01					95% KM (t) UCL	3.35E-06
785					95% Gamma Approximate UCL	3.733E-06					95% KM (Percentile Bootstrap) UCL	3.264E-06
786					95% Adjusted Gamma UCL	4.423E-06						
787	**Note: DL/2 is not a recommended method.**											
788												
789	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
790	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
791	**For additional insight, the user may want to consult a statistician.**											
792												
793												
794	**VAI (w011arsenic)**											
795												
796	**General Statistics**											
797					Number of Valid Data	6					Number of Detected Data	5
798					Number of Distinct Detected Data	5					Number of Non-Detect Data	1
799											Percent Non-Detects	16.67%
800												
801	**Raw Statistics**						**Log-transformed Statistics**					
802					Minimum Detected	0.337					Minimum Detected	-1.089
803					Maximum Detected	0.5					Maximum Detected	-0.693
804					Mean of Detected	0.421					Mean of Detected	-0.876
805					SD of Detected	0.0679					SD of Detected	0.165
806					Minimum Non-Detect	0.435					Minimum Non-Detect	-0.834
807					Maximum Non-Detect	0.435					Maximum Non-Detect	-0.834
808												
809												
810	**Warning: There are only 5 Detected Values in this data**											
811	**Note: It should be noted that even though bootstrap may be performed on this data set**											
812	**the resulting calculations may not be reliable enough to draw conclusions**											
813												
814	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
815												
816												
817	**UCL Statistics**											
818	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
819					Shapiro Wilk Test Statistic	0.926					Shapiro Wilk Test Statistic	0.917
820					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
821	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
822												
823	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
824					DL/2 Substitution Method						DL/2 Substitution Method	
825					Mean	0.387					Mean	-0.985
826					SD	0.103					SD	0.304
827					95% DL/2 (t) UCL	0.472					95% H-Stat (DL/2) UCL	0.53
828												
829					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
830					Mean	0.435					Mean in Log Scale	-0.903
831					SD	0.0402					SD in Log Scale	0.162
832					95% MLE (t) UCL	0.468					Mean in Original Scale	0.41

833				95% MLE (Tiku) UCL	0.476					SD in Original Scale	0.0663
834										95% t UCL	0.465
835										95% Percentile Bootstrap UCL	0.453
836										95% BCA Bootstrap UCL	0.453
837											
838				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
839				k star (bias corrected)	18.78					**Data appear Normal at 5% Significance Level**	
840				Theta Star	0.0224						
841				nu star	187.8						
842											
843				A-D Test Statistic	0.356					**Nonparametric Statistics**	
844				5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method	
845				K-S Test Statistic	0.678					Mean	0.409
846				5% K-S Critical Value	0.357					SD	0.0615
847				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0283
848										95% KM (t) UCL	0.466
849				**Assuming Gamma Distribution**						95% KM (z) UCL	0.456
850				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.466
851				Minimum	0.337					95% KM (bootstrap t) UCL	0.47
852				Maximum	0.5					95% KM (BCA) UCL	0.462
853				Mean	0.415					95% KM (Percentile Bootstrap) UCL	0.463
854				Median	0.416					95% KM (Chebyshev) UCL	0.532
855				SD	0.0624					97.5% KM (Chebyshev) UCL	0.586
856				k star	26.54					99% KM (Chebyshev) UCL	0.691
857				Theta star	0.0156						
858				Nu star	318.5					**Potential UCLs to Use**	
859				AppChi2	278.1					95% KM (t) UCL	0.466
860				95% Gamma Approximate UCL	0.475					95% KM (Percentile Bootstrap) UCL	0.463
861				95% Adjusted Gamma UCL	0.5						
862	**Note: DL/2 is not a recommended method.**										
863											
864	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**										
865	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**										
866	**For additional insight, the user may want to consult a statistician.**										
867											
868											
869	**VAI (w011arsenic_diss)**										
870											
871				**General Statistics**							
872				Number of Valid Data	6					Number of Detected Data	4
873				Number of Distinct Detected Data	4					Number of Non-Detect Data	2
874										Percent Non-Detects	33.33%
875											
876				**Raw Statistics**						**Log-transformed Statistics**	
877				Minimum Detected	0.263					Minimum Detected	-1.336
878				Maximum Detected	0.45					Maximum Detected	-0.799
879				Mean of Detected	0.356					Mean of Detected	-1.056
880				SD of Detected	0.0854					SD of Detected	0.245
881				Minimum Non-Detect	0.394					Minimum Non-Detect	-0.931
882				Maximum Non-Detect	0.4					Maximum Non-Detect	-0.918
883											
884	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	4

885	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
886	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		66.67%
887												
888	**Warning: There are only 4 Distinct Detected Values in this data**											
889	**Note: It should be noted that even though bootstrap may be performed on this data set**											
890	**the resulting calculations may not be reliable enough to draw conclusions**											
891												
892	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
893												
894												
895	**UCL Statistics**											
896	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
897	Shapiro Wilk Test Statistic				0.95					Shapiro Wilk Test Statistic		0.95
898	5% Shapiro Wilk Critical Value				0.748					5% Shapiro Wilk Critical Value		0.748
899	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
900												
901	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
902	DL/2 Substitution Method									DL/2 Substitution Method		
903	Mean				0.303					Mean		-1.243
904	SD				0.105					SD		0.347
905	95% DL/2 (t) UCL				0.39					95% H-Stat (DL/2) UCL		0.438
906												
907	Maximum Likelihood Estimate(MLE) Method				N/A					Log ROS Method		
908	**MLE method failed to converge properly**									Mean in Log Scale		-1.12
909										SD in Log Scale		0.214
910										Mean in Original Scale		0.333
911										SD in Original Scale		0.0751
912										95% t UCL		0.395
913										95% Percentile Bootstrap UCL		0.383
914										95% BCA Bootstrap UCL		0.387
915												
916	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
917	k star (bias corrected)				5.829					**Data appear Normal at 5% Significance Level**		
918	Theta Star				0.061							
919	nu star				46.63							
920												
921	A-D Test Statistic				0.283					**Nonparametric Statistics**		
922	5% A-D Critical Value				0.657					Kaplan-Meier (KM) Method		
923	K-S Test Statistic				0.657					Mean		0.332
924	5% K-S Critical Value				0.394					SD		0.0701
925	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0342
926										95% KM (t) UCL		0.401
927	**Assuming Gamma Distribution**									95% KM (z) UCL		0.389
928	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.403
929	Minimum				0.263					95% KM (bootstrap t) UCL		0.386
930	Maximum				0.45					95% KM (BCA) UCL		0.41
931	Mean				0.356					95% KM (Percentile Bootstrap) UCL		0.41
932	Median				0.357					95% KM (Chebyshev) UCL		0.481
933	SD				0.0662					97.5% KM (Chebyshev) UCL		0.546
934	k star				17.05					99% KM (Chebyshev) UCL		0.672
935	Theta star				0.0209							
936	Nu star				204.6					**Potential UCLs to Use**		

937					AppChi2	172.5					95% KM (t) UCL	0.401
938					95% Gamma Approximate UCL	0.423					95% KM (Percentile Bootstrap) UCL	0.41
939					95% Adjusted Gamma UCL	N/A						
940	**Note: DL/2 is not a recommended method.**											
941												
942	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
943	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
944	**For additional insight, the user may want to consult a statistician.**											
945												
946												
947	**VAl (w011benzo(a)anthracene)**											
948												
949	**General Statistics**											
950					Number of Valid Data	12					Number of Detected Data	7
951					Number of Distinct Detected Data	7					Number of Non-Detect Data	5
952											Percent Non-Detects	41.67%
953												
954	**Raw Statistics**						**Log-transformed Statistics**					
955					Minimum Detected	0.000113					Minimum Detected	-9.088
956					Maximum Detected	0.01					Maximum Detected	-4.605
957					Mean of Detected	0.00207					Mean of Detected	-7.103
958					SD of Detected	0.00353					SD of Detected	1.422
959					Minimum Non-Detect	0.0042					Minimum Non-Detect	-5.473
960					Maximum Non-Detect	0.0078					Maximum Non-Detect	-4.854
961												
962	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
963	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
964	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	91.67%
965												
966	**Warning: There are only 7 Detected Values in this data**											
967	**Note: It should be noted that even though bootstrap may be performed on this data set**											
968	**the resulting calculations may not be reliable enough to draw conclusions**											
969												
970	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
971												
972												
973	**UCL Statistics**											
974	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
975					Shapiro Wilk Test Statistic	0.582					Shapiro Wilk Test Statistic	0.956
976					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
977	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
978												
979	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
980					DL/2 Substitution Method						DL/2 Substitution Method	
981					Mean	0.00253					Mean	-6.558
982					SD	0.00274					SD	1.264
983					95% DL/2 (t) UCL	0.00395					95% H-Stat (DL/2) UCL	0.0116
984												
985					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
986	**MLE method failed to converge properly**										Mean in Log Scale	-7.258
987											SD in Log Scale	1.162
988											Mean in Original Scale	0.0015

989											SD in Original Scale	0.00272
990											95% t UCL	0.00291
991											95% Percentile Bootstrap UCL	0.00302
992											95% BCA Bootstrap UCL	0.00386
993												
994	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
995					k star (bias corrected)	0.473					**Data appear Gamma Distributed at 5% Significance Level**	
996					Theta Star	0.00437						
997					nu star	6.622						
998												
999					A-D Test Statistic	0.567					**Nonparametric Statistics**	
1000					5% A-D Critical Value	0.742					Kaplan-Meier (KM) Method	
1001					K-S Test Statistic	0.742					Mean	0.00152
1002					5% K-S Critical Value	0.324					SD	0.0026
1003	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0008211
1004											95% KM (t) UCL	0.00299
1005	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00287
1006	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.00295
1007					Minimum	0.000113					95% KM (bootstrap t) UCL	0.00662
1008					Maximum	0.01					95% KM (BCA) UCL	0.00313
1009					Mean	0.00206					95% KM (Percentile Bootstrap) UCL	0.00291
1010					Median	0.00144					95% KM (Chebyshev) UCL	0.0051
1011					SD	0.00262					97.5% KM (Chebyshev) UCL	0.00664
1012					k star	0.843					99% KM (Chebyshev) UCL	0.00969
1013					Theta star	0.00245						
1014					Nu star	20.23					**Potential UCLs to Use**	
1015					AppChi2	11.02					95% KM (BCA) UCL	0.00313
1016					95% Gamma Approximate UCL	0.00379						
1017					95% Adjusted Gamma UCL	0.00418						
1018	**Note: DL/2 is not a recommended method.**											
1019												
1020	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
1021	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
1022	**For additional insight, the user may want to consult a statistician.**											
1023												
1024												
1025	**VAI (w011benzo(a)pyrene)**											
1026												
1027	**General Statistics**											
1028					Number of Valid Observations	6					Number of Distinct Observations	6
1029												
1030	**Raw Statistics**										**Log-transformed Statistics**	
1031					Minimum	0.0000401					Minimum of Log Data	-10.12
1032					Maximum	0.00179					Maximum of Log Data	-6.324
1033					Mean	0.000845					Mean of log Data	-7.558
1034					Median	0.0008717					SD of log Data	1.382
1035					SD	0.0006253						
1036					Coefficient of Variation	0.74						
1037					Skewness	0.274						
1038												
1039												
1040	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											

	A	B	C	D	E	F	G	H	I	J	K	L
1041												
1042	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
1043	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1044												
1045												
1046	Warning: There are only 6 Values in this data											
1047	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
1048	the resulting calculations may not be reliable enough to draw conclusions											
1049												
1050	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
1051												
1052	Relevant UCL Statistics											
1053	Normal Distribution Test						Lognormal Distribution Test					
1054					Shapiro Wilk Test Statistic	0.982				Shapiro Wilk Test Statistic	0.839	
1055					Shapiro Wilk Critical Value	0.788				Shapiro Wilk Critical Value	0.788	
1056	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1057												
1058	Assuming Normal Distribution						Assuming Lognormal Distribution					
1059					95% Student's-t UCL	0.00136				95% H-UCL	0.0395	
1060	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	0.00359	
1061					95% Adjusted-CLT UCL (Chen-1995)	0.0013				97.5% Chebyshev (MVUE) UCL	0.00468	
1062					95% Modified-t UCL (Johnson-1978)	0.00136				99% Chebyshev (MVUE) UCL	0.00683	
1063												
1064	Gamma Distribution Test						Data Distribution					
1065					k star (bias corrected)	0.699	Data appear Normal at 5% Significance Level					
1066					Theta Star	0.00121						
1067					MLE of Mean	0.000845						
1068					MLE of Standard Deviation	0.00101						
1069					nu star	8.386						
1070					Approximate Chi Square Value (.05)	2.961	Nonparametric Statistics					
1071					Adjusted Level of Significance	0.0122				95% CLT UCL	0.00126	
1072					Adjusted Chi Square Value	1.927				95% Jackknife UCL	0.00136	
1073										95% Standard Bootstrap UCL	0.00123	
1074					Anderson-Darling Test Statistic	0.348				95% Bootstrap-t UCL	0.00141	
1075					Anderson-Darling 5% Critical Value	0.713				95% Hall's Bootstrap UCL	0.00136	
1076					Kolmogorov-Smirnov Test Statistic	0.253				95% Percentile Bootstrap UCL	0.00123	
1077					Kolmogorov-Smirnov 5% Critical Value	0.34				95% BCA Bootstrap UCL	0.00128	
1078	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	0.00196	
1079										97.5% Chebyshev(Mean, Sd) UCL	0.00244	
1080	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	0.00339	
1081					95% Approximate Gamma UCL	0.00239						
1082					95% Adjusted Gamma UCL	0.00368						
1083												
1084	Potential UCL to Use									Use 95% Student's-t UCL	0.00136	
1085												
1086	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1087	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1088	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.											
1089												
1090												
1091	VAI (w011benzo(b)fluoranthene)											
1092												

	A	B	C	D	E	F	G	H	I	J	K	L
1093	**General Statistics**											
1094	Number of Valid Observations					6	Number of Distinct Observations					6
1095												
1096	**Raw Statistics**						**Log-transformed Statistics**					
1097	Minimum					0.0003176	Minimum of Log Data					-8.055
1098	Maximum					0.00149	Maximum of Log Data					-6.511
1099	Mean					0.0007984	Mean of log Data					-7.269
1100	Median					0.0007805	SD of log Data					0.59
1101	SD					0.0004332						
1102	Coefficient of Variation					0.543						
1103	Skewness					0.583						
1104												
1105												
1106	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1107												
1108	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1109	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1110												
1111												
1112	**Warning: There are only 6 Values in this data**											
1113	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1114	**the resulting calculations may not be reliable enough to draw conclusions**											
1115												
1116	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1117												
1118	**Relevant UCL Statistics**											
1119	**Normal Distribution Test**						**Lognormal Distribution Test**					
1120	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Test Statistic					0.938
1121	Shapiro Wilk Critical Value					0.788	Shapiro Wilk Critical Value					0.788
1122	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1123												
1124	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1125	95% Student's-t UCL					0.00115	95% H-UCL					0.00177
1126	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.00164
1127	95% Adjusted-CLT UCL (Chen-1995)					0.00113	97.5% Chebyshev (MVUE) UCL					0.00201
1128	95% Modified-t UCL (Johnson-1978)					0.00116	99% Chebyshev (MVUE) UCL					0.00272
1129												
1130	**Gamma Distribution Test**						**Data Distribution**					
1131	k star (bias corrected)					2.032	**Data appear Normal at 5% Significance Level**					
1132	Theta Star					0.0003928						
1133	MLE of Mean					0.0007984						
1134	MLE of Standard Deviation					0.00056						
1135	nu star					24.39						
1136	Approximate Chi Square Value (.05)					14.14	**Nonparametric Statistics**					
1137	Adjusted Level of Significance					0.0122	95% CLT UCL					0.00109
1138	Adjusted Chi Square Value					11.43	95% Jackknife UCL					0.00115
1139							95% Standard Bootstrap UCL					0.00106
1140	Anderson-Darling Test Statistic					0.274	95% Bootstrap-t UCL					0.00122
1141	Anderson-Darling 5% Critical Value					0.7	95% Hall's Bootstrap UCL					0.00128
1142	Kolmogorov-Smirnov Test Statistic					0.203	95% Percentile Bootstrap UCL					0.00107
1143	Kolmogorov-Smirnov 5% Critical Value					0.334	95% BCA Bootstrap UCL					0.0011
1144	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.00157

1145											97.5% Chebyshev(Mean, Sd) UCL	0.0019
1146			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	0.00256
1147					95% Approximate Gamma UCL	0.00138						
1148					95% Adjusted Gamma UCL	0.0017						
1149												
1150			**Potential UCL to Use**								Use 95% Student's-t UCL	0.00115
1151												
1152	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
1153	**These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)**											
1154	**and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.**											
1155												
1156												
1157	**VAI (w011chromium hexavalent)**											
1158												
1159	**General Statistics**											
1160					Number of Valid Data	3					Number of Detected Data	1
1161					Number of Distinct Detected Data	1					Number of Non-Detect Data	2
1162											Percent Non-Detects	66.67%
1163												
1164	**Warning: This data set only has 3 observations!**											
1165	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
1166	**The data set for variable VAI (w011chromium hexavalent) was not processed!**											
1167												
1168	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
1169	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1170												
1171												
1172												
1173	**VAI (w011dibenzo(a,h)anthracene)**											
1174												
1175	**General Statistics**											
1176					Number of Valid Data	4					Number of Detected Data	2
1177					Number of Distinct Detected Data	2					Number of Non-Detect Data	2
1178											Percent Non-Detects	50.00%
1179												
1180	**Warning: This data set only has 4 observations!**											
1181	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
1182	**The data set for variable VAI (w011dibenzo(a,h)anthracene) was not processed!**											
1183												
1184	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
1185	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1186												
1187												
1188												
1189	**VAI (w011indeno(1,2,3-cd)pyrene)**											
1190												
1191	**General Statistics**											
1192					Number of Valid Observations	5					Number of Distinct Observations	5
1193												
1194	**Raw Statistics**										**Log-transformed Statistics**	
1195					Minimum	0.00024					Minimum of Log Data	-8.335
1196					Maximum	0.00131					Maximum of Log Data	-6.639

1197					Mean	0.0006463					Mean of log Data	-7.546
1198					Median	0.0006201					SD of log Data	0.728
1199					SD	0.0004395						
1200					Coefficient of Variation	0.68						
1201					Skewness	0.837						
1202												
1203												
1204	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1205												
1206	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1207	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1208												
1209												
1210	**Warning: There are only 5 Values in this data**											
1211	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1212	**the resulting calculations may not be reliable enough to draw conclusions**											
1213												
1214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1215												
1216	**Relevant UCL Statistics**											
1217	**Normal Distribution Test**						**Lognormal Distribution Test**					
1218					Shapiro Wilk Test Statistic	0.91					Shapiro Wilk Test Statistic	0.916
1219					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
1220	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1221												
1222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1223					95% Student's-t UCL	0.00107					95% H-UCL	0.00272
1224	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.00155
1225					95% Adjusted-CLT UCL (Chen-1995)	0.00105					97.5% Chebyshev (MVUE) UCL	0.00194
1226					95% Modified-t UCL (Johnson-1978)	0.00108					99% Chebyshev (MVUE) UCL	0.00271
1227												
1228	**Gamma Distribution Test**						**Data Distribution**					
1229					k star (bias corrected)	1.187	**Data appear Normal at 5% Significance Level**					
1230					Theta Star	0.0005446						
1231					MLE of Mean	0.0006463						
1232					MLE of Standard Deviation	0.0005933						
1233					nu star	11.87						
1234					Approximate Chi Square Value (.05)	5.14	**Nonparametric Statistics**					
1235					Adjusted Level of Significance	0.0086					95% CLT UCL	0.0009696
1236					Adjusted Chi Square Value	3.389					95% Jackknife UCL	0.00107
1237											95% Standard Bootstrap UCL	0.0009334
1238					Anderson-Darling Test Statistic	0.311					95% Bootstrap-t UCL	0.00118
1239					Anderson-Darling 5% Critical Value	0.683					95% Hall's Bootstrap UCL	0.001
1240					Kolmogorov-Smirnov Test Statistic	0.252					95% Percentile Bootstrap UCL	0.0009568
1241					Kolmogorov-Smirnov 5% Critical Value	0.36					95% BCA Bootstrap UCL	0.0009568
1242	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0015
1243											97.5% Chebyshev(Mean, Sd) UCL	0.00187
1244	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.0026
1245					95% Approximate Gamma UCL	0.00149						
1246					95% Adjusted Gamma UCL	0.00226						
1247												
1248	**Potential UCL to Use**										Use 95% Student's-t UCL	0.00107

	A	B	C	D	E	F	G	H	I	J	K	L
1249												
1250	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1251	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1252	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.											
1253												
1254												
1255	VAI (w011mcpp)											
1256												
1257	General Statistics											
1258						Number of Valid Data	6			Number of Detected Data	0	
1259						Number of Distinct Detected Data	0			Number of Non-Detect Data	6	
1260										Percent Non-Detects	100.00%	
1261												
1262	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
1263	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
1264	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
1265												
1266	The data set for variable VAI (w011mcpp) was not processed!											
1267												
1268												
1269												
1270	VAI (w014aldrin)											
1271												
1272	General Statistics											
1273						Number of Valid Data	3			Number of Detected Data	0	
1274						Number of Distinct Detected Data	0			Number of Non-Detect Data	3	
1275										Percent Non-Detects	100.00%	
1276												
1277	Warning: This data set only has 3 observations!											
1278	Data set is too small to compute reliable and meaningful statistics and estimates!											
1279	The data set for variable VAI (w014aldrin) was not processed!											
1280												
1281	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1282	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1283												
1284												
1285												
1286	VAI (w014arsenic)											
1287												
1288	General Statistics											
1289						Number of Valid Observations	3			Number of Distinct Observations	3	
1290												
1291												
1292	Warning: This data set only has 3 observations!											
1293	Data set is too small to compute reliable and meaningful statistics and estimates!											
1294	The data set for variable VAI (w014arsenic) was not processed!											
1295												
1296	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1297	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1298												
1299												
1300												

	A	B	C	D	E	F	G	H	I	J	K	L
1301	VAI (w014arsenic_diss)											
1302												
1303	General Statistics											
1304	Number of Valid Observations	3				Number of Distinct Observations	3					
1305												
1306												
1307	Warning: This data set only has 3 observations!											
1308	Data set is too small to compute reliable and meaningful statistics and estimates!											
1309	The data set for variable VAI (w014arsenic_diss) was not processed!											
1310												
1311	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1312	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1313												
1314												
1315												
1316	VAI (w014benzo(a)anthracene)											
1317												
1318	General Statistics											
1319	Number of Valid Data	3				Number of Detected Data	0					
1320	Number of Distinct Detected Data	0				Number of Non-Detect Data	3					
1321						Percent Non-Detects	100.00%					
1322												
1323	Warning: This data set only has 3 observations!											
1324	Data set is too small to compute reliable and meaningful statistics and estimates!											
1325	The data set for variable VAI (w014benzo(a)anthracene) was not processed!											
1326												
1327	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1328	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1329												
1330												
1331												
1332	VAI (w014benzo(a)pyrene)											
1333												
1334	General Statistics											
1335	Number of Valid Data	3				Number of Detected Data	0					
1336	Number of Distinct Detected Data	0				Number of Non-Detect Data	3					
1337						Percent Non-Detects	100.00%					
1338												
1339	Warning: This data set only has 3 observations!											
1340	Data set is too small to compute reliable and meaningful statistics and estimates!											
1341	The data set for variable VAI (w014benzo(a)pyrene) was not processed!											
1342												
1343	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1344	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1345												
1346												
1347												
1348	VAI (w014benzo(b)fluoranthene)											
1349												
1350	General Statistics											
1351	Number of Valid Data	3				Number of Detected Data	0					
1352	Number of Distinct Detected Data	0				Number of Non-Detect Data	3					

1353											Percent Non-Detects	100.00%
1354												
1355	Warning: This data set only has 3 observations!											
1356	Data set is too small to compute reliable and meaningful statistics and estimates!											
1357	The data set for variable VAI (w014benzo(b)fluoranthene) was not processed!											
1358												
1359	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1360	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1361												
1362												
1363												
1364	VAI (w014dibenzo(a,h)anthracene)											
1365												
1366	General Statistics											
1367						Number of Valid Data	3				Number of Detected Data	0
1368						Number of Distinct Detected Data	0				Number of Non-Detect Data	3
1369											Percent Non-Detects	100.00%
1370												
1371	Warning: This data set only has 3 observations!											
1372	Data set is too small to compute reliable and meaningful statistics and estimates!											
1373	The data set for variable VAI (w014dibenzo(a,h)anthracene) was not processed!											
1374												
1375	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1376	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1377												
1378												
1379												
1380	VAI (w014indeno(1,2,3-cd)pyrene)											
1381												
1382	General Statistics											
1383						Number of Valid Data	3				Number of Detected Data	0
1384						Number of Distinct Detected Data	0				Number of Non-Detect Data	3
1385											Percent Non-Detects	100.00%
1386												
1387	Warning: This data set only has 3 observations!											
1388	Data set is too small to compute reliable and meaningful statistics and estimates!											
1389	The data set for variable VAI (w014indeno(1,2,3-cd)pyrene) was not processed!											
1390												
1391	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1392	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1393												
1394												
1395												
1396	VAI (w014mcpp)											
1397												
1398	General Statistics											
1399						Number of Valid Data	3				Number of Detected Data	0
1400						Number of Distinct Detected Data	0				Number of Non-Detect Data	3
1401											Percent Non-Detects	100.00%
1402												
1403	Warning: This data set only has 3 observations!											
1404	Data set is too small to compute reliable and meaningful statistics and estimates!											

	A	B	C	D	E	F	G	H	I	J	K	L
1405	The data set for variable VAI (w014mcpp) was not processed!											
1406												
1407	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1408	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1409												
1410												
1411												
1412	VAI (w020aldrin)											
1413												
1414	General Statistics											
1415						Number of Valid Data	3			Number of Detected Data	0	
1416						Number of Distinct Detected Data	0			Number of Non-Detect Data	3	
1417										Percent Non-Detects	100.00%	
1418												
1419	Warning: This data set only has 3 observations!											
1420	Data set is too small to compute reliable and meaningful statistics and estimates!											
1421	The data set for variable VAI (w020aldrin) was not processed!											
1422												
1423	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1424	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1425												
1426												
1427												
1428	VAI (w020arsenic)											
1429												
1430	General Statistics											
1431						Number of Valid Observations	3			Number of Distinct Observations	3	
1432												
1433												
1434	Warning: This data set only has 3 observations!											
1435	Data set is too small to compute reliable and meaningful statistics and estimates!											
1436	The data set for variable VAI (w020arsenic) was not processed!											
1437												
1438	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1439	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1440												
1441												
1442												
1443	VAI (w020arsenic_diss)											
1444												
1445	General Statistics											
1446						Number of Valid Observations	3			Number of Distinct Observations	3	
1447												
1448												
1449	Warning: This data set only has 3 observations!											
1450	Data set is too small to compute reliable and meaningful statistics and estimates!											
1451	The data set for variable VAI (w020arsenic_diss) was not processed!											
1452												
1453	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1454	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1455												
1456												

	A	B	C	D	E	F	G	H	I	J	K	L
1457												
1458	VAI (w020benzo(a)anthracene)											
1459												
1460	General Statistics											
1461					Number of Valid Data	3			Number of Detected Data			0
1462					Number of Distinct Detected Data	0			Number of Non-Detect Data			3
1463									Percent Non-Detects			100.00%
1464												
1465	Warning: This data set only has 3 observations!											
1466	Data set is too small to compute reliable and meaningful statistics and estimates!											
1467	The data set for variable VAI (w020benzo(a)anthracene) was not processed!											
1468												
1469	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1470	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1471												
1472												
1473												
1474	VAI (w020benzo(a)pyrene)											
1475												
1476	General Statistics											
1477					Number of Valid Data	3			Number of Detected Data			0
1478					Number of Distinct Detected Data	0			Number of Non-Detect Data			3
1479									Percent Non-Detects			100.00%
1480												
1481	Warning: This data set only has 3 observations!											
1482	Data set is too small to compute reliable and meaningful statistics and estimates!											
1483	The data set for variable VAI (w020benzo(a)pyrene) was not processed!											
1484												
1485	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1486	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1487												
1488												
1489												
1490	VAI (w020benzo(b)fluoranthene)											
1491												
1492	General Statistics											
1493					Number of Valid Data	3			Number of Detected Data			0
1494					Number of Distinct Detected Data	0			Number of Non-Detect Data			3
1495									Percent Non-Detects			100.00%
1496												
1497	Warning: This data set only has 3 observations!											
1498	Data set is too small to compute reliable and meaningful statistics and estimates!											
1499	The data set for variable VAI (w020benzo(b)fluoranthene) was not processed!											
1500												
1501	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
1502	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1503												
1504												
1505												
1506	VAI (w020dibenzo(a,h)anthracene)											
1507												
1508	General Statistics											

1509					Number of Valid Data	3				Number of Detected Data		0
1510					Number of Distinct Detected Data	0				Number of Non-Detect Data		3
1511										Percent Non-Detects		100.00%
1512												
1513	**Warning: This data set only has 3 observations!**											
1514	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
1515	**The data set for variable VAI (w020dibenzo(a,h)anthracene) was not processed!**											
1516												
1517	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
1518	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1519												
1520												
1521												
1522	**VAI (w020indeno(1,2,3-cd)pyrene)**											
1523												
1524	**General Statistics**											
1525					Number of Valid Data	3				Number of Detected Data		0
1526					Number of Distinct Detected Data	0				Number of Non-Detect Data		3
1527										Percent Non-Detects		100.00%
1528												
1529	**Warning: This data set only has 3 observations!**											
1530	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
1531	**The data set for variable VAI (w020indeno(1,2,3-cd)pyrene) was not processed!**											
1532												
1533	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
1534	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1535												
1536												
1537												
1538	**VAI (w020mcpp)**											
1539												
1540	**General Statistics**											
1541					Number of Valid Data	3				Number of Detected Data		0
1542					Number of Distinct Detected Data	0				Number of Non-Detect Data		3
1543										Percent Non-Detects		100.00%
1544												
1545	**Warning: This data set only has 3 observations!**											
1546	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
1547	**The data set for variable VAI (w020mcpp) was not processed!**											
1548												
1549	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
1550	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1551												
1552												
1553												
1554	**VAI (w023aldrin)**											
1555												
1556	**General Statistics**											
1557					Number of Valid Data	7				Number of Detected Data		6
1558					Number of Distinct Detected Data	6				Number of Non-Detect Data		1
1559										Percent Non-Detects		14.29%
1560												

	A	B	C	D	E	F	G	H	I	J	K	L
1561	**Raw Statistics**						**Log-transformed Statistics**					
1562					Minimum Detected	8.43E-07					Minimum Detected	-13.99
1563					Maximum Detected	3.89E-06					Maximum Detected	-12.46
1564					Mean of Detected	2.218E-06					Mean of Detected	-13.16
1565					SD of Detected	1.197E-06					SD of Detected	0.602
1566					Minimum Non-Detect	3.41E-07					Minimum Non-Detect	-14.89
1567					Maximum Non-Detect	3.41E-07					Maximum Non-Detect	-14.89
1568												
1569												
1570	**Warning: There are only 6 Detected Values in this data**											
1571	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1572	**the resulting calculations may not be reliable enough to draw conclusions**											
1573												
1574	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1575												
1576												
1577	**UCL Statistics**											
1578	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1579					Shapiro Wilk Test Statistic	0.945					Shapiro Wilk Test Statistic	0.942
1580					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
1581	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1582												
1583	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1584					DL/2 Substitution Method						DL/2 Substitution Method	
1585					Mean	1.926E-06					Mean	-13.5
1586					SD	1.339E-06					SD	1.069
1587					95% DL/2 (t) UCL	2.909E-06					95% H-Stat (DL/2) UCL	1.322E-05
1588												
1589					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1590					Mean	1.851E-06					Mean in Log Scale	-13.37
1591					SD	1.372E-06					SD in Log Scale	0.793
1592					95% MLE (t) UCL	2.859E-06					Mean in Original Scale	1.962E-06
1593					95% MLE (Tiku) UCL	2.879E-06					SD in Original Scale	1.286E-06
1594											95% t UCL	2.907E-06
1595											95% Percentile Bootstrap UCL	2.736E-06
1596											95% BCA Bootstrap UCL	2.81E-06
1597												
1598	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1599					k star (bias corrected)	1.982	**Data appear Normal at 5% Significance Level**					
1600					Theta Star	1.12E-06						
1601					nu star	23.78						
1602												
1603					A-D Test Statistic	0.244	**Nonparametric Statistics**					
1604					5% A-D Critical Value	0.7					Kaplan-Meier (KM) Method	
1605					K-S Test Statistic	0.7					Mean	2.022E-06
1606					5% K-S Critical Value	0.334					SD	1.12E-06
1607	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	4.638E-07
1608											95% KM (t) UCL	2.923E-06
1609	**Assuming Gamma Distribution**										95% KM (z) UCL	2.785E-06
1610					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.907E-06
1611					Minimum	3.867E-07					95% KM (bootstrap t) UCL	3.058E-06
1612					Maximum	3.89E-06					95% KM (BCA) UCL	2.852E-06

1613					Mean	1.957E-06				95% KM (Percentile Bootstrap) UCL		2.782E-06
1614					Median	1.941E-06				95% KM (Chebyshev) UCL		4.044E-06
1615					SD	1.293E-06				97.5% KM (Chebyshev) UCL		4.918E-06
1616					k star	1.355				99% KM (Chebyshev) UCL		6.637E-06
1617					Theta star	1.444E-06						
1618					Nu star	18.97				**Potential UCLs to Use**		
1619					AppChi2	10.09				95% KM (t) UCL		2.923E-06
1620					95% Gamma Approximate UCL	3.677E-06				95% KM (Percentile Bootstrap) UCL		2.782E-06
1621					95% Adjusted Gamma UCL	4.519E-06						
1622	**Note: DL/2 is not a recommended method.**											
1623												
1624	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
1625	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
1626	**For additional insight, the user may want to consult a statistician.**											
1627												
1628												
1629	**VAI (w023arsenic)**											
1630												
1631	**General Statistics**											
1632					Number of Valid Data	8				Number of Detected Data		7
1633					Number of Distinct Detected Data	7				Number of Non-Detect Data		1
1634										Percent Non-Detects		12.50%
1635												
1636	**Raw Statistics**						**Log-transformed Statistics**					
1637					Minimum Detected	0.313				Minimum Detected		-1.162
1638					Maximum Detected	0.54				Maximum Detected		-0.616
1639					Mean of Detected	0.438				Mean of Detected		-0.842
1640					SD of Detected	0.0807				SD of Detected		0.196
1641					Minimum Non-Detect	0.408				Minimum Non-Detect		-0.897
1642					Maximum Non-Detect	0.408				Maximum Non-Detect		-0.897
1643												
1644												
1645	**Warning: There are only 7 Detected Values in this data**											
1646	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1647	**the resulting calculations may not be reliable enough to draw conclusions**											
1648												
1649	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1650												
1651												
1652	**UCL Statistics**											
1653	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1654					Shapiro Wilk Test Statistic	0.926				Shapiro Wilk Test Statistic		0.902
1655					5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value		0.803
1656	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1657												
1658	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1659					DL/2 Substitution Method					DL/2 Substitution Method		
1660					Mean	0.408				Mean		-0.936
1661					SD	0.111				SD		0.321
1662					95% DL/2 (t) UCL	0.483				95% H-Stat (DL/2) UCL		0.532
1663												
1664					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		

1665					Mean	0.436					Mean in Log Scale	-0.871
1666					SD	0.0671					SD in Log Scale	0.199
1667					95% MLE (t) UCL	0.481					Mean in Original Scale	0.426
1668					95% MLE (Tiku) UCL	0.487					SD in Original Scale	0.0821
1669											95% t UCL	0.481
1670											95% Percentile Bootstrap UCL	0.47
1671											95% BCA Bootstrap UCL	0.469
1672												
1673	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1674					k star (bias corrected)	18.25	**Data appear Normal at 5% Significance Level**					
1675					Theta Star	0.024						
1676					nu star	255.5						
1677												
1678					A-D Test Statistic	0.421	**Nonparametric Statistics**					
1679					5% A-D Critical Value	0.707					Kaplan-Meier (KM) Method	
1680					K-S Test Statistic	0.707					Mean	0.424
1681					5% K-S Critical Value	0.311					SD	0.0785
1682	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0301
1683											95% KM (t) UCL	0.481
1684	**Assuming Gamma Distribution**										95% KM (z) UCL	0.474
1685					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.481
1686					Minimum	0.313					95% KM (bootstrap t) UCL	0.477
1687					Maximum	0.54					95% KM (BCA) UCL	0.478
1688					Mean	0.429					95% KM (Percentile Bootstrap) UCL	0.48
1689					Median	0.448					95% KM (Chebyshev) UCL	0.556
1690					SD	0.0788					97.5% KM (Chebyshev) UCL	0.612
1691					k star	20.37					99% KM (Chebyshev) UCL	0.724
1692					Theta star	0.021						
1693					Nu star	325.9	**Potential UCLs to Use**					
1694					AppChi2	285.1					95% KM (t) UCL	0.481
1695					95% Gamma Approximate UCL	0.49					95% KM (Percentile Bootstrap) UCL	0.48
1696					95% Adjusted Gamma UCL	0.507						
1697	**Note: DL/2 is not a recommended method.**											
1698												
1699	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
1700	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
1701	**For additional insight, the user may want to consult a statistician.**											
1702												
1703												
1704	**VAI (w023arsenic_diss)**											
1705												
1706	**General Statistics**											
1707					Number of Valid Data	8					Number of Detected Data	7
1708					Number of Distinct Detected Data	6					Number of Non-Detect Data	1
1709											Percent Non-Detects	12.50%
1710												
1711	**Raw Statistics**						**Log-transformed Statistics**					
1712					Minimum Detected	0.209					Minimum Detected	-1.567
1713					Maximum Detected	0.433					Maximum Detected	-0.836
1714					Mean of Detected	0.306					Mean of Detected	-1.233
1715					SD of Detected	0.102					SD of Detected	0.337
1716					Minimum Non-Detect	0.378					Minimum Non-Detect	-0.974

	A	B	C	D	E	F	G	H	I	J	K	L
1717				Maximum Non-Detect		0.378				Maximum Non-Detect		-0.974
1718												
1719												
1720	**Warning: There are only 7 Detected Values in this data**											
1721	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1722	**the resulting calculations may not be reliable enough to draw conclusions**											
1723												
1724	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1725												
1726												
1727	**UCL Statistics**											
1728	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1729				Shapiro Wilk Test Statistic		0.828				Shapiro Wilk Test Statistic		0.824
1730				5% Shapiro Wilk Critical Value		0.803				5% Shapiro Wilk Critical Value		0.803
1731	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1732												
1733	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1734				DL/2 Substitution Method						DL/2 Substitution Method		
1735				Mean		0.291				Mean		-1.287
1736				SD		0.103				SD		0.347
1737				95% DL/2 (t) UCL		0.361				95% H-Stat (DL/2) UCL		0.387
1738												
1739				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
1740	**MLE method failed to converge properly**									Mean in Log Scale		-1.25
1741										SD in Log Scale		0.316
1742										Mean in Original Scale		0.299
1743										SD in Original Scale		0.0964
1744										95% t UCL		0.364
1745										95% Percentile Bootstrap UCL		0.354
1746										95% BCA Bootstrap UCL		0.36
1747												
1748	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1749				k star (bias corrected)		6.091	**Data appear Normal at 5% Significance Level**					
1750				Theta Star		0.0502						
1751				nu star		85.27						
1752												
1753				A-D Test Statistic		0.612	**Nonparametric Statistics**					
1754				5% A-D Critical Value		0.708				Kaplan-Meier (KM) Method		
1755				K-S Test Statistic		0.708				Mean		0.3
1756				5% K-S Critical Value		0.312				SD		0.0926
1757	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0365
1758										95% KM (t) UCL		0.369
1759	**Assuming Gamma Distribution**									95% KM (z) UCL		0.36
1760				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.369
1761				Minimum		0.209				95% KM (bootstrap t) UCL		0.381
1762				Maximum		0.433				95% KM (BCA) UCL		0.355
1763				Mean		0.305				95% KM (Percentile Bootstrap) UCL		0.358
1764				Median		0.293				95% KM (Chebyshev) UCL		0.459
1765				SD		0.0947				97.5% KM (Chebyshev) UCL		0.528
1766				k star		7.555				99% KM (Chebyshev) UCL		0.663
1767				Theta star		0.0404						
1768				Nu star		120.9	**Potential UCLs to Use**					

1769					AppChi2	96.49					95% KM (t) UCL	0.369
1770					95% Gamma Approximate UCL	0.382					95% KM (Percentile Bootstrap) UCL	0.358
1771					95% Adjusted Gamma UCL	0.405						
1772	**Note: DL/2 is not a recommended method.**											
1773												
1774	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
1775	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
1776	**For additional insight, the user may want to consult a statistician.**											
1777												
1778												
1779	**VAI (w023benzo(a)anthracene)**											
1780												
1781	**General Statistics**											
1782					Number of Valid Data	15					Number of Detected Data	8
1783					Number of Distinct Detected Data	8					Number of Non-Detect Data	7
1784											Percent Non-Detects	46.67%
1785												
1786	**Raw Statistics**						**Log-transformed Statistics**					
1787					Minimum Detected	0.000052					Minimum Detected	-9.864
1788					Maximum Detected	0.01					Maximum Detected	-4.605
1789					Mean of Detected	0.00147					Mean of Detected	-8.021
1790					SD of Detected	0.00345					SD of Detected	1.586
1791					Minimum Non-Detect	0.0021					Minimum Non-Detect	-6.166
1792					Maximum Non-Detect	0.0078					Maximum Non-Detect	-4.854
1793												
1794	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
1795	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
1796	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.33%
1797												
1798	**Warning: There are only 8 Detected Values in this data**											
1799	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1800	**the resulting calculations may not be reliable enough to draw conclusions**											
1801												
1802	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1803												
1804												
1805	**UCL Statistics**											
1806	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1807					Shapiro Wilk Test Statistic	0.456					Shapiro Wilk Test Statistic	0.839
1808					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
1809	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1810												
1811	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1812					DL/2 Substitution Method						DL/2 Substitution Method	
1813					Mean	0.00199					Mean	-7.124
1814					SD	0.00265					SD	1.547
1815					95% DL/2 (t) UCL	0.00319					95% H-Stat (DL/2) UCL	0.0123
1816												
1817					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1818	**MLE method failed to converge properly**										Mean in Log Scale	-8.186
1819											SD in Log Scale	1.241
1820											Mean in Original Scale	0.0009217

1821											SD in Original Scale	0.00252
1822											95% t UCL	0.00207
1823											95% Percentile Bootstrap UCL	0.00221
1824											95% BCA Bootstrap UCL	0.00288
1825												
1826	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
1827					k star (bias corrected)	0.354					**Data appear Lognormal at 5% Significance Level**	
1828					Theta Star	0.00417						
1829					nu star	5.662						
1830												
1831					A-D Test Statistic	1.312					**Nonparametric Statistics**	
1832					5% A-D Critical Value	0.774					Kaplan-Meier (KM) Method	
1833					K-S Test Statistic	0.774					Mean	0.0009057
1834					5% K-S Critical Value	0.312					SD	0.00243
1835	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0006729
1836											95% KM (t) UCL	0.00209
1837	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00201
1838	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.00205
1839					Minimum	0.000052					95% KM (bootstrap t) UCL	0.012
1840					Maximum	0.01					95% KM (BCA) UCL	0.00225
1841					Mean	0.0015					95% KM (Percentile Bootstrap) UCL	0.0022
1842					Median	0.0006816					95% KM (Chebyshev) UCL	0.00384
1843					SD	0.00247					97.5% KM (Chebyshev) UCL	0.00511
1844					k star	0.622					99% KM (Chebyshev) UCL	0.0076
1845					Theta star	0.00242						
1846					Nu star	18.65					**Potential UCLs to Use**	
1847					AppChi2	9.862					99% KM (Chebyshev) UCL	0.0076
1848					95% Gamma Approximate UCL	0.00284						
1849					95% Adjusted Gamma UCL	0.00309						
1850	**Note: DL/2 is not a recommended method.**											
1851												
1852	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
1853	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
1854	**For additional insight, the user may want to consult a statistician.**											
1855												
1856												
1857	**VAI (w023benzo(a)pyrene)**											
1858												
1859	**General Statistics**											
1860					Number of Valid Observations	7					Number of Distinct Observations	7
1861												
1862	**Raw Statistics**										**Log-transformed Statistics**	
1863					Minimum	0.0000263					Minimum of Log Data	-10.55
1864					Maximum	0.0006287					Maximum of Log Data	-7.372
1865					Mean	0.0002783					Mean of log Data	-8.673
1866					Median	0.000275					SD of log Data	1.292
1867					SD	0.0002128						
1868					Coefficient of Variation	0.765						
1869					Skewness	0.342						
1870												
1871												
1872	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											

	A	B	C	D	E	F	G	H	I	J	K	L
1873												
1874	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
1875	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1876												
1877												
1878	Warning: There are only 7 Values in this data											
1879	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
1880	the resulting calculations may not be reliable enough to draw conclusions											
1881												
1882	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
1883												
1884	Relevant UCL Statistics											
1885	Normal Distribution Test						Lognormal Distribution Test					
1886					Shapiro Wilk Test Statistic	0.94					Shapiro Wilk Test Statistic	0.804
1887					Shapiro Wilk Critical Value	0.803					Shapiro Wilk Critical Value	0.803
1888	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1889												
1890	Assuming Normal Distribution						Assuming Lognormal Distribution					
1891					95% Student's-t UCL	0.0004346					95% H-UCL	0.00434
1892	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	0.00103
1893					95% Adjusted-CLT UCL (Chen-1995)	0.0004217					97.5% Chebyshev (MVUE) UCL	0.00133
1894					95% Modified-t UCL (Johnson-1978)	0.0004363					99% Chebyshev (MVUE) UCL	0.00193
1895												
1896	Gamma Distribution Test						Data Distribution					
1897					k star (bias corrected)	0.762	Data appear Normal at 5% Significance Level					
1898					Theta Star	0.0003652						
1899					MLE of Mean	0.0002783						
1900					MLE of Standard Deviation	0.0003188						
1901					nu star	10.67						
1902					Approximate Chi Square Value (.05)	4.364	Nonparametric Statistics					
1903					Adjusted Level of Significance	0.0158					95% CLT UCL	0.0004106
1904					Adjusted Chi Square Value	3.233					95% Jackknife UCL	0.0004346
1905											95% Standard Bootstrap UCL	0.0004021
1906					Anderson-Darling Test Statistic	0.562					95% Bootstrap-t UCL	0.0004534
1907					Anderson-Darling 5% Critical Value	0.725					95% Hall's Bootstrap UCL	0.0004524
1908					Kolmogorov-Smirnov Test Statistic	0.282					95% Percentile Bootstrap UCL	0.0004069
1909					Kolmogorov-Smirnov 5% Critical Value	0.319					95% BCA Bootstrap UCL	0.0004076
1910	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	0.0006289
1911											97.5% Chebyshev(Mean, Sd) UCL	0.0007806
1912	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	0.00108
1913					95% Approximate Gamma UCL	0.0006803						
1914					95% Adjusted Gamma UCL	0.0009184						
1915												
1916	Potential UCL to Use										Use 95% Student's-t UCL	0.0004346
1917												
1918	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1919	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1920	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.											
1921												
1922												
1923	VAI (w023benzo(b)fluoranthene)											
1924												

	A	B	C	D	E	F	G	H	I	J	K	L
1925	**General Statistics**											
1926	Number of Valid Observations					7	Number of Distinct Observations					7
1927												
1928	**Raw Statistics**						**Log-transformed Statistics**					
1929	Minimum					0.0000238	Minimum of Log Data					-10.65
1930	Maximum					0.00082	Maximum of Log Data					-7.106
1931	Mean					0.0003742	Mean of log Data					-8.225
1932	Median					0.0003174	SD of log Data					1.13
1933	SD					0.0002429						
1934	Coefficient of Variation					0.649						
1935	Skewness					0.75						
1936												
1937												
1938	**Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1939												
1940	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1941	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1942												
1943												
1944	**Warning: There are only 7 Values in this data**											
1945	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1946	**the resulting calculations may not be reliable enough to draw conclusions**											
1947												
1948	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1949												
1950	**Relevant UCL Statistics**											
1951	**Normal Distribution Test**						**Lognormal Distribution Test**					
1952	Shapiro Wilk Test Statistic					0.927	Shapiro Wilk Test Statistic					0.759
1953	Shapiro Wilk Critical Value					0.803	Shapiro Wilk Critical Value					0.803
1954	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1955												
1956	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1957	95% Student's-t UCL					0.0005526	95% H-UCL					0.00331
1958	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.00128
1959	95% Adjusted-CLT UCL (Chen-1995)					0.000553	97.5% Chebyshev (MVUE) UCL					0.00164
1960	95% Modified-t UCL (Johnson-1978)					0.0005569	99% Chebyshev (MVUE) UCL					0.00235
1961												
1962	**Gamma Distribution Test**						**Data Distribution**					
1963	k star (bias corrected)					1.033	**Data appear Normal at 5% Significance Level**					
1964	Theta Star					0.0003623						
1965	MLE of Mean					0.0003742						
1966	MLE of Standard Deviation					0.0003682						
1967	nu star					14.46						
1968	Approximate Chi Square Value (.05)					6.889	**Nonparametric Statistics**					
1969	Adjusted Level of Significance					0.0158	95% CLT UCL					0.0005252
1970	Adjusted Chi Square Value					5.391	95% Jackknife UCL					0.0005526
1971							95% Standard Bootstrap UCL					0.0005154
1972	Anderson-Darling Test Statistic					0.589	95% Bootstrap-t UCL					0.0006096
1973	Anderson-Darling 5% Critical Value					0.719	95% Hall's Bootstrap UCL					0.0009101
1974	Kolmogorov-Smirnov Test Statistic					0.321	95% Percentile Bootstrap UCL					0.0005155
1975	Kolmogorov-Smirnov 5% Critical Value					0.316	95% BCA Bootstrap UCL					0.0005395
1976	**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.0007744

1977											97.5% Chebyshev(Mean, Sd) UCL	0.0009475
1978	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.00129
1979					95% Approximate Gamma UCL	0.0007856						
1980					95% Adjusted Gamma UCL	0.001						
1981												
1982	**Potential UCL to Use**										Use 95% Student's-t UCL	0.0005526
1983												
1984	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
1985	**These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)**											
1986	**and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.**											
1987												
1988												
1989	**VAI (w023dibenzo(a,h)anthracene)**											
1990												
1991	**General Statistics**											
1992					Number of Valid Data	7					Number of Detected Data	2
1993					Number of Distinct Detected Data	2					Number of Non-Detect Data	5
1994											Percent Non-Detects	71.43%
1995												
1996	**Raw Statistics**										**Log-transformed Statistics**	
1997					Minimum Detected	5.667E-05					Minimum Detected	-9.778
1998					Maximum Detected	0.0004517					Maximum Detected	-7.703
1999					Mean of Detected	0.0002542					Mean of Detected	-8.74
2000					SD of Detected	0.0002793					SD of Detected	1.468
2001					Minimum Non-Detect	0.0000434					Minimum Non-Detect	-10.05
2002					Maximum Non-Detect	0.000325					Maximum Non-Detect	-8.032
2003												
2004	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
2005	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
2006	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	85.71%
2007												
2008	**Warning: Data set has only 2 Distinct Detected Values.**											
2009	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
2010	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
2011												
2012	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
2013												
2014	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
2015	**Those methods will return a 'N/A' value on your output display!**											
2016												
2017	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
2018	**However, results obtained using 4 to 9 distinct values may not be reliable.**											
2019	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
2020												
2021												
2022	**UCL Statistics**											
2023	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
2024					Shapiro Wilk Test Statistic	N/A					Shapiro Wilk Test Statistic	N/A
2025					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
2026	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
2027												
2028	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	

2029				DL/2 Substitution Method							DL/2 Substitution Method	
2030				Mean	0.0001271						Mean	-9.58
2031				SD	0.0001553						SD	1.194
2032				95% DL/2 (t) UCL	0.0002411						95% H-Stat (DL/2) UCL	0.00112
2033												
2034				Maximum Likelihood Estimate(MLE) Method	N/A						Log ROS Method	
2035				**MLE method failed to converge properly**							Mean in Log Scale	N/A
2036											SD in Log Scale	N/A
2037											Mean in Original Scale	N/A
2038											SD in Original Scale	N/A
2039											95% t UCL	N/A
2040											95% Percentile Bootstrap UCL	N/A
2041											95% BCA Bootstrap UCL	N/A
2042												
2043				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
2044				k star (bias corrected)	N/A						**Data do not follow a Discernable Distribution (0.05)**	
2045				Theta Star	N/A							
2046				nu star	N/A							
2047												
2048				A-D Test Statistic	N/A						**Nonparametric Statistics**	
2049				5% A-D Critical Value	N/A						Kaplan-Meier (KM) Method	
2050				K-S Test Statistic	N/A						Mean	0.0001131
2051				5% K-S Critical Value	N/A						SD	0.0001382
2052				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	7.388E-05
2053											95% KM (t) UCL	0.0002567
2054				**Assuming Gamma Distribution**							95% KM (z) UCL	0.0002346
2055				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.0004077
2056				Minimum	N/A						95% KM (bootstrap t) UCL	N/A
2057				Maximum	N/A						95% KM (BCA) UCL	0.0004517
2058				Mean	N/A						95% KM (Percentile Bootstrap) UCL	0.0004517
2059				Median	N/A						95% KM (Chebyshev) UCL	0.0004351
2060				SD	N/A						97.5% KM (Chebyshev) UCL	0.0005745
2061				k star	N/A						99% KM (Chebyshev) UCL	0.0008482
2062				Theta star	N/A							
2063				Nu star	N/A						**Potential UCLs to Use**	
2064				AppChi2	N/A						95% KM (BCA) UCL	0.0004517
2065				95% Gamma Approximate UCL	N/A							
2066				95% Adjusted Gamma UCL	N/A							
2067	**Note: DL/2 is not a recommended method.**											
2068												
2069	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
2070	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
2071	**For additional insight, the user may want to consult a statistician.**											
2072												
2073												
2074	**VAI (w023indeno(1,2,3-cd)pyrene)**											
2075												
2076	**General Statistics**											
2077				Number of Valid Data	15						Number of Detected Data	5
2078				Number of Distinct Detected Data	5						Number of Non-Detect Data	10
2079											Percent Non-Detects	66.67%
2080												

	A	B	C	D	E	F	G	H	I	J	K	L
2081	**Raw Statistics**						**Log-transformed Statistics**					
2082					Minimum Detected	0.000184					Minimum Detected	-8.601
2083					Maximum Detected	0.000264					Maximum Detected	-8.24
2084					Mean of Detected	0.0002183					Mean of Detected	-8.44
2085					SD of Detected	3.514E-05					SD of Detected	0.16
2086					Minimum Non-Detect	0.000382					Minimum Non-Detect	-7.87
2087					Maximum Non-Detect	0.0084					Maximum Non-Detect	-4.78
2088												
2089	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
2090	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
2091	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
2092												
2093	**Warning: There are only 5 Detected Values in this data**											
2094	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2095	**the resulting calculations may not be reliable enough to draw conclusions**											
2096												
2097	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2098												
2099												
2100	**UCL Statistics**											
2101	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2102					Shapiro Wilk Test Statistic	0.907					Shapiro Wilk Test Statistic	0.902
2103					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
2104	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2105												
2106	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2107					DL/2 Substitution Method						DL/2 Substitution Method	
2108					Mean	0.00149					Mean	-7.117
2109					SD	0.00143					SD	1.24
2110					95% DL/2 (t) UCL	0.00214					95% H-Stat (DL/2) UCL	0.00497
2111												
2112					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2113	**MLE method failed to converge properly**										Mean in Log Scale	-8.44
2114											SD in Log Scale	0.111
2115											Mean in Original Scale	0.0002174
2116											SD in Original Scale	2.432E-05
2117											95% t UCL	0.0002284
2118											95% Percentile Bootstrap UCL	0.000228
2119											95% BCA Bootstrap UCL	0.0002282
2120												
2121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2122					k star (bias corrected)	19.59	**Data appear Normal at 5% Significance Level**					
2123					Theta Star	1.115E-05						
2124					nu star	195.9						
2125												
2126					A-D Test Statistic	0.349	**Nonparametric Statistics**					
2127					5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method	
2128					K-S Test Statistic	0.678					Mean	0.0002183
2129					5% K-S Critical Value	0.357					SD	3.143E-05
2130	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.571E-05
2131											95% KM (t) UCL	0.000246
2132	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0002442

2133	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.0002482
2134					Minimum	0.000184				95% KM (bootstrap t) UCL		0.0002557
2135					Maximum	0.000264				95% KM (BCA) UCL		0.0002451
2136					Mean	0.0002206				95% KM (Percentile Bootstrap) UCL		0.0002443
2137					Median	0.0002239				95% KM (Chebyshev) UCL		0.0002868
2138					SD	2.413E-05				97.5% KM (Chebyshev) UCL		0.0003165
2139					k star	70.68				99% KM (Chebyshev) UCL		0.0003747
2140					Theta star	3.122E-06						
2141					Nu star	2120				**Potential UCLs to Use**		
2142					AppChi2	2014				95% KM (t) UCL		0.000246
2143				95% Gamma Approximate UCL		0.0002323				95% KM (Percentile Bootstrap) UCL		0.0002443
2144				95% Adjusted Gamma UCL		0.0002337						
2145	**Note: DL/2 is not a recommended method.**											
2146												
2147	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
2148	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
2149	**For additional insight, the user may want to consult a statistician.**											
2150												
2151												
2152	**VAI (w023mcpp)**											
2153												
2154	**General Statistics**											
2155					Number of Valid Data	4				Number of Detected Data		1
2156					Number of Distinct Detected Data	1				Number of Non-Detect Data		3
2157										Percent Non-Detects		75.00%
2158												
2159	**Warning: This data set only has 4 observations!**											
2160	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2161	**The data set for variable VAI (w023mcpp) was not processed!**											
2162												
2163	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2164	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2165												
2166												
2167												
2168	**VAI (w025aldrin)**											
2169												
2170	**General Statistics**											
2171					Number of Valid Observations	3				Number of Distinct Observations		3
2172												
2173												
2174	**Warning: This data set only has 3 observations!**											
2175	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2176	**The data set for variable VAI (w025aldrin) was not processed!**											
2177												
2178	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2179	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2180												
2181												
2182												
2183	**VAI (w025arsenic)**											
2184												

	A	B	C	D	E	F	G	H	I	J	K	L
2185	General Statistics											
2186					Number of Valid Data	3				Number of Detected Data		2
2187					Number of Distinct Detected Data	2				Number of Non-Detect Data		1
2188										Percent Non-Detects		33.33%
2189												
2190	Warning: This data set only has 3 observations!											
2191	Data set is too small to compute reliable and meaningful statistics and estimates!											
2192	The data set for variable VAI (w025arsenic) was not processed!											
2193												
2194	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2195	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2196												
2197												
2198												
2199	VAI (w025arsenic_diss)											
2200												
2201	General Statistics											
2202					Number of Valid Data	3				Number of Detected Data		2
2203					Number of Distinct Detected Data	2				Number of Non-Detect Data		1
2204										Percent Non-Detects		33.33%
2205												
2206	Warning: This data set only has 3 observations!											
2207	Data set is too small to compute reliable and meaningful statistics and estimates!											
2208	The data set for variable VAI (w025arsenic_diss) was not processed!											
2209												
2210	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2211	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2212												
2213												
2214												
2215	VAI (w025benzo(a)anthracene)											
2216												
2217	General Statistics											
2218					Number of Valid Observations	3				Number of Distinct Observations		3
2219												
2220												
2221	Warning: This data set only has 3 observations!											
2222	Data set is too small to compute reliable and meaningful statistics and estimates!											
2223	The data set for variable VAI (w025benzo(a)anthracene) was not processed!											
2224												
2225	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2226	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2227												
2228												
2229												
2230	VAI (w025benzo(a)pyrene)											
2231												
2232	General Statistics											
2233					Number of Valid Observations	3				Number of Distinct Observations		3
2234												
2235												
2236	Warning: This data set only has 3 observations!											

	A	B	C	D	E	F	G	H	I	J	K	L
2237	Data set is too small to compute reliable and meaningful statistics and estimates!											
2238	The data set for variable VAI (w025benzo(a)pyrene) was not processed!											
2239												
2240	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2241	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2242												
2243												
2244												
2245	VAI (w025benzo(b)fluoranthene)											
2246												
2247	General Statistics											
2248	Number of Valid Observations	3				Number of Distinct Observations	3					
2249												
2250												
2251	Warning: This data set only has 3 observations!											
2252	Data set is too small to compute reliable and meaningful statistics and estimates!											
2253	The data set for variable VAI (w025benzo(b)fluoranthene) was not processed!											
2254												
2255	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2256	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2257												
2258												
2259												
2260	VAI (w025dibenzo(a,h)anthracene)											
2261												
2262	General Statistics											
2263	Number of Valid Observations	1				Number of Distinct Observations	1					
2264												
2265												
2266	Warning: This data set only has 1 observations!											
2267	Data set is too small to compute reliable and meaningful statistics and estimates!											
2268	The data set for variable VAI (w025dibenzo(a,h)anthracene) was not processed!											
2269												
2270	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2271	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2272												
2273												
2274												
2275	VAI (w025indeno(1,2,3-cd)pyrene)											
2276												
2277	General Statistics											
2278	Number of Valid Data	2				Number of Detected Data	1					
2279	Number of Distinct Detected Data	1				Number of Non-Detect Data	1					
2280						Percent Non-Detects	50.00%					
2281												
2282	Warning: This data set only has 2 observations!											
2283	Data set is too small to compute reliable and meaningful statistics and estimates!											
2284	The data set for variable VAI (w025indeno(1,2,3-cd)pyrene) was not processed!											
2285												
2286	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2287	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2288												

	A	B	C	D	E	F	G	H	I	J	K	L
2289												
2290												
2291	VAI (w025mcpp)											
2292												
2293	General Statistics											
2294					Number of Valid Data	3			Number of Detected Data			0
2295					Number of Distinct Detected Data	0			Number of Non-Detect Data			3
2296									Percent Non-Detects			100.00%
2297												
2298	Warning: This data set only has 3 observations!											
2299	Data set is too small to compute reliable and meaningful statistics and estimates!											
2300	The data set for variable VAI (w025mcpp) was not processed!											
2301												
2302	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2303	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2304												
2305												
2306												
2307	VAI (w026aldrin)											
2308												
2309	General Statistics											
2310					Number of Valid Data	2			Number of Detected Data			0
2311					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
2312									Percent Non-Detects			100.00%
2313												
2314	Warning: This data set only has 2 observations!											
2315	Data set is too small to compute reliable and meaningful statistics and estimates!											
2316	The data set for variable VAI (w026aldrin) was not processed!											
2317												
2318	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2319	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2320												
2321												
2322												
2323	VAI (w026arsenic)											
2324												
2325	General Statistics											
2326					Number of Valid Observations	2			Number of Distinct Observations			2
2327												
2328												
2329	Warning: This data set only has 2 observations!											
2330	Data set is too small to compute reliable and meaningful statistics and estimates!											
2331	The data set for variable VAI (w026arsenic) was not processed!											
2332												
2333	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2334	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2335												
2336												
2337												
2338	VAI (w026arsenic_diss)											
2339												
2340	General Statistics											

2341				Number of Valid Data	2					Number of Detected Data	1	
2342				Number of Distinct Detected Data	1					Number of Non-Detect Data	1	
2343										Percent Non-Detects	50.00%	
2344												
2345						**Warning: This data set only has 2 observations!**							
2346						**Data set is too small to compute reliable and meaningful statistics and estimates!**							
2347						**The data set for variable VAI (w026arsenic_diss) was not processed!**							
2348												
2349						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
2350						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
2351												
2352												
2353												
2354	**VAI (w026benzo(a)anthracene)**											
2355												
2356						**General Statistics**							
2357				Number of Valid Data	2					Number of Detected Data	0	
2358				Number of Distinct Detected Data	0					Number of Non-Detect Data	2	
2359										Percent Non-Detects	100.00%	
2360												
2361						**Warning: This data set only has 2 observations!**							
2362						**Data set is too small to compute reliable and meaningful statistics and estimates!**							
2363						**The data set for variable VAI (w026benzo(a)anthracene) was not processed!**							
2364												
2365						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
2366						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
2367												
2368												
2369												
2370	**VAI (w026benzo(a)pyrene)**											
2371												
2372						**General Statistics**							
2373				Number of Valid Data	2					Number of Detected Data	0	
2374				Number of Distinct Detected Data	0					Number of Non-Detect Data	2	
2375										Percent Non-Detects	100.00%	
2376												
2377						**Warning: This data set only has 2 observations!**							
2378						**Data set is too small to compute reliable and meaningful statistics and estimates!**							
2379						**The data set for variable VAI (w026benzo(a)pyrene) was not processed!**							
2380												
2381						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
2382						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
2383												
2384												
2385												
2386	**VAI (w026benzo(b)fluoranthene)**											
2387												
2388						**General Statistics**							
2389				Number of Valid Data	2					Number of Detected Data	0	
2390				Number of Distinct Detected Data	0					Number of Non-Detect Data	2	
2391										Percent Non-Detects	100.00%	
2392												

	A	B	C	D	E	F	G	H	I	J	K	L
2393	Warning: This data set only has 2 observations!											
2394	Data set is too small to compute reliable and meaningful statistics and estimates!											
2395	The data set for variable VAI (w026benzo(b)fluoranthene) was not processed!											
2396												
2397	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2398	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2399												
2400												
2401												
2402	VAI (w026dibenzo(a,h)anthracene)											
2403												
2404	General Statistics											
2405					Number of Valid Data	2			Number of Detected Data	0		
2406					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2407									Percent Non-Detects	100.00%		
2408												
2409	Warning: This data set only has 2 observations!											
2410	Data set is too small to compute reliable and meaningful statistics and estimates!											
2411	The data set for variable VAI (w026dibenzo(a,h)anthracene) was not processed!											
2412												
2413	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2414	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2415												
2416												
2417												
2418	VAI (w026indeno(1,2,3-cd)pyrene)											
2419												
2420	General Statistics											
2421					Number of Valid Data	2			Number of Detected Data	0		
2422					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2423									Percent Non-Detects	100.00%		
2424												
2425	Warning: This data set only has 2 observations!											
2426	Data set is too small to compute reliable and meaningful statistics and estimates!											
2427	The data set for variable VAI (w026indeno(1,2,3-cd)pyrene) was not processed!											
2428												
2429	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2430	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2431												
2432												
2433												
2434	VAI (w026mcpp)											
2435												
2436	General Statistics											
2437					Number of Valid Observations	1			Number of Distinct Observations	1		
2438												
2439												
2440	Warning: This data set only has 1 observations!											
2441	Data set is too small to compute reliable and meaningful statistics and estimates!											
2442	The data set for variable VAI (w026mcpp) was not processed!											
2443												
2444	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											

	A	B	C	D	E	F	G	H	I	J	K	L
2445	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2446												
2447												
2448												
2449	**VAI (w027aldrin)**											
2450												
2451	**General Statistics**											
2452	Number of Valid Observations	3				Number of Distinct Observations	3					
2453												
2454												
2455	**Warning: This data set only has 3 observations!**											
2456	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2457	**The data set for variable VAI (w027aldrin) was not processed!**											
2458												
2459	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2460	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2461												
2462												
2463												
2464	**VAI (w027arsenic)**											
2465												
2466	**General Statistics**											
2467	Number of Valid Observations	3				Number of Distinct Observations	3					
2468												
2469												
2470	**Warning: This data set only has 3 observations!**											
2471	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2472	**The data set for variable VAI (w027arsenic) was not processed!**											
2473												
2474	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2475	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2476												
2477												
2478												
2479	**VAI (w027arsenic_diss)**											
2480												
2481	**General Statistics**											
2482	Number of Valid Data	3				Number of Detected Data	2					
2483	Number of Distinct Detected Data	2				Number of Non-Detect Data	1					
2484						Percent Non-Detects	33.33%					
2485												
2486	**Warning: This data set only has 3 observations!**											
2487	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2488	**The data set for variable VAI (w027arsenic_diss) was not processed!**											
2489												
2490	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2491	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2492												
2493												
2494												
2495	**VAI (w027benzo(a)anthracene)**											
2496												

	A	B	C	D	E	F	G	H	I	J	K	L
2497	General Statistics											
2498	Number of Valid Observations					4	Number of Distinct Observations					4
2499												
2500												
2501	Warning: This data set only has 4 observations!											
2502	Data set is too small to compute reliable and meaningful statistics and estimates!											
2503	The data set for variable VAI (w027benzo(a)anthracene) was not processed!											
2504												
2505	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2506	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2507												
2508												
2509												
2510	VAI (w027benzo(a)pyrene)											
2511												
2512	General Statistics											
2513	Number of Valid Observations					3	Number of Distinct Observations					3
2514												
2515												
2516	Warning: This data set only has 3 observations!											
2517	Data set is too small to compute reliable and meaningful statistics and estimates!											
2518	The data set for variable VAI (w027benzo(a)pyrene) was not processed!											
2519												
2520	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2521	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2522												
2523												
2524												
2525	VAI (w027benzo(b)fluoranthene)											
2526												
2527	General Statistics											
2528	Number of Valid Observations					4	Number of Distinct Observations					4
2529												
2530												
2531	Warning: This data set only has 4 observations!											
2532	Data set is too small to compute reliable and meaningful statistics and estimates!											
2533	The data set for variable VAI (w027benzo(b)fluoranthene) was not processed!											
2534												
2535	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2536	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2537												
2538												
2539												
2540	VAI (w027dibenzo(a,h)anthracene)											
2541												
2542	General Statistics											
2543	Number of Valid Data					4	Number of Detected Data					2
2544	Number of Distinct Detected Data					2	Number of Non-Detect Data					2
2545							Percent Non-Detects					50.00%
2546												
2547	Warning: This data set only has 4 observations!											
2548	Data set is too small to compute reliable and meaningful statistics and estimates!											

	A	B	C	D	E	F	G	H	I	J	K	L
2549	The data set for variable VAl (w027dibenzo(a,h)anthracene) was not processed!											
2550												
2551	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2552	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2553												
2554												
2555												
2556	VAl (w027indeno(1,2,3-cd)pyrene)											
2557												
2558	General Statistics											
2559	Number of Valid Observations	2				Number of Distinct Observations	2					
2560												
2561												
2562	Warning: This data set only has 2 observations!											
2563	Data set is too small to compute reliable and meaningful statistics and estimates!											
2564	The data set for variable VAl (w027indeno(1,2,3-cd)pyrene) was not processed!											
2565												
2566	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2567	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2568												
2569												
2570												
2571	VAl (w027mcpp)											
2572												
2573	General Statistics											
2574	Number of Valid Data	3				Number of Detected Data	1					
2575	Number of Distinct Detected Data	1				Number of Non-Detect Data	2					
2576						Percent Non-Detects	66.67%					
2577												
2578	Warning: This data set only has 3 observations!											
2579	Data set is too small to compute reliable and meaningful statistics and estimates!											
2580	The data set for variable VAl (w027mcpp) was not processed!											
2581												
2582	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2583	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2584												
2585												
2586												
2587	VAl (w028aldrin)											
2588												
2589	General Statistics											
2590	Number of Valid Data	2				Number of Detected Data	0					
2591	Number of Distinct Detected Data	0				Number of Non-Detect Data	2					
2592						Percent Non-Detects	100.00%					
2593												
2594	Warning: This data set only has 2 observations!											
2595	Data set is too small to compute reliable and meaningful statistics and estimates!											
2596	The data set for variable VAl (w028aldrin) was not processed!											
2597												
2598	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2599	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2600												

	A	B	C	D	E	F	G	H	I	J	K	L
2601												
2602												
2603	**VAI (w028arsenic)**											
2604												
2605	**General Statistics**											
2606					Number of Valid Observations	2			Number of Distinct Observations	2		
2607												
2608												
2609	**Warning: This data set only has 2 observations!**											
2610	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2611	**The data set for variable VAI (w028arsenic) was not processed!**											
2612												
2613	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2614	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2615												
2616												
2617												
2618	**VAI (w028arsenic_diss)**											
2619												
2620	**General Statistics**											
2621					Number of Valid Data	2			Number of Detected Data	1		
2622					Number of Distinct Detected Data	1			Number of Non-Detect Data	1		
2623									Percent Non-Detects	50.00%		
2624												
2625	**Warning: This data set only has 2 observations!**											
2626	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2627	**The data set for variable VAI (w028arsenic_diss) was not processed!**											
2628												
2629	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2630	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2631												
2632												
2633												
2634	**VAI (w028benzo(a)anthracene)**											
2635												
2636	**General Statistics**											
2637					Number of Valid Data	2			Number of Detected Data	0		
2638					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2639									Percent Non-Detects	100.00%		
2640												
2641	**Warning: This data set only has 2 observations!**											
2642	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2643	**The data set for variable VAI (w028benzo(a)anthracene) was not processed!**											
2644												
2645	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2646	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2647												
2648												
2649												
2650	**VAI (w028benzo(a)pyrene)**											
2651												
2652	**General Statistics**											

2653				Number of Valid Data	2					Number of Detected Data	0	
2654				Number of Distinct Detected Data	0					Number of Non-Detect Data	2	
2655										Percent Non-Detects	100.00%	
2656												
2657						**Warning: This data set only has 2 observations!**							
2658						**Data set is too small to compute reliable and meaningful statistics and estimates!**							
2659						**The data set for variable VAl (w028benzo(a)pyrene) was not processed!**							
2660												
2661						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
2662						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
2663												
2664												
2665												
2666	**VAl (w028benzo(b)fluoranthene)**											
2667												
2668						**General Statistics**							
2669				Number of Valid Data	2					Number of Detected Data	0	
2670				Number of Distinct Detected Data	0					Number of Non-Detect Data	2	
2671										Percent Non-Detects	100.00%	
2672												
2673						**Warning: This data set only has 2 observations!**							
2674						**Data set is too small to compute reliable and meaningful statistics and estimates!**							
2675						**The data set for variable VAl (w028benzo(b)fluoranthene) was not processed!**							
2676												
2677						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
2678						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
2679												
2680												
2681												
2682	**VAl (w028dibenzo(a,h)anthracene)**											
2683												
2684						**General Statistics**							
2685				Number of Valid Data	2					Number of Detected Data	0	
2686				Number of Distinct Detected Data	0					Number of Non-Detect Data	2	
2687										Percent Non-Detects	100.00%	
2688												
2689						**Warning: This data set only has 2 observations!**							
2690						**Data set is too small to compute reliable and meaningful statistics and estimates!**							
2691						**The data set for variable VAl (w028dibenzo(a,h)anthracene) was not processed!**							
2692												
2693						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
2694						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
2695												
2696												
2697												
2698	**VAl (w028indeno(1,2,3-cd)pyrene)**											
2699												
2700						**General Statistics**							
2701				Number of Valid Data	2					Number of Detected Data	0	
2702				Number of Distinct Detected Data	0					Number of Non-Detect Data	2	
2703										Percent Non-Detects	100.00%	
2704												

	A	B	C	D	E	F	G	H	I	J	K	L
2705	Warning: This data set only has 2 observations!											
2706	Data set is too small to compute reliable and meaningful statistics and estimates!											
2707	The data set for variable VAI (w028indeno(1,2,3-cd)pyrene) was not processed!											
2708												
2709	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2710	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2711												
2712												
2713												
2714	VAI (w028mcpp)											
2715												
2716	General Statistics											
2717					Number of Valid Data	2			Number of Detected Data	0		
2718					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2719									Percent Non-Detects	100.00%		
2720												
2721	Warning: This data set only has 2 observations!											
2722	Data set is too small to compute reliable and meaningful statistics and estimates!											
2723	The data set for variable VAI (w028mcpp) was not processed!											
2724												
2725	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2726	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2727												
2728												
2729												
2730	VAI (w029aldrin)											
2731												
2732	General Statistics											
2733					Number of Valid Data	2			Number of Detected Data	0		
2734					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2735									Percent Non-Detects	100.00%		
2736												
2737	Warning: This data set only has 2 observations!											
2738	Data set is too small to compute reliable and meaningful statistics and estimates!											
2739	The data set for variable VAI (w029aldrin) was not processed!											
2740												
2741	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2742	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2743												
2744												
2745												
2746	VAI (w029arsenic)											
2747												
2748	General Statistics											
2749					Number of Valid Observations	1			Number of Distinct Observations	1		
2750												
2751												
2752	Warning: This data set only has 1 observations!											
2753	Data set is too small to compute reliable and meaningful statistics and estimates!											
2754	The data set for variable VAI (w029arsenic) was not processed!											
2755												
2756	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											

	A	B	C	D	E	F	G	H	I	J	K	L
2757	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2758												
2759												
2760												
2761	VAI (w029arsenic_diss)											
2762												
2763	General Statistics											
2764						Number of Valid Observations	1			Number of Distinct Observations	1	
2765												
2766												
2767	Warning: This data set only has 1 observations!											
2768	Data set is too small to compute reliable and meaningful statistics and estimates!											
2769	The data set for variable VAI (w029arsenic_diss) was not processed!											
2770												
2771	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2772	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2773												
2774												
2775												
2776	VAI (w029benzo(a)anthracene)											
2777												
2778	General Statistics											
2779						Number of Valid Data	2			Number of Detected Data	0	
2780						Number of Distinct Detected Data	0			Number of Non-Detect Data	2	
2781										Percent Non-Detects	100.00%	
2782												
2783	Warning: This data set only has 2 observations!											
2784	Data set is too small to compute reliable and meaningful statistics and estimates!											
2785	The data set for variable VAI (w029benzo(a)anthracene) was not processed!											
2786												
2787	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2788	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2789												
2790												
2791												
2792	VAI (w029benzo(a)pyrene)											
2793												
2794	General Statistics											
2795						Number of Valid Data	2			Number of Detected Data	0	
2796						Number of Distinct Detected Data	0			Number of Non-Detect Data	2	
2797										Percent Non-Detects	100.00%	
2798												
2799	Warning: This data set only has 2 observations!											
2800	Data set is too small to compute reliable and meaningful statistics and estimates!											
2801	The data set for variable VAI (w029benzo(a)pyrene) was not processed!											
2802												
2803	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2804	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2805												
2806												
2807												
2808	VAI (w029benzo(b)fluoranthene)											

	A	B	C	D	E	F	G	H	I	J	K	L
2809												
2810						General Statistics						
2811						Number of Valid Data	2			Number of Detected Data		0
2812						Number of Distinct Detected Data	0			Number of Non-Detect Data		2
2813										Percent Non-Detects		100.00%
2814												
2815						Warning: This data set only has 2 observations!						
2816						Data set is too small to compute reliable and meaningful statistics and estimates!						
2817						The data set for variable VAI (w029benzo(b)fluoranthene) was not processed!						
2818												
2819						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
2820						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
2821												
2822												
2823												
2824	VAI (w029dibenzo(a,h)anthracene)											
2825												
2826						General Statistics						
2827						Number of Valid Data	2			Number of Detected Data		0
2828						Number of Distinct Detected Data	0			Number of Non-Detect Data		2
2829										Percent Non-Detects		100.00%
2830												
2831						Warning: This data set only has 2 observations!						
2832						Data set is too small to compute reliable and meaningful statistics and estimates!						
2833						The data set for variable VAI (w029dibenzo(a,h)anthracene) was not processed!						
2834												
2835						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
2836						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
2837												
2838												
2839												
2840	VAI (w029indeno(1,2,3-cd)pyrene)											
2841												
2842						General Statistics						
2843						Number of Valid Data	2			Number of Detected Data		0
2844						Number of Distinct Detected Data	0			Number of Non-Detect Data		2
2845										Percent Non-Detects		100.00%
2846												
2847						Warning: This data set only has 2 observations!						
2848						Data set is too small to compute reliable and meaningful statistics and estimates!						
2849						The data set for variable VAI (w029indeno(1,2,3-cd)pyrene) was not processed!						
2850												
2851						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
2852						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
2853												
2854												
2855												
2856	VAI (w029mcpp)											
2857												
2858						General Statistics						
2859						Number of Valid Data	2			Number of Detected Data		0
2860						Number of Distinct Detected Data	0			Number of Non-Detect Data		2

2861											Percent Non-Detects	100.00%
2862												
2863	Warning: This data set only has 2 observations!											
2864	Data set is too small to compute reliable and meaningful statistics and estimates!											
2865	The data set for variable VAI (w029mcpp) was not processed!											
2866												
2867	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2868	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2869												
2870												
2871												
2872	VAI (w030aldrin)											
2873												
2874	General Statistics											
2875						Number of Valid Data	2				Number of Detected Data	1
2876						Number of Distinct Detected Data	1				Number of Non-Detect Data	1
2877											Percent Non-Detects	50.00%
2878												
2879	Warning: This data set only has 2 observations!											
2880	Data set is too small to compute reliable and meaningful statistics and estimates!											
2881	The data set for variable VAI (w030aldrin) was not processed!											
2882												
2883	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2884	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2885												
2886												
2887												
2888	VAI (w030arsenic)											
2889												
2890	General Statistics											
2891						Number of Valid Observations	2				Number of Distinct Observations	2
2892												
2893												
2894	Warning: This data set only has 2 observations!											
2895	Data set is too small to compute reliable and meaningful statistics and estimates!											
2896	The data set for variable VAI (w030arsenic) was not processed!											
2897												
2898	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2899	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2900												
2901												
2902												
2903	VAI (w030arsenic_diss)											
2904												
2905	General Statistics											
2906						Number of Valid Data	2				Number of Detected Data	1
2907						Number of Distinct Detected Data	1				Number of Non-Detect Data	1
2908											Percent Non-Detects	50.00%
2909												
2910	Warning: This data set only has 2 observations!											
2911	Data set is too small to compute reliable and meaningful statistics and estimates!											
2912	The data set for variable VAI (w030arsenic_diss) was not processed!											

	A	B	C	D	E	F	G	H	I	J	K	L
2913												
2914	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2915	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2916												
2917												
2918												
2919	VAI (w030benzo(a)anthracene)											
2920												
2921	General Statistics											
2922					Number of Valid Data	2			Number of Detected Data	0		
2923					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2924									Percent Non-Detects	100.00%		
2925												
2926	Warning: This data set only has 2 observations!											
2927	Data set is too small to compute reliable and meaningful statistics and estimates!											
2928	The data set for variable VAI (w030benzo(a)anthracene) was not processed!											
2929												
2930	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2931	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2932												
2933												
2934												
2935	VAI (w030benzo(a)pyrene)											
2936												
2937	General Statistics											
2938					Number of Valid Data	2			Number of Detected Data	0		
2939					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2940									Percent Non-Detects	100.00%		
2941												
2942	Warning: This data set only has 2 observations!											
2943	Data set is too small to compute reliable and meaningful statistics and estimates!											
2944	The data set for variable VAI (w030benzo(a)pyrene) was not processed!											
2945												
2946	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2947	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2948												
2949												
2950												
2951	VAI (w030benzo(b)fluoranthene)											
2952												
2953	General Statistics											
2954					Number of Valid Data	2			Number of Detected Data	0		
2955					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
2956									Percent Non-Detects	100.00%		
2957												
2958	Warning: This data set only has 2 observations!											
2959	Data set is too small to compute reliable and meaningful statistics and estimates!											
2960	The data set for variable VAI (w030benzo(b)fluoranthene) was not processed!											
2961												
2962	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2963	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2964												

	A	B	C	D	E	F	G	H	I	J	K	L
2965												
2966												
2967	VAI (w030dibenzo(a,h)anthracene)											
2968												
2969	General Statistics											
2970					Number of Valid Data	2			Number of Detected Data			0
2971					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
2972									Percent Non-Detects			100.00%
2973												
2974	Warning: This data set only has 2 observations!											
2975	Data set is too small to compute reliable and meaningful statistics and estimates!											
2976	The data set for variable VAI (w030dibenzo(a,h)anthracene) was not processed!											
2977												
2978	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2979	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2980												
2981												
2982												
2983	VAI (w030indeno(1,2,3-cd)pyrene)											
2984												
2985	General Statistics											
2986					Number of Valid Data	2			Number of Detected Data			0
2987					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
2988									Percent Non-Detects			100.00%
2989												
2990	Warning: This data set only has 2 observations!											
2991	Data set is too small to compute reliable and meaningful statistics and estimates!											
2992	The data set for variable VAI (w030indeno(1,2,3-cd)pyrene) was not processed!											
2993												
2994	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
2995	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
2996												
2997												
2998												
2999	VAI (w030mcpp)											
3000												
3001	General Statistics											
3002					Number of Valid Data	2			Number of Detected Data			0
3003					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
3004									Percent Non-Detects			100.00%
3005												
3006	Warning: This data set only has 2 observations!											
3007	Data set is too small to compute reliable and meaningful statistics and estimates!											
3008	The data set for variable VAI (w030mcpp) was not processed!											
3009												
3010	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3011	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3012												
3013												
3014												
3015	VAI (w031aldrin)											
3016												

	A	B	C	D	E	F	G	H	I	J	K	L
3017	**General Statistics**											
3018	Number of Valid Observations					2	Number of Distinct Observations					2
3019												
3020												
3021	**Warning: This data set only has 2 observations!**											
3022	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3023	**The data set for variable VAI (w031aldrin) was not processed!**											
3024												
3025	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3026	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3027												
3028												
3029												
3030	**VAI (w031arsenic)**											
3031												
3032	**General Statistics**											
3033	Number of Valid Observations					2	Number of Distinct Observations					2
3034												
3035												
3036	**Warning: This data set only has 2 observations!**											
3037	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3038	**The data set for variable VAI (w031arsenic) was not processed!**											
3039												
3040	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3041	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3042												
3043												
3044												
3045	**VAI (w031arsenic_diss)**											
3046												
3047	**General Statistics**											
3048	Number of Valid Data					2	Number of Detected Data					1
3049	Number of Distinct Detected Data					1	Number of Non-Detect Data					1
3050							Percent Non-Detects					50.00%
3051												
3052	**Warning: This data set only has 2 observations!**											
3053	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3054	**The data set for variable VAI (w031arsenic_diss) was not processed!**											
3055												
3056	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3057	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3058												
3059												
3060												
3061	**VAI (w031benzo(a)anthracene)**											
3062												
3063	**General Statistics**											
3064	Number of Valid Data					2	Number of Detected Data					1
3065	Number of Distinct Detected Data					1	Number of Non-Detect Data					1
3066							Percent Non-Detects					50.00%
3067												
3068	**Warning: This data set only has 2 observations!**											

	A	B	C	D	E	F	G	H	I	J	K	L
3069	Data set is too small to compute reliable and meaningful statistics and estimates!											
3070	The data set for variable VAI (w031benzo(a)anthracene) was not processed!											
3071												
3072	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3073	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3074												
3075												
3076												
3077	VAI (w031benzo(a)pyrene)											
3078												
3079	General Statistics											
3080					Number of Valid Data	2			Number of Detected Data	1		
3081					Number of Distinct Detected Data	1			Number of Non-Detect Data	1		
3082									Percent Non-Detects	50.00%		
3083												
3084	Warning: This data set only has 2 observations!											
3085	Data set is too small to compute reliable and meaningful statistics and estimates!											
3086	The data set for variable VAI (w031benzo(a)pyrene) was not processed!											
3087												
3088	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3089	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3090												
3091												
3092												
3093	VAI (w031benzo(b)fluoranthene)											
3094												
3095	General Statistics											
3096					Number of Valid Data	2			Number of Detected Data	1		
3097					Number of Distinct Detected Data	1			Number of Non-Detect Data	1		
3098									Percent Non-Detects	50.00%		
3099												
3100	Warning: This data set only has 2 observations!											
3101	Data set is too small to compute reliable and meaningful statistics and estimates!											
3102	The data set for variable VAI (w031benzo(b)fluoranthene) was not processed!											
3103												
3104	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3105	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3106												
3107												
3108												
3109	VAI (w031dibenzo(a,h)anthracene)											
3110												
3111	General Statistics											
3112					Number of Valid Data	2			Number of Detected Data	1		
3113					Number of Distinct Detected Data	1			Number of Non-Detect Data	1		
3114									Percent Non-Detects	50.00%		
3115												
3116	Warning: This data set only has 2 observations!											
3117	Data set is too small to compute reliable and meaningful statistics and estimates!											
3118	The data set for variable VAI (w031dibenzo(a,h)anthracene) was not processed!											
3119												
3120	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											

	A	B	C	D	E	F	G	H	I	J	K	L
3121	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3122												
3123												
3124												
3125	VAI (w031indeno(1,2,3-cd)pyrene)											
3126												
3127	General Statistics											
3128					Number of Valid Data	2			Number of Detected Data	1		
3129					Number of Distinct Detected Data	1			Number of Non-Detect Data	1		
3130									Percent Non-Detects	50.00%		
3131												
3132	Warning: This data set only has 2 observations!											
3133	Data set is too small to compute reliable and meaningful statistics and estimates!											
3134	The data set for variable VAI (w031indeno(1,2,3-cd)pyrene) was not processed!											
3135												
3136	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3137	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3138												
3139												
3140												
3141	VAI (w031mcpp)											
3142												
3143	General Statistics											
3144					Number of Valid Data	2			Number of Detected Data	0		
3145					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
3146									Percent Non-Detects	100.00%		
3147												
3148	Warning: This data set only has 2 observations!											
3149	Data set is too small to compute reliable and meaningful statistics and estimates!											
3150	The data set for variable VAI (w031mcpp) was not processed!											
3151												
3152	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3153	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3154												
3155												
3156												
3157	VAI (w032aldrin)											
3158												
3159	General Statistics											
3160					Number of Valid Observations	2			Number of Distinct Observations	2		
3161												
3162												
3163	Warning: This data set only has 2 observations!											
3164	Data set is too small to compute reliable and meaningful statistics and estimates!											
3165	The data set for variable VAI (w032aldrin) was not processed!											
3166												
3167	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3168	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3169												
3170												
3171												
3172	VAI (w032arsenic)											

	A	B	C	D	E	F	G	H	I	J	K	L
3173												
3174						General Statistics						
3175						Number of Valid Observations	2			Number of Distinct Observations	2	
3176												
3177												
3178						Warning: This data set only has 2 observations!						
3179						Data set is too small to compute reliable and meaningful statistics and estimates!						
3180						The data set for variable VAl (w032arsenic) was not processed!						
3181												
3182						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3183						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3184												
3185												
3186												
3187	VAl (w032arsenic_diss)											
3188												
3189						General Statistics						
3190						Number of Valid Observations	2			Number of Distinct Observations	2	
3191												
3192												
3193						Warning: This data set only has 2 observations!						
3194						Data set is too small to compute reliable and meaningful statistics and estimates!						
3195						The data set for variable VAl (w032arsenic_diss) was not processed!						
3196												
3197						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3198						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3199												
3200												
3201												
3202	VAl (w032benzo(a)anthracene)											
3203												
3204						General Statistics						
3205						Number of Valid Observations	1			Number of Distinct Observations	1	
3206												
3207												
3208						Warning: This data set only has 1 observations!						
3209						Data set is too small to compute reliable and meaningful statistics and estimates!						
3210						The data set for variable VAl (w032benzo(a)anthracene) was not processed!						
3211												
3212						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3213						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3214												
3215												
3216												
3217	VAl (w032benzo(a)pyrene)											
3218												
3219						General Statistics						
3220						Number of Valid Observations	2			Number of Distinct Observations	2	
3221												
3222												
3223						Warning: This data set only has 2 observations!						
3224						Data set is too small to compute reliable and meaningful statistics and estimates!						

	A	B	C	D	E	F	G	H	I	J	K	L
3225	The data set for variable VAl (w032benzo(a)pyrene) was not processed!											
3226												
3227	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3228	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3229												
3230												
3231												
3232	VAl (w032benzo(b)fluoranthene)											
3233												
3234	General Statistics											
3235			Number of Valid Observations	2			Number of Distinct Observations	2				
3236												
3237												
3238	Warning: This data set only has 2 observations!											
3239	Data set is too small to compute reliable and meaningful statistics and estimates!											
3240	The data set for variable VAl (w032benzo(b)fluoranthene) was not processed!											
3241												
3242	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3243	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3244												
3245												
3246												
3247	VAl (w032dibenzo(a,h)anthracene)											
3248												
3249	General Statistics											
3250			Number of Valid Observations	2			Number of Distinct Observations	2				
3251												
3252												
3253	Warning: This data set only has 2 observations!											
3254	Data set is too small to compute reliable and meaningful statistics and estimates!											
3255	The data set for variable VAl (w032dibenzo(a,h)anthracene) was not processed!											
3256												
3257	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3258	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3259												
3260												
3261												
3262	VAl (w032indeno(1,2,3-cd)pyrene)											
3263												
3264	General Statistics											
3265			Number of Valid Observations	1			Number of Distinct Observations	1				
3266												
3267												
3268	Warning: This data set only has 1 observations!											
3269	Data set is too small to compute reliable and meaningful statistics and estimates!											
3270	The data set for variable VAl (w032indeno(1,2,3-cd)pyrene) was not processed!											
3271												
3272	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3273	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3274												
3275												
3276												

	A	B	C	D	E	F	G	H	I	J	K	L
3277	VAI (w032mcpp)											
3278												
3279	General Statistics											
3280					Number of Valid Data	2			Number of Detected Data			0
3281					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
3282									Percent Non-Detects			100.00%
3283												
3284	Warning: This data set only has 2 observations!											
3285	Data set is too small to compute reliable and meaningful statistics and estimates!											
3286	The data set for variable VAI (w032mcpp) was not processed!											
3287												
3288	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3289	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3290												
3291												
3292												
3293	VAI (w033aldrin)											
3294												
3295	General Statistics											
3296					Number of Valid Observations	3			Number of Distinct Observations			3
3297												
3298												
3299	Warning: This data set only has 3 observations!											
3300	Data set is too small to compute reliable and meaningful statistics and estimates!											
3301	The data set for variable VAI (w033aldrin) was not processed!											
3302												
3303	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3304	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3305												
3306												
3307												
3308	VAI (w033arsenic)											
3309												
3310	General Statistics											
3311					Number of Valid Observations	2			Number of Distinct Observations			2
3312												
3313												
3314	Warning: This data set only has 2 observations!											
3315	Data set is too small to compute reliable and meaningful statistics and estimates!											
3316	The data set for variable VAI (w033arsenic) was not processed!											
3317												
3318	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3319	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3320												
3321												
3322												
3323	VAI (w033arsenic_diss)											
3324												
3325	General Statistics											
3326					Number of Valid Observations	2			Number of Distinct Observations			2
3327												
3328												

	A	B	C	D	E	F	G	H	I	J	K	L
3329	Warning: This data set only has 2 observations!											
3330	Data set is too small to compute reliable and meaningful statistics and estimates!											
3331	The data set for variable VAI (w033arsenic_diss) was not processed!											
3332												
3333	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3334	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3335												
3336												
3337												
3338	VAI (w033benzo(a)anthracene)											
3339												
3340	General Statistics											
3341	Number of Valid Observations	4					Number of Distinct Observations	4				
3342												
3343												
3344	Warning: This data set only has 4 observations!											
3345	Data set is too small to compute reliable and meaningful statistics and estimates!											
3346	The data set for variable VAI (w033benzo(a)anthracene) was not processed!											
3347												
3348	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3349	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3350												
3351												
3352												
3353	VAI (w033benzo(a)pyrene)											
3354												
3355	General Statistics											
3356	Number of Valid Observations	4					Number of Distinct Observations	4				
3357												
3358												
3359	Warning: This data set only has 4 observations!											
3360	Data set is too small to compute reliable and meaningful statistics and estimates!											
3361	The data set for variable VAI (w033benzo(a)pyrene) was not processed!											
3362												
3363	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3364	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3365												
3366												
3367												
3368	VAI (w033benzo(b)fluoranthene)											
3369												
3370	General Statistics											
3371	Number of Valid Observations	3					Number of Distinct Observations	3				
3372												
3373												
3374	Warning: This data set only has 3 observations!											
3375	Data set is too small to compute reliable and meaningful statistics and estimates!											
3376	The data set for variable VAI (w033benzo(b)fluoranthene) was not processed!											
3377												
3378	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3379	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3380												

	A	B	C	D	E	F	G	H	I	J	K	L
3381												
3382												
3383	VAI (w033chromium hexavalent)											
3384												
3385	General Statistics											
3386					Number of Valid Data	4			Number of Detected Data			2
3387					Number of Distinct Detected Data	2			Number of Non-Detect Data			2
3388									Percent Non-Detects			50.00%
3389												
3390	Warning: This data set only has 4 observations!											
3391	Data set is too small to compute reliable and meaningful statistics and estimates!											
3392	The data set for variable VAI (w033chromium hexavalent) was not processed!											
3393												
3394	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3395	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3396												
3397												
3398												
3399	VAI (w033dibenzo(a,h)anthracene)											
3400												
3401	General Statistics											
3402					Number of Valid Data	3			Number of Detected Data			2
3403					Number of Distinct Detected Data	2			Number of Non-Detect Data			1
3404									Percent Non-Detects			33.33%
3405												
3406	Warning: This data set only has 3 observations!											
3407	Data set is too small to compute reliable and meaningful statistics and estimates!											
3408	The data set for variable VAI (w033dibenzo(a,h)anthracene) was not processed!											
3409												
3410	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3411	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3412												
3413												
3414												
3415	VAI (w033indeno(1,2,3-cd)pyrene)											
3416												
3417	General Statistics											
3418					Number of Valid Observations	3			Number of Distinct Observations			3
3419												
3420												
3421	Warning: This data set only has 3 observations!											
3422	Data set is too small to compute reliable and meaningful statistics and estimates!											
3423	The data set for variable VAI (w033indeno(1,2,3-cd)pyrene) was not processed!											
3424												
3425	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3426	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3427												
3428												
3429												
3430	VAI (w033mcpp)											
3431												
3432	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
3433					Number of Valid Observations	1				Number of Distinct Observations		1
3434												
3435												
3436						Warning: This data set only has 1 observations!						
3437						Data set is too small to compute reliable and meaningful statistics and estimates!						
3438						The data set for variable VAI (w033mcpp) was not processed!						
3439												
3440						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3441						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3442												
3443												
3444												
3445	VAI (w034aldrin)											
3446												
3447						General Statistics						
3448					Number of Valid Observations	1				Number of Distinct Observations		1
3449												
3450												
3451						Warning: This data set only has 1 observations!						
3452						Data set is too small to compute reliable and meaningful statistics and estimates!						
3453						The data set for variable VAI (w034aldrin) was not processed!						
3454												
3455						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3456						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3457												
3458												
3459												
3460	VAI (w034arsenic)											
3461												
3462						General Statistics						
3463					Number of Valid Observations	2				Number of Distinct Observations		2
3464												
3465												
3466						Warning: This data set only has 2 observations!						
3467						Data set is too small to compute reliable and meaningful statistics and estimates!						
3468						The data set for variable VAI (w034arsenic) was not processed!						
3469												
3470						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3471						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3472												
3473												
3474												
3475	VAI (w034arsenic_diss)											
3476												
3477						General Statistics						
3478					Number of Valid Observations	2				Number of Distinct Observations		2
3479												
3480												
3481						Warning: This data set only has 2 observations!						
3482						Data set is too small to compute reliable and meaningful statistics and estimates!						
3483						The data set for variable VAI (w034arsenic_diss) was not processed!						
3484												

	A	B	C	D	E	F	G	H	I	J	K	L
3485	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3486	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3487												
3488												
3489												
3490	VAI (w034benzo(a)anthracene)											
3491												
3492	General Statistics											
3493					Number of Valid Data	2			Number of Detected Data	0		
3494					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
3495									Percent Non-Detects	100.00%		
3496												
3497	Warning: This data set only has 2 observations!											
3498	Data set is too small to compute reliable and meaningful statistics and estimates!											
3499	The data set for variable VAI (w034benzo(a)anthracene) was not processed!											
3500												
3501	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3502	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3503												
3504												
3505												
3506	VAI (w034benzo(a)pyrene)											
3507												
3508	General Statistics											
3509					Number of Valid Data	2			Number of Detected Data	0		
3510					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
3511									Percent Non-Detects	100.00%		
3512												
3513	Warning: This data set only has 2 observations!											
3514	Data set is too small to compute reliable and meaningful statistics and estimates!											
3515	The data set for variable VAI (w034benzo(a)pyrene) was not processed!											
3516												
3517	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3518	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3519												
3520												
3521												
3522	VAI (w034benzo(b)fluoranthene)											
3523												
3524	General Statistics											
3525					Number of Valid Data	2			Number of Detected Data	0		
3526					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
3527									Percent Non-Detects	100.00%		
3528												
3529	Warning: This data set only has 2 observations!											
3530	Data set is too small to compute reliable and meaningful statistics and estimates!											
3531	The data set for variable VAI (w034benzo(b)fluoranthene) was not processed!											
3532												
3533	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3534	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3535												
3536												

	A	B	C	D	E	F	G	H	I	J	K	L
3537												
3538	VAI (w034dibenzo(a,h)anthracene)											
3539												
3540	General Statistics											
3541					Number of Valid Data	2			Number of Detected Data			0
3542					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
3543									Percent Non-Detects			100.00%
3544												
3545	Warning: This data set only has 2 observations!											
3546	Data set is too small to compute reliable and meaningful statistics and estimates!											
3547	The data set for variable VAI (w034dibenzo(a,h)anthracene) was not processed!											
3548												
3549	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3550	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3551												
3552												
3553												
3554	VAI (w034indeno(1,2,3-cd)pyrene)											
3555												
3556	General Statistics											
3557					Number of Valid Data	2			Number of Detected Data			0
3558					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
3559									Percent Non-Detects			100.00%
3560												
3561	Warning: This data set only has 2 observations!											
3562	Data set is too small to compute reliable and meaningful statistics and estimates!											
3563	The data set for variable VAI (w034indeno(1,2,3-cd)pyrene) was not processed!											
3564												
3565	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3566	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3567												
3568												
3569												
3570	VAI (w034mcpp)											
3571												
3572	General Statistics											
3573					Number of Valid Data	2			Number of Detected Data			0
3574					Number of Distinct Detected Data	0			Number of Non-Detect Data			2
3575									Percent Non-Detects			100.00%
3576												
3577	Warning: This data set only has 2 observations!											
3578	Data set is too small to compute reliable and meaningful statistics and estimates!											
3579	The data set for variable VAI (w034mcpp) was not processed!											
3580												
3581	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3582	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3583												
3584												
3585												
3586	VAI (w035aldrin)											
3587												
3588	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
3589					Number of Valid Observations	2				Number of Distinct Observations		2
3590												
3591												
3592						Warning: This data set only has 2 observations!						
3593						Data set is too small to compute reliable and meaningful statistics and estimates!						
3594						The data set for variable VAl (w035aldrin) was not processed!						
3595												
3596						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3597						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3598												
3599												
3600												
3601	VAl (w035arsenic)											
3602												
3603						General Statistics						
3604					Number of Valid Observations	2				Number of Distinct Observations		2
3605												
3606												
3607						Warning: This data set only has 2 observations!						
3608						Data set is too small to compute reliable and meaningful statistics and estimates!						
3609						The data set for variable VAl (w035arsenic) was not processed!						
3610												
3611						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3612						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3613												
3614												
3615												
3616	VAl (w035arsenic_diss)											
3617												
3618						General Statistics						
3619					Number of Valid Data	2				Number of Detected Data		1
3620					Number of Distinct Detected Data	1				Number of Non-Detect Data		1
3621										Percent Non-Detects		50.00%
3622												
3623						Warning: This data set only has 2 observations!						
3624						Data set is too small to compute reliable and meaningful statistics and estimates!						
3625						The data set for variable VAl (w035arsenic_diss) was not processed!						
3626												
3627						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3628						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3629												
3630												
3631												
3632	VAl (w035benzo(a)anthracene)											
3633												
3634						General Statistics						
3635					Number of Valid Data	4				Number of Detected Data		3
3636					Number of Distinct Detected Data	3				Number of Non-Detect Data		1
3637										Percent Non-Detects		25.00%
3638												
3639						Warning: This data set only has 4 observations!						
3640						Data set is too small to compute reliable and meaningful statistics and estimates!						

	A	B	C	D	E	F	G	H	I	J	K	L
3641	The data set for variable VAI (w035benzo(a)anthracene) was not processed!											
3642												
3643	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3644	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3645												
3646												
3647												
3648	VAI (w035benzo(a)pyrene)											
3649												
3650	General Statistics											
3651					Number of Valid Data	2			Number of Detected Data	1		
3652					Number of Distinct Detected Data	1			Number of Non-Detect Data	1		
3653									Percent Non-Detects	50.00%		
3654												
3655	Warning: This data set only has 2 observations!											
3656	Data set is too small to compute reliable and meaningful statistics and estimates!											
3657	The data set for variable VAI (w035benzo(a)pyrene) was not processed!											
3658												
3659	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3660	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3661												
3662												
3663												
3664	VAI (w035benzo(b)fluoranthene)											
3665												
3666	General Statistics											
3667					Number of Valid Observations	2			Number of Distinct Observations	2		
3668												
3669												
3670	Warning: This data set only has 2 observations!											
3671	Data set is too small to compute reliable and meaningful statistics and estimates!											
3672	The data set for variable VAI (w035benzo(b)fluoranthene) was not processed!											
3673												
3674	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3675	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3676												
3677												
3678												
3679	VAI (w035dibenzo(a,h)anthracene)											
3680												
3681	General Statistics											
3682					Number of Valid Data	2			Number of Detected Data	1		
3683					Number of Distinct Detected Data	1			Number of Non-Detect Data	1		
3684									Percent Non-Detects	50.00%		
3685												
3686	Warning: This data set only has 2 observations!											
3687	Data set is too small to compute reliable and meaningful statistics and estimates!											
3688	The data set for variable VAI (w035dibenzo(a,h)anthracene) was not processed!											
3689												
3690	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3691	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3692												

	A	B	C	D	E	F	G	H	I	J	K	L
3693												
3694												
3695	**VAI (w035indeno(1,2,3-cd)pyrene)**											
3696												
3697	**General Statistics**											
3698	Number of Valid Observations					2	Number of Distinct Observations					2
3699												
3700												
3701	**Warning: This data set only has 2 observations!**											
3702	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3703	**The data set for variable VAI (w035indeno(1,2,3-cd)pyrene) was not processed!**											
3704												
3705	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3706	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3707												
3708												
3709												
3710	**VAI (w035mcpp)**											
3711												
3712	**General Statistics**											
3713	Number of Valid Data					2	Number of Detected Data					1
3714	Number of Distinct Detected Data					1	Number of Non-Detect Data					1
3715							Percent Non-Detects					50.00%
3716												
3717	**Warning: This data set only has 2 observations!**											
3718	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3719	**The data set for variable VAI (w035mcpp) was not processed!**											
3720												
3721	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3722	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3723												
3724												
3725												
3726	**VAI (w036aldrin)**											
3727												
3728	**General Statistics**											
3729	Number of Valid Data					3	Number of Detected Data					0
3730	Number of Distinct Detected Data					0	Number of Non-Detect Data					3
3731							Percent Non-Detects					100.00%
3732												
3733	**Warning: This data set only has 3 observations!**											
3734	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3735	**The data set for variable VAI (w036aldrin) was not processed!**											
3736												
3737	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3738	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3739												
3740												
3741												
3742	**VAI (w036arsenic)**											
3743												
3744	**General Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
3745	Number of Valid Observations					2	Number of Distinct Observations					2
3746												
3747												
3748	**Warning: This data set only has 2 observations!**											
3749	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3750	**The data set for variable VAI (w036arsenic) was not processed!**											
3751												
3752	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3753	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3754												
3755												
3756												
3757	**VAI (w036arsenic_diss)**											
3758												
3759	**General Statistics**											
3760	Number of Valid Data					2	Number of Detected Data					1
3761	Number of Distinct Detected Data					1	Number of Non-Detect Data					1
3762							Percent Non-Detects					50.00%
3763												
3764	**Warning: This data set only has 2 observations!**											
3765	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3766	**The data set for variable VAI (w036arsenic_diss) was not processed!**											
3767												
3768	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3769	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3770												
3771												
3772												
3773	**VAI (w036benzo(a)anthracene)**											
3774												
3775	**General Statistics**											
3776	Number of Valid Data					2	Number of Detected Data					0
3777	Number of Distinct Detected Data					0	Number of Non-Detect Data					2
3778							Percent Non-Detects					100.00%
3779												
3780	**Warning: This data set only has 2 observations!**											
3781	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3782	**The data set for variable VAI (w036benzo(a)anthracene) was not processed!**											
3783												
3784	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3785	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3786												
3787												
3788												
3789	**VAI (w036benzo(a)pyrene)**											
3790												
3791	**General Statistics**											
3792	Number of Valid Data					2	Number of Detected Data					0
3793	Number of Distinct Detected Data					0	Number of Non-Detect Data					2
3794							Percent Non-Detects					100.00%
3795												
3796	**Warning: This data set only has 2 observations!**											

	A	B	C	D	E	F	G	H	I	J	K	L
3797	Data set is too small to compute reliable and meaningful statistics and estimates!											
3798	The data set for variable VAl (w036benzo(a)pyrene) was not processed!											
3799												
3800	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3801	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3802												
3803												
3804												
3805	VAl (w036benzo(b)fluoranthene)											
3806												
3807	General Statistics											
3808	Number of Valid Data	2		Number of Detected Data	0							
3809	Number of Distinct Detected Data	0		Number of Non-Detect Data	2							
3810				Percent Non-Detects	100.00%							
3811												
3812	Warning: This data set only has 2 observations!											
3813	Data set is too small to compute reliable and meaningful statistics and estimates!											
3814	The data set for variable VAl (w036benzo(b)fluoranthene) was not processed!											
3815												
3816	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3817	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3818												
3819												
3820												
3821	VAl (w036dibenzo(a,h)anthracene)											
3822												
3823	General Statistics											
3824	Number of Valid Data	2		Number of Detected Data	0							
3825	Number of Distinct Detected Data	0		Number of Non-Detect Data	2							
3826				Percent Non-Detects	100.00%							
3827												
3828	Warning: This data set only has 2 observations!											
3829	Data set is too small to compute reliable and meaningful statistics and estimates!											
3830	The data set for variable VAl (w036dibenzo(a,h)anthracene) was not processed!											
3831												
3832	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3833	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3834												
3835												
3836												
3837	VAl (w036indeno(1,2,3-cd)pyrene)											
3838												
3839	General Statistics											
3840	Number of Valid Observations	1		Number of Distinct Observations	1							
3841												
3842												
3843	Warning: This data set only has 1 observations!											
3844	Data set is too small to compute reliable and meaningful statistics and estimates!											
3845	The data set for variable VAl (w036indeno(1,2,3-cd)pyrene) was not processed!											
3846												
3847	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3848	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											

	A	B	C	D	E	F	G	H	I	J	K	L
3849												
3850												
3851												
3852	VAI (w036mcpp)											
3853												
3854						General Statistics						
3855					Number of Valid Data	2		Number of Detected Data				0
3856					Number of Distinct Detected Data	0		Number of Non-Detect Data				2
3857								Percent Non-Detects				100.00%
3858												
3859						Warning: This data set only has 2 observations!						
3860						Data set is too small to compute reliable and meaningful statistics and estimates!						
3861						The data set for variable VAI (w036mcpp) was not processed!						
3862												
3863						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3864						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3865												
3866												
3867												
3868	VAI (w037aldrin)											
3869												
3870						General Statistics						
3871					Number of Valid Data	2		Number of Detected Data				0
3872					Number of Distinct Detected Data	0		Number of Non-Detect Data				2
3873								Percent Non-Detects				100.00%
3874												
3875						Warning: This data set only has 2 observations!						
3876						Data set is too small to compute reliable and meaningful statistics and estimates!						
3877						The data set for variable VAI (w037aldrin) was not processed!						
3878												
3879						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3880						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3881												
3882												
3883												
3884	VAI (w037arsenic)											
3885												
3886						General Statistics						
3887					Number of Valid Observations	2		Number of Distinct Observations				2
3888												
3889												
3890						Warning: This data set only has 2 observations!						
3891						Data set is too small to compute reliable and meaningful statistics and estimates!						
3892						The data set for variable VAI (w037arsenic) was not processed!						
3893												
3894						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
3895						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
3896												
3897												
3898												
3899	VAI (w037arsenic_diss)											
3900												

	A	B	C	D	E	F	G	H	I	J	K	L
3901	**General Statistics**											
3902					Number of Valid Observations	2				Number of Distinct Observations		2
3903												
3904												
3905	**Warning: This data set only has 2 observations!**											
3906	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3907	**The data set for variable VAI (w037arsenic_diss) was not processed!**											
3908												
3909	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3910	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3911												
3912												
3913												
3914	**VAI (w037benzo(a)anthracene)**											
3915												
3916	**General Statistics**											
3917					Number of Valid Data	2				Number of Detected Data		0
3918					Number of Distinct Detected Data	0				Number of Non-Detect Data		2
3919										Percent Non-Detects		100.00%
3920												
3921	**Warning: This data set only has 2 observations!**											
3922	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3923	**The data set for variable VAI (w037benzo(a)anthracene) was not processed!**											
3924												
3925	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3926	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3927												
3928												
3929												
3930	**VAI (w037benzo(a)pyrene)**											
3931												
3932	**General Statistics**											
3933					Number of Valid Data	2				Number of Detected Data		0
3934					Number of Distinct Detected Data	0				Number of Non-Detect Data		2
3935										Percent Non-Detects		100.00%
3936												
3937	**Warning: This data set only has 2 observations!**											
3938	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3939	**The data set for variable VAI (w037benzo(a)pyrene) was not processed!**											
3940												
3941	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3942	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3943												
3944												
3945												
3946	**VAI (w037benzo(b)fluoranthene)**											
3947												
3948	**General Statistics**											
3949					Number of Valid Data	2				Number of Detected Data		0
3950					Number of Distinct Detected Data	0				Number of Non-Detect Data		2
3951										Percent Non-Detects		100.00%
3952												

	A	B	C	D	E	F	G	H	I	J	K	L
3953	Warning: This data set only has 2 observations!											
3954	Data set is too small to compute reliable and meaningful statistics and estimates!											
3955	The data set for variable VAI (w037benzo(b)fluoranthene) was not processed!											
3956												
3957	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3958	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3959												
3960												
3961												
3962	VAI (w037dibenzo(a,h)anthracene)											
3963												
3964	General Statistics											
3965					Number of Valid Data	2			Number of Detected Data	0		
3966					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
3967									Percent Non-Detects	100.00%		
3968												
3969	Warning: This data set only has 2 observations!											
3970	Data set is too small to compute reliable and meaningful statistics and estimates!											
3971	The data set for variable VAI (w037dibenzo(a,h)anthracene) was not processed!											
3972												
3973	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3974	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3975												
3976												
3977												
3978	VAI (w037indeno(1,2,3-cd)pyrene)											
3979												
3980	General Statistics											
3981					Number of Valid Data	2			Number of Detected Data	0		
3982					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
3983									Percent Non-Detects	100.00%		
3984												
3985	Warning: This data set only has 2 observations!											
3986	Data set is too small to compute reliable and meaningful statistics and estimates!											
3987	The data set for variable VAI (w037indeno(1,2,3-cd)pyrene) was not processed!											
3988												
3989	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
3990	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
3991												
3992												
3993												
3994	VAI (w037mcpp)											
3995												
3996	General Statistics											
3997					Number of Valid Data	2			Number of Detected Data	0		
3998					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
3999									Percent Non-Detects	100.00%		
4000												
4001	Warning: This data set only has 2 observations!											
4002	Data set is too small to compute reliable and meaningful statistics and estimates!											
4003	The data set for variable VAI (w037mcpp) was not processed!											
4004												

	A	B	C	D	E	F	G	H	I	J	K	L
4005	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
4006	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
4007												
4008												
4009												
4010	VAI (w038aldrin)											
4011												
4012	General Statistics											
4013					Number of Valid Data	2			Number of Detected Data	0		
4014					Number of Distinct Detected Data	0			Number of Non-Detect Data	2		
4015									Percent Non-Detects	100.00%		
4016												
4017	Warning: This data set only has 2 observations!											
4018	Data set is too small to compute reliable and meaningful statistics and estimates!											
4019	The data set for variable VAI (w038aldrin) was not processed!											
4020												
4021	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
4022	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
4023												
4024												
4025												
4026	VAI (w038arsenic)											
4027												
4028	General Statistics											
4029					Number of Valid Observations	2			Number of Distinct Observations	2		
4030												
4031												
4032	Warning: This data set only has 2 observations!											
4033	Data set is too small to compute reliable and meaningful statistics and estimates!											
4034	The data set for variable VAI (w038arsenic) was not processed!											
4035												
4036	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
4037	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
4038												
4039												
4040												
4041	VAI (w038arsenic_diss)											
4042												
4043	General Statistics											
4044					Number of Valid Observations	2			Number of Distinct Observations	2		
4045												
4046												
4047	Warning: This data set only has 2 observations!											
4048	Data set is too small to compute reliable and meaningful statistics and estimates!											
4049	The data set for variable VAI (w038arsenic_diss) was not processed!											
4050												
4051	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
4052	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
4053												
4054												
4055												
4056	VAI (w038benzo(a)anthracene)											

	A	B	C	D	E	F	G	H	I	J	K	L
4057												
4058						General Statistics						
4059						Number of Valid Data	2			Number of Detected Data		0
4060						Number of Distinct Detected Data	0			Number of Non-Detect Data		2
4061										Percent Non-Detects		100.00%
4062												
4063						Warning: This data set only has 2 observations!						
4064						Data set is too small to compute reliable and meaningful statistics and estimates!						
4065						The data set for variable VAl (w038benzo(a)anthracene) was not processed!						
4066												
4067						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
4068						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
4069												
4070												
4071												
4072	VAl (w038benzo(a)pyrene)											
4073												
4074						General Statistics						
4075						Number of Valid Data	2			Number of Detected Data		0
4076						Number of Distinct Detected Data	0			Number of Non-Detect Data		2
4077										Percent Non-Detects		100.00%
4078												
4079						Warning: This data set only has 2 observations!						
4080						Data set is too small to compute reliable and meaningful statistics and estimates!						
4081						The data set for variable VAl (w038benzo(a)pyrene) was not processed!						
4082												
4083						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
4084						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
4085												
4086												
4087												
4088	VAl (w038benzo(b)fluoranthene)											
4089												
4090						General Statistics						
4091						Number of Valid Data	2			Number of Detected Data		0
4092						Number of Distinct Detected Data	0			Number of Non-Detect Data		2
4093										Percent Non-Detects		100.00%
4094												
4095						Warning: This data set only has 2 observations!						
4096						Data set is too small to compute reliable and meaningful statistics and estimates!						
4097						The data set for variable VAl (w038benzo(b)fluoranthene) was not processed!						
4098												
4099						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
4100						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
4101												
4102												
4103												
4104	VAl (w038dibenzo(a,h)anthracene)											
4105												
4106						General Statistics						
4107						Number of Valid Data	2			Number of Detected Data		0
4108						Number of Distinct Detected Data	0			Number of Non-Detect Data		2

4109											Percent Non-Detects	100.00%
4110												
4111	Warning: This data set only has 2 observations!											
4112	Data set is too small to compute reliable and meaningful statistics and estimates!											
4113	The data set for variable VAI (w038dibenzo(a,h)anthracene) was not processed!											
4114												
4115	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
4116	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
4117												
4118												
4119												
4120	VAI (w038indeno(1,2,3-cd)pyrene)											
4121												
4122	General Statistics											
4123						Number of Valid Data	2				Number of Detected Data	0
4124						Number of Distinct Detected Data	0				Number of Non-Detect Data	2
4125											Percent Non-Detects	100.00%
4126												
4127	Warning: This data set only has 2 observations!											
4128	Data set is too small to compute reliable and meaningful statistics and estimates!											
4129	The data set for variable VAI (w038indeno(1,2,3-cd)pyrene) was not processed!											
4130												
4131	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
4132	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
4133												
4134												
4135												
4136	VAI (w038mcpp)											
4137												
4138	General Statistics											
4139						Number of Valid Data	2				Number of Detected Data	0
4140						Number of Distinct Detected Data	0				Number of Non-Detect Data	2
4141											Percent Non-Detects	100.00%
4142												
4143	Warning: This data set only has 2 observations!											
4144	Data set is too small to compute reliable and meaningful statistics and estimates!											
4145	The data set for variable VAI (w038mcpp) was not processed!											
4146												
4147	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
4148	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
4149												
4150												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	Sheet1_a.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	VAI-STudyAreaWide (aldrin)											
10												
11						General Statistics						
12						Number of Valid Data	61			Number of Detected Data	34	
13						Number of Distinct Detected Data	34			Number of Non-Detect Data	27	
14										Percent Non-Detects	44.26%	
15												
16						Raw Statistics				Log-transformed Statistics		
17						Minimum Detected	2.96E-07			Minimum Detected	-15.03	
18						Maximum Detected	0.00405			Maximum Detected	-5.509	
19						Mean of Detected	0.0001216			Mean of Detected	-12.79	
20						SD of Detected	0.0006941			SD of Detected	1.42	
21						Minimum Non-Detect	3.41E-07			Minimum Non-Detect	-14.89	
22						Maximum Non-Detect	0.0018			Maximum Non-Detect	-6.32	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	60	
25	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	1	
26	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	98.36%	
27												
28						UCL Statistics						
29						Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only		
30						Shapiro Wilk Test Statistic	0.177			Shapiro Wilk Test Statistic	0.565	
31						5% Shapiro Wilk Critical Value	0.933			5% Shapiro Wilk Critical Value	0.933	
32						Data not Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level		
33												
34						Assuming Normal Distribution				Assuming Lognormal Distribution		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	0.0001712			Mean	-11.12	
37						SD	0.00053			SD	2.517	
38						95% DL/2 (t) UCL	0.0002846			95% H-Stat (DL/2) UCL	0.00109	
39												
40						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
41						MLE method failed to converge properly				Mean in Log Scale	-12.91	
42										SD in Log Scale	1.121	
43										Mean in Original Scale	6.884E-05	
44										SD in Original Scale	0.0005182	
45										95% t UCL	0.0001797	
46										95% Percentile Bootstrap UCL	0.0002015	
47										95% BCA Bootstrap UCL	0.0002681	
48												
49						Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only		
50						k star (bias corrected)	0.198			Data do not follow a Discernable Distribution (0.05)		
51						Theta Star	0.0006146					
52						nu star	13.46					

53												
54					A-D Test Statistic	11.22	**Nonparametric Statistics**					
55					5% A-D Critical Value	0.902					Kaplan-Meier (KM) Method	
56					K-S Test Statistic	0.902					Mean	6.882E-05
57					5% K-S Critical Value	0.167					SD	0.000514
58					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	6.68E-05
59											95% KM (t) UCL	0.0001804
60					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0001787
61					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0001797
62					Minimum	1E-12					95% KM (bootstrap t) UCL	0.0251
63					Maximum	0.00405					95% KM (BCA) UCL	0.0002017
64					Mean	8.299E-05					95% KM (Percentile Bootstrap) UCL	0.0002015
65					Median	1.24E-06					95% KM (Chebyshev) UCL	0.00036
66					SD	0.0005236					97.5% KM (Chebyshev) UCL	0.000486
67					k star	0.0976					99% KM (Chebyshev) UCL	0.0007334
68					Theta star	0.0008506						
69					Nu star	11.9	**Potential UCLs to Use**					
70					AppChi2	5.163					95% KM (Chebyshev) UCL	0.00036
71					95% Gamma Approximate UCL	0.0001913						
72					95% Adjusted Gamma UCL	0.0001954						
73	**Note: DL/2 is not a recommended method.**											
74												
75	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
76	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
77	**For additional insight, the user may want to consult a statistician.**											
78												
79												
80	**VAl-STudyAreaWide (arsenic)**											
81												
82					**General Statistics**							
83					Number of Valid Data	61					Number of Detected Data	55
84					Number of Distinct Detected Data	49					Number of Non-Detect Data	6
85											Percent Non-Detects	9.84%
86												
87					**Raw Statistics**		**Log-transformed Statistics**					
88					Minimum Detected	0.257					Minimum Detected	-1.359
89					Maximum Detected	0.603					Maximum Detected	-0.505
90					Mean of Detected	0.414					Mean of Detected	-0.9
91					SD of Detected	0.0813					SD of Detected	0.201
92					Minimum Non-Detect	0.408					Minimum Non-Detect	-0.897
93					Maximum Non-Detect	0.508					Maximum Non-Detect	-0.677
94												
95	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	54
96	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	7
97	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	88.52%
98												
99					**UCL Statistics**							
100					**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**					
101					Lilliefors Test Statistic	0.102					Lilliefors Test Statistic	0.129
102					5% Lilliefors Critical Value	0.119					5% Lilliefors Critical Value	0.119
103					**Data appear Normal at 5% Significance Level**		**Data not Lognormal at 5% Significance Level**					
104												

105	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
106	DL/2 Substitution Method						DL/2 Substitution Method					
107	Mean					0.396	Mean					-0.96
108	SD					0.0963	SD					0.264
109	95% DL/2 (t) UCL					0.416	95% H-Stat (DL/2) UCL					0.421
110												
111	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
112	Mean					0.552	Mean in Log Scale					-0.912
113	SD					0.0262	SD in Log Scale					0.194
114	95% MLE (t) UCL					0.557	Mean in Original Scale					0.409
115	95% MLE (Tiku) UCL					0.568	SD in Original Scale					0.0788
116							95% t UCL					0.426
117							95% Percentile Bootstrap UCL					0.426
118							95% BCA Bootstrap UCL					0.426
119												
120	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
121	k star (bias corrected)					24.49	**Data appear Normal at 5% Significance Level**					
122	Theta Star					0.0169						
123	nu star					2693						
124												
125	A-D Test Statistic					0.83	**Nonparametric Statistics**					
126	5% A-D Critical Value					0.748	Kaplan-Meier (KM) Method					
127	K-S Test Statistic					0.748	Mean					0.409
128	5% K-S Critical Value					0.12	SD					0.0801
129	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0106
130							95% KM (t) UCL					0.426
131	**Assuming Gamma Distribution**						95% KM (z) UCL					0.426
132	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.426
133	Minimum					0.257	95% KM (bootstrap t) UCL					0.427
134	Maximum					0.603	95% KM (BCA) UCL					0.425
135	Mean					0.413	95% KM (Percentile Bootstrap) UCL					0.425
136	Median					0.407	95% KM (Chebyshev) UCL					0.455
137	SD					0.0775	97.5% KM (Chebyshev) UCL					0.475
138	k star					27.02	99% KM (Chebyshev) UCL					0.514
139	Theta star					0.0153						
140	Nu star					3296	**Potential UCLs to Use**					
141	AppChi2					3164	95% KM (t) UCL					0.426
142	95% Gamma Approximate UCL					0.43	95% KM (Percentile Bootstrap) UCL					0.425
143	95% Adjusted Gamma UCL					0.43						
144	**Note: DL/2 is not a recommended method.**											
145												
146	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
147	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
148	**For additional insight, the user may want to consult a statistician.**											
149												
150												
151	**VAl-STudyAreaWide (arsenic_diss)**											
152												
153	**General Statistics**											
154	Number of Valid Data					61	Number of Detected Data					47
155	Number of Distinct Detected Data					41	Number of Non-Detect Data					14
156							Percent Non-Detects					22.95%

157												
158	**Raw Statistics**						**Log-transformed Statistics**					
159					Minimum Detected	0.197					Minimum Detected	-1.623
160					Maximum Detected	0.567					Maximum Detected	-0.568
161					Mean of Detected	0.308					Mean of Detected	-1.221
162					SD of Detected	0.0952					SD of Detected	0.301
163					Minimum Non-Detect	0.378					Minimum Non-Detect	-0.974
164					Maximum Non-Detect	0.452					Maximum Non-Detect	-0.794
165												
166	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	57
167	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
168	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.44%
169												
170	**UCL Statistics**											
171	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
172					Shapiro Wilk Test Statistic	0.907					Shapiro Wilk Test Statistic	0.916
173					5% Shapiro Wilk Critical Value	0.946					5% Shapiro Wilk Critical Value	0.946
174	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
175												
176	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
177					DL/2 Substitution Method						DL/2 Substitution Method	
178					Mean	0.284					Mean	-1.31
179					SD	0.0952					SD	0.311
180					95% DL/2 (t) UCL	0.304					95% H-Stat (DL/2) UCL	0.304
181												
182					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
183					Mean	0.516					Mean in Log Scale	-1.24
184					SD	0.0441					SD in Log Scale	0.266
185					95% MLE (t) UCL	0.525					Mean in Original Scale	0.3
186					95% MLE (Tiku) UCL	0.551					SD in Original Scale	0.0848
187											95% t UCL	0.318
188											95% Percentile Bootstrap UCL	0.318
189											95% BCA Bootstrap UCL	0.318
190												
191	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
192					k star (bias corrected)	10.59	**Data do not follow a Discernable Distribution (0.05)**					
193					Theta Star	0.0291						
194					nu star	995.9						
195												
196					A-D Test Statistic	1.118	**Nonparametric Statistics**					
197					5% A-D Critical Value	0.749					Kaplan-Meier (KM) Method	
198					K-S Test Statistic	0.749					Mean	0.3
199					5% K-S Critical Value	0.129					SD	0.0893
200	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0124
201											95% KM (t) UCL	0.321
202	**Assuming Gamma Distribution**										95% KM (z) UCL	0.32
203					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.321
204					Minimum	0.197					95% KM (bootstrap t) UCL	0.321
205					Maximum	0.567					95% KM (BCA) UCL	0.32
206					Mean	0.311					95% KM (Percentile Bootstrap) UCL	0.321
207					Median	0.32					95% KM (Chebyshev) UCL	0.354
208					SD	0.0836					97.5% KM (Chebyshev) UCL	0.377

209					k star	13.85					99% KM (Chebyshev) UCL	0.423
210					Theta star	0.0225						
211					Nu star	1689					**Potential UCLs to Use**	
212					AppChi2	1595					95% KM (BCA) UCL	0.32
213					95% Gamma Approximate UCL	0.33						
214					95% Adjusted Gamma UCL	0.33						
215	**Note: DL/2 is not a recommended method.**											
216												
217	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
218	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
219	**For additional insight, the user may want to consult a statistician.**											
220												
221												
222	**VAI-STudyAreaWide (benzo(a)anthracene)**											
223												
224	**General Statistics**											
225					Number of Valid Data	93					Number of Detected Data	37
226					Number of Distinct Detected Data	36					Number of Non-Detect Data	56
227											Percent Non-Detects	60.22%
228												
229	**Raw Statistics**						**Log-transformed Statistics**					
230					Minimum Detected	0.000052					Minimum Detected	-9.864
231					Maximum Detected	0.137					Maximum Detected	-1.988
232					Mean of Detected	0.00543					Mean of Detected	-7.132
233					SD of Detected	0.0224					SD of Detected	1.575
234					Minimum Non-Detect	0.0003355					Minimum Non-Detect	-8
235					Maximum Non-Detect	0.0078					Maximum Non-Detect	-4.854
236												
237	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	89
238	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
239	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	95.70%
240												
241	**UCL Statistics**											
242	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
243					Shapiro Wilk Test Statistic	0.241					Shapiro Wilk Test Statistic	0.93
244					5% Shapiro Wilk Critical Value	0.936					5% Shapiro Wilk Critical Value	0.936
245	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
246												
247	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
248					DL/2 Substitution Method						DL/2 Substitution Method	
249					Mean	0.00408					Mean	-6.352
250					SD	0.0141					SD	1.241
251					95% DL/2 (t) UCL	0.0065					95% H-Stat (DL/2) UCL	0.0052
252												
253					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
254	**MLE yields a negative mean**										Mean in Log Scale	-7.414
255											SD in Log Scale	1.322
256											Mean in Original Scale	0.00268
257											SD in Original Scale	0.0142
258											95% t UCL	0.00513
259											95% Percentile Bootstrap UCL	0.00559
260											95% BCA Bootstrap UCL	0.00747

261												
262	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
263					k star (bias corrected)	0.34	**Data do not follow a Discernable Distribution (0.05)**					
264					Theta Star	0.0159						
265					nu star	25.19						
266												
267					A-D Test Statistic	4.605	**Nonparametric Statistics**					
268					5% A-D Critical Value	0.846				Kaplan-Meier (KM) Method		
269					K-S Test Statistic	0.846				Mean		0.00263
270					5% K-S Critical Value	0.156				SD		0.0141
271	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.00149
272										95% KM (t) UCL		0.00511
273	**Assuming Gamma Distribution**									95% KM (z) UCL		0.00508
274					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00509
275					Minimum	1E-12				95% KM (bootstrap t) UCL		0.0159
276					Maximum	0.137				95% KM (BCA) UCL		0.00578
277					Mean	0.00533				95% KM (Percentile Bootstrap) UCL		0.00551
278					Median	0.00444				95% KM (Chebyshev) UCL		0.00913
279					SD	0.0141				97.5% KM (Chebyshev) UCL		0.0119
280					k star	0.57				99% KM (Chebyshev) UCL		0.0175
281					Theta star	0.00935						
282					Nu star	106	**Potential UCLs to Use**					
283					AppChi2	83.28				95% KM (Chebyshev) UCL		0.00913
284					95% Gamma Approximate UCL	0.00679						
285					95% Adjusted Gamma UCL	0.00681						
286	**Note: DL/2 is not a recommended method.**											
287												
288	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
289	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
290	**For additional insight, the user may want to consult a statistician.**											
291												
292												
293	**VAI-STudyAreaWide (benzo(a)pyrene)**											
294												
295	**General Statistics**											
296					Number of Valid Data	93				Number of Detected Data		33
297					Number of Distinct Detected Data	33				Number of Non-Detect Data		60
298										Percent Non-Detects		64.52%
299												
300	**Raw Statistics**						**Log-transformed Statistics**					
301					Minimum Detected	0.0000263				Minimum Detected		-10.55
302					Maximum Detected	0.0972				Maximum Detected		-2.331
303					Mean of Detected	0.00391				Mean of Detected		-7.472
304					SD of Detected	0.0168				SD of Detected		1.587
305					Minimum Non-Detect	0.0006085				Minimum Non-Detect		-7.405
306					Maximum Non-Detect	0.0086				Maximum Non-Detect		-4.756
307												
308	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		92
309	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
310	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		98.92%
311												
312	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
313	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
314					Shapiro Wilk Test Statistic	0.226					Shapiro Wilk Test Statistic	0.933
315					5% Shapiro Wilk Critical Value	0.931					5% Shapiro Wilk Critical Value	0.931
316	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
317												
318	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
319					DL/2 Substitution Method						DL/2 Substitution Method	
320					Mean	0.00349					Mean	-6.432
321					SD	0.00997					SD	1.307
322					95% DL/2 (t) UCL	0.00521					95% H-Stat (DL/2) UCL	0.00536
323												
324					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
325	**MLE method failed to converge properly**										Mean in Log Scale	-7.659
326											SD in Log Scale	1.346
327											Mean in Original Scale	0.00192
328											SD in Original Scale	0.0101
329											95% t UCL	0.00365
330											95% Percentile Bootstrap UCL	0.00397
331											95% BCA Bootstrap UCL	0.00524
332												
333	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
334					k star (bias corrected)	0.337	**Data appear Lognormal at 5% Significance Level**					
335					Theta Star	0.0116						
336					nu star	22.27						
337												
338					A-D Test Statistic	4.39	**Nonparametric Statistics**					
339					5% A-D Critical Value	0.845					Kaplan-Meier (KM) Method	
340					K-S Test Statistic	0.845					Mean	0.00188
341					5% K-S Critical Value	0.165					SD	0.01
342	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.00106
343											95% KM (t) UCL	0.00364
344	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00362
345					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00362
346					Minimum	1E-12					95% KM (bootstrap t) UCL	0.0126
347					Maximum	0.0972					95% KM (BCA) UCL	0.00401
348					Mean	0.00512					95% KM (Percentile Bootstrap) UCL	0.00395
349					Median	0.000574					95% KM (Chebyshev) UCL	0.0065
350					SD	0.0119					97.5% KM (Chebyshev) UCL	0.00849
351					k star	0.112					99% KM (Chebyshev) UCL	0.0124
352					Theta star	0.0457						
353					Nu star	20.84	**Potential UCLs to Use**					
354					AppChi2	11.47					95% KM (Chebyshev) UCL	0.0065
355					95% Gamma Approximate UCL	0.0093						
356					95% Adjusted Gamma UCL	0.00939						
357	**Note: DL/2 is not a recommended method.**											
358												
359	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
360	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
361	**For additional insight, the user may want to consult a statistician.**											
362												
363												
364	**VAl-STudyAreaWide (benzo(b)fluoranthene)**											

365												
366	**General Statistics**											
367					Number of Valid Data	93				Number of Detected Data	34	
368					Number of Distinct Detected Data	34				Number of Non-Detect Data	59	
369										Percent Non-Detects	63.44%	
370												
371	**Raw Statistics**							**Log-transformed Statistics**				
372					Minimum Detected	0.0000238				Minimum Detected	-10.65	
373					Maximum Detected	0.0673				Maximum Detected	-2.699	
374					Mean of Detected	0.00276				Mean of Detected	-7.34	
375					SD of Detected	0.0114				SD of Detected	1.232	
376					Minimum Non-Detect	0.002				Minimum Non-Detect	-6.215	
377					Maximum Non-Detect	0.0092				Maximum Non-Detect	-4.689	
378												
379	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	92	
380	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	1	
381	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	98.92%	
382												
383	**UCL Statistics**											
384	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
385					Shapiro Wilk Test Statistic	0.217				Shapiro Wilk Test Statistic	0.881	
386					5% Shapiro Wilk Critical Value	0.933				5% Shapiro Wilk Critical Value	0.933	
387	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**				
388												
389	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
390					DL/2 Substitution Method					DL/2 Substitution Method		
391					Mean	0.00335				Mean	-6.288	
392					SD	0.00693				SD	1.146	
393					95% DL/2 (t) UCL	0.00455				95% H-Stat (DL/2) UCL	0.00477	
394												
395					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
396	**MLE method failed to converge properly**									Mean in Log Scale	-7.407	
397										SD in Log Scale	1.064	
398										Mean in Original Scale	0.00158	
399										SD in Original Scale	0.00694	
400										95% t UCL	0.00278	
401										95% Percentile Bootstrap UCL	0.003	
402										95% BCA Bootstrap UCL	0.00443	
403												
404	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
405					k star (bias corrected)	0.427		**Data do not follow a Discernable Distribution (0.05)**				
406					Theta Star	0.00647						
407					nu star	29.02						
408												
409					A-D Test Statistic	5.472		**Nonparametric Statistics**				
410					5% A-D Critical Value	0.823				Kaplan-Meier (KM) Method		
411					K-S Test Statistic	0.823				Mean	0.00151	
412					5% K-S Critical Value	0.161				SD	0.0069	
413	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean	0.0007325	
414										95% KM (t) UCL	0.00273	
415	**Assuming Gamma Distribution**									95% KM (z) UCL	0.00272	
416					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	0.00272	

417				Minimum	1E-12				95% KM (bootstrap t) UCL	0.00928		
418				Maximum	0.0673				95% KM (BCA) UCL	0.00295		
419				Mean	0.00335				95% KM (Percentile Bootstrap) UCL	0.00294		
420				Median	0.0007663				95% KM (Chebyshev) UCL	0.0047		
421				SD	0.0078				97.5% KM (Chebyshev) UCL	0.00608		
422				k star	0.126				99% KM (Chebyshev) UCL	0.0088		
423				Theta star	0.0265							
424				Nu star	23.52				**Potential UCLs to Use**			
425				AppChi2	13.48				95% KM (BCA) UCL	0.00295		
426				95% Gamma Approximate UCL	0.00585							
427				95% Adjusted Gamma UCL	0.0059							
428	**Note: DL/2 is not a recommended method.**											
429												
430	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
431	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
432	**For additional insight, the user may want to consult a statistician.**											
433												
434												
435	**VAl-STudyAreaWide (chromium hexavalent)**											
436												
437	**General Statistics**											
438				Number of Valid Data	7				Number of Detected Data	3		
439				Number of Distinct Detected Data	3				Number of Non-Detect Data	4		
440									Percent Non-Detects	57.14%		
441												
442	**Raw Statistics**								**Log-transformed Statistics**			
443				Minimum Detected	0.5				Minimum Detected	-0.693		
444				Maximum Detected	0.9				Maximum Detected	-0.105		
445				Mean of Detected	0.75				Mean of Detected	-0.32		
446				SD of Detected	0.218				SD of Detected	0.324		
447				Minimum Non-Detect	0.6				Minimum Non-Detect	-0.511		
448				Maximum Non-Detect	20				Maximum Non-Detect	2.996		
449												
450	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	7		
451	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	0		
452	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	100.00%		
453												
454	**Warning: There are only 3 Distinct Detected Values in this data set**											
455	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
456	**Those methods will return a 'N/A' value on your output display!**											
457												
458	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
459	**However, results obtained using 4 to 9 distinct values may not be reliable.**											
460	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
461												
462												
463	**UCL Statistics**											
464	**Normal Distribution Test with Detected Values Only**								**Lognormal Distribution Test with Detected Values Only**			
465				Shapiro Wilk Test Statistic	0.842				Shapiro Wilk Test Statistic	0.822		
466				5% Shapiro Wilk Critical Value	0.767				5% Shapiro Wilk Critical Value	0.767		
467	**Data appear Normal at 5% Significance Level**								**Data appear Lognormal at 5% Significance Level**			
468												

	A	B	C	D	E	F	G	H	I	J	K	L
469	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
470	DL/2 Substitution Method						DL/2 Substitution Method					
471	Mean					1.886	Mean					-0.302
472	SD					3.587	SD					1.237
473	95% DL/2 (t) UCL					4.52	95% H-Stat (DL/2) UCL					14.56
474												
475	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
476	**MLE method failed to converge properly**						Mean in Log Scale					-0.502
477							SD in Log Scale					0.268
478							Mean in Original Scale					0.625
479							SD in Original Scale					0.178
480							95% t UCL					0.756
481							95% Percentile Bootstrap UCL					0.731
482							95% BCA Bootstrap UCL					0.745
483												
484	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
485	k star (bias corrected)					N/A	**Data appear Normal at 5% Significance Level**					
486	Theta Star					N/A						
487	nu star					N/A						
488												
489	A-D Test Statistic					N/A	**Nonparametric Statistics**					
490	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
491	K-S Test Statistic					N/A	Mean					0.625
492	5% K-S Critical Value					N/A	SD					0.177
493	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0887
494							95% KM (t) UCL					0.797
495	**Assuming Gamma Distribution**						95% KM (z) UCL					0.771
496	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.87
497	Minimum					N/A	95% KM (bootstrap t) UCL					0.721
498	Maximum					N/A	95% KM (BCA) UCL					0.9
499	Mean					N/A	95% KM (Percentile Bootstrap) UCL					N/A
500	Median					N/A	95% KM (Chebyshev) UCL					1.012
501	SD					N/A	97.5% KM (Chebyshev) UCL					1.179
502	k star					N/A	99% KM (Chebyshev) UCL					1.507
503	Theta star					N/A						
504	Nu star					N/A	**Potential UCLs to Use**					
505	AppChi2					N/A	95% KM (t) UCL					0.797
506	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					N/A
507	95% Adjusted Gamma UCL					N/A						
508	**Note: DL/2 is not a recommended method.**											
509												
510	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
511	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
512	**For additional insight, the user may want to consult a statistician.**											
513												
514												
515	**VAI-STudyAreaWide (dibenzo(a,h)anthracene)**											
516												
517	**General Statistics**											
518	Number of Valid Data					93	Number of Detected Data					16
519	Number of Distinct Detected Data					16	Number of Non-Detect Data					77
520							Percent Non-Detects					82.80%

521												
522	**Raw Statistics**						**Log-transformed Statistics**					
523					Minimum Detected	0.0000255					Minimum Detected	-10.58
524					Maximum Detected	0.0138					Maximum Detected	-4.283
525					Mean of Detected	0.00111					Mean of Detected	-8.392
526					SD of Detected	0.00339					SD of Detected	1.465
527					Minimum Non-Detect	0.0000434					Minimum Non-Detect	-10.05
528					Maximum Non-Detect	0.0072					Maximum Non-Detect	-4.934
529												
530	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	92
531	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
532	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	98.92%
533												
534	**UCL Statistics**											
535	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
536					Shapiro Wilk Test Statistic	0.331					Shapiro Wilk Test Statistic	0.901
537					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
538	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
539												
540	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
541					DL/2 Substitution Method						DL/2 Substitution Method	
542					Mean	0.00211					Mean	-6.907
543					SD	0.00193					SD	1.615
544					95% DL/2 (t) UCL	0.00245					95% H-Stat (DL/2) UCL	0.00603
545												
546					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
547	**MLE method failed to converge properly**										Mean in Log Scale	-9.359
548											SD in Log Scale	1.312
549											Mean in Original Scale	0.0003105
550											SD in Original Scale	0.00143
551											95% t UCL	0.0005572
552											95% Percentile Bootstrap UCL	0.0005947
553											95% BCA Bootstrap UCL	0.0008065
554												
555	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
556					k star (bias corrected)	0.376	**Data appear Lognormal at 5% Significance Level**					
557					Theta Star	0.00296						
558					nu star	12.03						
559												
560					A-D Test Statistic	2.21	**Nonparametric Statistics**					
561					5% A-D Critical Value	0.815	Kaplan-Meier (KM) Method					
562					K-S Test Statistic	0.815					Mean	0.0003169
563					5% K-S Critical Value	0.23					SD	0.00142
564	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0001563
565											95% KM (t) UCL	0.0005765
566	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0005739
567					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0005631
568					Minimum	1E-12					95% KM (bootstrap t) UCL	0.00127
569					Maximum	0.0138					95% KM (BCA) UCL	0.0006671
570					Mean	0.00233					95% KM (Percentile Bootstrap) UCL	0.0005961
571					Median	0.0005764					95% KM (Chebyshev) UCL	0.000998
572					SD	0.00348					97.5% KM (Chebyshev) UCL	0.00129

573					k star	0.126				99% KM (Chebyshev) UCL		0.00187
574					Theta star	0.0186						
575					Nu star	23.35				**Potential UCLs to Use**		
576					AppChi2	13.35				95% KM (BCA) UCL		0.0006671
577					95% Gamma Approximate UCL	0.00408						
578					95% Adjusted Gamma UCL	0.00411						
579	**Note: DL/2 is not a recommended method.**											
580												
581	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
582	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
583	**For additional insight, the user may want to consult a statistician.**											
584												
585												
586	**VAI-STudyAreaWide (indeno(1,2,3-cd)pyrene)**											
587												
588	**General Statistics**											
589					Number of Valid Data	93				Number of Detected Data		28
590					Number of Distinct Detected Data	27				Number of Non-Detect Data		65
591										Percent Non-Detects		69.89%
592												
593	**Raw Statistics**						**Log-transformed Statistics**					
594					Minimum Detected	0.0001627				Minimum Detected		-8.724
595					Maximum Detected	0.0617				Maximum Detected		-2.786
596					Mean of Detected	0.00324				Mean of Detected		-7.347
597					SD of Detected	0.0116				SD of Detected		1.358
598					Minimum Non-Detect	0.0001463				Minimum Non-Detect		-8.83
599					Maximum Non-Detect	0.0084				Maximum Non-Detect		-4.78
600												
601	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		91
602	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
603	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		97.85%
604												
605	**UCL Statistics**											
606	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
607					Shapiro Wilk Test Statistic	0.277				Shapiro Wilk Test Statistic		0.83
608					5% Shapiro Wilk Critical Value	0.924				5% Shapiro Wilk Critical Value		0.924
609	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
610												
611	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
612					DL/2 Substitution Method					DL/2 Substitution Method		
613					Mean	0.0028				Mean		-6.485
614					SD	0.00634				SD		1.117
615					95% DL/2 (t) UCL	0.00389				95% H-Stat (DL/2) UCL		0.00375
616												
617					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
618	**MLE method failed to converge properly**									Mean in Log Scale		-7.69
619										SD in Log Scale		1.121
620										Mean in Original Scale		0.0014
621										SD in Original Scale		0.00641
622										95% t UCL		0.00251
623										95% Percentile Bootstrap UCL		0.00272
624										95% BCA Bootstrap UCL		0.00399

625												
626	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
627					k star (bias corrected)	0.386	**Data do not follow a Discernable Distribution (0.05)**					
628					Theta Star	0.00839						
629					nu star	21.64						
630												
631					A-D Test Statistic	4.274	**Nonparametric Statistics**					
632					5% A-D Critical Value	0.831				Kaplan-Meier (KM) Method		
633					K-S Test Statistic	0.831				Mean		0.00138
634					5% K-S Critical Value	0.177				SD		0.00639
635	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0006809
636										95% KM (t) UCL		0.00251
637	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0025
638					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0025
639					Minimum	1E-12				95% KM (bootstrap t) UCL		0.00637
640					Maximum	0.0617				95% KM (BCA) UCL		0.00263
641					Mean	0.00405				95% KM (Percentile Bootstrap) UCL		0.00269
642					Median	0.000631				95% KM (Chebyshev) UCL		0.00435
643					SD	0.00801				97.5% KM (Chebyshev) UCL		0.00563
644					k star	0.122				99% KM (Chebyshev) UCL		0.00815
645					Theta star	0.0333						
646					Nu star	22.61	**Potential UCLs to Use**					
647					AppChi2	12.8				95% KM (BCA) UCL		0.00263
648					95% Gamma Approximate UCL	0.00716						
649					95% Adjusted Gamma UCL	0.00722						
650	**Note: DL/2 is not a recommended method.**											
651												
652	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
653	**These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).**											
654	**For additional insight, the user may want to consult a statistician.**											
655												
656												
657	**VAI-STudyAreaWide (mcpp)**											
658												
659	**General Statistics**											
660					Number of Valid Data	52				Number of Detected Data		5
661					Number of Distinct Detected Data	5				Number of Non-Detect Data		47
662										Percent Non-Detects		90.38%
663												
664	**Raw Statistics**						**Log-transformed Statistics**					
665					Minimum Detected	5.225				Minimum Detected		1.653
666					Maximum Detected	18.58				Maximum Detected		2.922
667					Mean of Detected	9.41				Mean of Detected		2.136
668					SD of Detected	5.34				SD of Detected		0.489
669					Minimum Non-Detect	6				Minimum Non-Detect		1.792
670					Maximum Non-Detect	18				Maximum Non-Detect		2.89
671												
672	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		51
673	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
674	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		98.08%
675												
676	**Warning: There are only 5 Detected Values in this data**											

	A	B	C	D	E	F	G	H	I	J	K	L
677	**Note: It should be noted that even though bootstrap may be performed on this data set**											
678	**the resulting calculations may not be reliable enough to draw conclusions**											
679												
680	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
681												
682												
683	**UCL Statistics**											
684	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
685	Shapiro Wilk Test Statistic					0.803	Shapiro Wilk Test Statistic					0.914
686	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
687	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
688												
689	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
690	DL/2 Substitution Method						DL/2 Substitution Method					
691	Mean					4.732	Mean					1.442
692	SD					2.807	SD					0.435
693	95% DL/2 (t) UCL					5.384	95% H-Stat (DL/2) UCL					5.203
694												
695	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
696	**MLE method failed to converge properly**						Mean in Log Scale					1.606
697							SD in Log Scale					0.298
698							Mean in Original Scale					5.251
699							SD in Original Scale					2.238
700							95% t UCL					5.771
701							95% Percentile Bootstrap UCL					5.814
702							95% BCA Bootstrap UCL					6.04
703												
704	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
705	k star (bias corrected)					2.091	**Data appear Normal at 5% Significance Level**					
706	Theta Star					4.5						
707	nu star					20.91						
708												
709	A-D Test Statistic					0.413	**Nonparametric Statistics**					
710	5% A-D Critical Value					0.681	Kaplan-Meier (KM) Method					
711	K-S Test Statistic					0.681	Mean					5.793
712	5% K-S Critical Value					0.358	SD					1.95
713	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.338
714							95% KM (t) UCL					6.36
715	**Assuming Gamma Distribution**						95% KM (z) UCL					6.35
716	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.434
717	Minimum					0.888	95% KM (bootstrap t) UCL					6.438
718	Maximum					18.58	95% KM (BCA) UCL					9.44
719	Mean					10.86	95% KM (Percentile Bootstrap) UCL					8.499
720	Median					11.38	95% KM (Chebyshev) UCL					7.269
721	SD					3.923	97.5% KM (Chebyshev) UCL					7.907
722	k star					5.035	99% KM (Chebyshev) UCL					9.161
723	Theta star					2.156						
724	Nu star					523.6	**Potential UCLs to Use**					
725	AppChi2					471.5	95% KM (t) UCL					6.36
726	95% Gamma Approximate UCL					12.06	95% KM (Percentile Bootstrap) UCL					8.499
727	95% Adjusted Gamma UCL					12.09						
728	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
729												
730	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
731	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
732	For additional insight, the user may want to consult a statistician.											
733												

Tissue

Smallmouth Bass, Whole Body and Fillet

1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	SMB_EA4								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Aluminum											
10												
11					General Statistics							
12					Number of Valid Observations	5				Number of Distinct Observations	5	
13												
14					Raw Statistics					Log-transformed Statistics		
15					Minimum	2.46				Minimum of Log Data	0.9	
16					Maximum	11				Maximum of Log Data	2.398	
17					Mean	5.2				Mean of log Data	1.512	
18					Median	4.5				SD of log Data	0.557	
19					SD	3.361						
20					Coefficient of Variation	0.646						
21					Skewness	1.845						
22												
23												
24					Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!							
25												
26					It is suggested to collect at least 8 to 10 observations using these statistical methods!							
27					If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.							
28												
29												
30					Warning: There are only 5 Values in this data							
31					Note: It should be noted that even though bootstrap methods may be performed on this data set,							
32					the resulting calculations may not be reliable enough to draw conclusions							
33												
34					The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.							
35												
36					Relevant UCL Statistics							
37					Normal Distribution Test					Lognormal Distribution Test		
38					Shapiro Wilk Test Statistic	0.79				Shapiro Wilk Test Statistic	0.922	
39					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	
40					Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level		
41												
42					Assuming Normal Distribution					Assuming Lognormal Distribution		
43					95% Student's-t UCL	8.405				95% H-UCL	12.7	
44					95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL	10.63	
45					95% Adjusted-CLT UCL	8.998				97.5% Chebyshev (MVUE) UCL	13.01	
46					95% Modified-t UCL	8.611				99% Chebyshev (MVUE) UCL	17.69	
47												
48					Gamma Distribution Test					Data Distribution		
49					k star (bias corrected)	1.662				Data appear Normal at 5% Significance Level		
50					Theta Star	3.129						
51					nu star	16.62						
52					Approximate Chi Square Value (.05)	8.399				Nonparametric Statistics		
53					Adjusted Level of Significance	0.0086				95% CLT UCL	7.673	

54					Adjusted Chi Square Value	6.018					95% Jackknife UCL	8.405
55											95% Standard Bootstrap UCL	7.38
56					Anderson-Darling Test Statistic	0.435					95% Bootstrap-t UCL	12.98
57					Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	19.05
58					Kolmogorov-Smirnov Test Statistic	0.318					95% Percentile Bootstrap UCL	7.772
59					Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	8.4
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	11.75
61											97.5% Chebyshev(Mean, Sd) UCL	14.59
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	20.16
63					95% Approximate Gamma UCL	10.29						
64					95% Adjusted Gamma UCL	14.36						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	8.405
67												
68												
69	**Arsenic**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	0.21					Minimum of Log Data	-1.561
76					Maximum	0.34					Maximum of Log Data	-1.079
77					Mean	0.292					Mean of log Data	-1.245
78					Median	0.31					SD of log Data	0.19
79					SD	0.0507						
80					Coefficient of Variation	0.174						
81					Skewness	-1.326						
82												
83												
84	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
85												
86	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
87	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
88												
89												
90	**Warning: There are only 5 Values in this data**											
91	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
92	**the resulting calculations may not be reliable enough to draw conclusions**											
93												
94	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
95												
96	**Relevant UCL Statistics**											
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.897					Shapiro Wilk Test Statistic	0.859
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	0.34					95% H-UCL	0.361
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.4
105					95% Adjusted-CLT UCL	0.315					97.5% Chebyshev (MVUE) UCL	0.447
106					95% Modified-t UCL	0.338					99% Chebyshev (MVUE) UCL	0.539

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	14.9	**Data appear Normal at 5% Significance Level**					
110					Theta Star	0.0196						
111					nu star	149						
112					Approximate Chi Square Value (.05)	121.8	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0086				95% CLT UCL	0.329	
114					Adjusted Chi Square Value	111				95% Jackknife UCL	0.34	
115										95% Standard Bootstrap UCL	0.325	
116					Anderson-Darling Test Statistic	0.433				95% Bootstrap-t UCL	0.327	
117					Anderson-Darling 5% Critical Value	0.678				95% Hall's Bootstrap UCL	0.316	
118					Kolmogorov-Smirnov Test Statistic	0.263				95% Percentile Bootstrap UCL	0.322	
119					Kolmogorov-Smirnov 5% Critical Value	0.357				95% BCA Bootstrap UCL	0.316	
120	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.391	
121										97.5% Chebyshev(Mean, Sd) UCL	0.434	
122	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.518	
123					95% Approximate Gamma UCL	0.357						
124					95% Adjusted Gamma UCL	0.392						
125												
126	**Potential UCL to Use**									Use 95% Student's-t UCL	0.34	
127	**Recommended UCL exceeds the maximum observation**											
128												
129												
130	**Cadmium**											
131												
132	**General Statistics**											
133					Number of Valid Observations	5				Number of Distinct Observations	5	
134												
135	**Raw Statistics**						**Log-transformed Statistics**					
136					Minimum	0.003				Minimum of Log Data	-5.809	
137					Maximum	0.008				Maximum of Log Data	-4.828	
138					Mean	0.00474				Mean of log Data	-5.409	
139					Median	0.004				SD of log Data	0.365	
140					SD	0.00193						
141					Coefficient of Variation	0.407						
142					Skewness	1.643						
143												
144												
145	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
146												
147	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
148	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
149												
150												
151	**Warning: There are only 5 Values in this data**											
152	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
153	**the resulting calculations may not be reliable enough to draw conclusions**											
154												
155	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
156												
157	**Relevant UCL Statistics**											
158	**Normal Distribution Test**						**Lognormal Distribution Test**					
159					Shapiro Wilk Test Statistic	0.84				Shapiro Wilk Test Statistic	0.923	

160					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
161					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
162												
163					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
164					95% Student's-t UCL	0.00658					95% H-UCL	0.00764
165					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.00806
166					95% Adjusted-CLT UCL	0.00684					97.5% Chebyshev (MVUE) UCL	0.00951
167					95% Modified-t UCL	0.00669					99% Chebyshev (MVUE) UCL	0.0124
168												
169					**Gamma Distribution Test**						**Data Distribution**	
170					k star (bias corrected)	3.692					**Data appear Normal at 5% Significance Level**	
171					Theta Star	0.00128						
172					nu star	36.92						
173					Approximate Chi Square Value (.05)	24.01					**Nonparametric Statistics**	
174					Adjusted Level of Significance	0.0086					95% CLT UCL	0.00616
175					Adjusted Chi Square Value	19.59					95% Jackknife UCL	0.00658
176											95% Standard Bootstrap UCL	0.00601
177					Anderson-Darling Test Statistic	0.4					95% Bootstrap-t UCL	0.00916
178					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.0142
179					Kolmogorov-Smirnov Test Statistic	0.248					95% Percentile Bootstrap UCL	0.0062
180					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.00654
181					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.0085
182											97.5% Chebyshev(Mean, Sd) UCL	0.0101
183					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.0133
184					95% Approximate Gamma UCL	0.00729						
185					95% Adjusted Gamma UCL	0.00893						
186												
187					**Potential UCL to Use**						Use 95% Student's-t UCL	0.00658
188												
189												
190	**Copper**											
191												
192					**General Statistics**							
193					Number of Valid Observations	5					Number of Distinct Observations	5
194												
195					**Raw Statistics**						**Log-transformed Statistics**	
196					Minimum	0.365					Minimum of Log Data	-1.008
197					Maximum	0.858					Maximum of Log Data	-0.153
198					Mean	0.572					Mean of log Data	-0.608
199					Median	0.61					SD of log Data	0.352
200					SD	0.199						
201					Coefficient of Variation	0.349						
202					Skewness	0.508						
203												
204												
205					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
206												
207					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
208					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
209												
210												
211					**Warning: There are only 5 Values in this data**							
212					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							

213	the resulting calculations may not be reliable enough to draw conclusions											
214												
215	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
216												
217	Relevant UCL Statistics											
218	Normal Distribution Test						Lognormal Distribution Test					
219	Shapiro Wilk Test Statistic	0.921					Shapiro Wilk Test Statistic	0.924				
220	Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762				
221	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
222												
223	Assuming Normal Distribution						Assuming Lognormal Distribution					
224	95% Student's-t UCL	0.762					95% H-UCL	0.904				
225	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	0.963				
226	95% Adjusted-CLT UCL	0.74					97.5% Chebyshev (MVUE) UCL	1.132				
227	95% Modified-t UCL	0.765					99% Chebyshev (MVUE) UCL	1.464				
228												
229	Gamma Distribution Test						Data Distribution					
230	k star (bias corrected)	4.263					Data appear Normal at 5% Significance Level					
231	Theta Star	0.134										
232	nu star	42.63										
233	Approximate Chi Square Value (.05)	28.66					Nonparametric Statistics					
234	Adjusted Level of Significance	0.0086					95% CLT UCL	0.718				
235	Adjusted Chi Square Value	23.77					95% Jackknife UCL	0.762				
236							95% Standard Bootstrap UCL	0.704				
237	Anderson-Darling Test Statistic	0.334					95% Bootstrap-t UCL	0.733				
238	Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.716				
239	Kolmogorov-Smirnov Test Statistic	0.237					95% Percentile Bootstrap UCL	0.716				
240	Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.716				
241	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	0.961				
242							97.5% Chebyshev(Mean, Sd) UCL	1.129				
243	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	1.459				
244	95% Approximate Gamma UCL	0.851										
245	95% Adjusted Gamma UCL	1.025										
246												
247	Potential UCL to Use						Use 95% Student's-t UCL	0.762				
248												
249												
250	Lead											
251												
252	General Statistics											
253	Number of Valid Observations	5					Number of Distinct Observations	5				
254												
255	Raw Statistics						Log-transformed Statistics					
256	Minimum	0.005					Minimum of Log Data	-5.298				
257	Maximum	0.054					Maximum of Log Data	-2.919				
258	Mean	0.0312					Mean of log Data	-3.908				
259	Median	0.038					SD of log Data	1.196				
260	SD	0.0243										
261	Coefficient of Variation	0.779										
262	Skewness	-0.333										
263												
264												
265	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											

266												
267	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
268	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
269												
270												
271	Warning: There are only 5 Values in this data											
272	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
273	the resulting calculations may not be reliable enough to draw conclusions											
274												
275	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
276												
277	Relevant UCL Statistics											
278	Normal Distribution Test						Lognormal Distribution Test					
279				Shapiro Wilk Test Statistic	0.816					Shapiro Wilk Test Statistic	0.776	
280				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
281	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
282												
283	Assuming Normal Distribution						Assuming Lognormal Distribution					
284				95% Student's-t UCL	0.0544					95% H-UCL	1.285	
285	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	0.108	
286				95% Adjusted-CLT UCL	0.0474					97.5% Chebyshev (MVUE) UCL	0.14	
287				95% Modified-t UCL	0.0541					99% Chebyshev (MVUE) UCL	0.204	
288												
289	Gamma Distribution Test						Data Distribution					
290				k star (bias corrected)	0.643		Data appear Normal at 5% Significance Level					
291				Theta Star	0.0485							
292				nu star	6.434							
293				Approximate Chi Square Value (.05)	1.866		Nonparametric Statistics					
294				Adjusted Level of Significance	0.0086					95% CLT UCL	0.0491	
295				Adjusted Chi Square Value	0.983					95% Jackknife UCL	0.0544	
296										95% Standard Bootstrap UCL	0.0476	
297				Anderson-Darling Test Statistic	0.645					95% Bootstrap-t UCL	0.0497	
298				Anderson-Darling 5% Critical Value	0.689					95% Hall's Bootstrap UCL	0.0397	
299				Kolmogorov-Smirnov Test Statistic	0.3					95% Percentile Bootstrap UCL	0.0474	
300				Kolmogorov-Smirnov 5% Critical Value	0.363					95% BCA Bootstrap UCL	0.044	
301	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	0.0786	
302										97.5% Chebyshev(Mean, Sd) UCL	0.0991	
303	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	0.139	
304				95% Approximate Gamma UCL	0.108							
305				95% Adjusted Gamma UCL	0.204							
306												
307	Potential UCL to Use									Use 95% Student's-t UCL	0.0544	
308	Recommended UCL exceeds the maximum observation											
309												
310												
311	Manganese											
312												
313	General Statistics											
314				Number of Valid Observations	5					Number of Distinct Observations	5	
315												
316	Raw Statistics						Log-transformed Statistics					
317				Minimum	0.87					Minimum of Log Data	-0.139	
318				Maximum	2.28					Maximum of Log Data	0.824	

319					Mean	1.261					Mean of log Data	0.16
320					Median	0.986					SD of log Data	0.404
321					SD	0.594						
322					Coefficient of Variation	0.471						
323					Skewness	1.829						
324												
325												
326	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
327												
328	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
329	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
330												
331												
332	**Warning: There are only 5 Values in this data**											
333	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
334	**the resulting calculations may not be reliable enough to draw conclusions**											
335												
336	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
337												
338	**Relevant UCL Statistics**											
339	**Normal Distribution Test**						**Lognormal Distribution Test**					
340					Shapiro Wilk Test Statistic	0.76					Shapiro Wilk Test Statistic	0.822
341					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
342	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
343												
344	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
345					95% Student's-t UCL	1.828					95% H-UCL	2.178
346	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	2.231
347					95% Adjusted-CLT UCL	1.931					97.5% Chebyshev (MVUE) UCL	2.655
348					95% Modified-t UCL	1.864					99% Chebyshev (MVUE) UCL	3.487
349												
350	**Gamma Distribution Test**						**Data Distribution**					
351					k star (bias corrected)	2.958	**Data appear Gamma Distributed at 5% Significance Level**					
352					Theta Star	0.426						
353					nu star	29.58						
354					Approximate Chi Square Value (.05)	18.16	**Nonparametric Statistics**					
355					Adjusted Level of Significance	0.0086					95% CLT UCL	1.698
356					Adjusted Chi Square Value	14.4					95% Jackknife UCL	1.828
357											95% Standard Bootstrap UCL	1.658
358					Anderson-Darling Test Statistic	0.58					95% Bootstrap-t UCL	4.652
359					Anderson-Darling 5% Critical Value	0.68					95% Hall's Bootstrap UCL	3.507
360					Kolmogorov-Smirnov Test Statistic	0.292					95% Percentile Bootstrap UCL	1.718
361					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	1.802
362	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	2.42
363											97.5% Chebyshev(Mean, Sd) UCL	2.921
364	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	3.905
365					95% Approximate Gamma UCL	2.054						
366					95% Adjusted Gamma UCL	2.592						
367												
368	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	2.054
369												
370												
371	**Mercury**											

372												
373	**General Statistics**											
374	Number of Valid Observations				5		Number of Distinct Observations					5
375												
376	**Raw Statistics**						**Log-transformed Statistics**					
377	Minimum				0.063		Minimum of Log Data					-2.765
378	Maximum				0.137		Maximum of Log Data					-1.988
379	Mean				0.101		Mean of log Data					-2.336
380	Median				0.113		SD of log Data					0.322
381	SD				0.0303							
382	Coefficient of Variation				0.301							
383	Skewness				-0.232							
384												
385												
386	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
387												
388	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
389	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
390												
391												
392	**Warning: There are only 5 Values in this data**											
393	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
394	**the resulting calculations may not be reliable enough to draw conclusions**											
395												
396	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
397												
398	**Relevant UCL Statistics**											
399	**Normal Distribution Test**						**Lognormal Distribution Test**					
400	Shapiro Wilk Test Statistic				0.926		Shapiro Wilk Test Statistic					0.91
401	Shapiro Wilk Critical Value				0.762		Shapiro Wilk Critical Value					0.762
402	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
403												
404	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
405	95% Student's-t UCL				0.13		95% H-UCL					0.151
406	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.164
407	95% Adjusted-CLT UCL				0.121		97.5% Chebyshev (MVUE) UCL					0.191
408	95% Modified-t UCL				0.129		99% Chebyshev (MVUE) UCL					0.245
409												
410	**Gamma Distribution Test**						**Data Distribution**					
411	k star (bias corrected)				5.241		**Data appear Normal at 5% Significance Level**					
412	Theta Star				0.0192							
413	nu star				52.41							
414	Approximate Chi Square Value (.05)				36.78		**Nonparametric Statistics**					
415	Adjusted Level of Significance				0.0086		95% CLT UCL					0.123
416	Adjusted Chi Square Value				31.16		95% Jackknife UCL					0.13
417							95% Standard Bootstrap UCL					0.12
418	Anderson-Darling Test Statistic				0.373		95% Bootstrap-t UCL					0.133
419	Anderson-Darling 5% Critical Value				0.679		95% Hall's Bootstrap UCL					0.115
420	Kolmogorov-Smirnov Test Statistic				0.297		95% Percentile Bootstrap UCL					0.12
421	Kolmogorov-Smirnov 5% Critical Value				0.357		95% BCA Bootstrap UCL					0.118
422	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.16
423							97.5% Chebyshev(Mean, Sd) UCL					0.185
424	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.236

425				95% Approximate Gamma UCL	0.143							
426				95% Adjusted Gamma UCL	0.169							
427												
428				**Potential UCL to Use**							Use 95% Student's-t UCL	0.13
429												
430												
431	**Nickel**											
432												
433				**General Statistics**								
434				Number of Valid Observations	5						Number of Distinct Observations	5
435												
436				**Raw Statistics**							**Log-transformed Statistics**	
437				Minimum	0.049						Minimum of Log Data	-3.016
438				Maximum	0.2						Maximum of Log Data	-1.609
439				Mean	0.112						Mean of log Data	-2.331
440				Median	0.1						SD of log Data	0.598
441				SD	0.0635							
442				Coefficient of Variation	0.569							
443				Skewness	0.579							
444												
445												
446				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
447												
448				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
449				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
450												
451												
452				**Warning: There are only 5 Values in this data**								
453				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
454				**the resulting calculations may not be reliable enough to draw conclusions**								
455												
456				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
457												
458				**Relevant UCL Statistics**								
459				**Normal Distribution Test**							**Lognormal Distribution Test**	
460				Shapiro Wilk Test Statistic	0.929						Shapiro Wilk Test Statistic	0.942
461				Shapiro Wilk Critical Value	0.762						Shapiro Wilk Critical Value	0.762
462				**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**	
463												
464				**Assuming Normal Distribution**							**Assuming Lognormal Distribution**	
465				95% Student's-t UCL	0.172						95% H-UCL	0.309
466				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	0.24
467				95% Adjusted-CLT UCL	0.166						97.5% Chebyshev (MVUE) UCL	0.296
468				95% Modified-t UCL	0.173						99% Chebyshev (MVUE) UCL	0.405
469												
470				**Gamma Distribution Test**							**Data Distribution**	
471				k star (bias corrected)	1.644						**Data appear Normal at 5% Significance Level**	
472				Theta Star	0.0679							
473				nu star	16.44							
474				Approximate Chi Square Value (.05)	8.271						**Nonparametric Statistics**	
475				Adjusted Level of Significance	0.0086						95% CLT UCL	0.158
476				Adjusted Chi Square Value	5.913						95% Jackknife UCL	0.172
477											95% Standard Bootstrap UCL	0.153

478					Anderson-Darling Test Statistic	0.269				95% Bootstrap-t UCL		0.208
479					Anderson-Darling 5% Critical Value	0.682				95% Hall's Bootstrap UCL		0.205
480					Kolmogorov-Smirnov Test Statistic	0.226				95% Percentile Bootstrap UCL		0.152
481					Kolmogorov-Smirnov 5% Critical Value	0.359				95% BCA Bootstrap UCL		0.16
482					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL		0.235
483										97.5% Chebyshev(Mean, Sd) UCL		0.289
484					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL		0.394
485					95% Approximate Gamma UCL	0.222						
486					95% Adjusted Gamma UCL	0.31						
487												
488					**Potential UCL to Use**					Use 95% Student's-t UCL		0.172
489												
490												
491	**Thallium**											
492												
493					**General Statistics**							
494					Number of Valid Observations	5				Number of Distinct Observations		5
495												
496					**Raw Statistics**					**Log-transformed Statistics**		
497					Minimum	0.0037				Minimum of Log Data		-5.599
498					Maximum	0.0077				Maximum of Log Data		-4.867
499					Mean	0.00538				Mean of log Data		-5.26
500					Median	0.0051				SD of log Data		0.294
501					SD	0.00161						
502					Coefficient of Variation	0.299						
503					Skewness	0.664						
504												
505												
506	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
507												
508	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
509	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
510												
511												
512	**Warning: There are only 5 Values in this data**											
513	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
514	**the resulting calculations may not be reliable enough to draw conclusions**											
515												
516	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
517												
518	**Relevant UCL Statistics**											
519					**Normal Distribution Test**					**Lognormal Distribution Test**		
520					Shapiro Wilk Test Statistic	0.953				Shapiro Wilk Test Statistic		0.973
521					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value		0.762
522					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
523												
524					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
525					95% Student's-t UCL	0.00691				95% H-UCL		0.00771
526					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL		0.00845
527					95% Adjusted-CLT UCL	0.00679				97.5% Chebyshev (MVUE) UCL		0.00979
528					95% Modified-t UCL	0.00695				99% Chebyshev (MVUE) UCL		0.0124
529												
530					**Gamma Distribution Test**					**Data Distribution**		

531					k star (bias corrected)	5.913		**Data appear Normal at 5% Significance Level**				
532					Theta Star	0.0009099						
533					nu star	59.13						
534					Approximate Chi Square Value (.05)	42.45		**Nonparametric Statistics**				
535					Adjusted Level of Significance	0.0086					95% CLT UCL	0.00656
536					Adjusted Chi Square Value	36.36					95% Jackknife UCL	0.00691
537											95% Standard Bootstrap UCL	0.00643
538					Anderson-Darling Test Statistic	0.214					95% Bootstrap-t UCL	0.00806
539					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.00785
540					Kolmogorov-Smirnov Test Statistic	0.192					95% Percentile Bootstrap UCL	0.00658
541					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.00648
542					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.00852
543											97.5% Chebyshev(Mean, Sd) UCL	0.00987
544					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.0125
545					95% Approximate Gamma UCL	0.00749						
546					95% Adjusted Gamma UCL	0.00875						
547												
548					**Potential UCL to Use**						Use 95% Student's-t UCL	0.00691
549												
550												
551	**Total DDD**											
552												
553					**General Statistics**							
554					Number of Valid Observations	5					Number of Distinct Observations	5
555												
556					**Raw Statistics**			**Log-transformed Statistics**				
557					Minimum	23.31					Minimum of Log Data	3.149
558					Maximum	56.6					Maximum of Log Data	4.036
559					Mean	36.38					Mean of log Data	3.552
560					Median	33.45					SD of log Data	0.318
561					SD	12.28						
562					Coefficient of Variation	0.337						
563					Skewness	1.342						
564												
565												
566	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
567												
568	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
569	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
570												
571												
572	**Warning: There are only 5 Values in this data**											
573	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
574	**the resulting calculations may not be reliable enough to draw conclusions**											
575												
576	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
577												
578	**Relevant UCL Statistics**											
579	**Normal Distribution Test**							**Lognormal Distribution Test**				
580					Shapiro Wilk Test Statistic	0.873					Shapiro Wilk Test Statistic	0.931
581					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
582	**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
583												

584	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
585					95% Student's-t UCL	48.08					95% H-UCL	54.11
586	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	58.74
587					95% Adjusted-CLT UCL	48.93					97.5% Chebyshev (MVUE) UCL	68.44
588					95% Modified-t UCL	48.63					99% Chebyshev (MVUE) UCL	87.5
589												
590	**Gamma Distribution Test**						**Data Distribution**					
591					k star (bias corrected)	4.983	**Data appear Normal at 5% Significance Level**					
592					Theta Star	7.301						
593					nu star	49.83						
594					Approximate Chi Square Value (.05)	34.62	**Nonparametric Statistics**					
595					Adjusted Level of Significance	0.0086					95% CLT UCL	45.41
596					Adjusted Chi Square Value	29.18					95% Jackknife UCL	48.08
597											95% Standard Bootstrap UCL	44.48
598					Anderson-Darling Test Statistic	0.389					95% Bootstrap-t UCL	57.56
599					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	95.39
600					Kolmogorov-Smirnov Test Statistic	0.278					95% Percentile Bootstrap UCL	43.71
601					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	47.17
602	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	60.31
603											97.5% Chebyshev(Mean, Sd) UCL	70.67
604	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	91.01
605					95% Approximate Gamma UCL	52.36						
606					95% Adjusted Gamma UCL	62.11						
607												
608	**Potential UCL to Use**										Use 95% Student's-t UCL	48.08
609												
610												
611	**Total DDE**											
612												
613	**General Statistics**											
614					Number of Valid Observations	5					Number of Distinct Observations	5
615												
616	**Raw Statistics**						**Log-transformed Statistics**					
617					Minimum	63.09					Minimum of Log Data	4.145
618					Maximum	222					Maximum of Log Data	5.403
619					Mean	123.1					Mean of log Data	4.718
620					Median	100					SD of log Data	0.48
621					SD	62.18						
622					Coefficient of Variation	0.505						
623					Skewness	1.218						
624												
625												
626	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
627												
628	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
629	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
630												
631												
632	**Warning: There are only 5 Values in this data**											
633	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
634	**the resulting calculations may not be reliable enough to draw conclusions**											
635												
636	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

637												
638	**Relevant UCL Statistics**											
639	**Normal Distribution Test**						**Lognormal Distribution Test**					
640					Shapiro Wilk Test Statistic	0.908					Shapiro Wilk Test Statistic	0.979
641					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
642	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
643												
644	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
645					95% Student's-t UCL	182.4					95% H-UCL	251.1
646	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	236.4
647					95% Adjusted-CLT UCL	185.1					97.5% Chebyshev (MVUE) UCL	285.7
648					95% Modified-t UCL	184.9					99% Chebyshev (MVUE) UCL	382.4
649												
650	**Gamma Distribution Test**						**Data Distribution**					
651					k star (bias corrected)	2.307	**Data appear Normal at 5% Significance Level**					
652					Theta Star	53.38						
653					nu star	23.07						
654					Approximate Chi Square Value (.05)	13.14	**Nonparametric Statistics**					
655					Adjusted Level of Significance	0.0086					95% CLT UCL	168.9
656					Adjusted Chi Square Value	10.03					95% Jackknife UCL	182.4
657											95% Standard Bootstrap UCL	163.7
658					Anderson-Darling Test Statistic	0.244					95% Bootstrap-t UCL	267.8
659					Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	481.2
660					Kolmogorov-Smirnov Test Statistic	0.227					95% Percentile Bootstrap UCL	165.6
661					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	174.2
662	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	244.3
663											97.5% Chebyshev(Mean, Sd) UCL	296.8
664	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	399.8
665					95% Approximate Gamma UCL	216.1						
666					95% Adjusted Gamma UCL	283.3						
667												
668	**Potential UCL to Use**										Use 95% Student's-t UCL	182.4
669												
670												
671	**Total Dioxin/Furan TEQ**											
672												
673	**General Statistics**											
674					Number of Valid Observations	5					Number of Distinct Observations	5
675												
676	**Raw Statistics**						**Log-transformed Statistics**					
677					Minimum	1.609					Minimum of Log Data	0.475
678					Maximum	2.983					Maximum of Log Data	1.093
679					Mean	2.125					Mean of log Data	0.731
680					Median	1.998					SD of log Data	0.232
681					SD	0.526						
682					Coefficient of Variation	0.247						
683					Skewness	1.348						
684												
685												
686	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
687												
688	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
689	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											

	A	B	C	D	E	F	G	H	I	J	K	L
690												
691												
692	**Warning: There are only 5 Values in this data**											
693	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
694	**the resulting calculations may not be reliable enough to draw conclusions**											
695												
696	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
697												
698	**Relevant UCL Statistics**											
699	**Normal Distribution Test**						**Lognormal Distribution Test**					
700	Shapiro Wilk Test Statistic					0.903	Shapiro Wilk Test Statistic					0.952
701	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
702	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
703												
704	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
705	95% Student's-t UCL					2.626	95% H-UCL					2.774
706	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					3.081
707	95% Adjusted-CLT UCL					2.663	97.5% Chebyshev (MVUE) UCL					3.496
708	95% Modified-t UCL					2.649	99% Chebyshev (MVUE) UCL					4.311
709												
710	**Gamma Distribution Test**						**Data Distribution**					
711	k star (bias corrected)					9.103	**Data appear Normal at 5% Significance Level**					
712	Theta Star					0.233						
713	nu star					91.03						
714	Approximate Chi Square Value (.05)					70.03	**Nonparametric Statistics**					
715	Adjusted Level of Significance					0.0086	95% CLT UCL					2.511
716	Adjusted Chi Square Value					62.02	95% Jackknife UCL					2.626
717							95% Standard Bootstrap UCL					2.469
718	Anderson-Darling Test Statistic					0.292	95% Bootstrap-t UCL					3.005
719	Anderson-Darling 5% Critical Value					0.679	95% Hall's Bootstrap UCL					4.672
720	Kolmogorov-Smirnov Test Statistic					0.211	95% Percentile Bootstrap UCL					2.479
721	Kolmogorov-Smirnov 5% Critical Value					0.357	95% BCA Bootstrap UCL					2.589
722	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					3.149
723							97.5% Chebyshev(Mean, Sd) UCL					3.593
724	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					4.464
725	95% Approximate Gamma UCL					2.762						
726	95% Adjusted Gamma UCL					3.118						
727												
728	**Potential UCL to Use**						Use 95% Student's-t UCL					2.626
729												
730												
731	**Total Dioxin-like PCBs**											
732												
733	**General Statistics**											
734	Number of Valid Observations					5	Number of Distinct Observations					5
735												
736	**Raw Statistics**						**Log-transformed Statistics**					
737	Minimum					23354	Minimum of Log Data					10.06
738	Maximum					151434	Maximum of Log Data					11.93
739	Mean					68302	Mean of log Data					10.92
740	Median					45676	SD of log Data					0.728
741	SD					51584						
742	Coefficient of Variation					0.755						

743					Skewness	1.354						
744												
745												
746	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
747												
748	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
749	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
750												
751												
752	Warning: There are only 5 Values in this data											
753	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
754	the resulting calculations may not be reliable enough to draw conclusions											
755												
756	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
757												
758	Relevant UCL Statistics											
759	Normal Distribution Test						Lognormal Distribution Test					
760					Shapiro Wilk Test Statistic	0.872					Shapiro Wilk Test Statistic	0.974
761					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
762	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
763												
764	Assuming Normal Distribution						Assuming Lognormal Distribution					
765					95% Student's-t UCL	117482					95% H-UCL	283435
766	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	161516
767					95% Adjusted-CLT UCL	121172					97.5% Chebyshev (MVUE) UCL	202171
768					95% Modified-t UCL	119810					99% Chebyshev (MVUE) UCL	282030
769												
770	Gamma Distribution Test						Data Distribution					
771					k star (bias corrected)	1.12	Data appear Normal at 5% Significance Level					
772					Theta Star	60965						
773					nu star	11.2						
774					Approximate Chi Square Value (.05)	4.707	Nonparametric Statistics					
775					Adjusted Level of Significance	0.0086					95% CLT UCL	106247
776					Adjusted Chi Square Value	3.052					95% Jackknife UCL	117482
777											95% Standard Bootstrap UCL	102566
778					Anderson-Darling Test Statistic	0.268					95% Bootstrap-t UCL	220946
779					Anderson-Darling 5% Critical Value	0.684					95% Hall's Bootstrap UCL	364500
780					Kolmogorov-Smirnov Test Statistic	0.245					95% Percentile Bootstrap UCL	103211
781					Kolmogorov-Smirnov 5% Critical Value	0.36					95% BCA Bootstrap UCL	112282
782	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	168858
783											97.5% Chebyshev(Mean, Sd) UCL	212368
784	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	297836
785					95% Approximate Gamma UCL	162565						
786					95% Adjusted Gamma UCL	250708						
787												
788	Potential UCL to Use										Use 95% Student's-t UCL	117482
789												
790												
791	Total PCB TEQ											
792												
793	General Statistics											
794					Number of Valid Observations	5					Number of Distinct Observations	5
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	**Raw Statistics**						**Log-transformed Statistics**					
797					Minimum	2.227					Minimum of Log Data	0.801
798					Maximum	12.3					Maximum of Log Data	2.509
799					Mean	7.432					Mean of log Data	1.869
800					Median	7.449					SD of log Data	0.646
801					SD	3.671						
802					Coefficient of Variation	0.494						
803					Skewness	-0.204						
804												
805												
806	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
807												
808	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
809	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
810												
811												
812	**Warning: There are only 5 Values in this data**											
813	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
814	**the resulting calculations may not be reliable enough to draw conclusions**											
815												
816	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
817												
818	**Relevant UCL Statistics**											
819	**Normal Distribution Test**						**Lognormal Distribution Test**					
820					Shapiro Wilk Test Statistic	0.987					Shapiro Wilk Test Statistic	0.886
821					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
822	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
823												
824	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
825					95% Student's-t UCL	10.93					95% H-UCL	24.34
826	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	17.07
827					95% Adjusted-CLT UCL	9.972					97.5% Chebyshev (MVUE) UCL	21.16
828					95% Modified-t UCL	10.91					99% Chebyshev (MVUE) UCL	29.18
829												
830	**Gamma Distribution Test**						**Data Distribution**					
831					k star (bias corrected)	1.66	**Data appear Normal at 5% Significance Level**					
832					Theta Star	4.477						
833					nu star	16.6						
834					Approximate Chi Square Value (.05)	8.386	**Nonparametric Statistics**					
835					Adjusted Level of Significance	0.0086					95% CLT UCL	10.13
836					Adjusted Chi Square Value	6.007					95% Jackknife UCL	10.93
837											95% Standard Bootstrap UCL	9.845
838					Anderson-Darling Test Statistic	0.319					95% Bootstrap-t UCL	10.61
839					Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	10.82
840					Kolmogorov-Smirnov Test Statistic	0.25					95% Percentile Bootstrap UCL	9.944
841					Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	9.918
842	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	14.59
843											97.5% Chebyshev(Mean, Sd) UCL	17.69
844	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	23.77
845					95% Approximate Gamma UCL	14.71						
846					95% Adjusted Gamma UCL	20.53						
847												
848	**Potential UCL to Use**										Use 95% Student's-t UCL	10.93

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850												
851	**Total PCB_Congeners**											
852												
853	**General Statistics**											
854	Number of Valid Observations					5	Number of Distinct Observations					5
855												
856	**Raw Statistics**						**Log-transformed Statistics**					
857	Minimum					287614	Minimum of Log Data					12.57
858	Maximum					1456025	Maximum of Log Data					14.19
859	Mean					726143	Mean of log Data					13.33
860	Median					511911	SD of log Data					0.633
861	SD					469168						
862	Coefficient of Variation					0.646						
863	Skewness					1.139						
864												
865												
866	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
867												
868	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
869	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
870												
871												
872	**Warning: There are only 5 Values in this data**											
873	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
874	**the resulting calculations may not be reliable enough to draw conclusions**											
875												
876	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
877												
878	**Relevant UCL Statistics**											
879	**Normal Distribution Test**						**Lognormal Distribution Test**					
880	Shapiro Wilk Test Statistic					0.895	Shapiro Wilk Test Statistic					0.969
881	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
882	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
883												
884	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
885	95% Student's-t UCL					1173443	95% H-UCL					2219371
886	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					1600019
887	95% Adjusted-CLT UCL					1185428	97.5% Chebyshev (MVUE) UCL					1979865
888	95% Modified-t UCL					1191250	99% Chebyshev (MVUE) UCL					2725998
889												
890	**Gamma Distribution Test**						**Data Distribution**					
891	k star (bias corrected)					1.433	**Data appear Normal at 5% Significance Level**					
892	Theta Star					506825						
893	nu star					14.33						
894	Approximate Chi Square Value (.05)					6.796	**Nonparametric Statistics**					
895	Adjusted Level of Significance					0.0086	95% CLT UCL					1071263
896	Adjusted Chi Square Value					4.707	95% Jackknife UCL					1173443
897							95% Standard Bootstrap UCL					1034838
898	Anderson-Darling Test Statistic					0.273	95% Bootstrap-t UCL					2156888
899	Anderson-Darling 5% Critical Value					0.682	95% Hall's Bootstrap UCL					3146210
900	Kolmogorov-Smirnov Test Statistic					0.257	95% Percentile Bootstrap UCL					1052158
901	Kolmogorov-Smirnov 5% Critical Value					0.359	95% BCA Bootstrap UCL					1133459

902	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		1640719
903										97.5% Chebyshev(Mean, Sd) UCL		2036456
904	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		2813806
905					95% Approximate Gamma UCL	1530845						
906					95% Adjusted Gamma UCL	2210189						
907												
908	Potential UCL to Use									Use 95% Student's-t UCL		1173443
909												
910												
911	Zinc											
912												
913	General Statistics											
914					Number of Valid Observations	5				Number of Distinct Observations		5
915												
916	Raw Statistics									Log-transformed Statistics		
917					Minimum	10.8				Minimum of Log Data		2.38
918					Maximum	15.2				Maximum of Log Data		2.721
919					Mean	12.88				Mean of log Data		2.547
920					Median	13.4				SD of log Data		0.151
921					SD	1.921						
922					Coefficient of Variation	0.149						
923					Skewness	-0.0946						
924												
925												
926	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
927												
928	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
929	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
930												
931												
932	Warning: There are only 5 Values in this data											
933	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
934	the resulting calculations may not be reliable enough to draw conclusions											
935												
936	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
937												
938	Relevant UCL Statistics											
939	Normal Distribution Test									Lognormal Distribution Test		
940					Shapiro Wilk Test Statistic	0.901				Shapiro Wilk Test Statistic		0.89
941					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value		0.762
942	Data appear Normal at 5% Significance Level									Data appear Lognormal at 5% Significance Level		
943												
944	Assuming Normal Distribution									Assuming Lognormal Distribution		
945					95% Student's-t UCL	14.71				95% H-UCL		15.15
946	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL		16.67
947					95% Adjusted-CLT UCL	14.25				97.5% Chebyshev (MVUE) UCL		18.32
948					95% Modified-t UCL	14.71				99% Chebyshev (MVUE) UCL		21.54
949												
950	Gamma Distribution Test									Data Distribution		
951					k star (bias corrected)	22.26				Data appear Normal at 5% Significance Level		
952					Theta Star	0.579						
953					nu star	222.6						
954					Approximate Chi Square Value (.05)	189.1				Nonparametric Statistics		

955					Adjusted Level of Significance	0.0086					95% CLT UCL	14.29
956					Adjusted Chi Square Value	175.5					95% Jackknife UCL	14.71
957											95% Standard Bootstrap UCL	14.15
958					Anderson-Darling Test Statistic	0.398					95% Bootstrap-t UCL	14.74
959					Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	13.76
960					Kolmogorov-Smirnov Test Statistic	0.264					95% Percentile Bootstrap UCL	14.12
961					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	14.12
962					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	16.63
963											97.5% Chebyshev(Mean, Sd) UCL	18.25
964					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	21.43
965					95% Approximate Gamma UCL	15.16						
966					95% Adjusted Gamma UCL	16.34						
967												
968					**Potential UCL to Use**						Use 95% Student's-t UCL	14.71
969												
970												
971	**Total PCBs, Adjusted**											
972												
973					**General Statistics**							
974					Number of Valid Observations	5					Number of Distinct Observations	5
975												
976					**Raw Statistics**						**Log-transformed Statistics**	
977					Minimum	264261					Minimum of Log Data	12.48
978					Maximum	1304591					Maximum of Log Data	14.08
979					Mean	657840					Mean of log Data	13.24
980					Median	466235					SD of log Data	0.624
981					SD	417731						
982					Coefficient of Variation	0.635						
983					Skewness	1.112						
984												
985												
986	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
987												
988	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
989	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
990												
991												
992	**Warning: There are only 5 Values in this data**											
993	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
994	**the resulting calculations may not be reliable enough to draw conclusions**											
995												
996	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
997												
998	**Relevant UCL Statistics**											
999	**Normal Distribution Test**										**Lognormal Distribution Test**	
1000					Shapiro Wilk Test Statistic	0.898					Shapiro Wilk Test Statistic	0.968
1001					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
1002	**Data appear Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
1003												
1004	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
1005					95% Student's-t UCL	1056101					95% H-UCL	1955058
1006	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1438668
1007					95% Adjusted-CLT UCL	1064376					97.5% Chebyshev (MVUE) UCL	1777952

1008					95% Modified-t UCL	1071582					99% Chebyshev (MVUE) UCL	2444410
1009												
1010					**Gamma Distribution Test**						**Data Distribution**	
1011					k star (bias corrected)	1.473					**Data appear Normal at 5% Significance Level**	
1012					Theta Star	446737						
1013					nu star	14.73						
1014					Approximate Chi Square Value (.05)	7.071					**Nonparametric Statistics**	
1015					Adjusted Level of Significance	0.0086					95% CLT UCL	965124
1016					Adjusted Chi Square Value	4.93					95% Jackknife UCL	1056101
1017											95% Standard Bootstrap UCL	928343
1018					Anderson-Darling Test Statistic	0.274					95% Bootstrap-t UCL	1916314
1019					Anderson-Darling 5% Critical Value	0.682					95% Hall's Bootstrap UCL	3499775
1020					Kolmogorov-Smirnov Test Statistic	0.258					95% Percentile Bootstrap UCL	948948
1021					Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	959893
1022					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1472148
1023											97.5% Chebyshev(Mean, Sd) UCL	1824500
1024					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	2516626
1025					95% Approximate Gamma UCL	1369966						
1026					95% Adjusted Gamma UCL	1964957						
1027												
1028					**Potential UCL to Use**						Use 95% Student's-t UCL	1056101
1029												
1030												
1031	**Total TEQ**											
1032												
1033					**General Statistics**							
1034					Number of Valid Observations	5					Number of Distinct Observations	5
1035												
1036					**Raw Statistics**						**Log-transformed Statistics**	
1037					Minimum	3.836					Minimum of Log Data	1.344
1038					Maximum	14.49					Maximum of Log Data	2.674
1039					Mean	9.556					Mean of log Data	2.173
1040					Median	9.331					SD of log Data	0.497
1041					SD	3.835						
1042					Coefficient of Variation	0.401						
1043					Skewness	-0.479						
1044												
1045												
1046	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1047												
1048	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1049	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1050												
1051												
1052	**Warning: There are only 5 Values in this data**											
1053	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1054	**the resulting calculations may not be reliable enough to draw conclusions**											
1055												
1056	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1057												
1058	**Relevant UCL Statistics**											
1059	**Normal Distribution Test**										**Lognormal Distribution Test**	
1060					Shapiro Wilk Test Statistic	0.945					Shapiro Wilk Test Statistic	0.858

1061					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
1062	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1063												
1064	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1065					95% Student's-t UCL	13.21					95% H-UCL	20.61
1066	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	18.97
1067					95% Adjusted-CLT UCL	11.98					97.5% Chebyshev (MVUE) UCL	22.99
1068					95% Modified-t UCL	13.15					99% Chebyshev (MVUE) UCL	30.89
1069												
1070	**Gamma Distribution Test**						**Data Distribution**					
1071					k star (bias corrected)	2.561	**Data appear Normal at 5% Significance Level**					
1072					Theta Star	3.732						
1073					nu star	25.61						
1074					Approximate Chi Square Value (.05)	15.08	**Nonparametric Statistics**					
1075					Adjusted Level of Significance	0.0086					95% CLT UCL	12.38
1076					Adjusted Chi Square Value	11.7					95% Jackknife UCL	13.21
1077											95% Standard Bootstrap UCL	11.99
1078					Anderson-Darling Test Statistic	0.431					95% Bootstrap-t UCL	12.66
1079					Anderson-Darling 5% Critical Value	0.68					95% Hall's Bootstrap UCL	12.51
1080					Kolmogorov-Smirnov Test Statistic	0.326					95% Percentile Bootstrap UCL	12
1081					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	12
1082	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	17.03
1083											97.5% Chebyshev(Mean, Sd) UCL	20.27
1084	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	26.62
1085					95% Approximate Gamma UCL	16.23						
1086					95% Adjusted Gamma UCL	20.92						
1087												
1088	**Potential UCL to Use**										Use 95% Student's-t UCL	13.21
1089												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	SMB_EA7	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

2-Methylnaphthalene

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.6	Minimum of Log Data	0.47
Maximum	59	Maximum of Log Data	4.078
Mean	30.8	Mean of log Data	2.724
Median	43	SD of log Data	1.64
SD	26.1		
Coefficient of Variation	0.847		
Skewness	-0.364		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.852	Shapiro Wilk Test Statistic	0.817
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	55.68	95% H-UCL	33536
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	147.5
95% Adjusted-CLT UCL	47.97	97.5% Chebyshev (MVUE) UCL	194.6
95% Modified-t UCL	55.37	99% Chebyshev (MVUE) UCL	287.1
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.469	**Data appear Normal at 5% Significance Level**	
Theta Star	65.72		
nu star	4.686		
Approximate Chi Square Value (.05)	1.01	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	50

54					Adjusted Chi Square Value	0.453					95% Jackknife UCL	55.68
55											95% Standard Bootstrap UCL	47.8
56					Anderson-Darling Test Statistic	0.59					95% Bootstrap-t UCL	56.79
57					Anderson-Darling 5% Critical Value	0.696					95% Hall's Bootstrap UCL	41.18
58					Kolmogorov-Smirnov Test Statistic	0.353					95% Percentile Bootstrap UCL	48
59					Kolmogorov-Smirnov 5% Critical Value	0.366					95% BCA Bootstrap UCL	46.8
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	81.68
61											97.5% Chebyshev(Mean, Sd) UCL	103.7
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	146.9
63					95% Approximate Gamma UCL	142.9						
64					95% Adjusted Gamma UCL	318.8						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	55.68
67												
68												
69	**Aluminum**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	3.3					Minimum of Log Data	1.194
76					Maximum	6.14					Maximum of Log Data	1.815
77					Mean	4.9					Mean of log Data	1.569
78					Median	4.92					SD of log Data	0.232
79					SD	1.046						
80					Coefficient of Variation	0.213						
81					Skewness	-0.754						
82												
83												
84					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 5 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.958					Shapiro Wilk Test Statistic	0.915
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	5.897					95% H-UCL	6.412
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	7.122
105					95% Adjusted-CLT UCL	5.501					97.5% Chebyshev (MVUE) UCL	8.081
106					95% Modified-t UCL	5.871					99% Chebyshev (MVUE) UCL	9.965

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	10.03	**Data appear Normal at 5% Significance Level**					
110					Theta Star	0.488						
111					nu star	100.3						
112					Approximate Chi Square Value (.05)	78.23	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0086					95% CLT UCL	5.669
114					Adjusted Chi Square Value	69.73					95% Jackknife UCL	5.897
115											95% Standard Bootstrap UCL	5.562
116					Anderson-Darling Test Statistic	0.319					95% Bootstrap-t UCL	5.71
117					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	5.616
118					Kolmogorov-Smirnov Test Statistic	0.261					95% Percentile Bootstrap UCL	5.564
119					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	5.432
120	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	6.938
121											97.5% Chebyshev(Mean, Sd) UCL	7.82
122	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	9.553
123					95% Approximate Gamma UCL	6.285						
124					95% Adjusted Gamma UCL	7.051						
125												
126	**Potential UCL to Use**										Use 95% Student's-t UCL	5.897
127												
128												
129	**Arsenic**											
130												
131	**General Statistics**											
132					Number of Valid Observations	5					Number of Distinct Observations	5
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	0.21					Minimum of Log Data	-1.561
136					Maximum	0.29					Maximum of Log Data	-1.238
137					Mean	0.241					Mean of log Data	-1.429
138					Median	0.235					SD of log Data	0.118
139					SD	0.0297						
140					Coefficient of Variation	0.123						
141					Skewness	1.378						
142												
143												
144	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
145												
146	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
147	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
148												
149												
150	**Warning: There are only 5 Values in this data**											
151	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
152	**the resulting calculations may not be reliable enough to draw conclusions**											
153												
154	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
155												
156	**Relevant UCL Statistics**											
157	**Normal Distribution Test**						**Lognormal Distribution Test**					
158					Shapiro Wilk Test Statistic	0.878					Shapiro Wilk Test Statistic	0.904
159					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762

160	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
161												
162	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
163				95% Student's-t UCL	0.269					95% H-UCL	0.273	
164	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.296	
165				95% Adjusted-CLT UCL	0.272					97.5% Chebyshev (MVUE) UCL	0.32	
166				95% Modified-t UCL	0.271					99% Chebyshev (MVUE) UCL	0.368	
167												
168	**Gamma Distribution Test**						**Data Distribution**					
169				k star (bias corrected)	35.05		**Data appear Normal at 5% Significance Level**					
170				Theta Star	0.00688							
171				nu star	350.5							
172				Approximate Chi Square Value (.05)	308.1		**Nonparametric Statistics**					
173				Adjusted Level of Significance	0.0086					95% CLT UCL	0.263	
174				Adjusted Chi Square Value	290.6					95% Jackknife UCL	0.269	
175										95% Standard Bootstrap UCL	0.261	
176				Anderson-Darling Test Statistic	0.419					95% Bootstrap-t UCL	0.291	
177				Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	0.382	
178				Kolmogorov-Smirnov Test Statistic	0.301					95% Percentile Bootstrap UCL	0.262	
179				Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.263	
180	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.299	
181										97.5% Chebyshev(Mean, Sd) UCL	0.324	
182	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.373	
183				95% Approximate Gamma UCL	0.274							
184				95% Adjusted Gamma UCL	0.291							
185												
186	**Potential UCL to Use**									Use 95% Student's-t UCL	0.269	
187												
188												
189	**Copper**											
190												
191	**General Statistics**											
192				Number of Valid Observations	5					Number of Distinct Observations	5	
193												
194	**Raw Statistics**						**Log-transformed Statistics**					
195				Minimum	0.394					Minimum of Log Data	-0.931	
196				Maximum	0.953					Maximum of Log Data	-0.0481	
197				Mean	0.654					Mean of log Data	-0.47	
198				Median	0.642					SD of log Data	0.341	
199				SD	0.216							
200				Coefficient of Variation	0.331							
201				Skewness	0.32							
202												
203												
204	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
205												
206	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
207	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
208												
209												
210	**Warning: There are only 5 Values in this data**											
211	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
212	**the resulting calculations may not be reliable enough to draw conclusions**											

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218				Shapiro Wilk Test Statistic	0.989					Shapiro Wilk Test Statistic	0.992	
219				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
220	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223				95% Student's-t UCL	0.861					95% H-UCL	1.016	
224	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	1.089	
225				95% Adjusted-CLT UCL	0.828					97.5% Chebyshev (MVUE) UCL	1.277	
226				95% Modified-t UCL	0.863					99% Chebyshev (MVUE) UCL	1.646	
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229				k star (bias corrected)	4.593		**Data appear Normal at 5% Significance Level**					
230				Theta Star	0.142							
231				nu star	45.93							
232				Approximate Chi Square Value (.05)	31.38		**Nonparametric Statistics**					
233				Adjusted Level of Significance	0.0086					95% CLT UCL	0.814	
234				Adjusted Chi Square Value	26.24					95% Jackknife UCL	0.861	
235										95% Standard Bootstrap UCL	0.797	
236				Anderson-Darling Test Statistic	0.163					95% Bootstrap-t UCL	0.892	
237				Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.934	
238				Kolmogorov-Smirnov Test Statistic	0.14					95% Percentile Bootstrap UCL	0.803	
239				Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.803	
240	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	1.076	
241										97.5% Chebyshev(Mean, Sd) UCL	1.259	
242	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	1.618	
243				95% Approximate Gamma UCL	0.958							
244				95% Adjusted Gamma UCL	1.146							
245												
246	**Potential UCL to Use**									Use 95% Student's-t UCL	0.861	
247												
248												
249	**Lead**											
250												
251	**General Statistics**											
252				Number of Valid Observations	5					Number of Distinct Observations	5	
253												
254	**Raw Statistics**						**Log-transformed Statistics**					
255				Minimum	0.0051					Minimum of Log Data	-5.279	
256				Maximum	0.0335					Maximum of Log Data	-3.396	
257				Mean	0.0185					Mean of log Data	-4.232	
258				Median	0.02					SD of log Data	0.839	
259				SD	0.0124							
260				Coefficient of Variation	0.668							
261				Skewness	0.00636							
262												
263												
264	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
265												

266	It is suggested to collect at least 8 to 10 observations using these statistical methods!	
267	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.	
268		
269		
270	Warning: There are only 5 Values in this data	
271	Note: It should be noted that even though bootstrap methods may be performed on this data set,	
272	the resulting calculations may not be reliable enough to draw conclusions	
273		
274	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.	
275		
276	Relevant UCL Statistics	
277	Normal Distribution Test	Lognormal Distribution Test
278	Shapiro Wilk Test Statistic 0.919	Shapiro Wilk Test Statistic 0.884
279	Shapiro Wilk Critical Value 0.762	Shapiro Wilk Critical Value 0.762
280	Data appear Normal at 5% Significance Level	Data appear Lognormal at 5% Significance Level
281		
282	Assuming Normal Distribution	Assuming Lognormal Distribution
283	95% Student's-t UCL 0.0303	95% H-UCL 0.121
284	95% UCLs (Adjusted for Skewness)	95% Chebyshev (MVUE) UCL 0.0492
285	95% Adjusted-CLT UCL 0.0276	97.5% Chebyshev (MVUE) UCL 0.0623
286	95% Modified-t UCL 0.0303	99% Chebyshev (MVUE) UCL 0.088
287		
288	Gamma Distribution Test	Data Distribution
289	k star (bias corrected) 1.017	Data appear Normal at 5% Significance Level
290	Theta Star 0.0182	
291	nu star 10.17	
292	Approximate Chi Square Value (.05) 4.046	Nonparametric Statistics
293	Adjusted Level of Significance 0.0086	95% CLT UCL 0.0276
294	Adjusted Chi Square Value 2.546	95% Jackknife UCL 0.0303
295		95% Standard Bootstrap UCL 0.0265
296	Anderson-Darling Test Statistic 0.383	95% Bootstrap-t UCL 0.0297
297	Anderson-Darling 5% Critical Value 0.684	95% Hall's Bootstrap UCL 0.026
298	Kolmogorov-Smirnov Test Statistic 0.243	95% Percentile Bootstrap UCL 0.0268
299	Kolmogorov-Smirnov 5% Critical Value 0.36	95% BCA Bootstrap UCL 0.0268
300	Data appear Gamma Distributed at 5% Significance Level	95% Chebyshev(Mean, Sd) UCL 0.0426
301		97.5% Chebyshev(Mean, Sd) UCL 0.053
302	Assuming Gamma Distribution	99% Chebyshev(Mean, Sd) UCL 0.0735
303	95% Approximate Gamma UCL 0.0465	
304	95% Adjusted Gamma UCL 0.0739	
305		
306	Potential UCL to Use	Use 95% Student's-t UCL 0.0303
307		
308		
309	Manganese	
310		
311	General Statistics	
312	Number of Valid Observations 5	Number of Distinct Observations 5
313		
314	Raw Statistics	Log-transformed Statistics
315	Minimum 1	Minimum of Log Data 0
316	Maximum 2.16	Maximum of Log Data 0.77
317	Mean 1.698	Mean of log Data 0.489
318	Median 1.93	SD of log Data 0.33

319					SD	0.5						
320					Coefficient of Variation	0.294						
321					Skewness	-0.759						
322												
323												
324	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
325												
326	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
327	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
328												
329												
330	**Warning: There are only 5 Values in this data**											
331	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
332	**the resulting calculations may not be reliable enough to draw conclusions**											
333												
334	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
335												
336	**Relevant UCL Statistics**											
337	**Normal Distribution Test**						**Lognormal Distribution Test**					
338	Shapiro Wilk Test Statistic					0.884	Shapiro Wilk Test Statistic					0.864
339	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
340	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
341												
342	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
343	95% Student's-t UCL					2.175	95% H-UCL					2.587
344	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					2.793
345	95% Adjusted-CLT UCL					1.985	97.5% Chebyshev (MVUE) UCL					3.264
346	95% Modified-t UCL					2.162	99% Chebyshev (MVUE) UCL					4.191
347												
348	**Gamma Distribution Test**						**Data Distribution**					
349	k star (bias corrected)					5.157	**Data appear Normal at 5% Significance Level**					
350	Theta Star					0.329						
351	nu star					51.57						
352	Approximate Chi Square Value (.05)					36.08	**Nonparametric Statistics**					
353	Adjusted Level of Significance					0.0086	95% CLT UCL					2.066
354	Adjusted Chi Square Value					30.52	95% Jackknife UCL					2.175
355							95% Standard Bootstrap UCL					2.026
356	Anderson-Darling Test Statistic					0.45	95% Bootstrap-t UCL					2.104
357	Anderson-Darling 5% Critical Value					0.679	95% Hall's Bootstrap UCL					1.918
358	Kolmogorov-Smirnov Test Statistic					0.311	95% Percentile Bootstrap UCL					2.046
359	Kolmogorov-Smirnov 5% Critical Value					0.357	95% BCA Bootstrap UCL					1.954
360	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					2.672
361							97.5% Chebyshev(Mean, Sd) UCL					3.094
362	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					3.922
363	95% Approximate Gamma UCL					2.427						
364	95% Adjusted Gamma UCL					2.87						
365												
366	**Potential UCL to Use**						Use 95% Student's-t UCL					2.175
367	**Recommended UCL exceeds the maximum observation**											
368												
369												
370	**Mercury**											
371												

372	**General Statistics**											
373	Number of Valid Observations				5		Number of Distinct Observations					5
374												
375	**Raw Statistics**						**Log-transformed Statistics**					
376	Minimum				0.071		Minimum of Log Data					-2.645
377	Maximum				0.152		Maximum of Log Data					-1.884
378	Mean				0.102		Mean of log Data					-2.311
379	Median				0.0969		SD of log Data					0.274
380	SD				0.03							
381	Coefficient of Variation				0.293							
382	Skewness				1.402							
383												
384												
385	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
386												
387	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
388	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
389												
390												
391	**Warning: There are only 5 Values in this data**											
392	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
393	**the resulting calculations may not be reliable enough to draw conclusions**											
394												
395	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
396												
397	**Relevant UCL Statistics**											
398	**Normal Distribution Test**						**Lognormal Distribution Test**					
399	Shapiro Wilk Test Statistic				0.867		Shapiro Wilk Test Statistic					0.923
400	Shapiro Wilk Critical Value				0.762		Shapiro Wilk Critical Value					0.762
401	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
402												
403	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
404	95% Student's-t UCL				0.131		95% H-UCL					0.142
405	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.157
406	95% Adjusted-CLT UCL				0.133		97.5% Chebyshev (MVUE) UCL					0.18
407	95% Modified-t UCL				0.132		99% Chebyshev (MVUE) UCL					0.227
408												
409	**Gamma Distribution Test**						**Data Distribution**					
410	k star (bias corrected)				6.576		**Data appear Normal at 5% Significance Level**					
411	Theta Star				0.0156							
412	nu star				65.76							
413	Approximate Chi Square Value (.05)				48.1		**Nonparametric Statistics**					
414	Adjusted Level of Significance				0.0086		95% CLT UCL					0.124
415	Adjusted Chi Square Value				41.58		95% Jackknife UCL					0.131
416							95% Standard Bootstrap UCL					0.122
417	Anderson-Darling Test Statistic				0.403		95% Bootstrap-t UCL					0.153
418	Anderson-Darling 5% Critical Value				0.679		95% Hall's Bootstrap UCL					0.251
419	Kolmogorov-Smirnov Test Statistic				0.303		95% Percentile Bootstrap UCL					0.124
420	Kolmogorov-Smirnov 5% Critical Value				0.357		95% BCA Bootstrap UCL					0.125
421	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.161
422							97.5% Chebyshev(Mean, Sd) UCL					0.186
423	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.236
424	95% Approximate Gamma UCL				0.14							

425					95% Adjusted Gamma UCL	0.162						
426												
427					**Potential UCL to Use**						Use 95% Student's-t UCL	0.131
428												
429												
430	**Thallium**											
431												
432					**General Statistics**							
433					Number of Valid Observations	5					Number of Distinct Observations	5
434												
435					**Raw Statistics**						**Log-transformed Statistics**	
436					Minimum	0.0032					Minimum of Log Data	-5.745
437					Maximum	0.004					Maximum of Log Data	-5.521
438					Mean	0.00358					Mean of log Data	-5.636
439					Median	0.0035					SD of log Data	0.0991
440					SD	0.0003564						
441					Coefficient of Variation	0.0995						
442					Skewness	0.272						
443												
444												
445					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
446												
447					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
448					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
449												
450												
451					**Warning: There are only 5 Values in this data**							
452					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
453					**the resulting calculations may not be reliable enough to draw conclusions**							
454												
455					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
456												
457					**Relevant UCL Statistics**							
458					**Normal Distribution Test**						**Lognormal Distribution Test**	
459					Shapiro Wilk Test Statistic	0.901					Shapiro Wilk Test Statistic	0.905
460					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
461					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
462												
463					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
464					95% Student's-t UCL	0.00392					95% H-UCL	N/A
465					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.00427
466					95% Adjusted-CLT UCL	0.00386					97.5% Chebyshev (MVUE) UCL	0.00457
467					95% Modified-t UCL	0.00392					99% Chebyshev (MVUE) UCL	0.00516
468												
469					**Gamma Distribution Test**						**Data Distribution**	
470					k star (bias corrected)	50.94					**Data appear Normal at 5% Significance Level**	
471					Theta Star	7.027E-05						
472					nu star	509.4						
473					Approximate Chi Square Value (.05)	458.1					**Nonparametric Statistics**	
474					Adjusted Level of Significance	0.0086					95% CLT UCL	0.00384
475					Adjusted Chi Square Value	436.5					95% Jackknife UCL	0.00392
476											95% Standard Bootstrap UCL	0.00381
477					Anderson-Darling Test Statistic	0.362					95% Bootstrap-t UCL	0.00414

478				Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	0.00403	
479				Kolmogorov-Smirnov Test Statistic	0.243					95% Percentile Bootstrap UCL	0.00382	
480				Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.00384	
481				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.00427	
482										97.5% Chebyshev(Mean, Sd) UCL	0.00458	
483				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.00517	
484				95% Approximate Gamma UCL	0.00398							
485				95% Adjusted Gamma UCL	0.00418							
486												
487				**Potential UCL to Use**						Use 95% Student's-t UCL	0.00392	
488												
489												
490	**Total DDD**											
491												
492				**General Statistics**								
493				Number of Valid Observations	5					Number of Distinct Observations	5	
494												
495				**Raw Statistics**						**Log-transformed Statistics**		
496				Minimum	19.02					Minimum of Log Data	2.945	
497				Maximum	518					Maximum of Log Data	6.25	
498				Mean	161.3					Mean of log Data	4.496	
499				Median	68					SD of log Data	1.213	
500				SD	204							
501				Coefficient of Variation	1.265							
502				Skewness	1.999							
503												
504												
505				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
506												
507				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
508				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
509												
510												
511				**Warning: There are only 5 Values in this data**								
512				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
513				**the resulting calculations may not be reliable enough to draw conclusions**								
514												
515				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
516												
517				**Relevant UCL Statistics**								
518				**Normal Distribution Test**						**Lognormal Distribution Test**		
519				Shapiro Wilk Test Statistic	0.736					Shapiro Wilk Test Statistic	0.971	
520				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
521				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
522												
523				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
524				95% Student's-t UCL	355.8					95% H-UCL	6432	
525				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	494.5	
526				95% Adjusted-CLT UCL	398.5					97.5% Chebyshev (MVUE) UCL	641.9	
527				95% Modified-t UCL	369.4					99% Chebyshev (MVUE) UCL	931.5	
528												
529				**Gamma Distribution Test**						**Data Distribution**		
530				k star (bias corrected)	0.528					**Data appear Gamma Distributed at 5% Significance Level**		

531					Theta Star	305.7						
532					nu star	5.275						
533					Approximate Chi Square Value (.05)	1.281				**Nonparametric Statistics**		
534					Adjusted Level of Significance	0.0086				95% CLT UCL	311.3	
535					Adjusted Chi Square Value	0.612				95% Jackknife UCL	355.8	
536										95% Standard Bootstrap UCL	295.2	
537					Anderson-Darling Test Statistic	0.359				95% Bootstrap-t UCL	1154	
538					Anderson-Darling 5% Critical Value	0.692				95% Hall's Bootstrap UCL	1262	
539					Kolmogorov-Smirnov Test Statistic	0.253				95% Percentile Bootstrap UCL	290.6	
540					Kolmogorov-Smirnov 5% Critical Value	0.365				95% BCA Bootstrap UCL	351.1	
541					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	559	
542										97.5% Chebyshev(Mean, Sd) UCL	731	
543					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	1069	
544					95% Approximate Gamma UCL	663.9						
545					95% Adjusted Gamma UCL	1391						
546												
547					**Potential UCL to Use**					Use 95% Approximate Gamma UCL	663.9	
548					**Recommended UCL exceeds the maximum observation**							
549												
550												
551	**Total DDE**											
552												
553					**General Statistics**							
554					Number of Valid Observations	5				Number of Distinct Observations	5	
555												
556					**Raw Statistics**					**Log-transformed Statistics**		
557					Minimum	84.25				Minimum of Log Data	4.434	
558					Maximum	474.4				Maximum of Log Data	6.162	
559					Mean	219.5				Mean of log Data	5.232	
560					Median	182				SD of log Data	0.617	
561					SD	148.7						
562					Coefficient of Variation	0.677						
563					Skewness	1.753						
564												
565												
566					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
567												
568					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
569					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
570												
571												
572					**Warning: There are only 5 Values in this data**							
573					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
574					**the resulting calculations may not be reliable enough to draw conclusions**							
575												
576					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
577												
578					**Relevant UCL Statistics**							
579					**Normal Distribution Test**					**Lognormal Distribution Test**		
580					Shapiro Wilk Test Statistic	0.802				Shapiro Wilk Test Statistic	0.928	
581					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	
582					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
583												

584	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
585					95% Student's-t UCL	361.3					95% H-UCL	635.9
586	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	474.7
587					95% Adjusted-CLT UCL	384.6					97.5% Chebyshev (MVUE) UCL	586.1
588					95% Modified-t UCL	370					99% Chebyshev (MVUE) UCL	805
589												
590	**Gamma Distribution Test**						**Data Distribution**					
591					k star (bias corrected)	1.454	**Data appear Normal at 5% Significance Level**					
592					Theta Star	151						
593					nu star	14.54						
594					Approximate Chi Square Value (.05)	6.941	**Nonparametric Statistics**					
595					Adjusted Level of Significance	0.0086					95% CLT UCL	328.9
596					Adjusted Chi Square Value	4.824					95% Jackknife UCL	361.3
597											95% Standard Bootstrap UCL	315.7
598					Anderson-Darling Test Statistic	0.434					95% Bootstrap-t UCL	624.3
599					Anderson-Darling 5% Critical Value	0.682					95% Hall's Bootstrap UCL	932.8
600					Kolmogorov-Smirnov Test Statistic	0.316					95% Percentile Bootstrap UCL	318.3
601					Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	356
602	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	509.4
603											97.5% Chebyshev(Mean, Sd) UCL	634.9
604	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	881.3
605					95% Approximate Gamma UCL	459.8						
606					95% Adjusted Gamma UCL	661.5						
607												
608	**Potential UCL to Use**										Use 95% Student's-t UCL	361.3
609												
610												
611	**Total DDT**											
612												
613	**General Statistics**											
614					Number of Valid Observations	5					Number of Distinct Observations	5
615												
616	**Raw Statistics**						**Log-transformed Statistics**					
617					Minimum	11.19					Minimum of Log Data	2.415
618					Maximum	462.7					Maximum of Log Data	6.137
619					Mean	157.5					Mean of log Data	4.404
620					Median	115					SD of log Data	1.423
621					SD	180.7						
622					Coefficient of Variation	1.147						
623					Skewness	1.664						
624												
625												
626	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
627												
628	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
629	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
630												
631												
632	**Warning: There are only 5 Values in this data**											
633	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
634	**the resulting calculations may not be reliable enough to draw conclusions**											
635												
636	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

637												
638	**Relevant UCL Statistics**											
639	**Normal Distribution Test**						**Lognormal Distribution Test**					
640					Shapiro Wilk Test Statistic	0.831					Shapiro Wilk Test Statistic	0.981
641					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
642	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
643												
644	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
645					95% Student's-t UCL	329.7					95% H-UCL	27804
646	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	594.2
647					95% Adjusted-CLT UCL	354.6					97.5% Chebyshev (MVUE) UCL	778.4
648					95% Modified-t UCL	339.7					99% Chebyshev (MVUE) UCL	1140
649												
650	**Gamma Distribution Test**						**Data Distribution**					
651					k star (bias corrected)	0.491	**Data appear Normal at 5% Significance Level**					
652					Theta Star	320.9						
653					nu star	4.907						
654					Approximate Chi Square Value (.05)	1.11	**Nonparametric Statistics**					
655					Adjusted Level of Significance	0.0086					95% CLT UCL	290.4
656					Adjusted Chi Square Value	0.51					95% Jackknife UCL	329.7
657											95% Standard Bootstrap UCL	275.7
658					Anderson-Darling Test Statistic	0.193					95% Bootstrap-t UCL	472.4
659					Anderson-Darling 5% Critical Value	0.694					95% Hall's Bootstrap UCL	866
660					Kolmogorov-Smirnov Test Statistic	0.158					95% Percentile Bootstrap UCL	302.9
661					Kolmogorov-Smirnov 5% Critical Value	0.365					95% BCA Bootstrap UCL	311.9
662	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	509.6
663											97.5% Chebyshev(Mean, Sd) UCL	662
664	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	961.3
665					95% Approximate Gamma UCL	696.4						
666					95% Adjusted Gamma UCL	1516						
667												
668	**Potential UCL to Use**										Use 95% Student's-t UCL	329.7
669												
670												
671	**Total Dioxin/Furan TEQ**											
672												
673	**General Statistics**											
674					Number of Valid Observations	5					Number of Distinct Observations	5
675												
676	**Raw Statistics**						**Log-transformed Statistics**					
677					Minimum	5.337					Minimum of Log Data	1.675
678					Maximum	51.87					Maximum of Log Data	3.949
679					Mean	17.67					Mean of log Data	2.492
680					Median	7.769					SD of log Data	0.904
681					SD	19.52						
682					Coefficient of Variation	1.105						
683					Skewness	2.025						
684												
685												
686	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
687												
688	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
689	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											

690												
691												
692	**Warning: There are only 5 Values in this data**											
693	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
694	**the resulting calculations may not be reliable enough to draw conclusions**											
695												
696	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
697												
698	**Relevant UCL Statistics**											
699	**Normal Distribution Test**						**Lognormal Distribution Test**					
700	Shapiro Wilk Test Statistic	0.709					Shapiro Wilk Test Statistic	0.87				
701	Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762				
702	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
703												
704	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
705	95% Student's-t UCL	36.28					95% H-UCL	138.4				
706	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	44.57				
707	95% Adjusted-CLT UCL	40.47					97.5% Chebyshev (MVUE) UCL	56.73				
708	95% Modified-t UCL	37.59					99% Chebyshev (MVUE) UCL	80.6				
709												
710	**Gamma Distribution Test**						**Data Distribution**					
711	k star (bias corrected)	0.718					**Data appear Gamma Distributed at 5% Significance Level**					
712	Theta Star	24.6										
713	nu star	7.182										
714	Approximate Chi Square Value (.05)	2.271					**Nonparametric Statistics**					
715	Adjusted Level of Significance	0.0086					95% CLT UCL	32.02				
716	Adjusted Chi Square Value	1.256					95% Jackknife UCL	36.28				
717							95% Standard Bootstrap UCL	30.65				
718	Anderson-Darling Test Statistic	0.577					95% Bootstrap-t UCL	183.6				
719	Anderson-Darling 5% Critical Value	0.687					95% Hall's Bootstrap UCL	159.7				
720	Kolmogorov-Smirnov Test Statistic	0.32					95% Percentile Bootstrap UCL	33.72				
721	Kolmogorov-Smirnov 5% Critical Value	0.362					95% BCA Bootstrap UCL	37.41				
722	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	55.72				
723							97.5% Chebyshev(Mean, Sd) UCL	72.18				
724	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	104.5				
725	95% Approximate Gamma UCL	55.87										
726	95% Adjusted Gamma UCL	101										
727												
728	**Potential UCL to Use**						Use 95% Approximate Gamma UCL	55.87				
729	**Recommended UCL exceeds the maximum observation**											
730												
731												
732	**Total Dioxin-like PCBs**											
733												
734	**General Statistics**											
735	Number of Valid Observations	5					Number of Distinct Observations	5				
736												
737	**Raw Statistics**						**Log-transformed Statistics**					
738	Minimum	33073					Minimum of Log Data	10.41				
739	Maximum	52675					Maximum of Log Data	10.87				
740	Mean	39627					Mean of log Data	10.57				
741	Median	37668					SD of log Data	0.191				
742	SD	8045										

743					Coefficient of Variation	0.203						
744					Skewness	1.356						
745												
746												
747	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
748												
749	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
750	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
751												
752												
753	**Warning: There are only 5 Values in this data**											
754	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
755	**the resulting calculations may not be reliable enough to draw conclusions**											
756												
757	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
758												
759	**Relevant UCL Statistics**											
760	**Normal Distribution Test**						**Lognormal Distribution Test**					
761	Shapiro Wilk Test Statistic	0.863					Shapiro Wilk Test Statistic	0.89				
762	Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762				
763	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
764												
765	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
766	95% Student's-t UCL	47297					95% H-UCL	48970				
767	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	54346				
768	95% Adjusted-CLT UCL	47876					97.5% Chebyshev (MVUE) UCL	60726				
769	95% Modified-t UCL	47661					99% Chebyshev (MVUE) UCL	73257				
770												
771	**Gamma Distribution Test**						**Data Distribution**					
772	k star (bias corrected)	13.34					**Data appear Normal at 5% Significance Level**					
773	Theta Star	2970										
774	nu star	133.4										
775	Approximate Chi Square Value (.05)	107.7					**Nonparametric Statistics**					
776	Adjusted Level of Significance	0.0086					95% CLT UCL	45545				
777	Adjusted Chi Square Value	97.65					95% Jackknife UCL	47297				
778							95% Standard Bootstrap UCL	44932				
779	Anderson-Darling Test Statistic	0.385					95% Bootstrap-t UCL	54827				
780	Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	69201				
781	Kolmogorov-Smirnov Test Statistic	0.216					95% Percentile Bootstrap UCL	45753				
782	Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	45816				
783	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	55310				
784							97.5% Chebyshev(Mean, Sd) UCL	62096				
785	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	75426				
786	95% Approximate Gamma UCL	49074										
787	95% Adjusted Gamma UCL	54150										
788												
789	**Potential UCL to Use**						Use 95% Student's-t UCL	47297				
790												
791												
792	**Total PCB TEQ**											
793												
794	**General Statistics**											
795	Number of Valid Observations	5					Number of Distinct Observations	5				

Raw Statistics		
Minimum	5.181	
Maximum	7.883	
Mean	5.94	
Median	5.26	
SD	1.165	
Coefficient of Variation	0.196	
Skewness	1.634	

Log-transformed Statistics	
Minimum of Log Data	1.645
Maximum of Log Data	2.065
Mean of log Data	1.768
SD of log Data	0.182

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.762	Shapiro Wilk Test Statistic	0.779
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7.05	95% H-UCL	7.25
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.036
95% Adjusted-CLT UCL	7.203	97.5% Chebyshev (MVUE) UCL	8.944
95% Modified-t UCL	7.114	99% Chebyshev (MVUE) UCL	10.73
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	14.59	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.407		
nu star	145.9		
Approximate Chi Square Value (.05)	119	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	6.797
Adjusted Chi Square Value	108.3	95% Jackknife UCL	7.05
		95% Standard Bootstrap UCL	6.714
Anderson-Darling Test Statistic	0.664	95% Bootstrap-t UCL	27.84
Anderson-Darling 5% Critical Value	0.678	95% Hall's Bootstrap UCL	22.7
Kolmogorov-Smirnov Test Statistic	0.345	95% Percentile Bootstrap UCL	6.806
Kolmogorov-Smirnov 5% Critical Value	0.357	95% BCA Bootstrap UCL	7.018
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8.21
		97.5% Chebyshev(Mean, Sd) UCL	9.192
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	11.12
95% Approximate Gamma UCL	7.284		
95% Adjusted Gamma UCL	7.999		

849	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	7.284
850												
851												
852	**Total PCB_Congeners**											
853												
854	**General Statistics**											
855	Number of Valid Observations					5					Number of Distinct Observations	5
856												
857	**Raw Statistics**							**Log-transformed Statistics**				
858	Minimum					505446		Minimum of Log Data				13.13
859	Maximum					2007991		Maximum of Log Data				14.51
860	Mean					825150		Mean of log Data				13.45
861	Median					535659		SD of log Data				0.597
862	SD					661414						
863	Coefficient of Variation					0.802						
864	Skewness					2.233						
865												
866												
867	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
868												
869	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
870	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
871												
872												
873	**Warning: There are only 5 Values in this data**											
874	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
875	**the resulting calculations may not be reliable enough to draw conclusions**											
876												
877	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
878												
879	**Relevant UCL Statistics**											
880	**Normal Distribution Test**							**Lognormal Distribution Test**				
881	Shapiro Wilk Test Statistic					0.576		Shapiro Wilk Test Statistic				0.601
882	Shapiro Wilk Critical Value					0.762		Shapiro Wilk Critical Value				0.762
883	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**				
884												
885	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
886	95% Student's-t UCL					1455735		95% H-UCL				2196409
887	**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL				1706595
888	95% Adjusted-CLT UCL					1627301		97.5% Chebyshev (MVUE) UCL				2101346
889	95% Modified-t UCL					1504965		99% Chebyshev (MVUE) UCL				2876760
890												
891	**Gamma Distribution Test**							**Data Distribution**				
892	k star (bias corrected)					1.323		**Data do not follow a Discernable Distribution (0.05)**				
893	Theta Star					623851						
894	nu star					13.23						
895	Approximate Chi Square Value (.05)					6.045		**Nonparametric Statistics**				
896	Adjusted Level of Significance					0.0086		95% CLT UCL				1311686
897	Adjusted Chi Square Value					4.104		95% Jackknife UCL				1455735
898								95% Standard Bootstrap UCL				1248567
899	Anderson-Darling Test Statistic					1.216		95% Bootstrap-t UCL				21407461
900	Anderson-Darling 5% Critical Value					0.683		95% Hall's Bootstrap UCL				16121191
901	Kolmogorov-Smirnov Test Statistic					0.477		95% Percentile Bootstrap UCL				1413015

902				Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	1421638	
903				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2114482	
904										97.5% Chebyshev(Mean, Sd) UCL	2672378	
905				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3768255	
906				95% Approximate Gamma UCL	1805322							
907				95% Adjusted Gamma UCL	2659154							
908												
909				**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	2114482	
910				**Recommended UCL exceeds the maximum observation**								
911												
912												
913	**Zinc**											
914												
915				**General Statistics**								
916				Number of Valid Observations	5					Number of Distinct Observations	5	
917												
918				**Raw Statistics**						**Log-transformed Statistics**		
919				Minimum	12					Minimum of Log Data	2.485	
920				Maximum	16					Maximum of Log Data	2.773	
921				Mean	14.02					Mean of log Data	2.635	
922				Median	14.2					SD of log Data	0.113	
923				SD	1.569							
924				Coefficient of Variation	0.112							
925				Skewness	-0.0921							
926												
927												
928				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
929												
930				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
931				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
932												
933												
934				**Warning: There are only 5 Values in this data**								
935				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
936				**the resulting calculations may not be reliable enough to draw conclusions**								
937												
938				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
939												
940				**Relevant UCL Statistics**								
941				**Normal Distribution Test**						**Lognormal Distribution Test**		
942				Shapiro Wilk Test Statistic	0.986					Shapiro Wilk Test Statistic	0.983	
943				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
944				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
945												
946				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
947				95% Student's-t UCL	15.52					95% H-UCL	15.77	
948				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	17.11	
949				95% Adjusted-CLT UCL	15.14					97.5% Chebyshev (MVUE) UCL	18.44	
950				95% Modified-t UCL	15.51					99% Chebyshev (MVUE) UCL	21.07	
951												
952				**Gamma Distribution Test**						**Data Distribution**		
953				k star (bias corrected)	39.61					**Data appear Normal at 5% Significance Level**		
954				Theta Star	0.354							

955					nu star	396.1						
956					Approximate Chi Square Value (.05)	350.9				**Nonparametric Statistics**		
957					Adjusted Level of Significance	0.0086				95% CLT UCL	15.17	
958					Adjusted Chi Square Value	332.1				95% Jackknife UCL	15.52	
959										95% Standard Bootstrap UCL	15.05	
960					Anderson-Darling Test Statistic	0.188				95% Bootstrap-t UCL	15.4	
961					Anderson-Darling 5% Critical Value	0.678				95% Hall's Bootstrap UCL	15.05	
962					Kolmogorov-Smirnov Test Statistic	0.164				95% Percentile Bootstrap UCL	15.06	
963					Kolmogorov-Smirnov 5% Critical Value	0.357				95% BCA Bootstrap UCL	14.98	
964					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	17.08	
965										97.5% Chebyshev(Mean, Sd) UCL	18.4	
966					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	21	
967					95% Approximate Gamma UCL	15.82						
968					95% Adjusted Gamma UCL	16.72						
969												
970					**Potential UCL to Use**					Use 95% Student's-t UCL	15.52	
971												
972												
973	**Total PCBs, Adjusted**											
974												
975					**General Statistics**							
976					Number of Valid Observations	5				Number of Distinct Observations	5	
977												
978					**Raw Statistics**					**Log-transformed Statistics**		
979					Minimum	472059				Minimum of Log Data	13.06	
980					Maximum	1955316				Maximum of Log Data	14.49	
981					Mean	785522				Mean of log Data	13.38	
982					Median	494325				SD of log Data	0.617	
983					SD	654116						
984					Coefficient of Variation	0.833						
985					Skewness	2.233						
986												
987												
988	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
989												
990	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
991	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
992												
993												
994	**Warning: There are only 5 Values in this data**											
995	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
996	**the resulting calculations may not be reliable enough to draw conclusions**											
997												
998	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
999												
1000	**Relevant UCL Statistics**											
1001	**Normal Distribution Test**									**Lognormal Distribution Test**		
1002					Shapiro Wilk Test Statistic	0.575				Shapiro Wilk Test Statistic	0.601	
1003					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	
1004	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
1005												
1006	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1007					95% Student's-t UCL	1409151				95% H-UCL	2207187	

1008	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1646577
1009					95% Adjusted-CLT UCL	1578829					97.5% Chebyshev (MVUE) UCL	2033104
1010					95% Modified-t UCL	1457838					99% Chebyshev (MVUE) UCL	2792361
1011												
1012	**Gamma Distribution Test**										**Data Distribution**	
1013					k star (bias corrected)	1.245					**Data do not follow a Discernable Distribution (0.05)**	
1014					Theta Star	630897						
1015					nu star	12.45						
1016					Approximate Chi Square Value (.05)	5.525					**Nonparametric Statistics**	
1017					Adjusted Level of Significance	0.0086					95% CLT UCL	1266691
1018					Adjusted Chi Square Value	3.692					95% Jackknife UCL	1409151
1019											95% Standard Bootstrap UCL	1219037
1020					Anderson-Darling Test Statistic	1.216					95% Bootstrap-t UCL	19526951
1021					Anderson-Darling 5% Critical Value	0.683					95% Hall's Bootstrap UCL	17687978
1022					Kolmogorov-Smirnov Test Statistic	0.473					95% Percentile Bootstrap UCL	1366466
1023					Kolmogorov-Smirnov 5% Critical Value	0.36					95% BCA Bootstrap UCL	1374372
1024	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	2060630
1025											97.5% Chebyshev(Mean, Sd) UCL	2612370
1026	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	3696157
1027					95% Approximate Gamma UCL	1770072						
1028					95% Adjusted Gamma UCL	2649318						
1029												
1030	**Potential UCL to Use**										Use 95% Chebyshev (Mean, Sd) UCL	2060630
1031	**Recommended UCL exceeds the maximum observation**											
1032												
1033												
1034	**Total TEQ**											
1035												
1036	**General Statistics**											
1037					Number of Valid Observations	5					Number of Distinct Observations	5
1038												
1039	**Raw Statistics**						**Log-transformed Statistics**					
1040					Minimum	10.6					Minimum of Log Data	2.361
1041					Maximum	57.06					Maximum of Log Data	4.044
1042					Mean	23.61					Mean of log Data	2.951
1043					Median	13.81					SD of log Data	0.679
1044					SD	19.35						
1045					Coefficient of Variation	0.82						
1046					Skewness	1.903						
1047												
1048												
1049	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1050												
1051	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1052	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1053												
1054												
1055	**Warning: There are only 5 Values in this data**											
1056	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1057	**the resulting calculations may not be reliable enough to draw conclusions**											
1058												
1059	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1060												

	A	B	C	D	E	F	G	H	I	J	K	L
1061	**Relevant UCL Statistics**											
1062	**Normal Distribution Test**						**Lognormal Distribution Test**					
1063					Shapiro Wilk Test Statistic	0.747					Shapiro Wilk Test Statistic	0.865
1064					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
1065	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1066												
1067	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1068					95% Student's-t UCL	42.06					95% H-UCL	81.27
1069	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	52.62
1070					95% Adjusted-CLT UCL	45.71					97.5% Chebyshev (MVUE) UCL	65.5
1071					95% Modified-t UCL	43.28					99% Chebyshev (MVUE) UCL	90.79
1072												
1073	**Gamma Distribution Test**						**Data Distribution**					
1074					k star (bias corrected)	1.143	**Data appear Gamma Distributed at 5% Significance Level**					
1075					Theta Star	20.65						
1076					nu star	11.43						
1077					Approximate Chi Square Value (.05)	4.856	**Nonparametric Statistics**					
1078					Adjusted Level of Significance	0.0086					95% CLT UCL	37.84
1079					Adjusted Chi Square Value	3.168					95% Jackknife UCL	42.06
1080											95% Standard Bootstrap UCL	36.47
1081					Anderson-Darling Test Statistic	0.543					95% Bootstrap-t UCL	171.6
1082					Anderson-Darling 5% Critical Value	0.683					95% Hall's Bootstrap UCL	147.3
1083					Kolmogorov-Smirnov Test Statistic	0.313					95% Percentile Bootstrap UCL	38.95
1084					Kolmogorov-Smirnov 5% Critical Value	0.36					95% BCA Bootstrap UCL	41.55
1085	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	61.33
1086											97.5% Chebyshev(Mean, Sd) UCL	77.66
1087	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	109.7
1088					95% Approximate Gamma UCL	55.58						
1089					95% Adjusted Gamma UCL	85.2						
1090												
1091	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	55.58
1092												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	SMB_Study_area-F	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

1-Methylnaphthalene

General Statistics

Number of Valid Data	18	Number of Detected Data	15
Number of Distinct Detected Data	14	Number of Non-Detect Data	3
Number of Missing Values	5	Percent Non-Detects	16.67%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.31	Minimum Detected	-1.171
Maximum Detected	2.4	Maximum Detected	0.875
Mean of Detected	0.808	Mean of Detected	-0.403
SD of Detected	0.573	SD of Detected	0.611
Minimum Non-Detect	0.3	Minimum Non-Detect	-1.204
Maximum Non-Detect	0.3	Maximum Non-Detect	-1.204

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.805	Shapiro Wilk Test Statistic	0.935
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.698	Mean	-0.652
SD	0.578	SD	0.798
95% DL/2 (t) UCL	0.935	95% H-Stat (DL/2) UCL	1.104
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.659	Mean in Log Scale	-0.645
SD	0.618	SD in Log Scale	0.792
95% MLE (t) UCL	0.913	Mean in Original Scale	0.7
95% MLE (Tiku) UCL	0.909	SD in Original Scale	0.577
		95% Percentile Bootstrap UCL	0.917
		95% BCA Bootstrap UCL	0.97

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	2.281	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.354		
nu star	68.44		
A-D Test Statistic	0.546	**Nonparametric Statistics**	
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	0.725
5% K-S Critical Value	0.224	SD	0.539

54	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.131
55											95% KM (t) UCL	0.954
56	Assuming Gamma Distribution										95% KM (z) UCL	0.941
57	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.948
58	Minimum	1E-09									95% KM (bootstrap t) UCL	1.074
59	Maximum	2.4									95% KM (BCA) UCL	0.983
60	Mean	0.693									95% KM (Percentile Bootstrap) UCL	0.949
61	Median	0.51									95% KM (Chebyshev) UCL	1.298
62	SD	0.585									97.5% KM (Chebyshev) UCL	1.546
63	k star	0.44									99% KM (Chebyshev) UCL	2.033
64	Theta star	1.575										
65	Nu star	15.85									Potential UCLs to Use	
66	AppChi2	7.859									95% KM (BCA) UCL	0.983
67	95% Gamma Approximate UCL	1.399										
68	95% Adjusted Gamma UCL	1.501										
69	Note: DL/2 is not a recommended method.											
70												
71												
72	2-Methylnaphthalene											
73												
74	General Statistics											
75	Number of Valid Data	18									Number of Detected Data	16
76	Number of Distinct Detected Data	15									Number of Non-Detect Data	2
77	Number of Missing Values	5									Percent Non-Detects	11.11%
78												
79	Raw Statistics										Log-transformed Statistics	
80	Minimum Detected	0.45									Minimum Detected	-0.799
81	Maximum Detected	2.9									Maximum Detected	1.065
82	Mean of Detected	1.021									Mean of Detected	-0.136
83	SD of Detected	0.663									SD of Detected	0.553
84	Minimum Non-Detect	0.44									Minimum Non-Detect	-0.821
85	Maximum Non-Detect	0.44									Maximum Non-Detect	-0.821
86												
87												
88	UCL Statistics											
89	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
90	Shapiro Wilk Test Statistic	0.803									Shapiro Wilk Test Statistic	0.924
91	5% Shapiro Wilk Critical Value	0.887									5% Shapiro Wilk Critical Value	0.887
92	Data not Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
93												
94	Assuming Normal Distribution										Assuming Lognormal Distribution	
95	DL/2 Substitution Method										DL/2 Substitution Method	
96	Mean	0.932									Mean	-0.289
97	SD	0.674									SD	0.684
98	95% DL/2 (t) UCL	1.209									95% H-Stat (DL/2) UCL	1.245
99												
100	Maximum Likelihood Estimate(MLE) Method										Log ROS Method	
101	Mean	0.911									Mean in Log Scale	-0.281
102	SD	0.69									SD in Log Scale	0.671
103	95% MLE (t) UCL	1.194									Mean in Original Scale	0.934
104	95% MLE (Tiku) UCL	1.183									SD in Original Scale	0.672
105											95% Percentile Bootstrap UCL	1.21
106											95% BCA Bootstrap UCL	1.252

107												
108	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
109					k star (bias corrected)	2.757	**Data appear Gamma Distributed at 5% Significance Level**					
110					Theta Star	0.37						
111					nu star	88.22						
112												
113					A-D Test Statistic	0.625	**Nonparametric Statistics**					
114					5% A-D Critical Value	0.743				Kaplan-Meier (KM) Method		
115					K-S Test Statistic	0.743				Mean		0.958
116					5% K-S Critical Value	0.216				SD		0.631
117	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.154
118										95% KM (t) UCL		1.225
119	**Assuming Gamma Distribution**									95% KM (z) UCL		1.21
120					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1.222
121					Minimum	1E-09				95% KM (bootstrap t) UCL		1.366
122					Maximum	2.9				95% KM (BCA) UCL		1.264
123					Mean	0.917				95% KM (Percentile Bootstrap) UCL		1.217
124					Median	0.71				95% KM (Chebyshev) UCL		1.627
125					SD	0.693				97.5% KM (Chebyshev) UCL		1.917
126					k star	0.449				99% KM (Chebyshev) UCL		2.486
127					Theta star	2.041						
128					Nu star	16.17	**Potential UCLs to Use**					
129					AppChi2	8.079				95% KM (BCA) UCL		1.264
130					95% Gamma Approximate UCL	1.834						
131					95% Adjusted Gamma UCL	1.967						
132	**Note: DL/2 is not a recommended method.**											
133												
134												
135	**Acenaphthylene**											
136												
137	**General Statistics**											
138					Number of Valid Data	18				Number of Detected Data		13
139					Number of Distinct Detected Data	10				Number of Non-Detect Data		5
140					Number of Missing Values	5				Percent Non-Detects		27.78%
141												
142	**Raw Statistics**						**Log-transformed Statistics**					
143					Minimum Detected	0.14				Minimum Detected		-1.966
144					Maximum Detected	2.5				Maximum Detected		0.916
145					Mean of Detected	0.522				Mean of Detected		-1.1
146					SD of Detected	0.681				SD of Detected		0.858
147					Minimum Non-Detect	0.069				Minimum Non-Detect		-2.674
148					Maximum Non-Detect	0.069				Maximum Non-Detect		-2.674
149												
150												
151	**UCL Statistics**											
152	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
153					Shapiro Wilk Test Statistic	0.59				Shapiro Wilk Test Statistic		0.83
154					5% Shapiro Wilk Critical Value	0.866				5% Shapiro Wilk Critical Value		0.866
155	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
156												
157	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
158					DL/2 Substitution Method					DL/2 Substitution Method		
159					Mean	0.387				Mean		-1.73

160					SD	0.614					SD	1.269
161					95% DL/2 (t) UCL	0.639					95% H-Stat (DL/2) UCL	0.741
162												
163					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
164					Mean	0.249					Mean in Log Scale	-1.666
165					SD	0.743					SD in Log Scale	1.207
166					95% MLE (t) UCL	0.553					Mean in Original Scale	0.39
167					95% MLE (Tiku) UCL	0.562					SD in Original Scale	0.612
168											95% Percentile Bootstrap UCL	0.648
169											95% BCA Bootstrap UCL	0.746
170												
171					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
172					k star (bias corrected)	1.012					**Data do not follow a Discernable Distribution (0.05)**	
173					Theta Star	0.516						
174					nu star	26.31						
175												
176					A-D Test Statistic	1.445					**Nonparametric Statistics**	
177					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
178					K-S Test Statistic	0.754					Mean	0.416
179					5% K-S Critical Value	0.242					SD	0.581
180					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.143
181											95% KM (t) UCL	0.664
182					**Assuming Gamma Distribution**						95% KM (z) UCL	0.651
183					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.657
184					Minimum	1E-09					95% KM (bootstrap t) UCL	1.611
185					Maximum	2.5					95% KM (BCA) UCL	0.67
186					Mean	0.397					95% KM (Percentile Bootstrap) UCL	0.669
187					Median	0.211					95% KM (Chebyshev) UCL	1.038
188					SD	0.61					97.5% KM (Chebyshev) UCL	1.307
189					k star	0.262					99% KM (Chebyshev) UCL	1.835
190					Theta star	1.516						
191					Nu star	9.431					**Potential UCLs to Use**	
192					AppChi2	3.589					95% KM (BCA) UCL	0.67
193					95% Gamma Approximate UCL	1.044						
194					95% Adjusted Gamma UCL	1.152						
195	**Note: DL/2 is not a recommended method.**											
196												
197												
198	**Aldrin**											
199												
200							**General Statistics**					
201					Number of Valid Data	8					Number of Detected Data	6
202					Number of Distinct Detected Data	6					Number of Non-Detect Data	2
203					Number of Missing Values	13					Percent Non-Detects	25.00%
204												
205					**Raw Statistics**						**Log-transformed Statistics**	
206					Minimum Detected	0.005					Minimum Detected	-5.298
207					Maximum Detected	0.011					Maximum Detected	-4.51
208					Mean of Detected	0.00664					Mean of Detected	-5.053
209					SD of Detected	0.00224					SD of Detected	0.29
210					Minimum Non-Detect	0.00334					Minimum Non-Detect	-5.702
211					Maximum Non-Detect	0.00667					Maximum Non-Detect	-5.01
212												

213	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
214	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
215	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	75.00%
216												
217	**Warning: There are only 6 Detected Values in this data**											
218	**Note: It should be noted that even though bootstrap may be performed on this data set**											
219	**the resulting calculations may not be reliable enough tp draw conclusions**											
220												
221	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
222												
223												
224	**UCL Statistics**											
225	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
226	Shapiro Wilk Test Statistic	0.759					Shapiro Wilk Test Statistic	0.832				
227	5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788				
228	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
229												
230	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
231	DL/2 Substitution Method						DL/2 Substitution Method					
232	Mean	0.00561					Mean	-5.302				
233	SD	0.00273					SD	0.554				
234	95% DL/2 (t) UCL	0.00744					95% H-Stat (DL/2) UCL	0.00877				
235												
236	Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method					
237	**MLE method failed to converge properly**						Mean in Log Scale	-5.157				
238							SD in Log Scale	0.329				
239							Mean in Original Scale	0.00605				
240							SD in Original Scale	0.00223				
241							95% Percentile Bootstrap UCL	0.00739				
242							95% BCA Bootstrap UCL	0.00789				
243												
244	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
245	k star (bias corrected)	6.656					**Data appear Gamma Distributed at 5% Significance Level**					
246	Theta Star	0.0009978										
247	nu star	79.88										
248												
249	A-D Test Statistic	0.608					**Nonparametric Statistics**					
250	5% A-D Critical Value	0.698					Kaplan-Meier (KM) Method					
251	K-S Test Statistic	0.698					Mean	0.00628				
252	5% K-S Critical Value	0.332					SD	0.00189				
253	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0007331				
254							95% KM (t) UCL	0.00767				
255	**Assuming Gamma Distribution**						95% KM (z) UCL	0.00749				
256	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00763				
257	Minimum	0.005					95% KM (bootstrap t) UCL	0.01				
258	Maximum	0.011					95% KM (BCA) UCL	0.0075				
259	Mean	0.00649					95% KM (Percentile Bootstrap) UCL	0.00755				
260	Median	0.00589					95% KM (Chebyshev) UCL	0.00948				
261	SD	0.00195					97.5% KM (Chebyshev) UCL	0.0109				
262	k star	10.01					99% KM (Chebyshev) UCL	0.0136				
263	Theta star	0.0006477										
264	Nu star	160.2					**Potential UCLs to Use**					
265	AppChi2	132					95% KM (Percentile Bootstrap) UCL	0.00755				

266				95% Gamma Approximate UCL		0.00788						
267				95% Adjusted Gamma UCL		0.00828						
268	**Note: DL/2 is not a recommended method.**											
269												
270												
271	**alpha-Hexachlorocyclohexane**											
272												
273					**General Statistics**							
274				Number of Valid Data		14			Number of Detected Data		5	
275				Number of Distinct Detected Data		5			Number of Non-Detect Data		9	
276				Number of Missing Values		9			Percent Non-Detects		64.29%	
277												
278				**Raw Statistics**					**Log-transformed Statistics**			
279				Minimum Detected		0.00394			Minimum Detected		-5.537	
280				Maximum Detected		0.006			Maximum Detected		-5.116	
281				Mean of Detected		0.00488			Mean of Detected		-5.333	
282				SD of Detected		0.0008133			SD of Detected		0.167	
283				Minimum Non-Detect		0.00355			Minimum Non-Detect		-5.641	
284				Maximum Non-Detect		0.006			Maximum Non-Detect		-5.116	
285												
286	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect		13	
287	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected		1	
288	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage		92.86%	
289												
290					**Warning: There are only 5 Detected Values in this data**							
291					**Note: It should be noted that even though bootstrap may be performed on this data set**							
292					**the resulting calculations may not be reliable enough tp draw conclusions**							
293												
294					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
295												
296												
297					**UCL Statistics**							
298				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
299				Shapiro Wilk Test Statistic		0.966			Shapiro Wilk Test Statistic		0.968	
300				5% Shapiro Wilk Critical Value		0.762			5% Shapiro Wilk Critical Value		0.762	
301				**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
302												
303				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
304				DL/2 Substitution Method					DL/2 Substitution Method			
305				Mean		0.00341			Mean		-5.744	
306				SD		0.00129			SD		0.371	
307				95% DL/2 (t) UCL		0.00402			95% H-Stat (DL/2) UCL		0.00427	
308												
309				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
310				**MLE method failed to converge properly**					Mean in Log Scale		-5.487	
311									SD in Log Scale		0.182	
312									Mean in Original Scale		0.00421	
313									SD in Original Scale		0.0007997	
314									95% Percentile Bootstrap UCL		0.00455	
315									95% BCA Bootstrap UCL		0.00459	
316												
317				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
318				k star (bias corrected)		18.2			**Data appear Normal at 5% Significance Level**			

319					Theta Star	0.0002682						
320					nu star	182						
321												
322					A-D Test Statistic	0.231		**Nonparametric Statistics**				
323					5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method	
324					K-S Test Statistic	0.678					Mean	0.0044
325					5% K-S Critical Value	0.357					SD	0.0006492
326					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0002248
327											95% KM (t) UCL	0.0048
328					**Assuming Gamma Distribution**						95% KM (z) UCL	0.00477
329					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00477
330					Minimum	0.00394					95% KM (bootstrap t) UCL	0.00477
331					Maximum	0.006					95% KM (BCA) UCL	0.00527
332					Mean	0.00492					95% KM (Percentile Bootstrap) UCL	0.00517
333					Median	0.00491					95% KM (Chebyshev) UCL	0.00538
334					SD	0.0006621					97.5% KM (Chebyshev) UCL	0.00581
335					k star	46.73					99% KM (Chebyshev) UCL	0.00664
336					Theta star	0.0001053						
337					Nu star	1308		**Potential UCLs to Use**				
338					AppChi2	1225					95% KM (t) UCL	0.0048
339					95% Gamma Approximate UCL	0.00525					95% KM (Percentile Bootstrap) UCL	0.00517
340					95% Adjusted Gamma UCL	0.0053						
341	**Note: DL/2 is not a recommended method.**											
342												
343												
344	**Aluminum**											
345												
346					**General Statistics**							
347					Number of Valid Observations	23					Number of Distinct Observations	23
348												
349					**Raw Statistics**			**Log-transformed Statistics**				
350					Minimum	0.7					Minimum of Log Data	-0.357
351					Maximum	7.15					Maximum of Log Data	1.967
352					Mean	2.074					Mean of log Data	0.531
353					Median	1.4					SD of log Data	0.612
354					SD	1.53						
355					Coefficient of Variation	0.738						
356					Skewness	1.929						
357												
358					**Relevant UCL Statistics**							
359					**Normal Distribution Test**			**Lognormal Distribution Test**				
360					Shapiro Wilk Test Statistic	0.771					Shapiro Wilk Test Statistic	0.928
361					Shapiro Wilk Critical Value	0.914					Shapiro Wilk Critical Value	0.914
362					**Data not Normal at 5% Significance Level**			**Data appear Lognormal at 5% Significance Level**				
363												
364					**Assuming Normal Distribution**			**Assuming Lognormal Distribution**				
365					95% Student's-t UCL	2.622					95% H-UCL	2.689
366					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	3.226
367					95% Adjusted-CLT UCL	2.736					97.5% Chebyshev (MVUE) UCL	3.743
368					95% Modified-t UCL	2.643					99% Chebyshev (MVUE) UCL	4.759
369												
370					**Gamma Distribution Test**			**Data Distribution**				
371					k star (bias corrected)	2.351		**Data appear Lognormal at 5% Significance Level**				

372					Theta Star	0.882						
373					nu star	108.2						
374					Approximate Chi Square Value (.05)	85.16				**Nonparametric Statistics**		
375					Adjusted Level of Significance	0.0389					95% CLT UCL	2.599
376					Adjusted Chi Square Value	83.69					95% Jackknife UCL	2.622
377											95% Standard Bootstrap UCL	2.584
378					Anderson-Darling Test Statistic	1.054					95% Bootstrap-t UCL	2.875
379					Anderson-Darling 5% Critical Value	0.752					95% Hall's Bootstrap UCL	2.909
380					Kolmogorov-Smirnov Test Statistic	0.2					95% Percentile Bootstrap UCL	2.585
381					Kolmogorov-Smirnov 5% Critical Value	0.183					95% BCA Bootstrap UCL	2.757
382					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	3.464
383											97.5% Chebyshev(Mean, Sd) UCL	4.066
384					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	5.248
385					95% Approximate Gamma UCL	2.634						
386					95% Adjusted Gamma UCL	2.681						
387												
388					**Potential UCL to Use**						Use 95% H-UCL	2.689
389												
390												
391	**Anthracene**											
392												
393					**General Statistics**							
394					Number of Valid Data	18					Number of Detected Data	10
395					Number of Distinct Detected Data	10					Number of Non-Detect Data	8
396					Number of Missing Values	5					Percent Non-Detects	44.44%
397												
398					**Raw Statistics**					**Log-transformed Statistics**		
399					Minimum Detected	0.44					Minimum Detected	-0.821
400					Maximum Detected	3.6					Maximum Detected	1.281
401					Mean of Detected	1.097					Mean of Detected	-0.161
402					SD of Detected	0.997					SD of Detected	0.683
403					Minimum Non-Detect	0.15					Minimum Non-Detect	-1.897
404					Maximum Non-Detect	0.34					Maximum Non-Detect	-1.079
405												
406	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
407	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	10
408	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	44.44%
409												
410					**UCL Statistics**							
411					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
412					Shapiro Wilk Test Statistic	0.691					Shapiro Wilk Test Statistic	0.856
413					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
414					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
415												
416					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
417					DL/2 Substitution Method						DL/2 Substitution Method	
418					Mean	0.66					Mean	-1.066
419					SD	0.883					SD	1.165
420					95% DL/2 (t) UCL	1.022					95% H-Stat (DL/2) UCL	0.821
421												
422					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
423					Mean	0.327					Mean in Log Scale	-0.956
424					SD	1.216					SD in Log Scale	1.041

425					95% MLE (t) UCL	0.826				Mean in Original Scale		0.673
426					95% MLE (Tiku) UCL	0.91				SD in Original Scale		0.875
427										95% Percentile Bootstrap UCL		1.038
428										95% BCA Bootstrap UCL		1.219
429												
430	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
431					k star (bias corrected)	1.554	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
432					Theta Star	0.706						
433					nu star	31.08						
434												
435					A-D Test Statistic	0.888	**Nonparametric Statistics**					
436					5% A-D Critical Value	0.735				Kaplan-Meier (KM) Method		
437					K-S Test Statistic	0.735				Mean		0.805
438					5% K-S Critical Value	0.27				SD		0.777
439	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		0.193
440										95% KM (t) UCL		1.141
441	**Assuming Gamma Distribution**									95% KM (z) UCL		1.123
442					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1.123
443					Minimum	0.44				95% KM (bootstrap t) UCL		1.909
444					Maximum	3.6				95% KM (BCA) UCL		1.232
445					Mean	0.902				95% KM (Percentile Bootstrap) UCL		1.159
446					Median	0.659				95% KM (Chebyshev) UCL		1.647
447					SD	0.759				97.5% KM (Chebyshev) UCL		2.011
448					k star	2.592				99% KM (Chebyshev) UCL		2.726
449					Theta star	0.348						
450					Nu star	93.3	**Potential UCLs to Use**					
451					AppChi2	72.02				95% KM (t) UCL		1.141
452					95% Gamma Approximate UCL	1.169						
453					95% Adjusted Gamma UCL	1.199						
454	**Note: DL/2 is not a recommended method.**											
455												
456												
457	**Arsenic**											
458												
459	**General Statistics**											
460					Number of Valid Observations	23				Number of Distinct Observations		11
461												
462	**Raw Statistics**						**Log-transformed Statistics**					
463					Minimum	0.14				Minimum of Log Data		-1.966
464					Maximum	0.34				Maximum of Log Data		-1.079
465					Mean	0.195				Mean of log Data		-1.666
466					Median	0.18				SD of log Data		0.24
467					SD	0.053						
468					Coefficient of Variation	0.272						
469					Skewness	1.513						
470												
471	**Relevant UCL Statistics**											
472	**Normal Distribution Test**						**Lognormal Distribution Test**					
473					Shapiro Wilk Test Statistic	0.796				Shapiro Wilk Test Statistic		0.857
474					Shapiro Wilk Critical Value	0.914				Shapiro Wilk Critical Value		0.914
475	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
476												
477	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

478				95% Student's-t UCL	0.214					95% H-UCL	0.213	
479			**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	0.237	
480				95% Adjusted-CLT UCL	0.217					97.5% Chebyshev (MVUE) UCL	0.256	
481				95% Modified-t UCL	0.214					99% Chebyshev (MVUE) UCL	0.292	
482												
483			**Gamma Distribution Test**							**Data Distribution**		
484				k star (bias corrected)	14.69					**Data do not follow a Discernable Distribution (0.05)**		
485				Theta Star	0.0133							
486				nu star	675.9							
487				Approximate Chi Square Value (.05)	616.6					**Nonparametric Statistics**		
488				Adjusted Level of Significance	0.0389					95% CLT UCL	0.213	
489				Adjusted Chi Square Value	612.5					95% Jackknife UCL	0.214	
490										95% Standard Bootstrap UCL	0.212	
491				Anderson-Darling Test Statistic	1.542					95% Bootstrap-t UCL	0.221	
492				Anderson-Darling 5% Critical Value	0.743					95% Hall's Bootstrap UCL	0.218	
493				Kolmogorov-Smirnov Test Statistic	0.207					95% Percentile Bootstrap UCL	0.213	
494				Kolmogorov-Smirnov 5% Critical Value	0.181					95% BCA Bootstrap UCL	0.217	
495			**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	0.243	
496										97.5% Chebyshev(Mean, Sd) UCL	0.264	
497			**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	0.305	
498				95% Approximate Gamma UCL	0.214							
499				95% Adjusted Gamma UCL	0.215							
500												
501			**Potential UCL to Use**							Use 95% Student's-t UCL	0.214	
502										or 95% Modified-t UCL	0.214	
503												
504												
505	**Benzo(a)anthracene**											
506												
507					**General Statistics**							
508				Number of Valid Data	18					Number of Detected Data	8	
509				Number of Distinct Detected Data	8					Number of Non-Detect Data	10	
510				Number of Missing Values	5					Percent Non-Detects	55.56%	
511												
512			**Raw Statistics**							**Log-transformed Statistics**		
513				Minimum Detected	0.14					Minimum Detected	-1.966	
514				Maximum Detected	2.6					Maximum Detected	0.956	
515				Mean of Detected	0.875					Mean of Detected	-0.638	
516				SD of Detected	0.908					SD of Detected	1.098	
517				Minimum Non-Detect	0.066					Minimum Non-Detect	-2.718	
518				Maximum Non-Detect	0.066					Maximum Non-Detect	-2.718	
519												
520												
521					**Warning: There are only 8 Detected Values in this data**							
522					**Note: It should be noted that even though bootstrap may be performed on this data set**							
523					**the resulting calculations may not be reliable enough tp draw conclusions**							
524												
525					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
526												
527												
528					**UCL Statistics**							
529			**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**		
530				Shapiro Wilk Test Statistic	0.814					Shapiro Wilk Test Statistic	0.925	

531				5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
532	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
533												
534	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
535				DL/2 Substitution Method						DL/2 Substitution Method		
536				Mean	0.407					Mean	-2.179	
537				SD	0.725					SD	1.584	
538				95% DL/2 (t) UCL	0.704					95% H-Stat (DL/2) UCL	0.478	
539												
540				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
541	**MLE yields a negative mean**									Mean in Log Scale	-2.562	
542										SD in Log Scale	2.102	
543										Mean in Original Scale	0.404	
544										SD in Original Scale	0.727	
545										95% Percentile Bootstrap UCL	0.703	
546										95% BCA Bootstrap UCL	0.825	
547												
548	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
549				k star (bias corrected)	0.789		**Data appear Gamma Distributed at 5% Significance Level**					
550				Theta Star	1.109							
551				nu star	12.62							
552												
553				A-D Test Statistic	0.389		**Nonparametric Statistics**					
554				5% A-D Critical Value	0.734					Kaplan-Meier (KM) Method		
555				K-S Test Statistic	0.734					Mean	0.467	
556				5% K-S Critical Value	0.301					SD	0.674	
557	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.17	
558										95% KM (t) UCL	0.762	
559	**Assuming Gamma Distribution**									95% KM (z) UCL	0.746	
560				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.733	
561				Minimum	1E-09					95% KM (bootstrap t) UCL	1.146	
562				Maximum	2.998					95% KM (BCA) UCL	0.848	
563				Mean	1.1					95% KM (Percentile Bootstrap) UCL	0.779	
564				Median	0.805					95% KM (Chebyshev) UCL	1.207	
565				SD	0.993					97.5% KM (Chebyshev) UCL	1.527	
566				k star	0.373					99% KM (Chebyshev) UCL	2.157	
567				Theta star	2.954							
568				Nu star	13.41		**Potential UCLs to Use**					
569				AppChi2	6.17					95% KM (t) UCL	0.762	
570				95% Gamma Approximate UCL	2.392							
571				95% Adjusted Gamma UCL	2.587							
572	**Note: DL/2 is not a recommended method.**											
573												
574												
575	**Benzo(a)pyrene**											
576												
577	**General Statistics**											
578				Number of Valid Data	18					Number of Detected Data	5	
579				Number of Distinct Detected Data	5					Number of Non-Detect Data	13	
580				Number of Missing Values	5					Percent Non-Detects	72.22%	
581												
582	**Raw Statistics**						**Log-transformed Statistics**					
583				Minimum Detected	0.091					Minimum Detected	-2.397	

	A	B	C	D	E	F	G	H	I	J	K	L
584					Maximum Detected	2.5					Maximum Detected	0.916
585					Mean of Detected	1.1					Mean of Detected	-0.579
586					SD of Detected	1.154					SD of Detected	1.434
587					Minimum Non-Detect	0.081					Minimum Non-Detect	-2.513
588					Maximum Non-Detect	0.081					Maximum Non-Detect	-2.513
589												
590												
591					**Warning: There are only 5 Detected Values in this data**							
592					**Note: It should be noted that even though bootstrap may be performed on this data set**							
593					**the resulting calculations may not be reliable enough tp draw conclusions**							
594												
595					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
596												
597												
598					**UCL Statistics**							
599					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
600					Shapiro Wilk Test Statistic	0.809					Shapiro Wilk Test Statistic	0.917
601					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
602					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
603												
604					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
605					DL/2 Substitution Method						DL/2 Substitution Method	
606					Mean	0.335					Mean	-2.477
607					SD	0.743					SD	1.397
608					95% DL/2 (t) UCL	0.64					95% H-Stat (DL/2) UCL	0.308
609												
610					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
611					**MLE yields a negative mean**						Mean in Log Scale	-4.73
612											SD in Log Scale	3.348
613											Mean in Original Scale	0.312
614											SD in Original Scale	0.753
615											95% Percentile Bootstrap UCL	0.607
616											95% BCA Bootstrap UCL	0.715
617												
618					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
619					k star (bias corrected)	0.481					**Data appear Normal at 5% Significance Level**	
620					Theta Star	2.285						
621					nu star	4.814						
622												
623					A-D Test Statistic	0.389					**Nonparametric Statistics**	
624					5% A-D Critical Value	0.695					Kaplan-Meier (KM) Method	
625					K-S Test Statistic	0.695					Mean	0.371
626					5% K-S Critical Value	0.366					SD	0.707
627					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.186
628											95% KM (t) UCL	0.696
629					**Assuming Gamma Distribution**						95% KM (z) UCL	0.678
630					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.631
631					Minimum	1E-09					95% KM (bootstrap t) UCL	1.63
632					Maximum	20.44					95% KM (BCA) UCL	2.217
633					Mean	5.631					95% KM (Percentile Bootstrap) UCL	0.871
634					Median	2.602					95% KM (Chebyshev) UCL	1.184
635					SD	6.443					97.5% KM (Chebyshev) UCL	1.535
636					k star	0.317					99% KM (Chebyshev) UCL	2.226

637					Theta star	17.75						
638					Nu star	11.42	**Potential UCLs to Use**					
639					AppChi2	4.849					95% KM (t) UCL	0.696
640					95% Gamma Approximate UCL	13.26					95% KM (Percentile Bootstrap) UCL	0.871
641					95% Adjusted Gamma UCL	14.47						
642	**Note: DL/2 is not a recommended method.**											
643												
644												
645	**Benzo(b)fluoranthene**											
646												
647	**General Statistics**											
648					Number of Valid Data	18					Number of Detected Data	6
649					Number of Distinct Detected Data	6					Number of Non-Detect Data	12
650					Number of Missing Values	5					Percent Non-Detects	66.67%
651												
652	**Raw Statistics**						**Log-transformed Statistics**					
653					Minimum Detected	0.13					Minimum Detected	-2.04
654					Maximum Detected	1.7					Maximum Detected	0.531
655					Mean of Detected	0.78					Mean of Detected	-0.712
656					SD of Detected	0.682					SD of Detected	1.146
657					Minimum Non-Detect	0.07					Minimum Non-Detect	-2.659
658					Maximum Non-Detect	0.07					Maximum Non-Detect	-2.659
659												
660												
661	**Warning: There are only 6 Detected Values in this data**											
662	**Note: It should be noted that even though bootstrap may be performed on this data set**											
663	**the resulting calculations may not be reliable enough tp draw conclusions**											
664												
665	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
666												
667												
668	**UCL Statistics**											
669	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
670					Shapiro Wilk Test Statistic	0.868					Shapiro Wilk Test Statistic	0.867
671					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
672	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
673												
674	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
675					DL/2 Substitution Method						DL/2 Substitution Method	
676					Mean	0.283					Mean	-2.472
677					SD	0.517					SD	1.423
678					95% DL/2 (t) UCL	0.495					95% H-Stat (DL/2) UCL	0.298
679												
680					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
681	**MLE yields a negative mean**										Mean in Log Scale	-3.424
682											SD in Log Scale	2.422
683											Mean in Original Scale	0.273
684											SD in Original Scale	0.523
685											95% Percentile Bootstrap UCL	0.473
686											95% BCA Bootstrap UCL	0.54
687												
688	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
689					k star (bias corrected)	0.72	**Data appear Normal at 5% Significance Level**					

690					Theta Star	1.084						
691					nu star	8.638						
692												
693					A-D Test Statistic	0.454	**Nonparametric Statistics**					
694					5% A-D Critical Value	0.712					Kaplan-Meier (KM) Method	
695					K-S Test Statistic	0.712					Mean	0.347
696					5% K-S Critical Value	0.339					SD	0.473
697	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.122
698											95% KM (t) UCL	0.559
699	**Assuming Gamma Distribution**										95% KM (z) UCL	0.547
700					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.537
701					Minimum	1E-09					95% KM (bootstrap t) UCL	0.57
702					Maximum	4.865					95% KM (BCA) UCL	1.061
703					Mean	1.686					95% KM (Percentile Bootstrap) UCL	0.639
704					Median	1.351					95% KM (Chebyshev) UCL	0.878
705					SD	1.512					97.5% KM (Chebyshev) UCL	1.109
706					k star	0.382					99% KM (Chebyshev) UCL	1.561
707					Theta star	4.417						
708					Nu star	13.74	**Potential UCLs to Use**					
709					AppChi2	6.394					95% KM (t) UCL	0.559
710					95% Gamma Approximate UCL	3.623					95% KM (Percentile Bootstrap) UCL	0.639
711					95% Adjusted Gamma UCL	3.914						
712	**Note: DL/2 is not a recommended method.**											
713												
714												
715	**Benzo(g,h,i)perylene**											
716												
717	**General Statistics**											
718					Number of Valid Data	18					Number of Detected Data	6
719					Number of Distinct Detected Data	5					Number of Non-Detect Data	12
720					Number of Missing Values	5					Percent Non-Detects	66.67%
721												
722	**Raw Statistics**						**Log-transformed Statistics**					
723					Minimum Detected	0.084					Minimum Detected	-2.477
724					Maximum Detected	2					Maximum Detected	0.693
725					Mean of Detected	0.873					Mean of Detected	-0.812
726					SD of Detected	0.903					SD of Detected	1.418
727					Minimum Non-Detect	0.073					Minimum Non-Detect	-2.617
728					Maximum Non-Detect	0.073					Maximum Non-Detect	-2.617
729												
730												
731	**Warning: There are only 6 Detected Values in this data**											
732	**Note: It should be noted that even though bootstrap may be performed on this data set**											
733	**the resulting calculations may not be reliable enough tp draw conclusions**											
734												
735	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
736												
737												
738	**UCL Statistics**											
739	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
740					Shapiro Wilk Test Statistic	0.795					Shapiro Wilk Test Statistic	0.875
741					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
742	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

743												
744	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
745				DL/2 Substitution Method						DL/2 Substitution Method		
746				Mean		0.315				Mean		-2.478
747				SD		0.636				SD		1.435
748				95% DL/2 (t) UCL		0.576				95% H-Stat (DL/2) UCL		0.316
749												
750				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
751	**MLE yields a negative mean**									Mean in Log Scale		-4.18
752										SD in Log Scale		3.007
753										Mean in Original Scale		0.297
754										SD in Original Scale		0.645
755										95% Percentile Bootstrap UCL		0.556
756										95% BCA Bootstrap UCL		0.669
757												
758	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
759				k star (bias corrected)		0.545	**Data appear Normal at 5% Significance Level**					
760				Theta Star		1.601						
761				nu star		6.544						
762												
763				A-D Test Statistic		0.418	**Nonparametric Statistics**					
764				5% A-D Critical Value		0.718				Kaplan-Meier (KM) Method		
765				K-S Test Statistic		0.718				Mean		0.347
766				5% K-S Critical Value		0.342				SD		0.604
767	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.156
768										95% KM (t) UCL		0.618
769	**Assuming Gamma Distribution**									95% KM (z) UCL		0.603
770				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.597
771				Minimum		1E-09				95% KM (bootstrap t) UCL		0.914
772				Maximum		8.212				95% KM (BCA) UCL		0.914
773				Mean		2.395				95% KM (Percentile Bootstrap) UCL		0.73
774				Median		1.76				95% KM (Chebyshev) UCL		1.027
775				SD		2.542				97.5% KM (Chebyshev) UCL		1.321
776				k star		0.341				99% KM (Chebyshev) UCL		1.899
777				Theta star		7.022						
778				Nu star		12.28	**Potential UCLs to Use**					
779				AppChi2		5.412				95% KM (t) UCL		0.618
780				95% Gamma Approximate UCL		5.435				95% KM (Percentile Bootstrap) UCL		0.73
781				95% Adjusted Gamma UCL		5.907						
782	**Note: DL/2 is not a recommended method.**											
783												
784												
785	**Benzo(k)fluoranthene**											
786												
787	**General Statistics**											
788				Number of Valid Data		18				Number of Detected Data		6
789				Number of Distinct Detected Data		6				Number of Non-Detect Data		12
790				Number of Missing Values		5				Percent Non-Detects		66.67%
791												
792	**Raw Statistics**						**Log-transformed Statistics**					
793				Minimum Detected		0.096				Minimum Detected		-2.343
794				Maximum Detected		1.4				Maximum Detected		0.336
795				Mean of Detected		0.606				Mean of Detected		-0.979

796					SD of Detected	0.561					SD of Detected	1.161
797					Minimum Non-Detect	0.056					Minimum Non-Detect	-2.882
798					Maximum Non-Detect	0.056					Maximum Non-Detect	-2.882
799												
800												
801					**Warning: There are only 6 Detected Values in this data**							
802					**Note: It should be noted that even though bootstrap may be performed on this data set**							
803					**the resulting calculations may not be reliable enough tp draw conclusions**							
804												
805					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
806												
807												
808					**UCL Statistics**							
809					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
810					Shapiro Wilk Test Statistic	0.849					Shapiro Wilk Test Statistic	0.884
811					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
812					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
813												
814					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
815					DL/2 Substitution Method						DL/2 Substitution Method	
816					Mean	0.221					Mean	-2.71
817					SD	0.414					SD	1.408
818					95% DL/2 (t) UCL	0.39					95% H-Stat (DL/2) UCL	0.229
819												
820					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
821					**MLE yields a negative mean**						Mean in Log Scale	-3.749
822											SD in Log Scale	2.473
823											Mean in Original Scale	0.211
824											SD in Original Scale	0.419
825											95% Percentile Bootstrap UCL	0.392
826											95% BCA Bootstrap UCL	0.431
827												
828					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
829					k star (bias corrected)	0.703					**Data appear Normal at 5% Significance Level**	
830					Theta Star	0.862						
831					nu star	8.436						
832												
833					A-D Test Statistic	0.376					**Nonparametric Statistics**	
834					5% A-D Critical Value	0.712					Kaplan-Meier (KM) Method	
835					K-S Test Statistic	0.712					Mean	0.266
836					5% K-S Critical Value	0.34					SD	0.381
837					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0984
838											95% KM (t) UCL	0.437
839					**Assuming Gamma Distribution**						95% KM (z) UCL	0.428
840					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.425
841					Minimum	1E-09					95% KM (bootstrap t) UCL	0.647
842					Maximum	4.009					95% KM (BCA) UCL	0.588
843					Mean	1.358					95% KM (Percentile Bootstrap) UCL	0.536
844					Median	1.115					95% KM (Chebyshev) UCL	0.695
845					SD	1.252					97.5% KM (Chebyshev) UCL	0.88
846					k star	0.379					99% KM (Chebyshev) UCL	1.245
847					Theta star	3.587						
848					Nu star	13.63					**Potential UCLs to Use**	

849					AppChi2	6.318					95% KM (t) UCL	0.437
850					95% Gamma Approximate UCL	2.929					95% KM (Percentile Bootstrap) UCL	0.536
851					95% Adjusted Gamma UCL	3.166						
852	**Note: DL/2 is not a recommended method.**											
853												
854												
855	**Benzyl alcohol**											
856												
857	**General Statistics**											
858					Number of Valid Data	18					Number of Detected Data	10
859					Number of Distinct Detected Data	6					Number of Non-Detect Data	8
860					Number of Missing Values	5					Percent Non-Detects	44.44%
861												
862	**Raw Statistics**						**Log-transformed Statistics**					
863					Minimum Detected	23					Minimum Detected	3.135
864					Maximum Detected	29					Maximum Detected	3.367
865					Mean of Detected	25.5					Mean of Detected	3.235
866					SD of Detected	2.173					SD of Detected	0.0842
867					Minimum Non-Detect	22					Minimum Non-Detect	3.091
868					Maximum Non-Detect	22					Maximum Non-Detect	3.091
869												
870												
871	**UCL Statistics**											
872	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
873					Shapiro Wilk Test Statistic	0.902					Shapiro Wilk Test Statistic	0.908
874					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
875	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
876												
877	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
878					DL/2 Substitution Method						DL/2 Substitution Method	
879					Mean	19.06					Mean	2.863
880					SD	7.581					SD	0.433
881					95% DL/2 (t) UCL	22.16					95% H-Stat (DL/2) UCL	22.11
882												
883					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
884					Mean	22.73					Mean in Log Scale	3.131
885					SD	3.733					SD in Log Scale	0.142
886					95% MLE (t) UCL	24.26					Mean in Original Scale	23.13
887					95% MLE (Tiku) UCL	24.52					SD in Original Scale	3.288
888											95% Percentile Bootstrap UCL	24.45
889											95% BCA Bootstrap UCL	24.43
890												
891	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
892					k star (bias corrected)	109.1	**Data appear Normal at 5% Significance Level**					
893					Theta Star	0.234						
894					nu star	2182						
895												
896					A-D Test Statistic	0.452	**Nonparametric Statistics**					
897					5% A-D Critical Value	0.724					Kaplan-Meier (KM) Method	
898					K-S Test Statistic	0.724					Mean	24.39
899					5% K-S Critical Value	0.266					SD	1.976
900	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.491
901											95% KM (t) UCL	25.24

902	**Assuming Gamma Distribution**									95% KM (z) UCL		25.2
903	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		25.22
904	Minimum				21.69					95% KM (bootstrap t) UCL		25.42
905	Maximum				29					95% KM (BCA) UCL		25.56
906	Mean				25.25					95% KM (Percentile Bootstrap) UCL		25.33
907	Median				25					95% KM (Chebyshev) UCL		26.53
908	SD				1.974					97.5% KM (Chebyshev) UCL		27.45
909	k star				144.9					99% KM (Chebyshev) UCL		29.27
910	Theta star				0.174							
911	Nu star				5217					**Potential UCLs to Use**		
912	AppChi2				5050					95% KM (t) UCL		25.24
913	95% Gamma Approximate UCL				26.08					95% KM (Percentile Bootstrap) UCL		25.33
914	95% Adjusted Gamma UCL				26.16							
915	**Note: DL/2 is not a recommended method.**											
916												
917												
918	**Chrysene**											
919												
920	**General Statistics**											
921	Number of Valid Data				18					Number of Detected Data		9
922	Number of Distinct Detected Data				9					Number of Non-Detect Data		9
923	Number of Missing Values				5					Percent Non-Detects		50.00%
924												
925	**Raw Statistics**									**Log-transformed Statistics**		
926	Minimum Detected				0.092					Minimum Detected		-2.386
927	Maximum Detected				6.2					Maximum Detected		1.825
928	Mean of Detected				1.511					Mean of Detected		-0.396
929	SD of Detected				2.021					SD of Detected		1.387
930	Minimum Non-Detect				0.076					Minimum Non-Detect		-2.577
931	Maximum Non-Detect				0.076					Maximum Non-Detect		-2.577
932												
933												
934	**Warning: There are only 9 Detected Values in this data**											
935	**Note: It should be noted that even though bootstrap may be performed on this data set**											
936	**the resulting calculations may not be reliable enough tp draw conclusions**											
937												
938	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
939												
940												
941	**UCL Statistics**											
942	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
943	Shapiro Wilk Test Statistic				0.737					Shapiro Wilk Test Statistic		0.957
944	5% Shapiro Wilk Critical Value				0.829					5% Shapiro Wilk Critical Value		0.829
945	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
946												
947	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
948	DL/2 Substitution Method									DL/2 Substitution Method		
949	Mean				0.775					Mean		-1.833
950	SD				1.58					SD		1.759
951	95% DL/2 (t) UCL				1.423					95% H-Stat (DL/2) UCL		1.002
952												
953	Maximum Likelihood Estimate(MLE) Method				N/A					Log ROS Method		
954	**MLE yields a negative mean**									Mean in Log Scale		-2.451

955											SD in Log Scale	2.501
956											Mean in Original Scale	0.766
957											SD in Original Scale	1.585
958											95% Percentile Bootstrap UCL	1.438
959											95% BCA Bootstrap UCL	1.746
960												
961	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
962					k star (bias corrected)	0.568	**Data appear Gamma Distributed at 5% Significance Level**					
963					Theta Star	2.659						
964					nu star	10.23						
965												
966					A-D Test Statistic	0.442	**Nonparametric Statistics**					
967					5% A-D Critical Value	0.752	Kaplan-Meier (KM) Method					
968					K-S Test Statistic	0.752	Mean	0.802				
969					5% K-S Critical Value	0.289	SD	1.523				
970	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.381				
971							95% KM (t) UCL	1.464				
972	**Assuming Gamma Distribution**						95% KM (z) UCL	1.428				
973				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	1.405				
974					Minimum	1E-09	95% KM (bootstrap t) UCL	2.258				
975					Maximum	6.2	95% KM (BCA) UCL	1.536				
976					Mean	1.566	95% KM (Percentile Bootstrap) UCL	1.459				
977					Median	0.665	95% KM (Chebyshev) UCL	2.461				
978					SD	1.816	97.5% KM (Chebyshev) UCL	3.18				
979					k star	0.241	99% KM (Chebyshev) UCL	4.59				
980					Theta star	6.487						
981					Nu star	8.688	**Potential UCLs to Use**					
982					AppChi2	3.14	95% KM (t) UCL	1.464				
983					95% Gamma Approximate UCL	4.332						
984					95% Adjusted Gamma UCL	4.811						
985	**Note: DL/2 is not a recommended method.**											
986												
987												
988	**Copper**											
989												
990	**General Statistics**											
991					Number of Valid Observations	23	Number of Distinct Observations	22				
992												
993	**Raw Statistics**						**Log-transformed Statistics**					
994					Minimum	0.187	Minimum of Log Data	-1.677				
995					Maximum	1.12	Maximum of Log Data	0.113				
996					Mean	0.395	Mean of log Data	-1.016				
997					Median	0.344	SD of log Data	0.387				
998					SD	0.211						
999					Coefficient of Variation	0.534						
1000					Skewness	2.745						
1001												
1002	**Relevant UCL Statistics**											
1003	**Normal Distribution Test**						**Lognormal Distribution Test**					
1004					Shapiro Wilk Test Statistic	0.61	Shapiro Wilk Test Statistic	0.805				
1005					Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914				
1006	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1007												

	A	B	C	D	E	F	G	H	I	J	K	L
1008	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1009					95% Student's-t UCL	0.47					95% H-UCL	0.456
1010	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.529
1011					95% Adjusted-CLT UCL	0.494					97.5% Chebyshev (MVUE) UCL	0.589
1012					95% Modified-t UCL	0.475					99% Chebyshev (MVUE) UCL	0.708
1013												
1014	**Gamma Distribution Test**						**Data Distribution**					
1015					k star (bias corrected)	5.179	**Data do not follow a Discernable Distribution (0.05)**					
1016					Theta Star	0.0762						
1017					nu star	238.2						
1018					Approximate Chi Square Value (.05)	203.5	**Nonparametric Statistics**					
1019					Adjusted Level of Significance	0.0389					95% CLT UCL	0.467
1020					Adjusted Chi Square Value	201.2					95% Jackknife UCL	0.47
1021											95% Standard Bootstrap UCL	0.466
1022					Anderson-Darling Test Statistic	2.384					95% Bootstrap-t UCL	0.621
1023					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	0.946
1024					Kolmogorov-Smirnov Test Statistic	0.298					95% Percentile Bootstrap UCL	0.472
1025					Kolmogorov-Smirnov 5% Critical Value	0.182					95% BCA Bootstrap UCL	0.497
1026	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.587
1027											97.5% Chebyshev(Mean, Sd) UCL	0.67
1028	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.832
1029					95% Approximate Gamma UCL	0.462						
1030					95% Adjusted Gamma UCL	0.468						
1031												
1032	**Potential UCL to Use**										Use 95% Student's-t UCL	0.47
1033											or 95% Modified-t UCL	0.475
1034												
1035												
1036	**Dibenzothiophene**											
1037												
1038	**General Statistics**											
1039					Number of Valid Data	18					Number of Detected Data	12
1040					Number of Distinct Detected Data	11					Number of Non-Detect Data	6
1041					Number of Missing Values	5					Percent Non-Detects	33.33%
1042												
1043	**Raw Statistics**						**Log-transformed Statistics**					
1044					Minimum Detected	0.13					Minimum Detected	-2.04
1045					Maximum Detected	2.1					Maximum Detected	0.742
1046					Mean of Detected	0.74					Mean of Detected	-0.686
1047					SD of Detected	0.672					SD of Detected	0.929
1048					Minimum Non-Detect	0.074					Minimum Non-Detect	-2.604
1049					Maximum Non-Detect	0.074					Maximum Non-Detect	-2.604
1050												
1051												
1052	**UCL Statistics**											
1053	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1054					Shapiro Wilk Test Statistic	0.822					Shapiro Wilk Test Statistic	0.941
1055					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
1056	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1057												
1058	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1059					DL/2 Substitution Method						DL/2 Substitution Method	
1060					Mean	0.506					Mean	-1.557

1061					SD	0.639					SD	1.47
1062					95% DL/2 (t) UCL	0.768					95% H-Stat (DL/2) UCL	1.041
1063												
1064					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1065					Mean	0.325					Mean in Log Scale	-1.475
1066					SD	0.831					SD in Log Scale	1.411
1067					95% MLE (t) UCL	0.666					Mean in Original Scale	0.512
1068					95% MLE (Tiku) UCL	0.69					SD in Original Scale	0.635
1069											95% Percentile Bootstrap UCL	0.769
1070											95% BCA Bootstrap UCL	0.813
1071												
1072	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
1073					k star (bias corrected)	1.137					**Data appear Gamma Distributed at 5% Significance Level**	
1074					Theta Star	0.651						
1075					nu star	27.28						
1076												
1077					A-D Test Statistic	0.487					**Nonparametric Statistics**	
1078					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
1079					K-S Test Statistic	0.747					Mean	0.537
1080					5% K-S Critical Value	0.25					SD	0.599
1081	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.147
1082											95% KM (t) UCL	0.793
1083	**Assuming Gamma Distribution**										95% KM (z) UCL	0.779
1084					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.785
1085					Minimum	1E-09					95% KM (bootstrap t) UCL	0.889
1086					Maximum	2.1					95% KM (BCA) UCL	0.809
1087					Mean	0.577					95% KM (Percentile Bootstrap) UCL	0.796
1088					Median	0.355					95% KM (Chebyshev) UCL	1.179
1089					SD	0.605					97.5% KM (Chebyshev) UCL	1.458
1090					k star	0.273					99% KM (Chebyshev) UCL	2.004
1091					Theta star	2.11						
1092					Nu star	9.841					**Potential UCLs to Use**	
1093					AppChi2	3.842					95% KM (Percentile Bootstrap) UCL	0.796
1094					95% Gamma Approximate UCL	1.477						
1095					95% Adjusted Gamma UCL	1.626						
1096	**Note: DL/2 is not a recommended method.**											
1097												
1098												
1099	**Dibutyltin ion**											
1100												
1101	**General Statistics**											
1102					Number of Valid Data	18					Number of Detected Data	16
1103					Number of Distinct Detected Data	14					Number of Non-Detect Data	2
1104					Number of Missing Values	5					Percent Non-Detects	11.11%
1105												
1106	**Raw Statistics**										**Log-transformed Statistics**	
1107					Minimum Detected	0.25					Minimum Detected	-1.386
1108					Maximum Detected	0.92					Maximum Detected	-0.0834
1109					Mean of Detected	0.503					Mean of Detected	-0.769
1110					SD of Detected	0.215					SD of Detected	0.416
1111					Minimum Non-Detect	0.17					Minimum Non-Detect	-1.772
1112					Maximum Non-Detect	0.17					Maximum Non-Detect	-1.772
1113												

	A	B	C	D	E	F	G	H	I	J	K	L
1114												
1115	**UCL Statistics**											
1116	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1117					Shapiro Wilk Test Statistic	0.901					Shapiro Wilk Test Statistic	0.947
1118					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
1119	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1120												
1121	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1122					DL/2 Substitution Method						DL/2 Substitution Method	
1123					Mean	0.457					Mean	-0.957
1124					SD	0.243					SD	0.674
1125					95% DL/2 (t) UCL	0.556					95% H-Stat (DL/2) UCL	0.637
1126												
1127					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1128					Mean	0.453					Mean in Log Scale	-0.879
1129					SD	0.245					SD in Log Scale	0.506
1130					95% MLE (t) UCL	0.553					Mean in Original Scale	0.466
1131					95% MLE (Tiku) UCL	0.554					SD in Original Scale	0.228
1132											95% Percentile Bootstrap UCL	0.555
1133											95% BCA Bootstrap UCL	0.569
1134												
1135	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1136					k star (bias corrected)	5.121	**Data appear Normal at 5% Significance Level**					
1137					Theta Star	0.0983						
1138					nu star	163.9						
1139												
1140					A-D Test Statistic	0.376	**Nonparametric Statistics**					
1141					5% A-D Critical Value	0.741					Kaplan-Meier (KM) Method	
1142					K-S Test Statistic	0.741					Mean	0.475
1143					5% K-S Critical Value	0.216					SD	0.212
1144	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0515
1145											95% KM (t) UCL	0.565
1146	**Assuming Gamma Distribution**										95% KM (z) UCL	0.56
1147					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.563
1148					Minimum	0.0931					95% KM (bootstrap t) UCL	0.583
1149					Maximum	0.92					95% KM (BCA) UCL	0.573
1150					Mean	0.463					95% KM (Percentile Bootstrap) UCL	0.563
1151					Median	0.425					95% KM (Chebyshev) UCL	0.7
1152					SD	0.234					97.5% KM (Chebyshev) UCL	0.797
1153					k star	3.185					99% KM (Chebyshev) UCL	0.988
1154					Theta star	0.145						
1155					Nu star	114.7	**Potential UCLs to Use**					
1156					AppChi2	90.93					95% KM (t) UCL	0.565
1157					95% Gamma Approximate UCL	0.583					95% KM (Percentile Bootstrap) UCL	0.563
1158					95% Adjusted Gamma UCL	0.597						
1159	**Note: DL/2 is not a recommended method.**											
1160												
1161												
1162	**Dieldrin**											
1163												
1164	**General Statistics**											
1165					Number of Valid Data	23					Number of Detected Data	21
1166					Number of Distinct Detected Data	20					Number of Non-Detect Data	2

	A	B	C	D	E	F	G	H	I	J	K	L
1167											Percent Non-Detects	8.70%
1168												
1169				**Raw Statistics**						**Log-transformed Statistics**		
1170					Minimum Detected	0.183					Minimum Detected	-1.698
1171					Maximum Detected	3.3					Maximum Detected	1.194
1172					Mean of Detected	0.555					Mean of Detected	-0.903
1173					SD of Detected	0.688					SD of Detected	0.67
1174					Minimum Non-Detect	1					Minimum Non-Detect	0
1175					Maximum Non-Detect	1					Maximum Non-Detect	0
1176												
1177												
1178					**UCL Statistics**							
1179				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1180					Shapiro Wilk Test Statistic	0.485					Shapiro Wilk Test Statistic	0.791
1181					5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value	0.908
1182				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1183												
1184				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1185					DL/2 Substitution Method						DL/2 Substitution Method	
1186					Mean	0.55					Mean	-0.885
1187					SD	0.656					SD	0.642
1188					95% DL/2 (t) UCL	0.785					95% H-Stat (DL/2) UCL	0.788
1189												
1190					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1191				**MLE yields a negative mean**							Mean in Log Scale	-0.914
1192											SD in Log Scale	0.644
1193											Mean in Original Scale	0.539
1194											SD in Original Scale	0.659
1195											95% Percentile Bootstrap UCL	0.784
1196											95% BCA Bootstrap UCL	0.933
1197												
1198				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1199					k star (bias corrected)	1.522				**Data do not follow a Discernable Distribution (0.05)**		
1200					Theta Star	0.365						
1201					nu star	63.94						
1202												
1203					A-D Test Statistic	2.582				**Nonparametric Statistics**		
1204					5% A-D Critical Value	0.756					Kaplan-Meier (KM) Method	
1205					K-S Test Statistic	0.756					Mean	0.536
1206					5% K-S Critical Value	0.192					SD	0.645
1207				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.138
1208											95% KM (t) UCL	0.773
1209				**Assuming Gamma Distribution**							95% KM (z) UCL	0.763
1210					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.772
1211					Minimum	0.183					95% KM (bootstrap t) UCL	1.345
1212					Maximum	3.3					95% KM (BCA) UCL	0.819
1213					Mean	0.554					95% KM (Percentile Bootstrap) UCL	0.782
1214					Median	0.369					95% KM (Chebyshev) UCL	1.137
1215					SD	0.658					97.5% KM (Chebyshev) UCL	1.397
1216					k star	1.649					99% KM (Chebyshev) UCL	1.908
1217					Theta star	0.336						
1218					Nu star	75.86				**Potential UCLs to Use**		
1219					AppChi2	56.8					95% KM (Chebyshev) UCL	1.137

1220					95% Gamma Approximate UCL	0.741						
1221					95% Adjusted Gamma UCL	0.756						
1222	**Note: DL/2 is not a recommended method.**											
1223												
1224												
1225	**Endrin**											
1226												
1227	**General Statistics**											
1228					Number of Valid Data	18				Number of Detected Data	6	
1229					Number of Distinct Detected Data	6				Number of Non-Detect Data	12	
1230					Number of Missing Values	5				Percent Non-Detects	66.67%	
1231												
1232	**Raw Statistics**									**Log-transformed Statistics**		
1233					Minimum Detected	0.003				Minimum Detected	-5.809	
1234					Maximum Detected	0.011				Maximum Detected	-4.51	
1235					Mean of Detected	0.00577				Mean of Detected	-5.248	
1236					SD of Detected	0.0029				SD of Detected	0.459	
1237					Minimum Non-Detect	0.003				Minimum Non-Detect	-5.809	
1238					Maximum Non-Detect	0.00672				Maximum Non-Detect	-5.003	
1239												
1240	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	16	
1241	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	2	
1242	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	88.89%	
1243												
1244	**Warning: There are only 6 Detected Values in this data**											
1245	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1246	**the resulting calculations may not be reliable enough tp draw conclusions**											
1247												
1248	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1249												
1250												
1251	**UCL Statistics**											
1252	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
1253					Shapiro Wilk Test Statistic	0.871				Shapiro Wilk Test Statistic	0.962	
1254					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value	0.788	
1255	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
1256												
1257	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1258					DL/2 Substitution Method					DL/2 Substitution Method		
1259					Mean	0.00334				Mean	-5.871	
1260					SD	0.00241				SD	0.555	
1261					95% DL/2 (t) UCL	0.00433				95% H-Stat (DL/2) UCL	0.00458	
1262												
1263					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1264	**MLE method failed to converge properly**									Mean in Log Scale	-5.969	
1265										SD in Log Scale	0.627	
1266										Mean in Original Scale	0.00316	
1267										SD in Original Scale	0.0025	
1268										95% Percentile Bootstrap UCL	0.00415	
1269										95% BCA Bootstrap UCL	0.00456	
1270												
1271	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
1272					k star (bias corrected)	2.889				**Data appear Normal at 5% Significance Level**		

1273					Theta Star	0.002						
1274					nu star	34.67						
1275												
1276					A-D Test Statistic	0.302	**Nonparametric Statistics**					
1277					5% A-D Critical Value	0.698	Kaplan-Meier (KM) Method					
1278					K-S Test Statistic	0.698	Mean	0.004				
1279					5% K-S Critical Value	0.333	SD	0.002				
1280	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.000524				
1281							95% KM (t) UCL	0.00491				
1282	**Assuming Gamma Distribution**						95% KM (z) UCL	0.00486				
1283	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00484				
1284					Minimum	0.003	95% KM (bootstrap t) UCL	0.00526				
1285					Maximum	0.011	95% KM (BCA) UCL	0.00612				
1286					Mean	0.00568	95% KM (Percentile Bootstrap) UCL	0.00546				
1287					Median	0.0055	95% KM (Chebyshev) UCL	0.00628				
1288					SD	0.0016	97.5% KM (Chebyshev) UCL	0.00727				
1289					k star	13.21	99% KM (Chebyshev) UCL	0.00921				
1290					Theta star	0.0004303						
1291					Nu star	475.4	**Potential UCLs to Use**					
1292					AppChi2	425.9	95% KM (t) UCL	0.00491				
1293					95% Gamma Approximate UCL	0.00634	95% KM (Percentile Bootstrap) UCL	0.00546				
1294					95% Adjusted Gamma UCL	0.00641						
1295	**Note: DL/2 is not a recommended method.**											
1296												
1297												
1298	**Fluoranthene**											
1299												
1300	**General Statistics**											
1301					Number of Valid Data	18	Number of Detected Data	10				
1302					Number of Distinct Detected Data	8	Number of Non-Detect Data	8				
1303					Number of Missing Values	5	Percent Non-Detects	44.44%				
1304												
1305	**Raw Statistics**						**Log-transformed Statistics**					
1306					Minimum Detected	1.4	Minimum Detected	0.336				
1307					Maximum Detected	12	Maximum Detected	2.485				
1308					Mean of Detected	3.84	Mean of Detected	1.036				
1309					SD of Detected	3.589	SD of Detected	0.776				
1310					Minimum Non-Detect	0.42	Minimum Non-Detect	-0.868				
1311					Maximum Non-Detect	1.2	Maximum Non-Detect	0.182				
1312												
1313	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	8				
1314	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	10				
1315	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	44.44%				
1316												
1317	**UCL Statistics**											
1318	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1319					Shapiro Wilk Test Statistic	0.732	Shapiro Wilk Test Statistic	0.835				
1320					5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842				
1321	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1322												
1323	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1324					DL/2 Substitution Method		DL/2 Substitution Method					
1325					Mean	2.288	Mean	0.0802				

1326					SD	3.164					SD	1.259
1327					95% DL/2 (t) UCL	3.586					95% H-Stat (DL/2) UCL	3.077
1328												
1329					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1330					Mean	1.116					Mean in Log Scale	0.135
1331					SD	4.334					SD in Log Scale	1.181
1332					95% MLE (t) UCL	2.893					Mean in Original Scale	2.298
1333					95% MLE (Tiku) UCL	3.194					SD in Original Scale	3.157
1334											95% Percentile Bootstrap UCL	3.521
1335											95% BCA Bootstrap UCL	3.927
1336												
1337				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
1338					k star (bias corrected)	1.302					**Data do not follow a Discernable Distribution (0.05)**	
1339					Theta Star	2.95						
1340					nu star	26.04						
1341												
1342					A-D Test Statistic	0.929					**Nonparametric Statistics**	
1343					5% A-D Critical Value	0.737					Kaplan-Meier (KM) Method	
1344					K-S Test Statistic	0.737					Mean	2.756
1345					5% K-S Critical Value	0.27					SD	2.813
1346				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.699
1347											95% KM (t) UCL	3.971
1348				**Assuming Gamma Distribution**							95% KM (z) UCL	3.905
1349					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.909
1350					Minimum	1.4					95% KM (bootstrap t) UCL	5.707
1351					Maximum	12					95% KM (BCA) UCL	3.972
1352					Mean	3.143					95% KM (Percentile Bootstrap) UCL	3.928
1353					Median	2.273					95% KM (Chebyshev) UCL	5.801
1354					SD	2.732					97.5% KM (Chebyshev) UCL	7.119
1355					k star	2.2					99% KM (Chebyshev) UCL	9.708
1356					Theta star	1.429						
1357					Nu star	79.2					**Potential UCLs to Use**	
1358					AppChi2	59.7					95% KM (t) UCL	3.971
1359					95% Gamma Approximate UCL	4.17					95% KM (% Bootstrap) UCL	3.928
1360					95% Adjusted Gamma UCL	4.287						
1361	**Note: DL/2 is not a recommended method.**											
1362												
1363												
1364	**gamma-Hexachlorocyclohexane**											
1365												
1366						**General Statistics**							
1367					Number of Valid Data	17					Number of Detected Data	7
1368					Number of Distinct Detected Data	6					Number of Non-Detect Data	10
1369					Number of Missing Values	6					Percent Non-Detects	58.82%
1370												
1371				**Raw Statistics**							**Log-transformed Statistics**	
1372					Minimum Detected	0.003					Minimum Detected	-5.809
1373					Maximum Detected	0.011					Maximum Detected	-4.51
1374					Mean of Detected	0.00614					Mean of Detected	-5.181
1375					SD of Detected	0.00285					SD of Detected	0.45
1376					Minimum Non-Detect	0.00323					Minimum Non-Detect	-5.735
1377					Maximum Non-Detect	0.009					Maximum Non-Detect	-4.711
1378												

	A	B	C	D	E	F	G	H	I	J	K	L
1379	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
1380	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
1381	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	88.24%
1382												
1383	**Warning: There are only 7 Detected Values in this data**											
1384	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1385	**the resulting calculations may not be reliable enough tp draw conclusions**											
1386												
1387	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1388												
1389												
1390	**UCL Statistics**											
1391	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1392	Shapiro Wilk Test Statistic					0.903	Shapiro Wilk Test Statistic					0.963
1393	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
1394	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1395												
1396	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1397	DL/2 Substitution Method						DL/2 Substitution Method					
1398	Mean					0.00414	Mean					-5.631
1399	SD					0.00255	SD					0.535
1400	95% DL/2 (t) UCL					0.00522	95% H-Stat (DL/2) UCL					0.0057
1401												
1402	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1403	**MLE method failed to converge properly**						Mean in Log Scale					-5.527
1404							SD in Log Scale					0.423
1405							Mean in Original Scale					0.00439
1406							SD in Original Scale					0.00235
1407							95% Percentile Bootstrap UCL					0.0054
1408							95% BCA Bootstrap UCL					0.00566
1409												
1410	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1411	k star (bias corrected)					3.432	**Data appear Normal at 5% Significance Level**					
1412	Theta Star					0.00179						
1413	nu star					48.05						
1414												
1415	A-D Test Statistic					0.291	**Nonparametric Statistics**					
1416	5% A-D Critical Value					0.71	Kaplan-Meier (KM) Method					
1417	K-S Test Statistic					0.71	Mean					0.00453
1418	5% K-S Critical Value					0.313	SD					0.00225
1419	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0006144
1420							95% KM (t) UCL					0.0056
1421	**Assuming Gamma Distribution**						95% KM (z) UCL					0.00554
1422	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0055
1423	Minimum					0.003	95% KM (bootstrap t) UCL					0.00586
1424	Maximum					0.011	95% KM (BCA) UCL					0.00641
1425	Mean					0.00631	95% KM (Percentile Bootstrap) UCL					0.00599
1426	Median					0.00605	95% KM (Chebyshev) UCL					0.00721
1427	SD					0.00184	97.5% KM (Chebyshev) UCL					0.00837
1428	k star					10.48	99% KM (Chebyshev) UCL					0.0106
1429	Theta star					0.0006021						
1430	Nu star					356.4	**Potential UCLs to Use**					
1431	AppChi2					313.7	95% KM (t) UCL					0.0056

1432				95% Gamma Approximate UCL	0.00717				95% KM (Percentile Bootstrap) UCL	0.00599		
1433				95% Adjusted Gamma UCL	0.00727							
1434	**Note: DL/2 is not a recommended method.**											
1435												
1436												
1437	**Heptachlor epoxide**											
1438												
1439	**General Statistics**											
1440				Number of Valid Data	18				Number of Detected Data	17		
1441				Number of Distinct Detected Data	13				Number of Non-Detect Data	1		
1442				Number of Missing Values	5				Percent Non-Detects	5.56%		
1443												
1444	**Raw Statistics**					**Log-transformed Statistics**						
1445				Minimum Detected	0.01				Minimum Detected	-4.605		
1446				Maximum Detected	0.0272				Maximum Detected	-3.605		
1447				Mean of Detected	0.0173				Mean of Detected	-4.096		
1448				SD of Detected	0.00503				SD of Detected	0.297		
1449				Minimum Non-Detect	0.012				Minimum Non-Detect	-4.423		
1450				Maximum Non-Detect	0.012				Maximum Non-Detect	-4.423		
1451												
1452												
1453	**UCL Statistics**											
1454	**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**						
1455				Shapiro Wilk Test Statistic	0.966				Shapiro Wilk Test Statistic	0.969		
1456				5% Shapiro Wilk Critical Value	0.892				5% Shapiro Wilk Critical Value	0.892		
1457	**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**						
1458												
1459	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
1460				DL/2 Substitution Method					DL/2 Substitution Method			
1461				Mean	0.0167				Mean	-4.153		
1462				SD	0.00556				SD	0.375		
1463				95% DL/2 (t) UCL	0.019				95% H-Stat (DL/2) UCL	0.0204		
1464												
1465				Maximum Likelihood Estimate(MLE) Method					Log ROS Method			
1466				Mean	0.0168				Mean in Log Scale	-4.124		
1467				SD	0.00534				SD in Log Scale	0.311		
1468				95% MLE (t) UCL	0.019				Mean in Original Scale	0.0169		
1469				95% MLE (Tiku) UCL	0.019				SD in Original Scale	0.00517		
1470									95% Percentile Bootstrap UCL	0.019		
1471									95% BCA Bootstrap UCL	0.0189		
1472												
1473	**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**						
1474				k star (bias corrected)	10.3	**Data appear Normal at 5% Significance Level**						
1475				Theta Star	0.00168							
1476				nu star	350.2							
1477												
1478				A-D Test Statistic	0.169	**Nonparametric Statistics**						
1479				5% A-D Critical Value	0.739				Kaplan-Meier (KM) Method			
1480				K-S Test Statistic	0.739				Mean	0.0169		
1481				5% K-S Critical Value	0.209				SD	0.00503		
1482	**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.00122		
1483									95% KM (t) UCL	0.019		
1484	**Assuming Gamma Distribution**								95% KM (z) UCL	0.0189		

1485	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.019
1486					Minimum	0.00937					95% KM (bootstrap t) UCL	0.0191
1487					Maximum	0.0272					95% KM (BCA) UCL	0.019
1488					Mean	0.0169					95% KM (Percentile Bootstrap) UCL	0.0189
1489					Median	0.0165					95% KM (Chebyshev) UCL	0.0222
1490					SD	0.00523					97.5% KM (Chebyshev) UCL	0.0245
1491					k star	9.094					99% KM (Chebyshev) UCL	0.0291
1492					Theta star	0.00186						
1493					Nu star	327.4	**Potential UCLs to Use**					
1494					AppChi2	286.5					95% KM (t) UCL	0.019
1495				95% Gamma Approximate UCL		0.0193					95% KM (Percentile Bootstrap) UCL	0.0189
1496				95% Adjusted Gamma UCL		0.0195						
1497	**Note: DL/2 is not a recommended method.**											
1498												
1499												
1500	**Hexachlorobenzene**											
1501												
1502	**General Statistics**											
1503				Number of Valid Data		18					Number of Detected Data	18
1504				Number of Distinct Detected Data		16					Number of Non-Detect Data	0
1505				Number of Missing Values		5					Percent Non-Detects	0.00%
1506												
1507	**Raw Statistics**						**Log-transformed Statistics**					
1508				Minimum Detected		0.24					Minimum Detected	-1.427
1509				Maximum Detected		0.876					Maximum Detected	-0.132
1510				Mean of Detected		0.389					Mean of Detected	-0.986
1511				SD of Detected		0.138					SD of Detected	0.278
1512				Minimum Non-Detect		N/A					Minimum Non-Detect	N/A
1513				Maximum Non-Detect		N/A					Maximum Non-Detect	N/A
1514												
1515												
1516	**UCL Statistics**											
1517	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1518				Shapiro Wilk Test Statistic		0.687					Shapiro Wilk Test Statistic	0.844
1519				5% Shapiro Wilk Critical Value		0.897					5% Shapiro Wilk Critical Value	0.897
1520	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1521												
1522	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1523				DL/2 Substitution Method							DL/2 Substitution Method	
1524				Mean		0.389					Mean	-0.986
1525				SD		0.138					SD	0.278
1526				95% DL/2 (t) UCL		0.446					95% H-Stat (DL/2) UCL	0.439
1527												
1528				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
1529	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1530											SD in Log Scale	N/A
1531											Mean in Original Scale	N/A
1532											SD in Original Scale	N/A
1533											95% Percentile Bootstrap UCL	N/A
1534											95% BCA Bootstrap UCL	N/A
1535												
1536	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1537				k star (bias corrected)		10.02	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					

1538					Theta Star	0.0388						
1539					nu star	360.8						
1540												
1541					A-D Test Statistic	1.247	**Nonparametric Statistics**					
1542					5% A-D Critical Value	0.739	Kaplan-Meier (KM) Method					
1543					K-S Test Statistic	0.739	Mean	0.389				
1544					5% K-S Critical Value	0.203	SD	0.134				
1545	**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean	0.0326				
1546							95% KM (t) UCL	0.446				
1547	**Assuming Gamma Distribution**						95% KM (z) UCL	0.443				
1548	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.446				
1549					Minimum	0.24	95% KM (bootstrap t) UCL	0.503				
1550					Maximum	0.876	95% KM (BCA) UCL	0.449				
1551					Mean	0.389	95% KM (Percentile Bootstrap) UCL	0.444				
1552					Median	0.346	95% KM (Chebyshev) UCL	0.531				
1553					SD	0.138	97.5% KM (Chebyshev) UCL	0.593				
1554					k star	10.02	99% KM (Chebyshev) UCL	0.713				
1555					Theta star	0.0388						
1556					Nu star	360.8	**Potential UCLs to Use**					
1557					AppChi2	317.8	95% KM (BCA) UCL	0.449				
1558					95% Gamma Approximate UCL	0.442						
1559					95% Adjusted Gamma UCL	0.447						
1560	**Note: DL/2 is not a recommended method.**											
1561												
1562												
1563	**Hexachlorobutadiene**											
1564												
1565	**General Statistics**											
1566					Number of Valid Data	18	Number of Detected Data	5				
1567					Number of Distinct Detected Data	5	Number of Non-Detect Data	13				
1568					Number of Missing Values	5	Percent Non-Detects	72.22%				
1569												
1570	**Raw Statistics**						**Log-transformed Statistics**					
1571					Minimum Detected	0.006	Minimum Detected	-5.116				
1572					Maximum Detected	0.167	Maximum Detected	-1.79				
1573					Mean of Detected	0.043	Mean of Detected	-4.014				
1574					SD of Detected	0.0696	SD of Detected	1.355				
1575					Minimum Non-Detect	0.004	Minimum Non-Detect	-5.521				
1576					Maximum Non-Detect	0.032	Maximum Non-Detect	-3.442				
1577												
1578	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	17				
1579	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	1				
1580	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	94.44%				
1581												
1582	**Warning: There are only 5 Detected Values in this data**											
1583	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1584	**the resulting calculations may not be reliable enough tp draw conclusions**											
1585												
1586	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1587												
1588												
1589	**UCL Statistics**											
1590	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

1591					Shapiro Wilk Test Statistic	0.633					Shapiro Wilk Test Statistic	0.857
1592					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
1593					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1594												
1595					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1596					DL/2 Substitution Method						DL/2 Substitution Method	
1597					Mean	0.0169					Mean	-4.833
1598					SD	0.0378					SD	0.975
1599					95% DL/2 (t) UCL	0.0324					95% H-Stat (DL/2) UCL	0.022
1600												
1601					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1602					**MLE method failed to converge properly**						Mean in Log Scale	-5.303
1603											SD in Log Scale	1.12
1604											Mean in Original Scale	0.0143
1605											SD in Original Scale	0.0384
1606											95% Percentile Bootstrap UCL	0.032
1607											95% BCA Bootstrap UCL	0.0421
1608												
1609					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1610					k star (bias corrected)	0.412					**Data appear Gamma Distributed at 5% Significance Level**	
1611					Theta Star	0.104						
1612					nu star	4.122						
1613												
1614					A-D Test Statistic	0.651					**Nonparametric Statistics**	
1615					5% A-D Critical Value	0.701					Kaplan-Meier (KM) Method	
1616					K-S Test Statistic	0.701					Mean	0.0166
1617					5% K-S Critical Value	0.368					SD	0.0367
1618					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.00968
1619											95% KM (t) UCL	0.0335
1620					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0326
1621					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.032
1622					Minimum	0.006					95% KM (bootstrap t) UCL	0.133
1623					Maximum	0.167					95% KM (BCA) UCL	0.0427
1624					Mean	0.0441					95% KM (Percentile Bootstrap) UCL	0.0348
1625					Median	0.0441					95% KM (Chebyshev) UCL	0.0589
1626					SD	0.0339					97.5% KM (Chebyshev) UCL	0.0771
1627					k star	1.876					99% KM (Chebyshev) UCL	0.113
1628					Theta star	0.0235						
1629					Nu star	67.54					**Potential UCLs to Use**	
1630					AppChi2	49.62					95% KM (t) UCL	0.0335
1631					95% Gamma Approximate UCL	0.06						
1632					95% Adjusted Gamma UCL	0.0618						
1633	**Note: DL/2 is not a recommended method.**											
1634												
1635												
1636	**Indeno(1,2,3-cd)pyrene**											
1637												
1638						**General Statistics**						
1639					Number of Valid Data	18					Number of Detected Data	7
1640					Number of Distinct Detected Data	7					Number of Non-Detect Data	11
1641					Number of Missing Values	5					Percent Non-Detects	61.11%
1642												
1643					**Raw Statistics**						**Log-transformed Statistics**	

1644					Minimum Detected	0.079					Minimum Detected	-2.538
1645					Maximum Detected	1.9					Maximum Detected	0.642
1646					Mean of Detected	0.727					Mean of Detected	-1.041
1647					SD of Detected	0.786					SD of Detected	1.41
1648					Minimum Non-Detect	0.064					Minimum Non-Detect	-2.749
1649					Maximum Non-Detect	0.064					Maximum Non-Detect	-2.749
1650												
1651												
1652					**Warning: There are only 7 Detected Values in this data**							
1653					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1654					**the resulting calculations may not be reliable enough tp draw conclusions**							
1655												
1656					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1657												
1658												
1659					**UCL Statistics**							
1660					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1661					Shapiro Wilk Test Statistic	0.81					Shapiro Wilk Test Statistic	0.858
1662					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
1663					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1664												
1665					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1666					DL/2 Substitution Method						DL/2 Substitution Method	
1667					Mean	0.302					Mean	-2.508
1668					SD	0.583					SD	1.467
1669					95% DL/2 (t) UCL	0.541					95% H-Stat (DL/2) UCL	0.309
1670												
1671					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1672					**MLE yields a negative mean**						Mean in Log Scale	-3.882
1673											SD in Log Scale	2.806
1674											Mean in Original Scale	0.288
1675											SD in Original Scale	0.59
1676											95% Percentile Bootstrap UCL	0.533
1677											95% BCA Bootstrap UCL	0.589
1678												
1679					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1680					k star (bias corrected)	0.563					**Data appear Normal at 5% Significance Level**	
1681					Theta Star	1.291						
1682					nu star	7.886						
1683												
1684					A-D Test Statistic	0.498					**Nonparametric Statistics**	
1685					5% A-D Critical Value	0.734					Kaplan-Meier (KM) Method	
1686					K-S Test Statistic	0.734					Mean	0.331
1687					5% K-S Critical Value	0.322					SD	0.553
1688					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.141
1689											95% KM (t) UCL	0.576
1690					**Assuming Gamma Distribution**						95% KM (z) UCL	0.562
1691					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.564
1692					Minimum	1E-09					95% KM (bootstrap t) UCL	0.886
1693					Maximum	4.582					95% KM (BCA) UCL	0.605
1694					Mean	1.355					95% KM (Percentile Bootstrap) UCL	0.606
1695					Median	0.922					95% KM (Chebyshev) UCL	0.944
1696					SD	1.402					97.5% KM (Chebyshev) UCL	1.21

1697					k star	0.341				99% KM (Chebyshev) UCL		1.731
1698					Theta star	3.979						
1699					Nu star	12.26				**Potential UCLs to Use**		
1700					AppChi2	5.4				95% KM (t) UCL		0.576
1701					95% Gamma Approximate UCL	3.077				95% KM (Percentile Bootstrap) UCL		0.606
1702					95% Adjusted Gamma UCL	3.345						
1703	**Note: DL/2 is not a recommended method.**											
1704												
1705												
1706	**Lead**											
1707												
1708					**General Statistics**							
1709					Number of Valid Data	23				Number of Detected Data		19
1710					Number of Distinct Detected Data	13				Number of Non-Detect Data		4
1711										Percent Non-Detects		17.39%
1712												
1713					**Raw Statistics**					**Log-transformed Statistics**		
1714					Minimum Detected	0.007				Minimum Detected		-4.962
1715					Maximum Detected	0.518				Maximum Detected		-0.658
1716					Mean of Detected	0.0471				Mean of Detected		-3.934
1717					SD of Detected	0.115				SD of Detected		1.054
1718					Minimum Non-Detect	0.002				Minimum Non-Detect		-6.215
1719					Maximum Non-Detect	0.004				Maximum Non-Detect		-5.521
1720												
1721	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		4
1722	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		19
1723	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		17.39%
1724												
1725					**UCL Statistics**							
1726					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1727					Shapiro Wilk Test Statistic	0.349				Shapiro Wilk Test Statistic		0.825
1728					5% Shapiro Wilk Critical Value	0.901				5% Shapiro Wilk Critical Value		0.901
1729					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
1730												
1731					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1732					DL/2 Substitution Method					DL/2 Substitution Method		
1733					Mean	0.0392				Mean		-4.386
1734					SD	0.106				SD		1.39
1735					95% DL/2 (t) UCL	0.077				95% H-Stat (DL/2) UCL		0.0597
1736												
1737					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
1738					Mean	0.0247				Mean in Log Scale		-4.331
1739					SD	0.116				SD in Log Scale		1.303
1740					95% MLE (t) UCL	0.0663				Mean in Original Scale		0.0393
1741					95% MLE (Tiku) UCL	0.0646				SD in Original Scale		0.106
1742										95% Percentile Bootstrap UCL		0.0817
1743										95% BCA Bootstrap UCL		0.104
1744												
1745					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1746					k star (bias corrected)	0.616				**Data do not follow a Discernable Distribution (0.05)**		
1747					Theta Star	0.0765						
1748					nu star	23.39						
1749												

1750				A-D Test Statistic	2.376		**Nonparametric Statistics**					
1751				5% A-D Critical Value	0.785					Kaplan-Meier (KM) Method		
1752				K-S Test Statistic	0.785					Mean		0.0401
1753				5% K-S Critical Value	0.207					SD		0.103
1754				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		0.0221
1755										95% KM (t) UCL		0.078
1756				**Assuming Gamma Distribution**						95% KM (z) UCL		0.0764
1757				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.0778
1758				Minimum	1E-09					95% KM (bootstrap t) UCL		0.257
1759				Maximum	0.518					95% KM (BCA) UCL		0.0831
1760				Mean	0.0389					95% KM (Percentile Bootstrap) UCL		0.082
1761				Median	0.011					95% KM (Chebyshev) UCL		0.136
1762				SD	0.106					97.5% KM (Chebyshev) UCL		0.178
1763				k star	0.206					99% KM (Chebyshev) UCL		0.26
1764				Theta star	0.189							
1765				Nu star	9.472		**Potential UCLs to Use**					
1766				AppChi2	3.614					97.5% KM (Chebyshev) UCL		0.178
1767				95% Gamma Approximate UCL	0.102							
1768				95% Adjusted Gamma UCL	0.11							
1769	**Note: DL/2 is not a recommended method.**											
1770												
1771												
1772	**Manganese**											
1773												
1774					**General Statistics**							
1775				Number of Valid Observations	23					Number of Distinct Observations		23
1776												
1777				**Raw Statistics**						**Log-transformed Statistics**		
1778				Minimum	0.076					Minimum of Log Data		-2.577
1779				Maximum	0.546					Maximum of Log Data		-0.605
1780				Mean	0.34					Mean of log Data		-1.246
1781				Median	0.375					SD of log Data		0.684
1782				SD	0.153							
1783				Coefficient of Variation	0.45							
1784				Skewness	-0.756							
1785												
1786					**Relevant UCL Statistics**							
1787				**Normal Distribution Test**						**Lognormal Distribution Test**		
1788				Shapiro Wilk Test Statistic	0.865					Shapiro Wilk Test Statistic		0.733
1789				Shapiro Wilk Critical Value	0.914					Shapiro Wilk Critical Value		0.914
1790				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1791												
1792				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1793				95% Student's-t UCL	0.395					95% H-UCL		0.497
1794				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		0.598
1795				95% Adjusted-CLT UCL	0.388					97.5% Chebyshev (MVUE) UCL		0.701
1796				95% Modified-t UCL	0.394					99% Chebyshev (MVUE) UCL		0.904
1797												
1798				**Gamma Distribution Test**						**Data Distribution**		
1799				k star (bias corrected)	2.751					**Data do not follow a Discernable Distribution (0.05)**		
1800				Theta Star	0.124							
1801				nu star	126.6							
1802				Approximate Chi Square Value (.05)	101.6					**Nonparametric Statistics**		

1803					Adjusted Level of Significance	0.0389					95% CLT UCL	0.393
1804					Adjusted Chi Square Value	99.95					95% Jackknife UCL	0.395
1805											95% Standard Bootstrap UCL	0.393
1806					Anderson-Darling Test Statistic	2.296					95% Bootstrap-t UCL	0.389
1807					Anderson-Darling 5% Critical Value	0.75					95% Hall's Bootstrap UCL	0.389
1808					Kolmogorov-Smirnov Test Statistic	0.269					95% Percentile Bootstrap UCL	0.39
1809					Kolmogorov-Smirnov 5% Critical Value	0.183					95% BCA Bootstrap UCL	0.387
1810					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.48
1811											97.5% Chebyshev(Mean, Sd) UCL	0.54
1812					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.659
1813					95% Approximate Gamma UCL	0.424						
1814					95% Adjusted Gamma UCL	0.431						
1815												
1816					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	0.48
1817												
1818												
1819	**Mercury**											
1820												
1821						**General Statistics**							
1822					Number of Valid Data	18					Number of Detected Data	18
1823					Number of Distinct Detected Data	17					Number of Non-Detect Data	0
1824					Number of Missing Values	5					Percent Non-Detects	0.00%
1825												
1826					**Raw Statistics**						**Log-transformed Statistics**	
1827					Minimum Detected	0.0591					Minimum Detected	-2.829
1828					Maximum Detected	0.349					Maximum Detected	-1.053
1829					Mean of Detected	0.171					Mean of Detected	-1.86
1830					SD of Detected	0.0719					SD of Detected	0.469
1831					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1832					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1833												
1834												
1835						**UCL Statistics**							
1836					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1837					Shapiro Wilk Test Statistic	0.958					Shapiro Wilk Test Statistic	0.939
1838					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
1839					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1840												
1841					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1842					DL/2 Substitution Method						DL/2 Substitution Method	
1843					Mean	0.171					Mean	-1.86
1844					SD	0.0719					SD	0.469
1845					95% DL/2 (t) UCL	0.201					95% H-Stat (DL/2) UCL	0.218
1846												
1847					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1848					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1849											SD in Log Scale	N/A
1850											Mean in Original Scale	N/A
1851											SD in Original Scale	N/A
1852											95% Percentile Bootstrap UCL	N/A
1853											95% BCA Bootstrap UCL	N/A
1854												
1855					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	

1856					k star (bias corrected)	4.595	**Data appear Normal at 5% Significance Level**					
1857					Theta Star	0.0372						
1858					nu star	165.4						
1859												
1860					A-D Test Statistic	0.349	**Nonparametric Statistics**					
1861					5% A-D Critical Value	0.743					Kaplan-Meier (KM) Method	
1862					K-S Test Statistic	0.743					Mean	0.171
1863					5% K-S Critical Value	0.204					SD	0.0698
1864	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0169
1865											95% KM (t) UCL	0.201
1866	**Assuming Gamma Distribution**										95% KM (z) UCL	0.199
1867				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.201
1868					Minimum	0.0591					95% KM (bootstrap t) UCL	0.203
1869					Maximum	0.349					95% KM (BCA) UCL	0.199
1870					Mean	0.171					95% KM (Percentile Bootstrap) UCL	0.198
1871					Median	0.174					95% KM (Chebyshev) UCL	0.245
1872					SD	0.0719					97.5% KM (Chebyshev) UCL	0.277
1873					k star	4.595					99% KM (Chebyshev) UCL	0.34
1874					Theta star	0.0372						
1875					Nu star	165.4	**Potential UCLs to Use**					
1876					AppChi2	136.7					95% KM (t) UCL	0.201
1877					95% Gamma Approximate UCL	0.207					95% KM (Percentile Bootstrap) UCL	0.198
1878					95% Adjusted Gamma UCL	0.211						
1879	**Note: DL/2 is not a recommended method.**											
1880												
1881												
1882	**Naphthalene**											
1883												
1884	**General Statistics**											
1885					Number of Valid Data	18					Number of Detected Data	18
1886					Number of Distinct Detected Data	16					Number of Non-Detect Data	0
1887					Number of Missing Values	5					Percent Non-Detects	0.00%
1888												
1889	**Raw Statistics**						**Log-transformed Statistics**					
1890					Minimum Detected	0.52					Minimum Detected	-0.654
1891					Maximum Detected	11					Maximum Detected	2.398
1892					Mean of Detected	1.662					Mean of Detected	0.0997
1893					SD of Detected	2.431					SD of Detected	0.759
1894					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1895					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1896												
1897												
1898	**UCL Statistics**											
1899	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1900					Shapiro Wilk Test Statistic	0.465					Shapiro Wilk Test Statistic	0.803
1901					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
1902	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1903												
1904	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1905					DL/2 Substitution Method						DL/2 Substitution Method	
1906					Mean	1.662					Mean	0.0997
1907					SD	2.431					SD	0.759
1908					95% DL/2 (t) UCL	2.659					95% H-Stat (DL/2) UCL	2.254

1909												
1910					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1911					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1912										SD in Log Scale		N/A
1913										Mean in Original Scale		N/A
1914										SD in Original Scale		N/A
1915										95% Percentile Bootstrap UCL		N/A
1916										95% BCA Bootstrap UCL		N/A
1917												
1918					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1919					k star (bias corrected)	1.176				**Data do not follow a Discernable Distribution (0.05)**		
1920					Theta Star	1.413						
1921					nu star	42.34						
1922												
1923					A-D Test Statistic	2.046				**Nonparametric Statistics**		
1924					5% A-D Critical Value	0.759				Kaplan-Meier (KM) Method		
1925					K-S Test Statistic	0.759				Mean		1.662
1926					5% K-S Critical Value	0.208				SD		2.362
1927					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		0.573
1928										95% KM (t) UCL		2.659
1929					**Assuming Gamma Distribution**					95% KM (z) UCL		2.605
1930					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		2.659
1931					Minimum	0.52				95% KM (bootstrap t) UCL		5.14
1932					Maximum	11				95% KM (BCA) UCL		2.781
1933					Mean	1.662				95% KM (Percentile Bootstrap) UCL		2.727
1934					Median	0.81				95% KM (Chebyshev) UCL		4.16
1935					SD	2.431				97.5% KM (Chebyshev) UCL		5.241
1936					k star	1.176				99% KM (Chebyshev) UCL		7.363
1937					Theta star	1.413						
1938					Nu star	42.34				**Potential UCLs to Use**		
1939					AppChi2	28.42				95% KM (Chebyshev) UCL		4.16
1940					95% Gamma Approximate UCL	2.476						
1941					95% Adjusted Gamma UCL	2.575						
1942	**Note: DL/2 is not a recommended method.**											
1943												
1944												
1945	**Nickel**											
1946												
1947						**General Statistics**						
1948					Number of Valid Observations	23				Number of Distinct Observations		22
1949												
1950					**Raw Statistics**					**Log-transformed Statistics**		
1951					Minimum	0.004				Minimum of Log Data		-5.521
1952					Maximum	0.224				Maximum of Log Data		-1.496
1953					Mean	0.0596				Mean of log Data		-3.139
1954					Median	0.05				SD of log Data		0.943
1955					SD	0.0471						
1956					Coefficient of Variation	0.79						
1957					Skewness	2.169						
1958												
1959						**Relevant UCL Statistics**						
1960					**Normal Distribution Test**					**Lognormal Distribution Test**		
1961					Shapiro Wilk Test Statistic	0.777				Shapiro Wilk Test Statistic		0.84

1962					Shapiro Wilk Critical Value	0.914					Shapiro Wilk Critical Value	0.914
1963	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1964												
1965	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1966					95% Student's-t UCL	0.0765					95% H-UCL	0.111
1967	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.129
1968					95% Adjusted-CLT UCL	0.0805					97.5% Chebyshev (MVUE) UCL	0.156
1969					95% Modified-t UCL	0.0772					99% Chebyshev (MVUE) UCL	0.21
1970												
1971	**Gamma Distribution Test**						**Data Distribution**					
1972					k star (bias corrected)	1.521	**Data do not follow a Discernable Distribution (0.05)**					
1973					Theta Star	0.0392						
1974					nu star	69.99						
1975					Approximate Chi Square Value (.05)	51.73	**Nonparametric Statistics**					
1976					Adjusted Level of Significance	0.0389					95% CLT UCL	0.0758
1977					Adjusted Chi Square Value	50.59					95% Jackknife UCL	0.0765
1978											95% Standard Bootstrap UCL	0.0755
1979					Anderson-Darling Test Statistic	1.049					95% Bootstrap-t UCL	0.0866
1980					Anderson-Darling 5% Critical Value	0.758					95% Hall's Bootstrap UCL	0.153
1981					Kolmogorov-Smirnov Test Statistic	0.212					95% Percentile Bootstrap UCL	0.0766
1982					Kolmogorov-Smirnov 5% Critical Value	0.184					95% BCA Bootstrap UCL	0.081
1983	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.102
1984											97.5% Chebyshev(Mean, Sd) UCL	0.121
1985	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.157
1986					95% Approximate Gamma UCL	0.0806						
1987					95% Adjusted Gamma UCL	0.0825						
1988												
1989	**Potential UCL to Use**										Use 95% Chebyshev (Mean, Sd) UCL	0.102
1990												
1991												
1992	**Phenanthrene**											
1993												
1994	**General Statistics**											
1995					Number of Valid Data	18					Number of Detected Data	8
1996					Number of Distinct Detected Data	8					Number of Non-Detect Data	10
1997					Number of Missing Values	5					Percent Non-Detects	55.56%
1998												
1999	**Raw Statistics**						**Log-transformed Statistics**					
2000					Minimum Detected	2.7					Minimum Detected	0.993
2001					Maximum Detected	22					Maximum Detected	3.091
2002					Mean of Detected	7.563					Mean of Detected	1.771
2003					SD of Detected	6.547					SD of Detected	0.715
2004					Minimum Non-Detect	0.36					Minimum Non-Detect	-1.022
2005					Maximum Non-Detect	2.4					Maximum Non-Detect	0.875
2006												
2007	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
2008	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	8
2009	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	55.56%
2010												
2011	**Warning: There are only 8 Detected Values in this data**											
2012	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2013	**the resulting calculations may not be reliable enough tp draw conclusions**											
2014												

	A	B	C	D	E	F	G	H	I	J	K	L
2015	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2016												
2017												
2018	**UCL Statistics**											
2019	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2020	Shapiro Wilk Test Statistic					0.757	Shapiro Wilk Test Statistic					0.918
2021	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
2022	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2023												
2024	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2025	DL/2 Substitution Method						DL/2 Substitution Method					
2026	Mean					3.765	Mean					0.55
2027	SD					5.47	SD					1.277
2028	95% DL/2 (t) UCL					6.008	95% H-Stat (DL/2) UCL					4.496
2029												
2030	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
2031	Mean					0.456	Mean in Log Scale					0.575
2032	SD					8.614	SD in Log Scale					1.192
2033	95% MLE (t) UCL					3.988	Mean in Original Scale					3.741
2034	95% MLE (Tiku) UCL					5.164	SD in Original Scale					5.479
2035							95% Percentile Bootstrap UCL					6.054
2036							95% BCA Bootstrap UCL					7.187
2037												
2038	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2039	k star (bias corrected)					1.418	**Data appear Gamma Distributed at 5% Significance Level**					
2040	Theta Star					5.334						
2041	nu star					22.68						
2042												
2043	A-D Test Statistic					0.509	**Nonparametric Statistics**					
2044	5% A-D Critical Value					0.724	Kaplan-Meier (KM) Method					
2045	K-S Test Statistic					0.724	Mean					4.861
2046	5% K-S Critical Value					0.297	SD					4.744
2047	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					1.195
2048							95% KM (t) UCL					6.941
2049	**Assuming Gamma Distribution**						95% KM (z) UCL					6.827
2050	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.782
2051	Minimum					2.7	95% KM (bootstrap t) UCL					11.32
2052	Maximum					22	95% KM (BCA) UCL					7.706
2053	Mean					7.563	95% KM (Percentile Bootstrap) UCL					7.183
2054	Median					7.563	95% KM (Chebyshev) UCL					10.07
2055	SD					4.201	97.5% KM (Chebyshev) UCL					12.33
2056	k star					3.889	99% KM (Chebyshev) UCL					16.76
2057	Theta star					1.945						
2058	Nu star					140	**Potential UCLs to Use**					
2059	AppChi2					113.7	95% KM (t) UCL					6.941
2060	95% Gamma Approximate UCL					9.315						
2061	95% Adjusted Gamma UCL					9.505						
2062	**Note: DL/2 is not a recommended method.**											
2063												
2064												
2065	**Thallium**											
2066												
2067	**General Statistics**											

2068	Number of Valid Observations				23		Number of Distinct Observations					18
2069												
2070	**Raw Statistics**						**Log-transformed Statistics**					
2071	Minimum				0.002		Minimum of Log Data					-6.215
2072	Maximum				0.0102		Maximum of Log Data					-4.585
2073	Mean				0.00387		Mean of log Data					-5.647
2074	Median				0.0033		SD of log Data					0.406
2075	SD				0.00198							
2076	Coefficient of Variation				0.511							
2077	Skewness				2.035							
2078												
2079	**Relevant UCL Statistics**											
2080	**Normal Distribution Test**						**Lognormal Distribution Test**					
2081	Shapiro Wilk Test Statistic				0.748		Shapiro Wilk Test Statistic					0.886
2082	Shapiro Wilk Critical Value				0.914		Shapiro Wilk Critical Value					0.914
2083	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2084												
2085	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2086	95% Student's-t UCL				0.00457		95% H-UCL					0.00452
2087	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.00527
2088	95% Adjusted-CLT UCL				0.00473		97.5% Chebyshev (MVUE) UCL					0.00589
2089	95% Modified-t UCL				0.0046		99% Chebyshev (MVUE) UCL					0.00712
2090												
2091	**Gamma Distribution Test**						**Data Distribution**					
2092	k star (bias corrected)				4.944		**Data do not follow a Discernable Distribution (0.05)**					
2093	Theta Star				0.0007818							
2094	nu star				227.4							
2095	Approximate Chi Square Value (.05)				193.5		**Nonparametric Statistics**					
2096	Adjusted Level of Significance				0.0389		95% CLT UCL					0.00454
2097	Adjusted Chi Square Value				191.2		95% Jackknife UCL					0.00457
2098							95% Standard Bootstrap UCL					0.00451
2099	Anderson-Darling Test Statistic				1.385		95% Bootstrap-t UCL					0.00503
2100	Anderson-Darling 5% Critical Value				0.746		95% Hall's Bootstrap UCL					0.00489
2101	Kolmogorov-Smirnov Test Statistic				0.218		95% Percentile Bootstrap UCL					0.00455
2102	Kolmogorov-Smirnov 5% Critical Value				0.182		95% BCA Bootstrap UCL					0.00478
2103	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.00566
2104							97.5% Chebyshev(Mean, Sd) UCL					0.00644
2105	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.00796
2106	95% Approximate Gamma UCL				0.00454							
2107	95% Adjusted Gamma UCL				0.0046							
2108												
2109	**Potential UCL to Use**						Use 95% Student's-t UCL					0.00457
2110							or 95% Modified-t UCL					0.0046
2111												
2112												
2113	**Total Aroclors**											
2114												
2115	**General Statistics**											
2116	Number of Valid Data				5		Number of Detected Data					5
2117	Number of Distinct Detected Data				5		Number of Non-Detect Data					0
2118	Number of Missing Values				13		Percent Non-Detects					0.00%
2119												
2120	**Raw Statistics**						**Log-transformed Statistics**					

2121					Minimum Detected	39					Minimum Detected	3.664
2122					Maximum Detected	93					Maximum Detected	4.533
2123					Mean of Detected	62					Mean of Detected	4.079
2124					SD of Detected	21.51					SD of Detected	0.347
2125					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2126					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2127												
2128												
2129					**Warning: There are only 5 Detected Values in this data**							
2130					**Note: It should be noted that even though bootstrap may be performed on this data set**							
2131					**the resulting calculations may not be reliable enough tp draw conclusions**							
2132												
2133					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
2134												
2135												
2136					**UCL Statistics**							
2137					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
2138					Shapiro Wilk Test Statistic	0.961					Shapiro Wilk Test Statistic	0.979
2139					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
2140					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2141												
2142					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2143					DL/2 Substitution Method						DL/2 Substitution Method	
2144					Mean	62					Mean	4.079
2145					SD	21.51					SD	0.347
2146					95% DL/2 (t) UCL	82.5					95% H-Stat (DL/2) UCL	96.98
2147												
2148					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2149					**MLE method failed to converge properly**						Mean in Log Scale	N/A
2150											SD in Log Scale	N/A
2151											Mean in Original Scale	N/A
2152											SD in Original Scale	N/A
2153											95% Percentile Bootstrap UCL	N/A
2154											95% BCA Bootstrap UCL	N/A
2155												
2156					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2157					k star (bias corrected)	4.368					**Data appear Normal at 5% Significance Level**	
2158					Theta Star	14.19						
2159					nu star	43.68						
2160												
2161					A-D Test Statistic	0.2					**Nonparametric Statistics**	
2162					5% A-D Critical Value	0.679					Kaplan-Meier (KM) Method	
2163					K-S Test Statistic	0.679					Mean	62
2164					5% K-S Critical Value	0.358					SD	19.24
2165					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	9.618
2166											95% KM (t) UCL	82.5
2167					**Assuming Gamma Distribution**						95% KM (z) UCL	77.82
2168					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	82.5
2169					Minimum	39					95% KM (bootstrap t) UCL	89.02
2170					Maximum	93					95% KM (BCA) UCL	75.2
2171					Mean	62					95% KM (Percentile Bootstrap) UCL	77
2172					Median	60					95% KM (Chebyshev) UCL	103.9
2173					SD	21.51					97.5% KM (Chebyshev) UCL	122.1

2174					k star	4.368				99% KM (Chebyshev) UCL		157.7
2175					Theta star	14.19						
2176					Nu star	43.68				**Potential UCLs to Use**		
2177					AppChi2	29.52				95% KM (t) UCL		82.5
2178					95% Gamma Approximate UCL	91.73				95% KM (Percentile Bootstrap) UCL		77
2179					95% Adjusted Gamma UCL	110.3						
2180	**Note: DL/2 is not a recommended method.**											
2181												
2182												
2183	**Total Chlordanes**											
2184												
2185					**General Statistics**							
2186					Number of Valid Data	23				Number of Detected Data		21
2187					Number of Distinct Detected Data	21				Number of Non-Detect Data		2
2188										Percent Non-Detects		8.70%
2189												
2190					**Raw Statistics**					**Log-transformed Statistics**		
2191					Minimum Detected	0.915				Minimum Detected		-0.0888
2192					Maximum Detected	7.75				Maximum Detected		2.048
2193					Mean of Detected	2.181				Mean of Detected		0.611
2194					SD of Detected	1.674				SD of Detected		0.527
2195					Minimum Non-Detect	1.3				Minimum Non-Detect		0.262
2196					Maximum Non-Detect	2.9				Maximum Non-Detect		1.065
2197												
2198	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		20
2199	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		3
2200	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		86.96%
2201												
2202					**UCL Statistics**							
2203					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
2204					Shapiro Wilk Test Statistic	0.618				Shapiro Wilk Test Statistic		0.795
2205					5% Shapiro Wilk Critical Value	0.908				5% Shapiro Wilk Critical Value		0.908
2206					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
2207												
2208					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
2209					DL/2 Substitution Method					DL/2 Substitution Method		
2210					Mean	2.082				Mean		0.555
2211					SD	1.633				SD		0.549
2212					95% DL/2 (t) UCL	2.667				95% H-Stat (DL/2) UCL		2.757
2213												
2214					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
2215					**MLE yields a negative mean**					Mean in Log Scale		0.577
2216										SD in Log Scale		0.521
2217										Mean in Original Scale		2.104
2218										SD in Original Scale		1.619
2219										95% Percentile Bootstrap UCL		2.673
2220										95% BCA Bootstrap UCL		2.91
2221												
2222					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
2223					k star (bias corrected)	2.705				**Data do not follow a Discernable Distribution (0.05)**		
2224					Theta Star	0.806						
2225					nu star	113.6						
2226												

2227				A-D Test Statistic	2.415		**Nonparametric Statistics**					
2228				5% A-D Critical Value	0.749					Kaplan-Meier (KM) Method		
2229				K-S Test Statistic	0.749					Mean		2.109
2230				5% K-S Critical Value	0.191					SD		1.581
2231	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.338
2232										95% KM (t) UCL		2.69
2233	**Assuming Gamma Distribution**									95% KM (z) UCL		2.666
2234				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		2.689
2235				Minimum	0.901					95% KM (bootstrap t) UCL		3.229
2236				Maximum	7.75					95% KM (BCA) UCL		2.763
2237				Mean	2.128					95% KM (Percentile Bootstrap) UCL		2.67
2238				Median	1.514					95% KM (Chebyshev) UCL		3.584
2239				SD	1.618					97.5% KM (Chebyshev) UCL		4.222
2240				k star	2.772					99% KM (Chebyshev) UCL		5.475
2241				Theta star	0.768							
2242				Nu star	127.5		**Potential UCLs to Use**					
2243				AppChi2	102.4					95% KM (Chebyshev) UCL		3.584
2244				95% Gamma Approximate UCL	2.65							
2245				95% Adjusted Gamma UCL	2.692							
2246	**Note: DL/2 is not a recommended method.**											
2247												
2248												
2249	**Total DDD**											
2250												
2251	**General Statistics**											
2252				Number of Valid Observations	23					Number of Distinct Observations		23
2253												
2254	**Raw Statistics**						**Log-transformed Statistics**					
2255				Minimum	0.744					Minimum of Log Data		-0.296
2256				Maximum	62.7					Maximum of Log Data		4.138
2257				Mean	6.137					Mean of log Data		1.162
2258				Median	3.008					SD of log Data		0.967
2259				SD	12.62							
2260				Coefficient of Variation	2.056							
2261				Skewness	4.467							
2262												
2263	**Relevant UCL Statistics**											
2264	**Normal Distribution Test**						**Lognormal Distribution Test**					
2265				Shapiro Wilk Test Statistic	0.377					Shapiro Wilk Test Statistic		0.904
2266				Shapiro Wilk Critical Value	0.914					Shapiro Wilk Critical Value		0.914
2267	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2268												
2269	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2270				95% Student's-t UCL	10.65					95% H-UCL		8.508
2271	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		9.852
2272				95% Adjusted-CLT UCL	13.08					97.5% Chebyshev (MVUE) UCL		11.97
2273				95% Modified-t UCL	11.06					99% Chebyshev (MVUE) UCL		16.13
2274												
2275	**Gamma Distribution Test**						**Data Distribution**					
2276				k star (bias corrected)	0.808		**Data do not follow a Discernable Distribution (0.05)**					
2277				Theta Star	7.594							
2278				nu star	37.18							
2279				Approximate Chi Square Value (.05)	24.22		**Nonparametric Statistics**					

2280					Adjusted Level of Significance	0.0389					95% CLT UCL	10.46
2281					Adjusted Chi Square Value	23.46					95% Jackknife UCL	10.65
2282											95% Standard Bootstrap UCL	10.35
2283					Anderson-Darling Test Statistic	2.034					95% Bootstrap-t UCL	28.78
2284					Anderson-Darling 5% Critical Value	0.775					95% Hall's Bootstrap UCL	27.08
2285					Kolmogorov-Smirnov Test Statistic	0.274					95% Percentile Bootstrap UCL	11.41
2286					Kolmogorov-Smirnov 5% Critical Value	0.188					95% BCA Bootstrap UCL	14.01
2287					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	17.6
2288											97.5% Chebyshev(Mean, Sd) UCL	22.56
2289					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	32.31
2290					95% Approximate Gamma UCL	9.421						
2291					95% Adjusted Gamma UCL	9.726						
2292												
2293					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	17.6
2294												
2295												
2296	**Total DDE**											
2297												
2298					**General Statistics**							
2299					Number of Valid Observations	23					Number of Distinct Observations	23
2300												
2301					**Raw Statistics**						**Log-transformed Statistics**	
2302					Minimum	4.984					Minimum of Log Data	1.606
2303					Maximum	58.88					Maximum of Log Data	4.076
2304					Mean	13.46					Mean of log Data	2.424
2305					Median	10.25					SD of log Data	0.54
2306					SD	11.08						
2307					Coefficient of Variation	0.823						
2308					Skewness	3.426						
2309												
2310					**Relevant UCL Statistics**							
2311					**Normal Distribution Test**						**Lognormal Distribution Test**	
2312					Shapiro Wilk Test Statistic	0.603					Shapiro Wilk Test Statistic	0.917
2313					Shapiro Wilk Critical Value	0.914					Shapiro Wilk Critical Value	0.914
2314					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2315												
2316					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2317					95% Student's-t UCL	17.43					95% H-UCL	16.47
2318					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	19.64
2319					95% Adjusted-CLT UCL	19.02					97.5% Chebyshev (MVUE) UCL	22.52
2320					95% Modified-t UCL	17.7					99% Chebyshev (MVUE) UCL	28.18
2321												
2322					**Gamma Distribution Test**						**Data Distribution**	
2323					k star (bias corrected)	2.644					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
2324					Theta Star	5.09						
2325					nu star	121.6						
2326					Approximate Chi Square Value (.05)	97.18					**Nonparametric Statistics**	
2327					Adjusted Level of Significance	0.0389					95% CLT UCL	17.26
2328					Adjusted Chi Square Value	95.59					95% Jackknife UCL	17.43
2329											95% Standard Bootstrap UCL	17.16
2330					Anderson-Darling Test Statistic	1.128					95% Bootstrap-t UCL	22.73
2331					Anderson-Darling 5% Critical Value	0.75					95% Hall's Bootstrap UCL	32.73
2332					Kolmogorov-Smirnov Test Statistic	0.169					95% Percentile Bootstrap UCL	17.66

2333					Kolmogorov-Smirnov 5% Critical Value	0.183					95% BCA Bootstrap UCL	20.2
2334					**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	23.53
2335											97.5% Chebyshev(Mean, Sd) UCL	27.89
2336					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	36.44
2337					95% Approximate Gamma UCL	16.85						
2338					95% Adjusted Gamma UCL	17.13						
2339												
2340					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	16.85
2341												
2342												
2343	**Total DDT**											
2344												
2345					**General Statistics**							
2346					Number of Valid Observations	23					Number of Distinct Observations	23
2347												
2348					**Raw Statistics**						**Log-transformed Statistics**	
2349					Minimum	0.674					Minimum of Log Data	-0.395
2350					Maximum	59					Maximum of Log Data	4.078
2351					Mean	6.585					Mean of log Data	0.981
2352					Median	1.542					SD of log Data	1.263
2353					SD	12.35						
2354					Coefficient of Variation	1.876						
2355					Skewness	3.778						
2356												
2357					**Relevant UCL Statistics**							
2358					**Normal Distribution Test**						**Lognormal Distribution Test**	
2359					Shapiro Wilk Test Statistic	0.501					Shapiro Wilk Test Statistic	0.89
2360					Shapiro Wilk Critical Value	0.914					Shapiro Wilk Critical Value	0.914
2361					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
2362												
2363					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2364					95% Student's-t UCL	11.01					95% H-UCL	12.9
2365					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	13.17
2366					95% Adjusted-CLT UCL	12.99					97.5% Chebyshev (MVUE) UCL	16.45
2367					95% Modified-t UCL	11.35					99% Chebyshev (MVUE) UCL	22.89
2368												
2369					**Gamma Distribution Test**						**Data Distribution**	
2370					k star (bias corrected)	0.614					**Data do not follow a Discernable Distribution (0.05)**	
2371					Theta Star	10.73						
2372					nu star	28.24						
2373					Approximate Chi Square Value (.05)	17.11					**Nonparametric Statistics**	
2374					Adjusted Level of Significance	0.0389					95% CLT UCL	10.82
2375					Adjusted Chi Square Value	16.48					95% Jackknife UCL	11.01
2376											95% Standard Bootstrap UCL	10.75
2377					Anderson-Darling Test Statistic	1.602					95% Bootstrap-t UCL	17.06
2378					Anderson-Darling 5% Critical Value	0.789					95% Hall's Bootstrap UCL	25.77
2379					Kolmogorov-Smirnov Test Statistic	0.222					95% Percentile Bootstrap UCL	11.12
2380					Kolmogorov-Smirnov 5% Critical Value	0.19					95% BCA Bootstrap UCL	13.37
2381					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	17.81
2382											97.5% Chebyshev(Mean, Sd) UCL	22.67
2383					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	32.21
2384					95% Approximate Gamma UCL	10.87						
2385					95% Adjusted Gamma UCL	11.28						

2386												
2387	**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL					32.21
2388												
2389												
2390	**Total Dioxin/Furan TEQ**											
2391												
2392	**General Statistics**											
2393	Number of Valid Data					18	Number of Detected Data					18
2394	Number of Distinct Detected Data					18	Number of Non-Detect Data					0
2395	Number of Missing Values					5	Percent Non-Detects					0.00%
2396												
2397	**Raw Statistics**						**Log-transformed Statistics**					
2398	Minimum Detected					0.188	Minimum Detected					-1.669
2399	Maximum Detected					8.743	Maximum Detected					2.168
2400	Mean of Detected					0.929	Mean of Detected					-0.8
2401	SD of Detected					2.006	SD of Detected					0.924
2402	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
2403	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
2404												
2405												
2406	**UCL Statistics**											
2407	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2408	Shapiro Wilk Test Statistic					0.375	Shapiro Wilk Test Statistic					0.709
2409	5% Shapiro Wilk Critical Value					0.897	5% Shapiro Wilk Critical Value					0.897
2410	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2411												
2412	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2413	DL/2 Substitution Method						DL/2 Substitution Method					
2414	Mean					0.929	Mean					-0.8
2415	SD					2.006	SD					0.924
2416	95% DL/2 (t) UCL					1.752	95% H-Stat (DL/2) UCL					1.213
2417												
2418	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2419	**MLE method failed to converge properly**						Mean in Log Scale					N/A
2420							SD in Log Scale					N/A
2421							Mean in Original Scale					N/A
2422							SD in Original Scale					N/A
2423							95% Percentile Bootstrap UCL					N/A
2424							95% BCA Bootstrap UCL					N/A
2425												
2426	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2427	k star (bias corrected)					0.716	**Data do not follow a Discernable Distribution (0.05)**					
2428	Theta Star					1.298						
2429	nu star					25.77						
2430												
2431	A-D Test Statistic					3.272	**Nonparametric Statistics**					
2432	5% A-D Critical Value					0.775	Kaplan-Meier (KM) Method					
2433	K-S Test Statistic					0.775	Mean					0.929
2434	5% K-S Critical Value					0.211	SD					1.95
2435	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.473
2436							95% KM (t) UCL					1.752
2437	**Assuming Gamma Distribution**						95% KM (z) UCL					1.707
2438	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.752

2439					Minimum	0.188					95% KM (bootstrap t) UCL	11.8
2440					Maximum	8.743					95% KM (BCA) UCL	1.863
2441					Mean	0.929					95% KM (Percentile Bootstrap) UCL	1.842
2442					Median	0.369					95% KM (Chebyshev) UCL	2.991
2443					SD	2.006					97.5% KM (Chebyshev) UCL	3.883
2444					k star	0.716					99% KM (Chebyshev) UCL	5.635
2445					Theta star	1.298						
2446					Nu star	25.77					**Potential UCLs to Use**	
2447					AppChi2	15.2					95% KM (Chebyshev) UCL	2.991
2448					95% Gamma Approximate UCL	1.575						
2449					95% Adjusted Gamma UCL	1.66						
2450	**Note: DL/2 is not a recommended method.**											
2451												
2452												
2453	**Total Dioxin-like PCBs**											
2454												
2455	**General Statistics**											
2456					Number of Valid Data	18					Number of Detected Data	18
2457					Number of Distinct Detected Data	18					Number of Non-Detect Data	0
2458					Number of Missing Values	5					Percent Non-Detects	0.00%
2459												
2460	**Raw Statistics**						**Log-transformed Statistics**					
2461					Minimum Detected	2195					Minimum Detected	7.694
2462					Maximum Detected	30427					Maximum Detected	10.32
2463					Mean of Detected	8151					Mean of Detected	8.655
2464					SD of Detected	8612					SD of Detected	0.774
2465					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2466					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2467												
2468												
2469	**UCL Statistics**											
2470	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2471					Shapiro Wilk Test Statistic	0.636					Shapiro Wilk Test Statistic	0.836
2472					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
2473	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2474												
2475	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2476					DL/2 Substitution Method						DL/2 Substitution Method	
2477					Mean	8151					Mean	8.655
2478					SD	8612					SD	0.774
2479					95% DL/2 (t) UCL	11682					95% H-Stat (DL/2) UCL	11989
2480												
2481					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2482	**MLE method failed to converge properly**										Mean in Log Scale	N/A
2483											SD in Log Scale	N/A
2484											Mean in Original Scale	N/A
2485											SD in Original Scale	N/A
2486											95% Percentile Bootstrap UCL	N/A
2487											95% BCA Bootstrap UCL	N/A
2488												
2489	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2490					k star (bias corrected)	1.346	**Data do not follow a Discernable Distribution (0.05)**					
2491					Theta Star	6056						

2492					nu star	48.45						
2493												
2494					A-D Test Statistic	1.877	**Nonparametric Statistics**					
2495					5% A-D Critical Value	0.756					Kaplan-Meier (KM) Method	
2496					K-S Test Statistic	0.756					Mean	8151
2497					5% K-S Critical Value	0.207					SD	8369
2498	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	2030
2499											95% KM (t) UCL	11682
2500	**Assuming Gamma Distribution**										95% KM (z) UCL	11490
2501					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	11682
2502					Minimum	2195					95% KM (bootstrap t) UCL	13262
2503					Maximum	30427					95% KM (BCA) UCL	11720
2504					Mean	8151					95% KM (Percentile Bootstrap) UCL	11675
2505					Median	4601					95% KM (Chebyshev) UCL	16999
2506					SD	8612					97.5% KM (Chebyshev) UCL	20827
2507					k star	1.346					99% KM (Chebyshev) UCL	28347
2508					Theta star	6056						
2509					Nu star	48.45	**Potential UCLs to Use**					
2510					AppChi2	33.47					95% KM (Chebyshev) UCL	16999
2511					95% Gamma Approximate UCL	11798						
2512					95% Adjusted Gamma UCL	12235						
2513	**Note: DL/2 is not a recommended method.**											
2514												
2515												
2516	**Total Endosulfan**											
2517												
2518	**General Statistics**											
2519					Number of Valid Data	17					Number of Detected Data	12
2520					Number of Distinct Detected Data	12					Number of Non-Detect Data	5
2521					Number of Missing Values	6					Percent Non-Detects	29.41%
2522												
2523	**Raw Statistics**						**Log-transformed Statistics**					
2524					Minimum Detected	0.048					Minimum Detected	-3.037
2525					Maximum Detected	0.11					Maximum Detected	-2.207
2526					Mean of Detected	0.0795					Mean of Detected	-2.56
2527					SD of Detected	0.0196					SD of Detected	0.252
2528					Minimum Non-Detect	0.065					Minimum Non-Detect	-2.733
2529					Maximum Non-Detect	0.0977					Maximum Non-Detect	-2.326
2530												
2531	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
2532	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
2533	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	82.35%
2534												
2535	**UCL Statistics**											
2536	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2537					Shapiro Wilk Test Statistic	0.956					Shapiro Wilk Test Statistic	0.965
2538					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
2539	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2540												
2541	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2542					DL/2 Substitution Method						DL/2 Substitution Method	
2543					Mean	0.0679					Mean	-2.755
2544					SD	0.0248					SD	0.383

2545					95% DL/2 (t) UCL	0.0785				95% H-Stat (DL/2) UCL		0.0859
2546												
2547					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
2548					Mean	0.0849				Mean in Log Scale		-2.62
2549					SD	0.014				SD in Log Scale		0.233
2550					95% MLE (t) UCL	0.0908				Mean in Original Scale		0.0747
2551					95% MLE (Tiku) UCL	0.101				SD in Original Scale		0.0181
2552										95% Percentile Bootstrap UCL		0.0821
2553										95% BCA Bootstrap UCL		0.0822
2554												
2555				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
2556					k star (bias corrected)	13.33				**Data appear Normal at 5% Significance Level**		
2557					Theta Star	0.00597						
2558					nu star	319.8						
2559												
2560					A-D Test Statistic	0.21				**Nonparametric Statistics**		
2561					5% A-D Critical Value	0.732				Kaplan-Meier (KM) Method		
2562					K-S Test Statistic	0.732				Mean		0.0747
2563					5% K-S Critical Value	0.245				SD		0.0183
2564				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.00489
2565										95% KM (t) UCL		0.0832
2566				**Assuming Gamma Distribution**						95% KM (z) UCL		0.0827
2567					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0833
2568					Minimum	0.048				95% KM (bootstrap t) UCL		0.084
2569					Maximum	0.11				95% KM (BCA) UCL		0.083
2570					Mean	0.0787				95% KM (Percentile Bootstrap) UCL		0.0826
2571					Median	0.077				95% KM (Chebyshev) UCL		0.096
2572					SD	0.0167				97.5% KM (Chebyshev) UCL		0.105
2573					k star	19.38				99% KM (Chebyshev) UCL		0.123
2574					Theta star	0.00406						
2575					Nu star	658.8				**Potential UCLs to Use**		
2576					AppChi2	600.3				95% KM (t) UCL		0.0832
2577					95% Gamma Approximate UCL	0.0864				95% KM (Percentile Bootstrap) UCL		0.0826
2578					95% Adjusted Gamma UCL	0.0872						
2579	**Note: DL/2 is not a recommended method.**											
2580												
2581												
2582	**Total PCB TEQ**											
2583												
2584						**General Statistics**						
2585					Number of Valid Data	18				Number of Detected Data		18
2586					Number of Distinct Detected Data	18				Number of Non-Detect Data		0
2587					Number of Missing Values	5				Percent Non-Detects		0.00%
2588												
2589				**Raw Statistics**						**Log-transformed Statistics**		
2590					Minimum Detected	0.238				Minimum Detected		-1.436
2591					Maximum Detected	2.061				Maximum Detected		0.723
2592					Mean of Detected	0.666				Mean of Detected		-0.639
2593					SD of Detected	0.542				SD of Detected		0.654
2594					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
2595					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
2596												
2597												

	A	B	C	D	E	F	G	H	I	J	K	L
2598	**UCL Statistics**											
2599	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2600	Shapiro Wilk Test Statistic					0.737	Shapiro Wilk Test Statistic					0.894
2601	5% Shapiro Wilk Critical Value					0.897	5% Shapiro Wilk Critical Value					0.897
2602	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2603												
2604	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2605	DL/2 Substitution Method						DL/2 Substitution Method					
2606	Mean					0.666	Mean					-0.639
2607	SD					0.542	SD					0.654
2608	95% DL/2 (t) UCL					0.888	95% H-Stat (DL/2) UCL					0.925
2609												
2610	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2611	**MLE method failed to converge properly**						Mean in Log Scale					N/A
2612							SD in Log Scale					N/A
2613							Mean in Original Scale					N/A
2614							SD in Original Scale					N/A
2615							95% Percentile Bootstrap UCL					N/A
2616							95% BCA Bootstrap UCL					N/A
2617												
2618	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2619	k star (bias corrected)					1.957	**Data do not follow a Discernable Distribution (0.05)**					
2620	Theta Star					0.34						
2621	nu star					70.47						
2622												
2623	A-D Test Statistic					1.15	**Nonparametric Statistics**					
2624	5% A-D Critical Value					0.751	Kaplan-Meier (KM) Method					
2625	K-S Test Statistic					0.751	Mean					0.666
2626	5% K-S Critical Value					0.206	SD					0.526
2627	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.128
2628							95% KM (t) UCL					0.888
2629	**Assuming Gamma Distribution**						95% KM (z) UCL					0.876
2630	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.888
2631	Minimum					0.238	95% KM (bootstrap t) UCL					1.026
2632	Maximum					2.061	95% KM (BCA) UCL					0.891
2633	Mean					0.666	95% KM (Percentile Bootstrap) UCL					0.879
2634	Median					0.415	95% KM (Chebyshev) UCL					1.223
2635	SD					0.542	97.5% KM (Chebyshev) UCL					1.463
2636	k star					1.957	99% KM (Chebyshev) UCL					1.936
2637	Theta star					0.34						
2638	Nu star					70.47	**Potential UCLs to Use**					
2639	AppChi2					52.14	95% KM (Chebyshev) UCL					1.223
2640	95% Gamma Approximate UCL					0.9						
2641	95% Adjusted Gamma UCL					0.927						
2642	**Note: DL/2 is not a recommended method.**											
2643												
2644												
2645	**Total PCB_Congeners**											
2646												
2647	**General Statistics**											
2648	Number of Valid Data					18	Number of Detected Data					18
2649	Number of Distinct Detected Data					18	Number of Non-Detect Data					0
2650	Number of Missing Values					5	Percent Non-Detects					0.00%

2651												
2652	**Raw Statistics**						**Log-transformed Statistics**					
2653					Minimum Detected	27002					Minimum Detected	10.2
2654					Maximum Detected	1481769					Maximum Detected	14.21
2655					Mean of Detected	166352					Mean of Detected	11.33
2656					SD of Detected	334712					SD of Detected	0.983
2657					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2658					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2659												
2660												
2661	**UCL Statistics**											
2662	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2663					Shapiro Wilk Test Statistic	0.409					Shapiro Wilk Test Statistic	0.874
2664					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
2665	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2666												
2667	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2668					DL/2 Substitution Method						DL/2 Substitution Method	
2669					Mean	166352					Mean	11.33
2670					SD	334712					SD	0.983
2671					95% DL/2 (t) UCL	303594					95% H-Stat (DL/2) UCL	251698
2672												
2673					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2674	**MLE method failed to converge properly**										Mean in Log Scale	N/A
2675											SD in Log Scale	N/A
2676											Mean in Original Scale	N/A
2677											SD in Original Scale	N/A
2678											95% Percentile Bootstrap UCL	N/A
2679											95% BCA Bootstrap UCL	N/A
2680												
2681	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2682					k star (bias corrected)	0.746	**Data do not follow a Discernable Distribution (0.05)**					
2683					Theta Star	223052						
2684					nu star	26.85						
2685												
2686					A-D Test Statistic	1.767	**Nonparametric Statistics**					
2687					5% A-D Critical Value	0.773	Kaplan-Meier (KM) Method					
2688					K-S Test Statistic	0.773	Mean					166352
2689					5% K-S Critical Value	0.211	SD					325281
2690	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					78892
2691							95% KM (t) UCL					303594
2692	**Assuming Gamma Distribution**						95% KM (z) UCL					296118
2693	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					303594
2694					Minimum	27002	95% KM (bootstrap t) UCL					795644
2695					Maximum	1481769	95% KM (BCA) UCL					326049
2696					Mean	166352	95% KM (Percentile Bootstrap) UCL					313333
2697					Median	74087	95% KM (Chebyshev) UCL					510236
2698					SD	334712	97.5% KM (Chebyshev) UCL					659034
2699					k star	0.746	99% KM (Chebyshev) UCL					951321
2700					Theta star	223052						
2701					Nu star	26.85	**Potential UCLs to Use**					
2702					AppChi2	16.03	95% KM (Chebyshev) UCL					510236
2703					95% Gamma Approximate UCL	278546						

2704					95% Adjusted Gamma UCL	293172						
2705	**Note: DL/2 is not a recommended method.**											
2706												
2707												
2708	**Total PCBs, Adjusted**											
2709												
2710						**General Statistics**							
2711						Number of Valid Data	18				Number of Detected Data	18
2712						Number of Distinct Detected Data	18				Number of Non-Detect Data	0
2713						Number of Missing Values	5				Percent Non-Detects	0.00%
2714												
2715						**Raw Statistics**					**Log-transformed Statistics**	
2716						Minimum Detected	24807				Minimum Detected	10.12
2717						Maximum Detected	1451343				Maximum Detected	14.19
2718						Mean of Detected	158201				Mean of Detected	11.25
2719						SD of Detected	328263				SD of Detected	0.999
2720						Minimum Non-Detect	N/A				Minimum Non-Detect	N/A
2721						Maximum Non-Detect	N/A				Maximum Non-Detect	N/A
2722												
2723												
2724						**UCL Statistics**						
2725						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
2726						Shapiro Wilk Test Statistic	0.4				Shapiro Wilk Test Statistic	0.875
2727						5% Shapiro Wilk Critical Value	0.897				5% Shapiro Wilk Critical Value	0.897
2728						**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**	
2729												
2730						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
2731						DL/2 Substitution Method					DL/2 Substitution Method	
2732						Mean	158201				Mean	11.25
2733						SD	328263				SD	0.999
2734						95% DL/2 (t) UCL	292798				95% H-Stat (DL/2) UCL	239799
2735												
2736						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
2737						**MLE method failed to converge properly**					Mean in Log Scale	N/A
2738											SD in Log Scale	N/A
2739											Mean in Original Scale	N/A
2740											SD in Original Scale	N/A
2741											95% Percentile Bootstrap UCL	N/A
2742											95% BCA Bootstrap UCL	N/A
2743												
2744						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
2745						k star (bias corrected)	0.721				**Data do not follow a Discernable Distribution (0.05)**	
2746						Theta Star	219531					
2747						nu star	25.94					
2748												
2749						A-D Test Statistic	1.796				**Nonparametric Statistics**	
2750						5% A-D Critical Value	0.775				Kaplan-Meier (KM) Method	
2751						K-S Test Statistic	0.775				Mean	158201
2752						5% K-S Critical Value	0.211				SD	319015
2753						**Data not Gamma Distributed at 5% Significance Level**					SE of Mean	77372
2754											95% KM (t) UCL	292798
2755						**Assuming Gamma Distribution**					95% KM (z) UCL	285467
2756						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	292798

2757					Minimum	24807					95% KM (bootstrap t) UCL	819067
2758					Maximum	1451343					95% KM (BCA) UCL	322356
2759					Mean	158201					95% KM (Percentile Bootstrap) UCL	305199
2760					Median	68305					95% KM (Chebyshev) UCL	495459
2761					SD	328263					97.5% KM (Chebyshev) UCL	641391
2762					k star	0.721					99% KM (Chebyshev) UCL	928047
2763					Theta star	219531						
2764					Nu star	25.94					**Potential UCLs to Use**	
2765					AppChi2	15.34					95% KM (Chebyshev) UCL	495459
2766					95% Gamma Approximate UCL	267629						
2767					95% Adjusted Gamma UCL	281980						
2768	**Note: DL/2 is not a recommended method.**											
2769												
2770												
2771	**Total TEQ**											
2772												
2773						**General Statistics**						
2774					Number of Valid Data	18					Number of Detected Data	18
2775					Number of Distinct Detected Data	18					Number of Non-Detect Data	0
2776					Number of Missing Values	5					Percent Non-Detects	0.00%
2777												
2778					**Raw Statistics**						**Log-transformed Statistics**	
2779					Minimum Detected	0.496					Minimum Detected	-0.701
2780					Maximum Detected	9.282					Maximum Detected	2.228
2781					Mean of Detected	1.596					Mean of Detected	0.0983
2782					SD of Detected	2.049					SD of Detected	0.757
2783					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2784					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2785												
2786												
2787						**UCL Statistics**						
2788					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
2789					Shapiro Wilk Test Statistic	0.532					Shapiro Wilk Test Statistic	0.85
2790					5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897
2791					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
2792												
2793					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2794					DL/2 Substitution Method						DL/2 Substitution Method	
2795					Mean	1.596					Mean	0.0983
2796					SD	2.049					SD	0.757
2797					95% DL/2 (t) UCL	2.436					95% H-Stat (DL/2) UCL	2.246
2798												
2799					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2800					**MLE method failed to converge properly**						Mean in Log Scale	N/A
2801											SD in Log Scale	N/A
2802											Mean in Original Scale	N/A
2803											SD in Original Scale	N/A
2804											95% Percentile Bootstrap UCL	N/A
2805											95% BCA Bootstrap UCL	N/A
2806												
2807					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2808					k star (bias corrected)	1.287					**Data do not follow a Discernable Distribution (0.05)**	
2809					Theta Star	1.239						

2810					nu star	46.34						
2811												
2812					A-D Test Statistic	1.512	**Nonparametric Statistics**					
2813					5% A-D Critical Value	0.756					Kaplan-Meier (KM) Method	
2814					K-S Test Statistic	0.756					Mean	1.596
2815					5% K-S Critical Value	0.207					SD	1.992
2816	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.483
2817											95% KM (t) UCL	2.436
2818	**Assuming Gamma Distribution**										95% KM (z) UCL	2.39
2819					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.436
2820					Minimum	0.496					95% KM (bootstrap t) UCL	3.973
2821					Maximum	9.282					95% KM (BCA) UCL	2.609
2822					Mean	1.596					95% KM (Percentile Bootstrap) UCL	2.465
2823					Median	0.839					95% KM (Chebyshev) UCL	3.701
2824					SD	2.049					97.5% KM (Chebyshev) UCL	4.612
2825					k star	1.287					99% KM (Chebyshev) UCL	6.402
2826					Theta star	1.239						
2827					Nu star	46.34	**Potential UCLs to Use**					
2828					AppChi2	31.72					95% KM (Chebyshev) UCL	3.701
2829					95% Gamma Approximate UCL	2.331						
2830					95% Adjusted Gamma UCL	2.419						
2831	**Note: DL/2 is not a recommended method.**											
2832												
2833												
2834	**Zinc**											
2835												
2836	**General Statistics**											
2837					Number of Valid Observations	23					Number of Distinct Observations	23
2838												
2839	**Raw Statistics**						**Log-transformed Statistics**					
2840					Minimum	7.12					Minimum of Log Data	1.963
2841					Maximum	10.9					Maximum of Log Data	2.389
2842					Mean	8.65					Mean of log Data	2.154
2843					Median	8.63					SD of log Data	0.0897
2844					SD	0.792						
2845					Coefficient of Variation	0.0916						
2846					Skewness	0.776						
2847												
2848	**Relevant UCL Statistics**											
2849	**Normal Distribution Test**						**Lognormal Distribution Test**					
2850					Shapiro Wilk Test Statistic	0.954					Shapiro Wilk Test Statistic	0.972
2851					Shapiro Wilk Critical Value	0.914					Shapiro Wilk Critical Value	0.914
2852	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2853												
2854	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2855					95% Student's-t UCL	8.934					95% H-UCL	N/A
2856	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	9.356
2857					95% Adjusted-CLT UCL	8.95					97.5% Chebyshev (MVUE) UCL	9.662
2858					95% Modified-t UCL	8.938					99% Chebyshev (MVUE) UCL	10.26
2859												
2860	**Gamma Distribution Test**						**Data Distribution**					
2861					k star (bias corrected)	111.7	**Data appear Normal at 5% Significance Level**					
2862					Theta Star	0.0774						

2863					nu star	5140						
2864					Approximate Chi Square Value (.05)	4975		**Nonparametric Statistics**				
2865					Adjusted Level of Significance	0.0389					95% CLT UCL	8.922
2866					Adjusted Chi Square Value	4963					95% Jackknife UCL	8.934
2867											95% Standard Bootstrap UCL	8.921
2868					Anderson-Darling Test Statistic	0.274					95% Bootstrap-t UCL	8.971
2869					Anderson-Darling 5% Critical Value	0.74					95% Hall's Bootstrap UCL	9.022
2870					Kolmogorov-Smirnov Test Statistic	0.0894					95% Percentile Bootstrap UCL	8.925
2871					Kolmogorov-Smirnov 5% Critical Value	0.181					95% BCA Bootstrap UCL	8.933
2872				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	9.37
2873											97.5% Chebyshev(Mean, Sd) UCL	9.681
2874				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	10.29
2875					95% Approximate Gamma UCL	8.938						
2876					95% Adjusted Gamma UCL	8.959						
2877												
2878				**Potential UCL to Use**							Use 95% Student's-t UCL	8.934
2879												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		SMB_Study_area-WB								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	1-Methylnaphthalene											
10												
11				General Statistics								
12				Number of Valid Data	18			Number of Detected Data	15			
13				Number of Distinct Detected Data	14			Number of Non-Detect Data	3			
14								Percent Non-Detects	16.67%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	0.6			Minimum Detected	-0.511			
18				Maximum Detected	10			Maximum Detected	2.303			
19				Mean of Detected	2.747			Mean of Detected	0.804			
20				SD of Detected	2.22			SD of Detected	0.637			
21				Minimum Non-Detect	0.98			Minimum Non-Detect	-0.0202			
22				Maximum Non-Detect	8.1			Maximum Non-Detect	2.092			
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect	17			
25	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected	1			
26	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage	94.44%			
27												
28				UCL Statistics								
29				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
30				Shapiro Wilk Test Statistic	0.69			Shapiro Wilk Test Statistic	0.957			
31				5% Shapiro Wilk Critical Value	0.881			5% Shapiro Wilk Critical Value	0.881			
32				Data not Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level				
33												
34				Assuming Normal Distribution				Assuming Lognormal Distribution				
35				DL/2 Substitution Method				DL/2 Substitution Method				
36				Mean	2.608			Mean	0.718			
37				SD	2.139			SD	0.711			
38				95% DL/2 (t) UCL	3.485			95% H-Stat (DL/2) UCL	3.683			
39												
40				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
41				MLE method failed to converge properly				Mean in Log Scale	0.712			
42								SD in Log Scale	0.642			
43								Mean in Original Scale	2.522			
44								SD in Original Scale	2.091			
45								95% Percentile Bootstrap UCL	3.45			
46								95% BCA Bootstrap UCL	3.742			
47												
48				Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only				
49				k star (bias corrected)	2.107			Data appear Gamma Distributed at 5% Significance Level				
50				Theta Star	1.303							
51				nu star	63.22							
52												
53				A-D Test Statistic	0.566			Nonparametric Statistics				

54				5% A-D Critical Value	0.745					Kaplan-Meier (KM) Method		
55				K-S Test Statistic	0.745					Mean		2.528
56				5% K-S Critical Value	0.224					SD		2.052
57				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.505
58										95% KM (t) UCL		3.407
59				**Assuming Gamma Distribution**						95% KM (z) UCL		3.359
60				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		3.383
61				Minimum	0.0658					95% KM (bootstrap t) UCL		4.129
62				Maximum	10					95% KM (BCA) UCL		3.506
63				Mean	2.6					95% KM (Percentile Bootstrap) UCL		3.476
64				Median	2.2					95% KM (Chebyshev) UCL		4.73
65				SD	2.114					97.5% KM (Chebyshev) UCL		5.683
66				k star	1.445					99% KM (Chebyshev) UCL		7.556
67				Theta star	1.8							
68				Nu star	52.02					**Potential UCLs to Use**		
69				AppChi2	36.45					95% KM (BCA) UCL		3.506
70				95% Gamma Approximate UCL	3.711							
71				95% Adjusted Gamma UCL	3.843							
72	**Note: DL/2 is not a recommended method.**											
73												
74												
75	**2-Methylnaphthalene**											
76												
77					**General Statistics**							
78				Number of Valid Data	32					Number of Detected Data		21
79				Number of Distinct Detected Data	20					Number of Non-Detect Data		11
80										Percent Non-Detects		34.38%
81												
82				**Raw Statistics**						**Log-transformed Statistics**		
83				Minimum Detected	0.81					Minimum Detected		-0.211
84				Maximum Detected	59					Maximum Detected		4.078
85				Mean of Detected	11.88					Mean of Detected		1.534
86				SD of Detected	18.43					SD of Detected		1.308
87				Minimum Non-Detect	3.5					Minimum Non-Detect		1.253
88				Maximum Non-Detect	33					Maximum Non-Detect		3.497
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		28
91	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
92	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		87.50%
93												
94					**UCL Statistics**							
95				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
96				Shapiro Wilk Test Statistic	0.605					Shapiro Wilk Test Statistic		0.87
97				5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value		0.908
98				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
99												
100				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
101				DL/2 Substitution Method						DL/2 Substitution Method		
102				Mean	12.74					Mean		1.884
103				SD	15.04					SD		1.219
104				95% DL/2 (t) UCL	17.25					95% H-Stat (DL/2) UCL		24.39
105												
106				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		

107					Mean	2.182					Mean in Log Scale	1.384
108					SD	27.24					SD in Log Scale	1.122
109					95% MLE (t) UCL	10.35					Mean in Original Scale	8.998
110					95% MLE (Tiku) UCL	30.72					SD in Original Scale	15.39
111											95% Percentile Bootstrap UCL	13.77
112											95% BCA Bootstrap UCL	14.39
113												
114					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
115					k star (bias corrected)	0.588					**Data do not follow a Discernable Distribution (0.05)**	
116					Theta Star	20.19						
117					nu star	24.71						
118												
119					A-D Test Statistic	2.183					**Nonparametric Statistics**	
120					5% A-D Critical Value	0.792					Kaplan-Meier (KM) Method	
121					K-S Test Statistic	0.792					Mean	8.879
122					5% K-S Critical Value	0.198					SD	15.21
123					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	2.771
124											95% KM (t) UCL	13.58
125					**Assuming Gamma Distribution**						95% KM (z) UCL	13.44
126					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	13.54
127					Minimum	0.81					95% KM (bootstrap t) UCL	16.15
128					Maximum	59					95% KM (BCA) UCL	13.71
129					Mean	11.8					95% KM (Percentile Bootstrap) UCL	13.44
130					Median	7.822					95% KM (Chebyshev) UCL	20.96
131					SD	14.84					97.5% KM (Chebyshev) UCL	26.19
132					k star	0.87					99% KM (Chebyshev) UCL	36.45
133					Theta star	13.57						
134					Nu star	55.65					**Potential UCLs to Use**	
135					AppChi2	39.51					97.5% KM (Chebyshev) UCL	26.19
136					95% Gamma Approximate UCL	16.63						
137					95% Adjusted Gamma UCL	16.94						
138	**Note: DL/2 is not a recommended method.**											
139												
140												
141	**4-Nitrophenol**											
142												
143							**General Statistics**					
144					Number of Valid Data	18					Number of Detected Data	6
145					Number of Distinct Detected Data	4					Number of Non-Detect Data	12
146											Percent Non-Detects	66.67%
147												
148					**Raw Statistics**						**Log-transformed Statistics**	
149					Minimum Detected	7.1					Minimum Detected	1.96
150					Maximum Detected	14					Maximum Detected	2.639
151					Mean of Detected	11.85					Mean of Detected	2.45
152					SD of Detected	2.444					SD of Detected	0.247
153					Minimum Non-Detect	9.9					Minimum Non-Detect	2.293
154					Maximum Non-Detect	11					Maximum Non-Detect	2.398
155												
156	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
157	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
158	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	72.22%
159												

160	**Warning: There are only 4 Distinct Detected Values in this data**											
161	**Note: It should be noted that even though bootstrap may be performed on this data set**											
162	**the resulting calculations may not be reliable enough tp draw conclusions**											
163												
164	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
165												
166												
167	**UCL Statistics**											
168	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
169	Shapiro Wilk Test Statistic				0.773		Shapiro Wilk Test Statistic				0.713	
170	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value				0.788	
171	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
172												
173	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
174	DL/2 Substitution Method						DL/2 Substitution Method					
175	Mean				7.528		Mean				1.936	
176	SD				3.418		SD				0.399	
177	95% DL/2 (t) UCL				8.929		95% H-Stat (DL/2) UCL				8.912	
178												
179	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
180	Mean				9.638		Mean in Log Scale				2.154	
181	SD				2.5		SD in Log Scale				0.293	
182	95% MLE (t) UCL				10.66		Mean in Original Scale				8.982	
183	95% MLE (Tiku) UCL				11.5		SD in Original Scale				2.693	
184							95% Percentile Bootstrap UCL				9.992	
185							95% BCA Bootstrap UCL				10.08	
186												
187	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
188	k star (bias corrected)				11.3		**Data do not follow a Discernable Distribution (0.05)**					
189	Theta Star				1.049							
190	nu star				135.6							
191												
192	A-D Test Statistic				0.873		**Nonparametric Statistics**					
193	5% A-D Critical Value				0.697		Kaplan-Meier (KM) Method					
194	K-S Test Statistic				0.697		Mean				8.683	
195	5% K-S Critical Value				0.332		SD				2.583	
196	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean				0.667	
197							95% KM (t) UCL				9.844	
198	**Assuming Gamma Distribution**						95% KM (z) UCL				9.78	
199	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				11.36	
200	Minimum				7.1		95% KM (bootstrap t) UCL				9.573	
201	Maximum				14		95% KM (BCA) UCL				13	
202	Mean				11.53		95% KM (Percentile Bootstrap) UCL				12.5	
203	Median				11.72		95% KM (Chebyshev) UCL				11.59	
204	SD				1.58		97.5% KM (Chebyshev) UCL				12.85	
205	k star				41.39		99% KM (Chebyshev) UCL				15.32	
206	Theta star				0.279							
207	Nu star				1490		**Potential UCLs to Use**					
208	AppChi2				1401		95% KM (t) UCL				9.844	
209	95% Gamma Approximate UCL				12.26		95% KM (% Bootstrap) UCL				12.5	
210	95% Adjusted Gamma UCL				12.33							
211	**Note: DL/2 is not a recommended method.**											
212												

213												
214	**Acenaphthene**											
215												
216	**General Statistics**											
217					Number of Valid Data	32			Number of Detected Data	22		
218					Number of Distinct Detected Data	21			Number of Non-Detect Data	10		
219									Percent Non-Detects	31.25%		
220												
221	**Raw Statistics**						**Log-transformed Statistics**					
222					Minimum Detected	1.7			Minimum Detected	0.531		
223					Maximum Detected	95			Maximum Detected	4.554		
224					Mean of Detected	17.08			Mean of Detected	2.145		
225					SD of Detected	23.44			SD of Detected	1.154		
226					Minimum Non-Detect	30			Minimum Non-Detect	3.401		
227					Maximum Non-Detect	76			Maximum Non-Detect	4.331		
228												
229	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	31		
230	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	1		
231	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	96.88%		
232												
233	**UCL Statistics**											
234	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
235					Shapiro Wilk Test Statistic	0.671			Shapiro Wilk Test Statistic	0.931		
236					5% Shapiro Wilk Critical Value	0.911			5% Shapiro Wilk Critical Value	0.911		
237	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
238												
239	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
240					DL/2 Substitution Method				DL/2 Substitution Method			
241					Mean	17.43			Mean	2.367		
242					SD	19.66			SD	1.019		
243					95% DL/2 (t) UCL	23.32			95% H-Stat (DL/2) UCL	26.02		
244												
245					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
246	**MLE method failed to converge properly**								Mean in Log Scale	2.025		
247									SD in Log Scale	1.004		
248									Mean in Original Scale	13.77		
249									SD in Original Scale	19.99		
250									95% Percentile Bootstrap UCL	19.92		
251									95% BCA Bootstrap UCL	22.13		
252												
253	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
254					k star (bias corrected)	0.764	**Data appear Lognormal at 5% Significance Level**					
255					Theta Star	22.37						
256					nu star	33.6						
257												
258					A-D Test Statistic	1.305	**Nonparametric Statistics**					
259					5% A-D Critical Value	0.778			Kaplan-Meier (KM) Method			
260					K-S Test Statistic	0.778			Mean	13.86		
261					5% K-S Critical Value	0.192			SD	19.89		
262	**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	3.666		
263									95% KM (t) UCL	20.08		
264	**Assuming Gamma Distribution**								95% KM (z) UCL	19.9		
265					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL	20.05		

266					Minimum	1.7					95% KM (bootstrap t) UCL	24.74
267					Maximum	95					95% KM (BCA) UCL	21.34
268					Mean	17.07					95% KM (Percentile Bootstrap) UCL	20.3
269					Median	13.2					95% KM (Chebyshev) UCL	29.85
270					SD	19.29					97.5% KM (Chebyshev) UCL	36.76
271					k star	1.097					99% KM (Chebyshev) UCL	50.34
272					Theta star	15.56						
273					Nu star	70.21					**Potential UCLs to Use**	
274					AppChi2	51.92					97.5% KM (Chebyshev) UCL	36.76
275					95% Gamma Approximate UCL	23.09						
276					95% Adjusted Gamma UCL	23.47						
277	**Note: DL/2 is not a recommended method.**											
278												
279												
280	**Acenaphthylene**											
281												
282					**General Statistics**							
283					Number of Valid Data	18					Number of Detected Data	14
284					Number of Distinct Detected Data	13					Number of Non-Detect Data	4
285											Percent Non-Detects	22.22%
286												
287					**Raw Statistics**						**Log-transformed Statistics**	
288					Minimum Detected	0.14					Minimum Detected	-1.966
289					Maximum Detected	2.9					Maximum Detected	1.065
290					Mean of Detected	0.846					Mean of Detected	-0.521
291					SD of Detected	0.776					SD of Detected	0.88
292					Minimum Non-Detect	0.22					Minimum Non-Detect	-1.514
293					Maximum Non-Detect	0.54					Maximum Non-Detect	-0.616
294												
295	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
296	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	7
297	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	61.11%
298												
299					**UCL Statistics**							
300					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
301					Shapiro Wilk Test Statistic	0.818					Shapiro Wilk Test Statistic	0.985
302					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
303					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
304												
305					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
306					DL/2 Substitution Method						DL/2 Substitution Method	
307					Mean	0.7					Mean	-0.796
308					SD	0.736					SD	0.956
309					95% DL/2 (t) UCL	1.001					95% H-Stat (DL/2) UCL	1.304
310												
311					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
312					Mean	0.164					Mean in Log Scale	-0.764
313					SD	1.247					SD in Log Scale	0.912
314					95% MLE (t) UCL	0.675					Mean in Original Scale	0.704
315					95% MLE (Tiku) UCL	0.902					SD in Original Scale	0.732
316											95% Percentile Bootstrap UCL	0.993
317											95% BCA Bootstrap UCL	1.048
318												

319	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
320					k star (bias corrected)	1.273	**Data appear Gamma Distributed at 5% Significance Level**					
321					Theta Star	0.664						
322					nu star	35.64						
323												
324					A-D Test Statistic	0.255	**Nonparametric Statistics**					
325					5% A-D Critical Value	0.75				Kaplan-Meier (KM) Method		
326					K-S Test Statistic	0.75				Mean		0.707
327					5% K-S Critical Value	0.233				SD		0.711
328	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.174
329										95% KM (t) UCL		1.01
330	**Assuming Gamma Distribution**									95% KM (z) UCL		0.994
331					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1.008
332					Minimum	0.107				95% KM (bootstrap t) UCL		1.183
333					Maximum	2.9				95% KM (BCA) UCL		1.047
334					Mean	0.74				95% KM (Percentile Bootstrap) UCL		1.044
335					Median	0.57				95% KM (Chebyshev) UCL		1.467
336					SD	0.72				97.5% KM (Chebyshev) UCL		1.795
337					k star	1.189				99% KM (Chebyshev) UCL		2.441
338					Theta star	0.622						
339					Nu star	42.8	**Potential UCLs to Use**					
340					AppChi2	28.8				95% KM (BCA) UCL		1.047
341					95% Gamma Approximate UCL	1.1						
342					95% Adjusted Gamma UCL	1.143						
343	**Note: DL/2 is not a recommended method.**											
344												
345												
346	**Aldrin**											
347												
348	**General Statistics**											
349					Number of Valid Data	18				Number of Detected Data		15
350					Number of Distinct Detected Data	14				Number of Non-Detect Data		3
351										Percent Non-Detects		16.67%
352												
353	**Raw Statistics**						**Log-transformed Statistics**					
354					Minimum Detected	0.0104				Minimum Detected		-4.566
355					Maximum Detected	0.04				Maximum Detected		-3.219
356					Mean of Detected	0.0222				Mean of Detected		-3.888
357					SD of Detected	0.00943				SD of Detected		0.418
358					Minimum Non-Detect	0.021				Minimum Non-Detect		-3.863
359					Maximum Non-Detect	0.0236				Maximum Non-Detect		-3.747
360												
361	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		13
362	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
363	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		72.22%
364												
365	**UCL Statistics**											
366	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
367					Shapiro Wilk Test Statistic	0.905				Shapiro Wilk Test Statistic		0.959
368					5% Shapiro Wilk Critical Value	0.881				5% Shapiro Wilk Critical Value		0.881
369	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
370												
371	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

372				DL/2 Substitution Method						DL/2 Substitution Method		
373				Mean	0.0204					Mean	-3.989	
374				SD	0.00955					SD	0.445	
375				95% DL/2 (t) UCL	0.0243					95% H-Stat (DL/2) UCL	0.0265	
376												
377				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
378				Mean	0.0153					Mean in Log Scale	-3.927	
379				SD	0.0145					SD in Log Scale	0.39	
380				95% MLE (t) UCL	0.0212					Mean in Original Scale	0.0212	
381				95% MLE (Tiku) UCL	0.0262					SD in Original Scale	0.00886	
382										95% Percentile Bootstrap UCL	0.0247	
383										95% BCA Bootstrap UCL	0.0251	
384												
385				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
386				k star (bias corrected)	5.085					**Data appear Normal at 5% Significance Level**		
387				Theta Star	0.00437							
388				nu star	152.5							
389												
390				A-D Test Statistic	0.279					**Nonparametric Statistics**		
391				5% A-D Critical Value	0.738					Kaplan-Meier (KM) Method		
392				K-S Test Statistic	0.738					Mean	0.0212	
393				5% K-S Critical Value	0.222					SD	0.00875	
394				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.00218	
395										95% KM (t) UCL	0.025	
396				**Assuming Gamma Distribution**						95% KM (z) UCL	0.0248	
397				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.025	
398				Minimum	0.0104					95% KM (bootstrap t) UCL	0.026	
399				Maximum	0.04					95% KM (BCA) UCL	0.0247	
400				Mean	0.022					95% KM (Percentile Bootstrap) UCL	0.0248	
401				Median	0.0208					95% KM (Chebyshev) UCL	0.0307	
402				SD	0.00858					97.5% KM (Chebyshev) UCL	0.0348	
403				k star	6.274					99% KM (Chebyshev) UCL	0.0429	
404				Theta star	0.00351							
405				Nu star	225.9					**Potential UCLs to Use**		
406				AppChi2	192.1					95% KM (t) UCL	0.025	
407				95% Gamma Approximate UCL	0.0259					95% KM (Percentile Bootstrap) UCL	0.0248	
408				95% Adjusted Gamma UCL	0.0263							
409	**Note: DL/2 is not a recommended method.**											
410												
411												
412	**alpha-Hexachlorocyclohexane**											
413												
414						**General Statistics**							
415				Number of Valid Data	18					Number of Detected Data	15	
416				Number of Distinct Detected Data	14					Number of Non-Detect Data	3	
417										Percent Non-Detects	16.67%	
418												
419				**Raw Statistics**						**Log-transformed Statistics**		
420				Minimum Detected	0.016					Minimum Detected	-4.135	
421				Maximum Detected	0.042					Maximum Detected	-3.17	
422				Mean of Detected	0.0282					Mean of Detected	-3.6	
423				SD of Detected	0.00709					SD of Detected	0.258	
424				Minimum Non-Detect	0.026					Minimum Non-Detect	-3.65	

425					Maximum Non-Detect	0.0409					Maximum Non-Detect	-3.197
426												
427	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	17
428	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
429	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.44%
430												
431	**UCL Statistics**											
432	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
433					Shapiro Wilk Test Statistic	0.961					Shapiro Wilk Test Statistic	0.964
434					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
435	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
436												
437	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
438					DL/2 Substitution Method						DL/2 Substitution Method	
439					Mean	0.0263					Mean	-3.682
440					SD	0.00784					SD	0.311
441					95% DL/2 (t) UCL	0.0295					95% H-Stat (DL/2) UCL	0.032
442												
443					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
444	**MLE method failed to converge properly**										Mean in Log Scale	-3.617
445											SD in Log Scale	0.239
446											Mean in Original Scale	0.0276
447											SD in Original Scale	0.0066
448											95% Percentile Bootstrap UCL	0.0302
449											95% BCA Bootstrap UCL	0.0304
450												
451	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
452					k star (bias corrected)	13.35	**Data appear Normal at 5% Significance Level**					
453					Theta Star	0.00211						
454					nu star	400.5						
455												
456					A-D Test Statistic	0.311	**Nonparametric Statistics**					
457					5% A-D Critical Value	0.736					Kaplan-Meier (KM) Method	
458					K-S Test Statistic	0.736					Mean	0.0276
459					5% K-S Critical Value	0.221					SD	0.00672
460	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.00172
461											95% KM (t) UCL	0.0306
462	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0305
463					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0307
464					Minimum	0.016					95% KM (bootstrap t) UCL	0.0308
465					Maximum	0.042					95% KM (BCA) UCL	0.0305
466					Mean	0.0281					95% KM (Percentile Bootstrap) UCL	0.0304
467					Median	0.0275					95% KM (Chebyshev) UCL	0.0352
468					SD	0.00651					97.5% KM (Chebyshev) UCL	0.0384
469					k star	16.27					99% KM (Chebyshev) UCL	0.0448
470					Theta star	0.00173						
471					Nu star	585.7	**Potential UCLs to Use**					
472					AppChi2	530.6					95% KM (t) UCL	0.0306
473					95% Gamma Approximate UCL	0.0311					95% KM (Percentile Bootstrap) UCL	0.0304
474					95% Adjusted Gamma UCL	0.0314						
475	**Note: DL/2 is not a recommended method.**											
476												
477												

478	**Aluminum**											
479												
480						**General Statistics**						
481					Number of Valid Observations	32				Number of Distinct Observations	30	
482												
483					**Raw Statistics**					**Log-transformed Statistics**		
484					Minimum	2.12				Minimum of Log Data	0.751	
485					Maximum	11				Maximum of Log Data	2.398	
486					Mean	5.288				Mean of log Data	1.588	
487					Median	4.79				SD of log Data	0.395	
488					SD	2.219						
489					Coefficient of Variation	0.42						
490					Skewness	1.27						
491												
492					**Relevant UCL Statistics**							
493					**Normal Distribution Test**					**Lognormal Distribution Test**		
494					Shapiro Wilk Test Statistic	0.877				Shapiro Wilk Test Statistic	0.967	
495					Shapiro Wilk Critical Value	0.93				Shapiro Wilk Critical Value	0.93	
496					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
497												
498					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
499					95% Student's-t UCL	5.954				95% H-UCL	6.037	
500					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	6.935	
501					95% Adjusted-CLT UCL	6.028				97.5% Chebyshev (MVUE) UCL	7.651	
502					95% Modified-t UCL	5.968				99% Chebyshev (MVUE) UCL	9.058	
503												
504					**Gamma Distribution Test**					**Data Distribution**		
505					k star (bias corrected)	6.047				**Data appear Gamma Distributed at 5% Significance Level**		
506					Theta Star	0.875						
507					nu star	387						
508					Approximate Chi Square Value (.05)	342.4				**Nonparametric Statistics**		
509					Adjusted Level of Significance	0.0416				95% CLT UCL	5.934	
510					Adjusted Chi Square Value	340.2				95% Jackknife UCL	5.954	
511										95% Standard Bootstrap UCL	5.93	
512					Anderson-Darling Test Statistic	0.554				95% Bootstrap-t UCL	6.1	
513					Anderson-Darling 5% Critical Value	0.747				95% Hall's Bootstrap UCL	6.177	
514					Kolmogorov-Smirnov Test Statistic	0.13				95% Percentile Bootstrap UCL	5.968	
515					Kolmogorov-Smirnov 5% Critical Value	0.156				95% BCA Bootstrap UCL	6.003	
516					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	6.998	
517										97.5% Chebyshev(Mean, Sd) UCL	7.738	
518					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	9.192	
519					95% Approximate Gamma UCL	5.977						
520					95% Adjusted Gamma UCL	6.017						
521												
522					**Potential UCL to Use**					Use 95% Approximate Gamma UCL	5.977	
523												
524												
525	**Anthracene**											
526												
527						**General Statistics**						
528					Number of Valid Data	18				Number of Detected Data	17	
529					Number of Distinct Detected Data	14				Number of Non-Detect Data	1	
530										Percent Non-Detects	5.56%	

Raw Statistics		
Minimum Detected	0.26	
Maximum Detected	6.8	
Mean of Detected	1.635	
SD of Detected	1.588	
Minimum Non-Detect	0.5	
Maximum Non-Detect	0.5	

Log-transformed Statistics	
Minimum Detected	-1.347
Maximum Detected	1.917
Mean of Detected	0.194
SD of Detected	0.756
Minimum Non-Detect	-0.693
Maximum Non-Detect	-0.693

UCL Statistics

Normal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.682
5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level	
Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	1.558
SD	1.574
95% DL/2 (t) UCL	2.204
Maximum Likelihood Estimate(MLE) Method	
Mean	1.473
SD	1.643
95% MLE (t) UCL	2.146
95% MLE (Tiku) UCL	2.115
Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	1.545
Theta Star	1.058
nu star	52.53
A-D Test Statistic	0.876
5% A-D Critical Value	0.752
K-S Test Statistic	0.752
5% K-S Critical Value	0.212
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	6.8
Mean	1.544
Median	1.15
SD	1.588
k star	0.42
Theta star	3.682
Nu star	15.1
AppChi2	7.333
95% Gamma Approximate UCL	3.181

Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.949
5% Shapiro Wilk Critical Value	0.892
Data appear Lognormal at 5% Significance Level	
Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	0.106
SD	0.823
95% H-Stat (DL/2) UCL	2.653
Log ROS Method	
Mean in Log Scale	0.113
SD in Log Scale	0.809
Mean in Original Scale	1.56
SD in Original Scale	1.573
95% Percentile Bootstrap UCL	2.174
95% BCA Bootstrap UCL	2.373
Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1.559
SD	1.53
SE of Mean	0.372
95% KM (t) UCL	2.205
95% KM (z) UCL	2.17
95% KM (jackknife) UCL	2.193
95% KM (bootstrap t) UCL	2.801
95% KM (BCA) UCL	2.277
95% KM (Percentile Bootstrap) UCL	2.192
95% KM (Chebyshev) UCL	3.179
97.5% KM (Chebyshev) UCL	3.88
99% KM (Chebyshev) UCL	5.257
Potential UCLs to Use	
95% KM (Chebyshev) UCL	3.179

	A	B	C	D	E	F	G	H	I	J	K	L
584					95% Adjusted Gamma UCL	3.421						
585	**Note: DL/2 is not a recommended method.**											
586												
587												
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589												
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591												
592	s were recalculated with reanalysis of SMB. See additional file.											
593												
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660												
661	**Arsenic**											
662												
663						**General Statistics**							
664					Number of Valid Observations	32				Number of Distinct Observations	20	
665												
666					**Raw Statistics**					**Log-transformed Statistics**		
667					Minimum	0.16				Minimum of Log Data	-1.833	
668					Maximum	0.39				Maximum of Log Data	-0.942	
669					Mean	0.248				Mean of log Data	-1.424	
670					Median	0.238				SD of log Data	0.242	
671					SD	0.0611						
672					Coefficient of Variation	0.247						
673					Skewness	0.574						
674												
675						**Relevant UCL Statistics**							
676					**Normal Distribution Test**					**Lognormal Distribution Test**		
677					Shapiro Wilk Test Statistic	0.945				Shapiro Wilk Test Statistic	0.964	
678					Shapiro Wilk Critical Value	0.93				Shapiro Wilk Critical Value	0.93	
679					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
680												
681					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
682					95% Student's-t UCL	0.266				95% H-UCL	0.268	
683					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	0.294	
684					95% Adjusted-CLT UCL	0.267				97.5% Chebyshev (MVUE) UCL	0.314	
685					95% Modified-t UCL	0.266				99% Chebyshev (MVUE) UCL	0.354	
686												
687					**Gamma Distribution Test**					**Data Distribution**		
688					k star (bias corrected)	15.97				**Data appear Normal at 5% Significance Level**		
689					Theta Star	0.0155						

690					nu star	1022						
691					Approximate Chi Square Value (.05)	949.1		**Nonparametric Statistics**				
692					Adjusted Level of Significance	0.0416					95% CLT UCL	0.265
693					Adjusted Chi Square Value	945.4					95% Jackknife UCL	0.266
694											95% Standard Bootstrap UCL	0.265
695					Anderson-Darling Test Statistic	0.381					95% Bootstrap-t UCL	0.268
696					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	0.266
697					Kolmogorov-Smirnov Test Statistic	0.13					95% Percentile Bootstrap UCL	0.265
698					Kolmogorov-Smirnov 5% Critical Value	0.155					95% BCA Bootstrap UCL	0.266
699					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.295
700											97.5% Chebyshev(Mean, Sd) UCL	0.315
701					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.355
702					95% Approximate Gamma UCL	0.267						
703					95% Adjusted Gamma UCL	0.268						
704												
705					**Potential UCL to Use**						Use 95% Student's-t UCL	0.266
706												
707												
708	**Benzo(a)anthracene**											
709												
710					**General Statistics**							
711					Number of Valid Data	18					Number of Detected Data	8
712					Number of Distinct Detected Data	7					Number of Non-Detect Data	10
713											Percent Non-Detects	55.56%
714												
715					**Raw Statistics**			**Log-transformed Statistics**				
716					Minimum Detected	0.14					Minimum Detected	-1.966
717					Maximum Detected	1.1					Maximum Detected	0.0953
718					Mean of Detected	0.465					Mean of Detected	-1.085
719					SD of Detected	0.382					SD of Detected	0.867
720					Minimum Non-Detect	0.2					Minimum Non-Detect	-1.609
721					Maximum Non-Detect	0.52					Maximum Non-Detect	-0.654
722												
723	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
724	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
725	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.33%
726												
727	**Warning: There are only 8 Detected Values in this data**											
728	**Note: It should be noted that even though bootstrap may be performed on this data set**											
729	**the resulting calculations may not be reliable enough tp draw conclusions**											
730												
731	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
732												
733												
734	**UCL Statistics**											
735	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
736					Shapiro Wilk Test Statistic	0.831					Shapiro Wilk Test Statistic	0.848
737					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
738	**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
739												
740	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
741					DL/2 Substitution Method						DL/2 Substitution Method	
742					Mean	0.29					Mean	-1.584

743					SD	0.297					SD	0.78
744					95% DL/2 (t) UCL	0.412					95% H-Stat (DL/2) UCL	0.423
745												
746					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
747					**MLE yields a negative mean**						Mean in Log Scale	-1.449
748											SD in Log Scale	0.688
749											Mean in Original Scale	0.308
750											SD in Original Scale	0.287
751											95% Percentile Bootstrap UCL	0.426
752											95% BCA Bootstrap UCL	0.453
753												
754					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
755					k star (bias corrected)	1.153					**Data appear Normal at 5% Significance Level**	
756					Theta Star	0.403						
757					nu star	18.45						
758												
759					A-D Test Statistic	0.6					**Nonparametric Statistics**	
760					5% A-D Critical Value	0.727					Kaplan-Meier (KM) Method	
761					K-S Test Statistic	0.727					Mean	0.297
762					5% K-S Critical Value	0.298					SD	0.283
763					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0721
764											95% KM (t) UCL	0.422
765					**Assuming Gamma Distribution**						95% KM (z) UCL	0.416
766					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.418
767					Minimum	0.14					95% KM (bootstrap t) UCL	0.524
768					Maximum	1.1					95% KM (BCA) UCL	0.414
769					Mean	0.456					95% KM (Percentile Bootstrap) UCL	0.425
770					Median	0.443					95% KM (Chebyshev) UCL	0.611
771					SD	0.249					97.5% KM (Chebyshev) UCL	0.747
772					k star	3.013					99% KM (Chebyshev) UCL	1.015
773					Theta star	0.151						
774					Nu star	108.5					**Potential UCLs to Use**	
775					AppChi2	85.44					95% KM (t) UCL	0.422
776					95% Gamma Approximate UCL	0.579					95% KM (Percentile Bootstrap) UCL	0.425
777					95% Adjusted Gamma UCL	0.592						
778	**Note: DL/2 is not a recommended method.**											
779												
780												
781	**Benzo(a)pyrene**											
782												
783						**General Statistics**							
784					Number of Valid Data	18					Number of Detected Data	5
785					Number of Distinct Detected Data	5					Number of Non-Detect Data	13
786											Percent Non-Detects	72.22%
787												
788					**Raw Statistics**						**Log-transformed Statistics**	
789					Minimum Detected	0.15					Minimum Detected	-1.897
790					Maximum Detected	1.3					Maximum Detected	0.262
791					Mean of Detected	0.644					Mean of Detected	-0.768
792					SD of Detected	0.493					SD of Detected	0.98
793					Minimum Non-Detect	0.25					Minimum Non-Detect	-1.386
794					Maximum Non-Detect	0.64					Maximum Non-Detect	-0.446
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
797	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
798	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.33%
799												
800	**Warning: There are only 5 Detected Values in this data**											
801	**Note: It should be noted that even though bootstrap may be performed on this data set**											
802	**the resulting calculations may not be reliable enough tp draw conclusions**											
803												
804	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
805												
806												
807	**UCL Statistics**											
808	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
809	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk Test Statistic					0.873
810	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
811	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
812												
813	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
814	DL/2 Substitution Method						DL/2 Substitution Method					
815	Mean					0.313	Mean					-1.491
816	SD					0.327	SD					0.745
817	95% DL/2 (t) UCL					0.447	95% H-Stat (DL/2) UCL					0.428
818												
819	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
820	Mean					0.0603	Mean in Log Scale					-1.483
821	SD					0.601	SD in Log Scale					0.746
822	95% MLE (t) UCL					0.307	Mean in Original Scale					0.313
823	95% MLE (Tiku) UCL					0.747	SD in Original Scale					0.325
824							95% Percentile Bootstrap UCL					0.441
825							95% BCA Bootstrap UCL					0.498
826												
827	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
828	k star (bias corrected)					0.803	**Data appear Normal at 5% Significance Level**					
829	Theta Star					0.802						
830	nu star					8.03						
831												
832	A-D Test Statistic					0.387	**Nonparametric Statistics**					
833	5% A-D Critical Value					0.686	Kaplan-Meier (KM) Method					
834	K-S Test Statistic					0.686	Mean					0.298
835	5% K-S Critical Value					0.361	SD					0.317
836	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0839
837							95% KM (t) UCL					0.444
838	**Assuming Gamma Distribution**						95% KM (z) UCL					0.436
839	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.435
840	Minimum					0.15	95% KM (bootstrap t) UCL					0.462
841	Maximum					1.3	95% KM (BCA) UCL					0.971
842	Mean					0.633	95% KM (Percentile Bootstrap) UCL					0.761
843	Median					0.632	95% KM (Chebyshev) UCL					0.664
844	SD					0.248	97.5% KM (Chebyshev) UCL					0.822
845	k star					4.485	99% KM (Chebyshev) UCL					1.133
846	Theta star					0.141						
847	Nu star					161.5	**Potential UCLs to Use**					
848	AppChi2					133.1	95% KM (t) UCL					0.444

849				95% Gamma Approximate UCL		0.768				95% KM (Percentile Bootstrap) UCL		0.761
850				95% Adjusted Gamma UCL		0.783						
851	**Note: DL/2 is not a recommended method.**											
852												
853												
854	**Benzo(b)fluoranthene**											
855												
856	**General Statistics**											
857				Number of Valid Data		18				Number of Detected Data		6
858				Number of Distinct Detected Data		5				Number of Non-Detect Data		12
859										Percent Non-Detects		66.67%
860												
861	**Raw Statistics**								**Log-transformed Statistics**			
862				Minimum Detected		0.14				Minimum Detected		-1.966
863				Maximum Detected		1				Maximum Detected		0
864				Mean of Detected		0.455				Mean of Detected		-1.035
865				SD of Detected		0.33				SD of Detected		0.803
866				Minimum Non-Detect		0.21				Minimum Non-Detect		-1.561
867				Maximum Non-Detect		0.55				Maximum Non-Detect		-0.598
868												
869	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		16
870	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
871	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		88.89%
872												
873	**Warning: There are only 6 Detected Values in this data**											
874	**Note: It should be noted that even though bootstrap may be performed on this data set**											
875	**the resulting calculations may not be reliable enough tp draw conclusions**											
876												
877	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
878												
879												
880	**UCL Statistics**											
881	**Normal Distribution Test with Detected Values Only**								**Lognormal Distribution Test with Detected Values Only**			
882				Shapiro Wilk Test Statistic		0.913				Shapiro Wilk Test Statistic		0.914
883				5% Shapiro Wilk Critical Value		0.788				5% Shapiro Wilk Critical Value		0.788
884	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
885												
886	**Assuming Normal Distribution**								**Assuming Lognormal Distribution**			
887				DL/2 Substitution Method						DL/2 Substitution Method		
888				Mean		0.26				Mean		-1.615
889				SD		0.236				SD		0.696
890				95% DL/2 (t) UCL		0.357				95% H-Stat (DL/2) UCL		0.386
891												
892				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
893	**MLE method failed to converge properly**									Mean in Log Scale		-1.604
894										SD in Log Scale		0.654
895										Mean in Original Scale		0.257
896										SD in Original Scale		0.233
897										95% Percentile Bootstrap UCL		0.352
898										95% BCA Bootstrap UCL		0.38
899												
900	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
901				k star (bias corrected)		1.196				**Data appear Normal at 5% Significance Level**		

902					Theta Star	0.38						
903					nu star	14.35						
904												
905					A-D Test Statistic	0.285	**Nonparametric Statistics**					
906					5% A-D Critical Value	0.704					Kaplan-Meier (KM) Method	
907					K-S Test Statistic	0.704					Mean	0.255
908					5% K-S Critical Value	0.336					SD	0.23
909	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0609
910											95% KM (t) UCL	0.361
911	**Assuming Gamma Distribution**										95% KM (z) UCL	0.355
912					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.355
913					Minimum	0.14					95% KM (bootstrap t) UCL	0.401
914					Maximum	1					95% KM (BCA) UCL	0.503
915					Mean	0.471					95% KM (Percentile Bootstrap) UCL	0.456
916					Median	0.495					95% KM (Chebyshev) UCL	0.52
917					SD	0.21					97.5% KM (Chebyshev) UCL	0.635
918					k star	3.854					99% KM (Chebyshev) UCL	0.861
919					Theta star	0.122						
920					Nu star	138.7	**Potential UCLs to Use**					
921					AppChi2	112.5					95% KM (t) UCL	0.361
922					95% Gamma Approximate UCL	0.581					95% KM (Percentile Bootstrap) UCL	0.456
923					95% Adjusted Gamma UCL	0.593						
924	**Note: DL/2 is not a recommended method.**											
925												
926												
927	**Benzo(g,h,i)perylene**											
928												
929	**General Statistics**											
930					Number of Valid Data	18					Number of Detected Data	6
931					Number of Distinct Detected Data	6					Number of Non-Detect Data	12
932											Percent Non-Detects	66.67%
933												
934	**Raw Statistics**						**Log-transformed Statistics**					
935					Minimum Detected	0.13					Minimum Detected	-2.04
936					Maximum Detected	2.5					Maximum Detected	0.916
937					Mean of Detected	0.795					Mean of Detected	-0.838
938					SD of Detected	0.931					SD of Detected	1.228
939					Minimum Non-Detect	0.23					Minimum Non-Detect	-1.47
940					Maximum Non-Detect	0.58					Maximum Non-Detect	-0.545
941												
942	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
943	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
944	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.33%
945												
946	**Warning: There are only 6 Detected Values in this data**											
947	**Note: It should be noted that even though bootstrap may be performed on this data set**											
948	**the resulting calculations may not be reliable enough tp draw conclusions**											
949												
950	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
951												
952												
953	**UCL Statistics**											
954	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

955					Shapiro Wilk Test Statistic	0.795					Shapiro Wilk Test Statistic	0.897
956					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
957					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
958												
959					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
960					DL/2 Substitution Method						DL/2 Substitution Method	
961					Mean	0.379					Mean	-1.513
962					SD	0.592					SD	0.892
963					95% DL/2 (t) UCL	0.622					95% H-Stat (DL/2) UCL	0.59
964												
965					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
966					**MLE yields a negative mean**						Mean in Log Scale	-1.486
967											SD in Log Scale	0.924
968											Mean in Original Scale	0.389
969											SD in Original Scale	0.59
970											95% Percentile Bootstrap UCL	0.63
971											95% BCA Bootstrap UCL	0.77
972												
973					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
974					k star (bias corrected)	0.588					**Data appear Normal at 5% Significance Level**	
975					Theta Star	1.352						
976					nu star	7.056						
977												
978					A-D Test Statistic	0.411					**Nonparametric Statistics**	
979					5% A-D Critical Value	0.716					Kaplan-Meier (KM) Method	
980					K-S Test Statistic	0.716					Mean	0.369
981					5% K-S Critical Value	0.341					SD	0.576
982					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.149
983											95% KM (t) UCL	0.629
984					**Assuming Gamma Distribution**						95% KM (z) UCL	0.615
985					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.615
986					Minimum	0.0882					95% KM (bootstrap t) UCL	1.219
987					Maximum	2.5					95% KM (BCA) UCL	0.739
988					Mean	0.748					95% KM (Percentile Bootstrap) UCL	0.706
989					Median	0.762					95% KM (Chebyshev) UCL	1.021
990					SD	0.559					97.5% KM (Chebyshev) UCL	1.303
991					k star	1.546					99% KM (Chebyshev) UCL	1.857
992					Theta star	0.484						
993					Nu star	55.67					**Potential UCLs to Use**	
994					AppChi2	39.53					95% KM (t) UCL	0.629
995					95% Gamma Approximate UCL	1.053					95% KM (Percentile Bootstrap) UCL	0.706
996					95% Adjusted Gamma UCL	1.089						
997	**Note: DL/2 is not a recommended method.**											
998												
999												
1000	**Benzo(k)fluoranthene**											
1001												
1002						**General Statistics**							
1003					Number of Valid Data	18					Number of Detected Data	6
1004					Number of Distinct Detected Data	5					Number of Non-Detect Data	12
1005											Percent Non-Detects	66.67%
1006												
1007					**Raw Statistics**						**Log-transformed Statistics**	

1008					Minimum Detected	0.11					Minimum Detected	-2.207
1009					Maximum Detected	0.92					Maximum Detected	-0.0834
1010					Mean of Detected	0.373					Mean of Detected	-1.299
1011					SD of Detected	0.317					SD of Detected	0.881
1012					Minimum Non-Detect	0.17					Minimum Non-Detect	-1.772
1013					Maximum Non-Detect	0.44					Maximum Non-Detect	-0.821
1014												
1015	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	16
1016	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
1017	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	88.89%
1018												
1019	**Warning: There are only 6 Detected Values in this data**											
1020	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1021	**the resulting calculations may not be reliable enough tp draw conclusions**											
1022												
1023	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1024												
1025												
1026	**UCL Statistics**											
1027	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1028					Shapiro Wilk Test Statistic	0.864					Shapiro Wilk Test Statistic	0.91
1029					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
1030	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1031												
1032	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1033					DL/2 Substitution Method						DL/2 Substitution Method	
1034					Mean	0.212					Mean	-1.841
1035					SD	0.213					SD	0.701
1036					95% DL/2 (t) UCL	0.299					95% H-Stat (DL/2) UCL	0.309
1037												
1038					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1039	**MLE method failed to converge properly**										Mean in Log Scale	-1.865
1040											SD in Log Scale	0.697
1041											Mean in Original Scale	0.207
1042											SD in Original Scale	0.213
1043											95% Percentile Bootstrap UCL	0.292
1044											95% BCA Bootstrap UCL	0.334
1045												
1046	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1047					k star (bias corrected)	0.981	**Data appear Normal at 5% Significance Level**					
1048					Theta Star	0.381						
1049					nu star	11.77						
1050												
1051					A-D Test Statistic	0.341	**Nonparametric Statistics**					
1052					5% A-D Critical Value	0.706					Kaplan-Meier (KM) Method	
1053					K-S Test Statistic	0.706					Mean	0.207
1054					5% K-S Critical Value	0.337					SD	0.208
1055	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.055
1056											95% KM (t) UCL	0.303
1057	**Assuming Gamma Distribution**										95% KM (z) UCL	0.297
1058					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.297
1059					Minimum	0.11					95% KM (bootstrap t) UCL	0.359
1060					Maximum	0.92					95% KM (BCA) UCL	0.428

1061					Mean	0.41				95% KM (Percentile Bootstrap) UCL		0.341
1062					Median	0.376				95% KM (Chebyshev) UCL		0.447
1063					SD	0.219				97.5% KM (Chebyshev) UCL		0.55
1064					k star	2.764				99% KM (Chebyshev) UCL		0.754
1065					Theta star	0.148						
1066					Nu star	99.51				**Potential UCLs to Use**		
1067					AppChi2	77.5				95% KM (t) UCL		0.303
1068					95% Gamma Approximate UCL	0.527				95% KM (Percentile Bootstrap) UCL		0.341
1069					95% Adjusted Gamma UCL	0.54						
1070	**Note: DL/2 is not a recommended method.**											
1071												
1072												
1073	**Benzoic acid**											
1074												
1075						**General Statistics**						
1076					Number of Valid Data	18				Number of Detected Data		16
1077					Number of Distinct Detected Data	13				Number of Non-Detect Data		2
1078										Percent Non-Detects		11.11%
1079												
1080					**Raw Statistics**					**Log-transformed Statistics**		
1081					Minimum Detected	350				Minimum Detected		5.858
1082					Maximum Detected	610				Maximum Detected		6.413
1083					Mean of Detected	468.1				Mean of Detected		6.134
1084					SD of Detected	83.12				SD of Detected		0.174
1085					Minimum Non-Detect	400				Minimum Non-Detect		5.991
1086					Maximum Non-Detect	400				Maximum Non-Detect		5.991
1087												
1088												
1089						**UCL Statistics**						
1090					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1091					Shapiro Wilk Test Statistic	0.934				Shapiro Wilk Test Statistic		0.955
1092					5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value		0.887
1093					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1094												
1095					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1096					DL/2 Substitution Method					DL/2 Substitution Method		
1097					Mean	438.3				Mean		6.041
1098					SD	116.7				SD		0.316
1099					95% DL/2 (t) UCL	486.2				95% H-Stat (DL/2) UCL		491
1100												
1101					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
1102					Mean	444				Mean in Log Scale		6.11
1103					SD	100.8				SD in Log Scale		0.179
1104					95% MLE (t) UCL	485.3				Mean in Original Scale		457.3
1105					95% MLE (Tiku) UCL	488.8				SD in Original Scale		84.42
1106										95% Percentile Bootstrap UCL		489.7
1107										95% BCA Bootstrap UCL		492.8
1108												
1109					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1110					k star (bias corrected)	28.38				**Data appear Normal at 5% Significance Level**		
1111					Theta Star	16.5						
1112					nu star	908.1						
1113												

1114				A-D Test Statistic	0.294		**Nonparametric Statistics**					
1115				5% A-D Critical Value	0.736					Kaplan-Meier (KM) Method		
1116				K-S Test Statistic	0.736					Mean		457.8
1117				5% K-S Critical Value	0.215					SD		81.52
1118	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		19.91
1119										95% KM (t) UCL		492.4
1120	**Assuming Gamma Distribution**									95% KM (z) UCL		490.5
1121	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		492.4
1122				Minimum	350					95% KM (bootstrap t) UCL		496.5
1123				Maximum	610					95% KM (BCA) UCL		491.3
1124				Mean	459.2					95% KM (Percentile Bootstrap) UCL		491.1
1125				Median	445					95% KM (Chebyshev) UCL		544.6
1126				SD	82.93					97.5% KM (Chebyshev) UCL		582.1
1127				k star	28.32					99% KM (Chebyshev) UCL		655.9
1128				Theta star	16.21							
1129				Nu star	1019		**Potential UCLs to Use**					
1130				AppChi2	946.4					95% KM (t) UCL		492.4
1131				95% Gamma Approximate UCL	494.7					95% KM (Percentile Bootstrap) UCL		491.1
1132				95% Adjusted Gamma UCL	498.2							
1133	**Note: DL/2 is not a recommended method.**											
1134												
1135												
1136	**Benzyl alcohol**											
1137												
1138	**General Statistics**											
1139				Number of Valid Data	18					Number of Detected Data		16
1140				Number of Distinct Detected Data	12					Number of Non-Detect Data		2
1141										Percent Non-Detects		11.11%
1142												
1143	**Raw Statistics**						**Log-transformed Statistics**					
1144				Minimum Detected	14					Minimum Detected		2.639
1145				Maximum Detected	33					Maximum Detected		3.497
1146				Mean of Detected	26.56					Mean of Detected		3.263
1147				SD of Detected	4.457					SD of Detected		0.197
1148				Minimum Non-Detect	22					Minimum Non-Detect		3.091
1149				Maximum Non-Detect	22					Maximum Non-Detect		3.091
1150												
1151												
1152	**UCL Statistics**											
1153	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1154				Shapiro Wilk Test Statistic	0.898					Shapiro Wilk Test Statistic		0.796
1155				5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value		0.887
1156	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1157												
1158	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1159				DL/2 Substitution Method						DL/2 Substitution Method		
1160				Mean	24.83					Mean		3.167
1161				SD	6.546					SD		0.336
1162				95% DL/2 (t) UCL	27.52					95% H-Stat (DL/2) UCL		29
1163												
1164				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
1165				Mean	26.17					Mean in Log Scale		3.225
1166				SD	3.912					SD in Log Scale		0.217

1167					95% MLE (t) UCL	27.77				Mean in Original Scale		25.66
1168					95% MLE (Tiku) UCL	27.82				SD in Original Scale		4.946
1169										95% Percentile Bootstrap UCL		27.5
1170										95% BCA Bootstrap UCL		27.27
1171												
1172				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1173					k star (bias corrected)	25.22				**Data appear Normal at 5% Significance Level**		
1174					Theta Star	1.053						
1175					nu star	806.9						
1176												
1177					A-D Test Statistic	0.758				**Nonparametric Statistics**		
1178					5% A-D Critical Value	0.736				Kaplan-Meier (KM) Method		
1179					K-S Test Statistic	0.736				Mean		25.17
1180					5% K-S Critical Value	0.215				SD		5.669
1181				**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean		1.38
1182										95% KM (t) UCL		27.57
1183				**Assuming Gamma Distribution**						95% KM (z) UCL		27.44
1184					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		27.73
1185					Minimum	14				95% KM (bootstrap t) UCL		27.2
1186					Maximum	33				95% KM (BCA) UCL		28
1187					Mean	25.83				95% KM (Percentile Bootstrap) UCL		27.78
1188					Median	26				95% KM (Chebyshev) UCL		31.18
1189					SD	4.725				97.5% KM (Chebyshev) UCL		33.79
1190					k star	22.77				99% KM (Chebyshev) UCL		38.9
1191					Theta star	1.134						
1192					Nu star	819.7				**Potential UCLs to Use**		
1193					AppChi2	754.3				95% KM (t) UCL		27.57
1194					95% Gamma Approximate UCL	28.07				95% KM (Percentile Bootstrap) UCL		27.78
1195					95% Adjusted Gamma UCL	28.29						
1196	**Note: DL/2 is not a recommended method.**											
1197												
1198												
1199	**beta-Hexachlorocyclohexane**											
1200												
1201						**General Statistics**						
1202					Number of Valid Data	17				Number of Detected Data		8
1203					Number of Distinct Detected Data	7				Number of Non-Detect Data		9
1204					Number of Missing Values	1				Percent Non-Detects		52.94%
1205												
1206				**Raw Statistics**						**Log-transformed Statistics**		
1207					Minimum Detected	0.0056				Minimum Detected		-5.185
1208					Maximum Detected	0.036				Maximum Detected		-3.324
1209					Mean of Detected	0.0161				Mean of Detected		-4.279
1210					SD of Detected	0.00971				SD of Detected		0.578
1211					Minimum Non-Detect	0.00897				Minimum Non-Detect		-4.714
1212					Maximum Non-Detect	0.027				Maximum Non-Detect		-3.612
1213												
1214	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		16
1215	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
1216	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		94.12%
1217												
1218	**Warning: There are only 8 Detected Values in this data**											
1219	**Note: It should be noted that even though bootstrap may be performed on this data set**											

	A	B	C	D	E	F	G	H	I	J	K	L
1220	the resulting calculations may not be reliable enough tp draw conclusions											
1221												
1222	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
1223												
1224												
1225	UCL Statistics											
1226	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1227	Shapiro Wilk Test Statistic					0.875	Shapiro Wilk Test Statistic					0.978
1228	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
1229	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1230												
1231	Assuming Normal Distribution						Assuming Lognormal Distribution					
1232	DL/2 Substitution Method						DL/2 Substitution Method					
1233	Mean					0.0132	Mean					-4.446
1234	SD					0.00736	SD					0.5
1235	95% DL/2 (t) UCL					0.0163	95% H-Stat (DL/2) UCL					0.0197
1236												
1237	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1238	MLE method failed to converge properly						Mean in Log Scale					-4.468
1239							SD in Log Scale					0.448
1240							Mean in Original Scale					0.0128
1241							SD in Original Scale					0.0073
1242							95% Percentile Bootstrap UCL					0.0159
1243							95% BCA Bootstrap UCL					0.0167
1244												
1245	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1246	k star (bias corrected)					2.309	Data appear Normal at 5% Significance Level					
1247	Theta Star					0.00695						
1248	nu star					36.95						
1249												
1250	A-D Test Statistic					0.261	Nonparametric Statistics					
1251	5% A-D Critical Value					0.72	Kaplan-Meier (KM) Method					
1252	K-S Test Statistic					0.72	Mean					0.0131
1253	5% K-S Critical Value					0.296	SD					0.0076
1254	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00225
1255							95% KM (t) UCL					0.017
1256	Assuming Gamma Distribution						95% KM (z) UCL					0.0168
1257	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0171
1258	Minimum					0.0056	95% KM (bootstrap t) UCL					0.018
1259	Maximum					0.036	95% KM (BCA) UCL					0.0175
1260	Mean					0.0161	95% KM (Percentile Bootstrap) UCL					0.0172
1261	Median					0.015	95% KM (Chebyshev) UCL					0.0229
1262	SD					0.00712	97.5% KM (Chebyshev) UCL					0.0272
1263	k star					4.792	99% KM (Chebyshev) UCL					0.0355
1264	Theta star					0.00336						
1265	Nu star					162.9	Potential UCLs to Use					
1266	AppChi2					134.4	95% KM (t) UCL					0.017
1267	95% Gamma Approximate UCL					0.0195	95% KM (Percentile Bootstrap) UCL					0.0172
1268	95% Adjusted Gamma UCL					0.0199						
1269	Note: DL/2 is not a recommended method.											
1270												
1271												
1272	Bis(2-chloroethoxy) methane											

1273												
1274	**General Statistics**											
1275					Number of Valid Data	18				Number of Detected Data		16
1276					Number of Distinct Detected Data	8				Number of Non-Detect Data		2
1277										Percent Non-Detects		11.11%
1278												
1279	**Raw Statistics**							**Log-transformed Statistics**				
1280					Minimum Detected	10				Minimum Detected		2.303
1281					Maximum Detected	22				Maximum Detected		3.091
1282					Mean of Detected	13.5				Mean of Detected		2.584
1283					SD of Detected	2.944				SD of Detected		0.192
1284					Minimum Non-Detect	8.3				Minimum Non-Detect		2.116
1285					Maximum Non-Detect	8.3				Maximum Non-Detect		2.116
1286												
1287												
1288	**UCL Statistics**											
1289	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
1290					Shapiro Wilk Test Statistic	0.78				Shapiro Wilk Test Statistic		0.853
1291					5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value		0.887
1292	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**				
1293												
1294	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
1295					DL/2 Substitution Method					DL/2 Substitution Method		
1296					Mean	12.46				Mean		2.455
1297					SD	4.097				SD		0.417
1298					95% DL/2 (t) UCL	14.14				95% H-Stat (DL/2) UCL		14.8
1299												
1300					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
1301					Mean	12.74				Mean in Log Scale		2.537
1302					SD	3.476				SD in Log Scale		0.228
1303					95% MLE (t) UCL	14.16				Mean in Original Scale		12.96
1304					95% MLE (Tiku) UCL	14.19				SD in Original Scale		3.18
1305										95% Percentile Bootstrap UCL		14.22
1306										95% BCA Bootstrap UCL		14.63
1307												
1308	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
1309					k star (bias corrected)	21.83		**Data do not follow a Discernable Distribution (0.05)**				
1310					Theta Star	0.618						
1311					nu star	698.5						
1312												
1313					A-D Test Statistic	1.211		**Nonparametric Statistics**				
1314					5% A-D Critical Value	0.736				Kaplan-Meier (KM) Method		
1315					K-S Test Statistic	0.736				Mean		13.11
1316					5% K-S Critical Value	0.215				SD		2.904
1317	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.707
1318										95% KM (t) UCL		14.34
1319	**Assuming Gamma Distribution**									95% KM (z) UCL		14.27
1320					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		14.29
1321					Minimum	8.6				95% KM (bootstrap t) UCL		15.09
1322					Maximum	22				95% KM (BCA) UCL		14.56
1323					Mean	13.03				95% KM (Percentile Bootstrap) UCL		14.33
1324					Median	12.5				95% KM (Chebyshev) UCL		16.19
1325					SD	3.098				97.5% KM (Chebyshev) UCL		17.53

1326					k star	17.98					99% KM (Chebyshev) UCL	20.14
1327					Theta star	0.724						
1328					Nu star	647.4					**Potential UCLs to Use**	
1329					AppChi2	589.3					95% KM (Chebyshev) UCL	16.19
1330					95% Gamma Approximate UCL	14.31						
1331					95% Adjusted Gamma UCL	14.44						
1332	**Note: DL/2 is not a recommended method.**											
1333												
1334												
1335	**Bis(2-ethylhexyl) phthalate**											
1336												
1337	**General Statistics**											
1338					Number of Valid Data	31					Number of Detected Data	6
1339					Number of Distinct Detected Data	5					Number of Non-Detect Data	25
1340					Number of Missing Values	1					Percent Non-Detects	80.65%
1341												
1342	**Raw Statistics**						**Log-transformed Statistics**					
1343					Minimum Detected	44					Minimum Detected	3.784
1344					Maximum Detected	87000					Maximum Detected	11.37
1345					Mean of Detected	20791					Mean of Detected	7.669
1346					SD of Detected	34685					SD of Detected	3.022
1347					Minimum Non-Detect	66					Minimum Non-Detect	4.19
1348					Maximum Non-Detect	1300					Maximum Non-Detect	7.17
1349												
1350	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	27
1351	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
1352	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	87.10%
1353												
1354	**Warning: There are only 6 Detected Values in this data**											
1355	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1356	**the resulting calculations may not be reliable enough tp draw conclusions**											
1357												
1358	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1359												
1360												
1361	**UCL Statistics**											
1362	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1363					Shapiro Wilk Test Statistic	0.7					Shapiro Wilk Test Statistic	0.925
1364					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
1365	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1366												
1367	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1368					DL/2 Substitution Method						DL/2 Substitution Method	
1369					Mean	4110					Mean	4.846
1370					SD	16417					SD	2.033
1371					95% DL/2 (t) UCL	9115					95% H-Stat (DL/2) UCL	2004
1372												
1373					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1374	**MLE yields a negative mean**										Mean in Log Scale	3.655
1375											SD in Log Scale	2.733
1376											Mean in Original Scale	4056
1377											SD in Original Scale	16430
1378											95% Percentile Bootstrap UCL	9587

1379											95% BCA Bootstrap UCL	12845
1380												
1381	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1382					k star (bias corrected)	0.263	**Data appear Gamma Distributed at 5% Significance Level**					
1383					Theta Star	79197						
1384					nu star	3.15						
1385												
1386					A-D Test Statistic	0.323	**Nonparametric Statistics**					
1387					5% A-D Critical Value	0.766	Kaplan-Meier (KM) Method					
1388					K-S Test Statistic	0.766	Mean	4060				
1389					5% K-S Critical Value	0.357	SD	16162				
1390	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	3180				
1391							95% KM (t) UCL	9457				
1392	**Assuming Gamma Distribution**						95% KM (z) UCL	9291				
1393	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	9028				
1394					Minimum	44	95% KM (bootstrap t) UCL	90982				
1395					Maximum	412928	95% KM (BCA) UCL	11890				
1396					Mean	68421	95% KM (Percentile Bootstrap) UCL	10612				
1397					Median	45596	95% KM (Chebyshev) UCL	17921				
1398					SD	91255	97.5% KM (Chebyshev) UCL	23918				
1399					k star	0.545	99% KM (Chebyshev) UCL	35699				
1400					Theta star	125430						
1401					Nu star	33.82	**Potential UCLs to Use**					
1402					AppChi2	21.52	95% KM (t) UCL	9457				
1403					95% Gamma Approximate UCL	107524						
1404					95% Adjusted Gamma UCL	110324						
1405	**Note: DL/2 is not a recommended method.**											
1406												
1407												
1408	**Cadmium**											
1409												
1410	**General Statistics**											
1411					Number of Valid Data	32	Number of Detected Data	26				
1412					Number of Distinct Detected Data	18	Number of Non-Detect Data	6				
1413							Percent Non-Detects	18.75%				
1414												
1415	**Raw Statistics**						**Log-transformed Statistics**					
1416					Minimum Detected	0.002	Minimum Detected	-6.215				
1417					Maximum Detected	0.2	Maximum Detected	-1.609				
1418					Mean of Detected	0.0136	Mean of Detected	-5.169				
1419					SD of Detected	0.0383	SD of Detected	0.956				
1420					Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215				
1421					Maximum Non-Detect	0.003	Maximum Non-Detect	-5.809				
1422												
1423	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	11				
1424	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	21				
1425	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	34.38%				
1426												
1427	**UCL Statistics**											
1428	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1429					Shapiro Wilk Test Statistic	0.287	Shapiro Wilk Test Statistic	0.801				
1430					5% Shapiro Wilk Critical Value	0.92	5% Shapiro Wilk Critical Value	0.92				
1431	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					

1432												
1433	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1434	DL/2 Substitution Method						DL/2 Substitution Method					
1435	Mean				0.0113		Mean					-5.457
1436	SD				0.0348		SD					1.056
1437	95% DL/2 (t) UCL				0.0217		95% H-Stat (DL/2) UCL					0.00845
1438												
1439	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
1440	**MLE yields a negative mean**						Mean in Log Scale					-5.505
1441							SD in Log Scale					1.13
1442							Mean in Original Scale					0.0112
1443							SD in Original Scale					0.0348
1444							95% Percentile Bootstrap UCL					0.0231
1445							95% BCA Bootstrap UCL					0.0308
1446												
1447	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1448	k star (bias corrected)				0.641		**Data do not follow a Discernable Distribution (0.05)**					
1449	Theta Star				0.0212							
1450	nu star				33.34							
1451												
1452	A-D Test Statistic				3.808		**Nonparametric Statistics**					
1453	5% A-D Critical Value				0.79		Kaplan-Meier (KM) Method					
1454	K-S Test Statistic				0.79		Mean					0.0114
1455	5% K-S Critical Value				0.179		SD					0.0342
1456	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.00616
1457							95% KM (t) UCL					0.0219
1458	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0215
1459	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0218
1460	Minimum				1E-09		95% KM (bootstrap t) UCL					0.0954
1461	Maximum				0.2		95% KM (BCA) UCL					0.0244
1462	Mean				0.011		95% KM (Percentile Bootstrap) UCL					0.0232
1463	Median				0.004		95% KM (Chebyshev) UCL					0.0383
1464	SD				0.0348		97.5% KM (Chebyshev) UCL					0.0499
1465	k star				0.225		99% KM (Chebyshev) UCL					0.0727
1466	Theta star				0.0491							
1467	Nu star				14.39		**Potential UCLs to Use**					
1468	AppChi2				6.838		95% KM (Chebyshev) UCL					0.0383
1469	95% Gamma Approximate UCL				0.0232							
1470	95% Adjusted Gamma UCL				0.0242							
1471	**Note: DL/2 is not a recommended method.**											
1472												
1473												
1474	**Chromium**											
1475												
1476	**General Statistics**											
1477	Number of Valid Data				32		Number of Detected Data					21
1478	Number of Distinct Detected Data				16		Number of Non-Detect Data					11
1479							Percent Non-Detects					34.38%
1480												
1481	**Raw Statistics**						**Log-transformed Statistics**					
1482	Minimum Detected				0.13		Minimum Detected					-2.04
1483	Maximum Detected				1.14		Maximum Detected					0.131
1484	Mean of Detected				0.409		Mean of Detected					-1.167

1485					SD of Detected	0.326					SD of Detected	0.739
1486					Minimum Non-Detect	0.06					Minimum Non-Detect	-2.813
1487					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
1488												
1489	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
1490	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	21
1491	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	34.38%
1492												
1493	**UCL Statistics**											
1494	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1495					Shapiro Wilk Test Statistic	0.796					Shapiro Wilk Test Statistic	0.878
1496					5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value	0.908
1497	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1498												
1499	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1500					DL/2 Substitution Method						DL/2 Substitution Method	
1501					Mean	0.285					Mean	-1.815
1502					SD	0.314					SD	1.09
1503					95% DL/2 (t) UCL	0.379					95% H-Stat (DL/2) UCL	0.402
1504												
1505					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1506					Mean	0.203					Mean in Log Scale	-1.79
1507					SD	0.406					SD in Log Scale	1.088
1508					95% MLE (t) UCL	0.325					Mean in Original Scale	0.287
1509					95% MLE (Tiku) UCL	0.335					SD in Original Scale	0.313
1510											95% Percentile Bootstrap UCL	0.378
1511											95% BCA Bootstrap UCL	0.391
1512												
1513	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1514					k star (bias corrected)	1.732	**Data do not follow a Discernable Distribution (0.05)**					
1515					Theta Star	0.236						
1516					nu star	72.73						
1517												
1518					A-D Test Statistic	1.153	**Nonparametric Statistics**					
1519					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
1520					K-S Test Statistic	0.754					Mean	0.313
1521					5% K-S Critical Value	0.192					SD	0.29
1522	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0525
1523											95% KM (t) UCL	0.402
1524	**Assuming Gamma Distribution**										95% KM (z) UCL	0.399
1525					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.396
1526					Minimum	1E-09					95% KM (bootstrap t) UCL	0.426
1527					Maximum	1.14					95% KM (BCA) UCL	0.421
1528					Mean	0.334					95% KM (Percentile Bootstrap) UCL	0.404
1529					Median	0.218					95% KM (Chebyshev) UCL	0.542
1530					SD	0.292					97.5% KM (Chebyshev) UCL	0.641
1531					k star	0.435					99% KM (Chebyshev) UCL	0.835
1532					Theta star	0.768						
1533					Nu star	27.86	**Potential UCLs to Use**					
1534					AppChi2	16.82					95% KM (BCA) UCL	0.421
1535					95% Gamma Approximate UCL	0.554						
1536					95% Adjusted Gamma UCL	0.569						
1537	**Note: DL/2 is not a recommended method.**											

1538												
1539												
1540	**Chrysene**											
1541												
1542						**General Statistics**							
1543						Number of Valid Data	18				Number of Detected Data	9
1544						Number of Distinct Detected Data	9				Number of Non-Detect Data	9
1545											Percent Non-Detects	50.00%
1546												
1547						**Raw Statistics**					**Log-transformed Statistics**	
1548						Minimum Detected	0.14				Minimum Detected	-1.966
1549						Maximum Detected	2				Maximum Detected	0.693
1550						Mean of Detected	0.67				Mean of Detected	-0.862
1551						SD of Detected	0.663				SD of Detected	1.027
1552						Minimum Non-Detect	0.24				Minimum Non-Detect	-1.427
1553						Maximum Non-Detect	0.6				Maximum Non-Detect	-0.511
1554												
1555	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
1556	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
1557	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	77.78%
1558												
1559						**Warning: There are only 9 Detected Values in this data**							
1560						**Note: It should be noted that even though bootstrap may be performed on this data set**						
1561						**the resulting calculations may not be reliable enough tp draw conclusions**						
1562												
1563						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
1564												
1565												
1566						**UCL Statistics**							
1567						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
1568						Shapiro Wilk Test Statistic	0.813				Shapiro Wilk Test Statistic	0.867
1569						5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value	0.829
1570						**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
1571												
1572						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
1573						DL/2 Substitution Method					DL/2 Substitution Method	
1574						Mean	0.424				Mean	-1.338
1575						SD	0.523				SD	0.905
1576						95% DL/2 (t) UCL	0.638				95% H-Stat (DL/2) UCL	0.691
1577												
1578						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
1579						**MLE yields a negative mean**					Mean in Log Scale	-1.282
1580											SD in Log Scale	0.866
1581											Mean in Original Scale	0.432
1582											SD in Original Scale	0.518
1583											95% Percentile Bootstrap UCL	0.649
1584											95% BCA Bootstrap UCL	0.703
1585												
1586						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
1587						k star (bias corrected)	0.89				**Data appear Gamma Distributed at 5% Significance Level**	
1588						Theta Star	0.753					
1589						nu star	16.01					
1590												

1591				A-D Test Statistic	0.649		**Nonparametric Statistics**					
1592				5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method		
1593				K-S Test Statistic	0.739					Mean		0.422
1594				5% K-S Critical Value	0.286					SD		0.507
1595	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.127
1596										95% KM (t) UCL		0.642
1597	**Assuming Gamma Distribution**									95% KM (z) UCL		0.63
1598	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.636
1599				Minimum	0.14					95% KM (bootstrap t) UCL		0.771
1600				Maximum	2					95% KM (BCA) UCL		0.672
1601				Mean	0.671					95% KM (Percentile Bootstrap) UCL		0.642
1602				Median	0.674					95% KM (Chebyshev) UCL		0.975
1603				SD	0.455					97.5% KM (Chebyshev) UCL		1.214
1604				k star	1.97					99% KM (Chebyshev) UCL		1.685
1605				Theta star	0.341							
1606				Nu star	70.92		**Potential UCLs to Use**					
1607				AppChi2	52.53					95% KM (t) UCL		0.642
1608				95% Gamma Approximate UCL	0.906							
1609				95% Adjusted Gamma UCL	0.933							
1610	**Note: DL/2 is not a recommended method.**											
1611												
1612												
1613	**Copper**											
1614												
1615	**General Statistics**											
1616				Number of Valid Observations	32					Number of Distinct Observations		32
1617												
1618	**Raw Statistics**						**Log-transformed Statistics**					
1619				Minimum	0.365					Minimum of Log Data		-1.008
1620				Maximum	1.92					Maximum of Log Data		0.652
1621				Mean	0.805					Mean of log Data		-0.307
1622				Median	0.749					SD of log Data		0.427
1623				SD	0.362							
1624				Coefficient of Variation	0.45							
1625				Skewness	1.198							
1626												
1627	**Relevant UCL Statistics**											
1628	**Normal Distribution Test**						**Lognormal Distribution Test**					
1629				Shapiro Wilk Test Statistic	0.905					Shapiro Wilk Test Statistic		0.971
1630				Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value		0.93
1631	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1632												
1633	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1634				95% Student's-t UCL	0.914					95% H-UCL		0.931
1635	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		1.077
1636				95% Adjusted-CLT UCL	0.925					97.5% Chebyshev (MVUE) UCL		1.195
1637				95% Modified-t UCL	0.916					99% Chebyshev (MVUE) UCL		1.427
1638												
1639	**Gamma Distribution Test**						**Data Distribution**					
1640				k star (bias corrected)	5.214		**Data appear Gamma Distributed at 5% Significance Level**					
1641				Theta Star	0.154							
1642				nu star	333.7							
1643				Approximate Chi Square Value (.05)	292.4		**Nonparametric Statistics**					

1644					Adjusted Level of Significance	0.0416					95% CLT UCL	0.91
1645					Adjusted Chi Square Value	290.3					95% Jackknife UCL	0.914
1646											95% Standard Bootstrap UCL	0.91
1647					Anderson-Darling Test Statistic	0.332					95% Bootstrap-t UCL	0.938
1648					Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	0.937
1649					Kolmogorov-Smirnov Test Statistic	0.0961					95% Percentile Bootstrap UCL	0.913
1650					Kolmogorov-Smirnov 5% Critical Value	0.156					95% BCA Bootstrap UCL	0.924
1651					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1.084
1652											97.5% Chebyshev(Mean, Sd) UCL	1.205
1653					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1.442
1654					95% Approximate Gamma UCL	0.919						
1655					95% Adjusted Gamma UCL	0.925						
1656												
1657					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	0.919
1658												
1659												
1660	**Dibenzofuran**											
1661												
1662						**General Statistics**							
1663					Number of Valid Data	32					Number of Detected Data	19
1664					Number of Distinct Detected Data	16					Number of Non-Detect Data	13
1665											Percent Non-Detects	40.63%
1666												
1667					**Raw Statistics**						**Log-transformed Statistics**	
1668					Minimum Detected	0.67					Minimum Detected	-0.4
1669					Maximum Detected	52					Maximum Detected	3.951
1670					Mean of Detected	7.138					Mean of Detected	0.94
1671					SD of Detected	15.32					SD of Detected	1.165
1672					Minimum Non-Detect	3.6					Minimum Non-Detect	1.281
1673					Maximum Non-Detect	33					Maximum Non-Detect	3.497
1674												
1675	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	30
1676	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
1677	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.75%
1678												
1679						**UCL Statistics**							
1680					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1681					Shapiro Wilk Test Statistic	0.42					Shapiro Wilk Test Statistic	0.772
1682					5% Shapiro Wilk Critical Value	0.901					5% Shapiro Wilk Critical Value	0.901
1683					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
1684												
1685					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1686					DL/2 Substitution Method						DL/2 Substitution Method	
1687					Mean	10.08					Mean	1.602
1688					SD	12.45					SD	1.26
1689					95% DL/2 (t) UCL	13.81					95% H-Stat (DL/2) UCL	19.69
1690												
1691					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1692					**MLE method failed to converge properly**						Mean in Log Scale	0.855
1693											SD in Log Scale	0.952
1694											Mean in Original Scale	5.193
1695											SD in Original Scale	11.94
1696											95% Percentile Bootstrap UCL	8.548

1697											95% BCA Bootstrap UCL	9.975
1698												
1699	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1700					k star (bias corrected)	0.542	**Data do not follow a Discernable Distribution (0.05)**					
1701					Theta Star	13.16						
1702					nu star	20.61						
1703												
1704					A-D Test Statistic	3.285	**Nonparametric Statistics**					
1705					5% A-D Critical Value	0.793	Kaplan-Meier (KM) Method					
1706					K-S Test Statistic	0.793	Mean	5.059				
1707					5% K-S Critical Value	0.208	SD	11.77				
1708	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	2.143				
1709							95% KM (t) UCL	8.692				
1710	**Assuming Gamma Distribution**						95% KM (z) UCL	8.584				
1711				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	8.653				
1712					Minimum	0.67	95% KM (bootstrap t) UCL	36.89				
1713					Maximum	52	95% KM (BCA) UCL	9.631				
1714					Mean	6.884	95% KM (Percentile Bootstrap) UCL	8.576				
1715					Median	2.8	95% KM (Chebyshev) UCL	14.4				
1716					SD	11.95	97.5% KM (Chebyshev) UCL	18.44				
1717					k star	0.783	99% KM (Chebyshev) UCL	26.38				
1718					Theta star	8.795						
1719					Nu star	50.1	**Potential UCLs to Use**					
1720					AppChi2	34.84	97.5% KM (Chebyshev) UCL	18.44				
1721					95% Gamma Approximate UCL	9.897						
1722					95% Adjusted Gamma UCL	10.09						
1723	**Note: DL/2 is not a recommended method.**											
1724												
1725												
1726	**Dibenzothiophene**											
1727												
1728	**General Statistics**											
1729					Number of Valid Data	18	Number of Detected Data	12				
1730					Number of Distinct Detected Data	12	Number of Non-Detect Data	6				
1731							Percent Non-Detects	33.33%				
1732												
1733	**Raw Statistics**						**Log-transformed Statistics**					
1734					Minimum Detected	0.27	Minimum Detected	-1.309				
1735					Maximum Detected	11	Maximum Detected	2.398				
1736					Mean of Detected	2.558	Mean of Detected	0.421				
1737					SD of Detected	3.121	SD of Detected	1.033				
1738					Minimum Non-Detect	0.23	Minimum Non-Detect	-1.47				
1739					Maximum Non-Detect	2	Maximum Non-Detect	0.693				
1740												
1741	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	14				
1742	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	4				
1743	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	77.78%				
1744												
1745	**UCL Statistics**											
1746	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1747					Shapiro Wilk Test Statistic	0.696	Shapiro Wilk Test Statistic	0.967				
1748					5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859				
1749	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

1750												
1751	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1752	DL/2 Substitution Method						DL/2 Substitution Method					
1753	Mean				1.811		Mean					-0.216
1754	SD				2.741		SD					1.327
1755	95% DL/2 (t) UCL				2.935		95% H-Stat (DL/2) UCL					4.029
1756												
1757	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
1758	**MLE yields a negative mean**						Mean in Log Scale					-0.262
1759							SD in Log Scale					1.33
1760							Mean in Original Scale					1.78
1761							SD in Original Scale					2.755
1762							95% Percentile Bootstrap UCL					2.893
1763							95% BCA Bootstrap UCL					3.256
1764												
1765	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1766	k star (bias corrected)				0.883		**Data appear Gamma Distributed at 5% Significance Level**					
1767	Theta Star				2.898							
1768	nu star				21.18							
1769												
1770	A-D Test Statistic				0.588		**Nonparametric Statistics**					
1771	5% A-D Critical Value				0.754		Kaplan-Meier (KM) Method					
1772	K-S Test Statistic				0.754		Mean					1.825
1773	5% K-S Critical Value				0.252		SD					2.655
1774	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.654
1775							95% KM (t) UCL					2.963
1776	**Assuming Gamma Distribution**						95% KM (z) UCL					2.901
1777	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.908
1778	Minimum				1E-09		95% KM (bootstrap t) UCL					4.642
1779	Maximum				11		95% KM (BCA) UCL					3.126
1780	Mean				1.95		95% KM (Percentile Bootstrap) UCL					2.987
1781	Median				1.02		95% KM (Chebyshev) UCL					4.677
1782	SD				2.723		97.5% KM (Chebyshev) UCL					5.911
1783	k star				0.251		99% KM (Chebyshev) UCL					8.335
1784	Theta star				7.771							
1785	Nu star				9.034		**Potential UCLs to Use**					
1786	AppChi2				3.347		95% KM (BCA) UCL					3.126
1787	95% Gamma Approximate UCL				5.262							
1788	95% Adjusted Gamma UCL				5.828							
1789	**Note: DL/2 is not a recommended method.**											
1790												
1791												
1792	**Dibutyltin ion**											
1793												
1794	**General Statistics**											
1795	Number of Valid Data				18		Number of Detected Data					16
1796	Number of Distinct Detected Data				13		Number of Non-Detect Data					2
1797							Percent Non-Detects					11.11%
1798												
1799	**Raw Statistics**						**Log-transformed Statistics**					
1800	Minimum Detected				0.37		Minimum Detected					-0.994
1801	Maximum Detected				1.1		Maximum Detected					0.0953
1802	Mean of Detected				0.519		Mean of Detected					-0.705

	A	B	C	D	E	F	G	H	I	J	K	L
1803					SD of Detected	0.192					SD of Detected	0.302
1804					Minimum Non-Detect	0.69					Minimum Non-Detect	-0.371
1805					Maximum Non-Detect	0.79					Maximum Non-Detect	-0.236
1806												
1807	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	17
1808	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
1809	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.44%
1810												
1811	**UCL Statistics**											
1812	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1813					Shapiro Wilk Test Statistic	0.739					Shapiro Wilk Test Statistic	0.835
1814					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
1815	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1816												
1817	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1818					DL/2 Substitution Method						DL/2 Substitution Method	
1819					Mean	0.502					Mean	-0.737
1820					SD	0.186					SD	0.3
1821					95% DL/2 (t) UCL	0.579					95% H-Stat (DL/2) UCL	0.578
1822												
1823					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1824	**MLE method failed to converge properly**										Mean in Log Scale	-0.71
1825											SD in Log Scale	0.284
1826											Mean in Original Scale	0.514
1827											SD in Original Scale	0.181
1828											95% Percentile Bootstrap UCL	0.59
1829											95% BCA Bootstrap UCL	0.609
1830												
1831	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1832					k star (bias corrected)	8.542	**Data do not follow a Discernable Distribution (0.05)**					
1833					Theta Star	0.0607						
1834					nu star	273.3						
1835												
1836					A-D Test Statistic	1.156	**Nonparametric Statistics**					
1837					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
1838					K-S Test Statistic	0.739					Mean	0.513
1839					5% K-S Critical Value	0.215					SD	0.179
1840	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0444
1841											95% KM (t) UCL	0.591
1842	**Assuming Gamma Distribution**										95% KM (z) UCL	0.586
1843					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.59
1844					Minimum	0.37					95% KM (bootstrap t) UCL	0.639
1845					Maximum	1.1					95% KM (BCA) UCL	0.589
1846					Mean	0.521					95% KM (Percentile Bootstrap) UCL	0.592
1847					Median	0.445					95% KM (Chebyshev) UCL	0.707
1848					SD	0.18					97.5% KM (Chebyshev) UCL	0.79
1849					k star	9.812					99% KM (Chebyshev) UCL	0.955
1850					Theta star	0.0531						
1851					Nu star	353.2	**Potential UCLs to Use**					
1852					AppChi2	310.7					95% KM (Chebyshev) UCL	0.707
1853					95% Gamma Approximate UCL	0.592						
1854					95% Adjusted Gamma UCL	0.6						
1855	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
1856												
1857												
1858	**Dieldrin**											
1859												
1860						**General Statistics**							
1861					Number of Valid Data	22			Number of Detected Data	19		
1862					Number of Distinct Detected Data	19			Number of Non-Detect Data	3		
1863					Number of Missing Values	9			Percent Non-Detects	13.64%		
1864												
1865					**Raw Statistics**				**Log-transformed Statistics**			
1866					Minimum Detected	1.38			Minimum Detected	0.322		
1867					Maximum Detected	7.3			Maximum Detected	1.988		
1868					Mean of Detected	2.432			Mean of Detected	0.812		
1869					SD of Detected	1.27			SD of Detected	0.362		
1870					Minimum Non-Detect	4			Minimum Non-Detect	1.386		
1871					Maximum Non-Detect	5.8			Maximum Non-Detect	1.758		
1872												
1873	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	21		
1874	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	1		
1875	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	95.45%		
1876												
1877						**UCL Statistics**							
1878					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
1879					Shapiro Wilk Test Statistic	0.599			Shapiro Wilk Test Statistic	0.841		
1880					5% Shapiro Wilk Critical Value	0.901			5% Shapiro Wilk Critical Value	0.901		
1881					**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**			
1882												
1883					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
1884					DL/2 Substitution Method				DL/2 Substitution Method			
1885					Mean	2.448			Mean	0.827		
1886					SD	1.186			SD	0.343		
1887					95% DL/2 (t) UCL	2.883			95% H-Stat (DL/2) UCL	2.785		
1888												
1889					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1890					**MLE method failed to converge properly**				Mean in Log Scale	0.807		
1891									SD in Log Scale	0.335		
1892									Mean in Original Scale	2.398		
1893									SD in Original Scale	1.179		
1894									95% Percentile Bootstrap UCL	2.861		
1895									95% BCA Bootstrap UCL	3.028		
1896												
1897					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
1898					k star (bias corrected)	5.638			**Data do not follow a Discernable Distribution (0.05)**			
1899					Theta Star	0.431						
1900					nu star	214.2						
1901												
1902					A-D Test Statistic	1.186			**Nonparametric Statistics**			
1903					5% A-D Critical Value	0.742			Kaplan-Meier (KM) Method			
1904					K-S Test Statistic	0.742			Mean	2.395		
1905					5% K-S Critical Value	0.199			SD	1.166		
1906					**Data not Gamma Distributed at 5% Significance Level**				SE of Mean	0.259		
1907									95% KM (t) UCL	2.84		
1908					**Assuming Gamma Distribution**				95% KM (z) UCL	2.82		

1909	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		2.839
1910					Minimum	1.38				95% KM (bootstrap t) UCL		3.241
1911					Maximum	7.3				95% KM (BCA) UCL		2.892
1912					Mean	2.445				95% KM (Percentile Bootstrap) UCL		2.857
1913					Median	2.36				95% KM (Chebyshev) UCL		3.522
1914					SD	1.177				97.5% KM (Chebyshev) UCL		4.01
1915					k star	6.652				99% KM (Chebyshev) UCL		4.969
1916					Theta star	0.368						
1917					Nu star	292.7	**Potential UCLs to Use**					
1918					AppChi2	254.1				95% KM (Chebyshev) UCL		3.522
1919				95% Gamma Approximate UCL		2.817						
1920				95% Adjusted Gamma UCL		2.847						
1921	**Note: DL/2 is not a recommended method.**											
1922												
1923												
1924	**Endrin**											
1925												
1926	**General Statistics**											
1927				Number of Valid Data		18	Number of Detected Data					15
1928				Number of Distinct Detected Data		10	Number of Non-Detect Data					3
1929							Percent Non-Detects					16.67%
1930												
1931	**Raw Statistics**						**Log-transformed Statistics**					
1932				Minimum Detected		0.013	Minimum Detected					-4.343
1933				Maximum Detected		0.054	Maximum Detected					-2.919
1934				Mean of Detected		0.0224	Mean of Detected					-3.882
1935				SD of Detected		0.0109	SD of Detected					0.404
1936				Minimum Non-Detect		0.017	Minimum Non-Detect					-4.075
1937				Maximum Non-Detect		0.0249	Maximum Non-Detect					-3.693
1938												
1939	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					13
1940	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					5
1941	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					72.22%
1942												
1943	**UCL Statistics**											
1944	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1945				Shapiro Wilk Test Statistic		0.762	Shapiro Wilk Test Statistic					0.871
1946				5% Shapiro Wilk Critical Value		0.881	5% Shapiro Wilk Critical Value					0.881
1947	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1948												
1949	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1950				DL/2 Substitution Method			DL/2 Substitution Method					
1951				Mean		0.0204	Mean					-4.005
1952				SD		0.011	SD					0.469
1953				95% DL/2 (t) UCL		0.0249	95% H-Stat (DL/2) UCL					0.0255
1954												
1955				Maximum Likelihood Estimate(MLE) Method			Log ROS Method					
1956				Mean		0.0375	Mean in Log Scale					-3.927
1957				SD		0.00964	SD in Log Scale					0.382
1958				95% MLE (t) UCL		0.0414	Mean in Original Scale					0.0213
1959				95% MLE (Tiku) UCL		0.0446	SD in Original Scale					0.0102
1960							95% Percentile Bootstrap UCL					0.0255
1961							95% BCA Bootstrap UCL					0.0266

1962												
1963	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1964					k star (bias corrected)	4.88	**Data do not follow a Discernable Distribution (0.05)**					
1965					Theta Star	0.0046						
1966					nu star	146.4						
1967												
1968					A-D Test Statistic	0.945	**Nonparametric Statistics**					
1969					5% A-D Critical Value	0.738					Kaplan-Meier (KM) Method	
1970					K-S Test Statistic	0.738					Mean	0.0213
1971					5% K-S Critical Value	0.222					SD	0.00997
1972	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.00244
1973											95% KM (t) UCL	0.0255
1974	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0253
1975					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0255
1976					Minimum	0.013					95% KM (bootstrap t) UCL	0.0281
1977					Maximum	0.054					95% KM (BCA) UCL	0.0258
1978					Mean	0.022					95% KM (Percentile Bootstrap) UCL	0.0254
1979					Median	0.0185					95% KM (Chebyshev) UCL	0.0319
1980					SD	0.00995					97.5% KM (Chebyshev) UCL	0.0365
1981					k star	5.893					99% KM (Chebyshev) UCL	0.0455
1982					Theta star	0.00373						
1983					Nu star	212.2	**Potential UCLs to Use**					
1984					AppChi2	179.4					95% KM (Chebyshev) UCL	0.0319
1985					95% Gamma Approximate UCL	0.026						
1986					95% Adjusted Gamma UCL	0.0264						
1987	**Note: DL/2 is not a recommended method.**											
1988												
1989												
1990	**Fluoranthene**											
1991												
1992	**General Statistics**											
1993					Number of Valid Data	32					Number of Detected Data	11
1994					Number of Distinct Detected Data	11					Number of Non-Detect Data	21
1995											Percent Non-Detects	65.63%
1996												
1997	**Raw Statistics**						**Log-transformed Statistics**					
1998					Minimum Detected	0.61					Minimum Detected	-0.494
1999					Maximum Detected	36					Maximum Detected	3.584
2000					Mean of Detected	9.738					Mean of Detected	1.668
2001					SD of Detected	10.19					SD of Detected	1.308
2002					Minimum Non-Detect	0.4					Minimum Non-Detect	-0.916
2003					Maximum Non-Detect	33					Maximum Non-Detect	3.497
2004												
2005	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	31
2006	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
2007	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.88%
2008												
2009	**UCL Statistics**											
2010	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2011					Shapiro Wilk Test Statistic	0.801					Shapiro Wilk Test Statistic	0.924
2012					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
2013	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2014												

	A	B	C	D	E	F	G	H	I	J	K	L
2015	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2016					DL/2 Substitution Method						DL/2 Substitution Method	
2017					Mean	9.711					Mean	1.377
2018					SD	8.395					SD	1.78
2019					95% DL/2 (t) UCL	12.23					95% H-Stat (DL/2) UCL	48.24
2020												
2021					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2022	**MLE method failed to converge properly**										Mean in Log Scale	0.433
2023											SD in Log Scale	1.413
2024											Mean in Original Scale	4.23
2025											SD in Original Scale	7.178
2026											95% Percentile Bootstrap UCL	6.364
2027											95% BCA Bootstrap UCL	7.17
2028												
2029	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2030					k star (bias corrected)	0.755	**Data appear Gamma Distributed at 5% Significance Level**					
2031					Theta Star	12.9						
2032					nu star	16.61						
2033												
2034					A-D Test Statistic	0.346	**Nonparametric Statistics**					
2035					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
2036					K-S Test Statistic	0.754					Mean	5.216
2037					5% K-S Critical Value	0.263					SD	7.462
2038	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.593
2039											95% KM (t) UCL	7.917
2040	**Assuming Gamma Distribution**										95% KM (z) UCL	7.837
2041					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	7.81
2042					Minimum	0.61					95% KM (bootstrap t) UCL	8.723
2043					Maximum	40.17					95% KM (BCA) UCL	8.455
2044					Mean	13.12					95% KM (Percentile Bootstrap) UCL	8.292
2045					Median	10.05					95% KM (Chebyshev) UCL	12.16
2046					SD	11.57					97.5% KM (Chebyshev) UCL	15.16
2047					k star	1.161					99% KM (Chebyshev) UCL	21.07
2048					Theta star	11.3						
2049					Nu star	74.32	**Potential UCLs to Use**					
2050					AppChi2	55.47					95% KM (t) UCL	7.917
2051					95% Gamma Approximate UCL	17.58						
2052					95% Adjusted Gamma UCL	17.86						
2053	**Note: DL/2 is not a recommended method.**											
2054												
2055												
2056	**Fluorene**											
2057												
2058						**General Statistics**						
2059					Number of Valid Data	32					Number of Detected Data	20
2060					Number of Distinct Detected Data	19					Number of Non-Detect Data	12
2061											Percent Non-Detects	37.50%
2062												
2063					**Raw Statistics**						**Log-transformed Statistics**	
2064					Minimum Detected	3.1					Minimum Detected	1.131
2065					Maximum Detected	69					Maximum Detected	4.234
2066					Mean of Detected	13					Mean of Detected	2.043
2067					SD of Detected	17.43					SD of Detected	0.929

2068					Minimum Non-Detect	4.3					Minimum Non-Detect	1.459
2069					Maximum Non-Detect	33					Maximum Non-Detect	3.497
2070												
2071	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	30
2072	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
2073	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.75%
2074												
2075	**UCL Statistics**											
2076	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2077					Shapiro Wilk Test Statistic	0.612					Shapiro Wilk Test Statistic	0.846
2078					5% Shapiro Wilk Critical Value	0.905					5% Shapiro Wilk Critical Value	0.905
2079	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2080												
2081	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2082					DL/2 Substitution Method						DL/2 Substitution Method	
2083					Mean	13.49					Mean	2.24
2084					SD	13.87					SD	0.844
2085					95% DL/2 (t) UCL	17.65					95% H-Stat (DL/2) UCL	17.31
2086												
2087					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2088	**MLE method failed to converge properly**										Mean in Log Scale	1.934
2089											SD in Log Scale	0.79
2090											Mean in Original Scale	10.5
2091											SD in Original Scale	14.14
2092											95% Percentile Bootstrap UCL	15.1
2093											95% BCA Bootstrap UCL	16.47
2094												
2095	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2096					k star (bias corrected)	0.964	**Data do not follow a Discernable Distribution (0.05)**					
2097					Theta Star	13.48						
2098					nu star	38.57						
2099												
2100					A-D Test Statistic	1.855	**Nonparametric Statistics**					
2101					5% A-D Critical Value	0.766					Kaplan-Meier (KM) Method	
2102					K-S Test Statistic	0.766					Mean	10.57
2103					5% K-S Critical Value	0.199					SD	14.15
2104	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	2.654
2105											95% KM (t) UCL	15.07
2106	**Assuming Gamma Distribution**										95% KM (z) UCL	14.94
2107					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	15.04
2108					Minimum	3.1					95% KM (bootstrap t) UCL	18.98
2109					Maximum	69					95% KM (BCA) UCL	15.3
2110					Mean	12.95					95% KM (Percentile Bootstrap) UCL	15.07
2111					Median	9.86					95% KM (Chebyshev) UCL	22.14
2112					SD	13.73					97.5% KM (Chebyshev) UCL	27.15
2113					k star	1.516					99% KM (Chebyshev) UCL	36.98
2114					Theta star	8.546						
2115					Nu star	97.02	**Potential UCLs to Use**					
2116					AppChi2	75.3					95% KM (BCA) UCL	15.3
2117					95% Gamma Approximate UCL	16.69						
2118					95% Adjusted Gamma UCL	16.92						
2119	**Note: DL/2 is not a recommended method.**											
2120												

2121												
2122	**gamma-Hexachlorocyclohexane**											
2123												
2124	**General Statistics**											
2125					Number of Valid Data	18			Number of Detected Data			12
2126					Number of Distinct Detected Data	9			Number of Non-Detect Data			6
2127									Percent Non-Detects			33.33%
2128												
2129	**Raw Statistics**						**Log-transformed Statistics**					
2130					Minimum Detected	0.014			Minimum Detected			-4.269
2131					Maximum Detected	0.035			Maximum Detected			-3.352
2132					Mean of Detected	0.0244			Mean of Detected			-3.746
2133					SD of Detected	0.00653			SD of Detected			0.274
2134					Minimum Non-Detect	0.02			Minimum Non-Detect			-3.912
2135					Maximum Non-Detect	0.028			Maximum Non-Detect			-3.576
2136												
2137	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			15
2138	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			3
2139	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			83.33%
2140												
2141	**UCL Statistics**											
2142	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2143					Shapiro Wilk Test Statistic	0.955			Shapiro Wilk Test Statistic			0.966
2144					5% Shapiro Wilk Critical Value	0.859			5% Shapiro Wilk Critical Value			0.859
2145	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2146												
2147	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2148					DL/2 Substitution Method				DL/2 Substitution Method			
2149					Mean	0.0204			Mean			-3.967
2150					SD	0.00793			SD			0.394
2151					95% DL/2 (t) UCL	0.0236			95% H-Stat (DL/2) UCL			0.0239
2152												
2153					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
2154	**MLE method failed to converge properly**								Mean in Log Scale			-3.82
2155									SD in Log Scale			0.25
2156									Mean in Original Scale			0.0226
2157									SD in Original Scale			0.00594
2158									95% Percentile Bootstrap UCL			0.0249
2159									95% BCA Bootstrap UCL			0.0252
2160												
2161	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2162					k star (bias corrected)	11.33	**Data appear Normal at 5% Significance Level**					
2163					Theta Star	0.00215						
2164					nu star	272						
2165												
2166					A-D Test Statistic	0.202	**Nonparametric Statistics**					
2167					5% A-D Critical Value	0.731			Kaplan-Meier (KM) Method			
2168					K-S Test Statistic	0.731			Mean			0.0226
2169					5% K-S Critical Value	0.245			SD			0.0061
2170	**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean			0.00162
2171									95% KM (t) UCL			0.0254
2172	**Assuming Gamma Distribution**								95% KM (z) UCL			0.0253
2173					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL			0.0255

2174					Minimum	0.014				95% KM (bootstrap t) UCL		0.0255
2175					Maximum	0.035				95% KM (BCA) UCL		0.0255
2176					Mean	0.0242				95% KM (Percentile Bootstrap) UCL		0.0254
2177					Median	0.0243				95% KM (Chebyshev) UCL		0.0297
2178					SD	0.00548				97.5% KM (Chebyshev) UCL		0.0327
2179					k star	17.01				99% KM (Chebyshev) UCL		0.0387
2180					Theta star	0.00142						
2181					Nu star	612.3				**Potential UCLs to Use**		
2182					AppChi2	555.9				95% KM (t) UCL		0.0254
2183					95% Gamma Approximate UCL	0.0266				95% KM (Percentile Bootstrap) UCL		0.0254
2184					95% Adjusted Gamma UCL	0.0269						
2185	**Note: DL/2 is not a recommended method.**											
2186												
2187												
2188	**Heptachlor**											
2189												
2190						**General Statistics**						
2191					Number of Valid Data	17				Number of Detected Data		9
2192					Number of Distinct Detected Data	9				Number of Non-Detect Data		8
2193					Number of Missing Values	1				Percent Non-Detects		47.06%
2194												
2195					**Raw Statistics**					**Log-transformed Statistics**		
2196					Minimum Detected	0.0057				Minimum Detected		-5.167
2197					Maximum Detected	0.0272				Maximum Detected		-3.605
2198					Mean of Detected	0.0114				Mean of Detected		-4.585
2199					SD of Detected	0.00648				SD of Detected		0.469
2200					Minimum Non-Detect	0.0039				Minimum Non-Detect		-5.547
2201					Maximum Non-Detect	0.0193				Maximum Non-Detect		-3.948
2202												
2203	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		16
2204	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
2205	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		94.12%
2206												
2207	**Warning: There are only 9 Detected Values in this data**											
2208	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2209	**the resulting calculations may not be reliable enough tp draw conclusions**											
2210												
2211	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2212												
2213												
2214						**UCL Statistics**						
2215					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
2216					Shapiro Wilk Test Statistic	0.769				Shapiro Wilk Test Statistic		0.929
2217					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
2218					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
2219												
2220					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
2221					DL/2 Substitution Method					DL/2 Substitution Method		
2222					Mean	0.00916				Mean		-4.846
2223					SD	0.00554				SD		0.59
2224					95% DL/2 (t) UCL	0.0115				95% H-Stat (DL/2) UCL		0.0112
2225												
2226					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		

2227	MLE method failed to converge properly									Mean in Log Scale		-4.799
2228										SD in Log Scale		0.459
2229										Mean in Original Scale		0.00919
2230										SD in Original Scale		0.0053
2231										95% Percentile Bootstrap UCL		0.0114
2232										95% BCA Bootstrap UCL		0.0123
2233												
2234	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
2235				k star (bias corrected)		3.236	Data appear Gamma Distributed at 5% Significance Level					
2236				Theta Star		0.00352						
2237				nu star		58.24						
2238												
2239				A-D Test Statistic		0.441	Nonparametric Statistics					
2240				5% A-D Critical Value		0.723	Kaplan-Meier (KM) Method					
2241				K-S Test Statistic		0.723	Mean					0.0097
2242				5% K-S Critical Value		0.28	SD					0.00511
2243	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00141
2244							95% KM (t) UCL					0.0122
2245	Assuming Gamma Distribution						95% KM (z) UCL					0.012
2246				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL					0.0121
2247				Minimum		0.00391	95% KM (bootstrap t) UCL					0.0135
2248				Maximum		0.0272	95% KM (BCA) UCL					0.0125
2249				Mean		0.011	95% KM (Percentile Bootstrap) UCL					0.0123
2250				Median		0.012	95% KM (Chebyshev) UCL					0.0158
2251				SD		0.00535	97.5% KM (Chebyshev) UCL					0.0185
2252				k star		3.976	99% KM (Chebyshev) UCL					0.0237
2253				Theta star		0.00277						
2254				Nu star		135.2	Potential UCLs to Use					
2255				AppChi2		109.3	95% KM (t) UCL					0.0122
2256				95% Gamma Approximate UCL		0.0136						
2257				95% Adjusted Gamma UCL		0.0139						
2258	Note: DL/2 is not a recommended method.											
2259												
2260												
2261	Heptachlor epoxide											
2262												
2263	General Statistics											
2264				Number of Valid Observations		18	Number of Distinct Observations					14
2265												
2266	Raw Statistics						Log-transformed Statistics					
2267				Minimum		0.073	Minimum of Log Data					-2.617
2268				Maximum		0.18	Maximum of Log Data					-1.715
2269				Mean		0.113	Mean of log Data					-2.207
2270				Median		0.105	SD of log Data					0.241
2271				SD		0.0282						
2272				Coefficient of Variation		0.249						
2273				Skewness		0.782						
2274												
2275	Relevant UCL Statistics											
2276	Normal Distribution Test						Lognormal Distribution Test					
2277				Shapiro Wilk Test Statistic		0.937	Shapiro Wilk Test Statistic					0.968
2278				Shapiro Wilk Critical Value		0.897	Shapiro Wilk Critical Value					0.897
2279	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					

2280												
2281	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2282				95% Student's-t UCL	0.125					95% H-UCL	0.126	
2283	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.141	
2284				95% Adjusted-CLT UCL	0.125					97.5% Chebyshev (MVUE) UCL	0.153	
2285				95% Modified-t UCL	0.125					99% Chebyshev (MVUE) UCL	0.177	
2286												
2287	**Gamma Distribution Test**						**Data Distribution**					
2288				k star (bias corrected)	15.13		**Data appear Normal at 5% Significance Level**					
2289				Theta Star	0.00747							
2290				nu star	544.8							
2291				Approximate Chi Square Value (.05)	491.7		**Nonparametric Statistics**					
2292				Adjusted Level of Significance	0.0357					95% CLT UCL	0.124	
2293				Adjusted Chi Square Value	486.8					95% Jackknife UCL	0.125	
2294										95% Standard Bootstrap UCL	0.123	
2295				Anderson-Darling Test Statistic	0.354					95% Bootstrap-t UCL	0.127	
2296				Anderson-Darling 5% Critical Value	0.739					95% Hall's Bootstrap UCL	0.126	
2297				Kolmogorov-Smirnov Test Statistic	0.168					95% Percentile Bootstrap UCL	0.124	
2298				Kolmogorov-Smirnov 5% Critical Value	0.203					95% BCA Bootstrap UCL	0.124	
2299	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.142	
2300										97.5% Chebyshev(Mean, Sd) UCL	0.155	
2301	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.179	
2302				95% Approximate Gamma UCL	0.125							
2303				95% Adjusted Gamma UCL	0.127							
2304												
2305	**Potential UCL to Use**									Use 95% Student's-t UCL	0.125	
2306												
2307												
2308	**Hexachlorobenzene**											
2309												
2310	**General Statistics**											
2311				Number of Valid Data	20					Number of Detected Data	18	
2312				Number of Distinct Detected Data	18					Number of Non-Detect Data	2	
2313				Number of Missing Values	6					Percent Non-Detects	10.00%	
2314												
2315	**Raw Statistics**						**Log-transformed Statistics**					
2316				Minimum Detected	1.67					Minimum Detected	0.513	
2317				Maximum Detected	4.79					Maximum Detected	1.567	
2318				Mean of Detected	2.197					Mean of Detected	0.753	
2319				SD of Detected	0.712					SD of Detected	0.246	
2320				Minimum Non-Detect	1					Minimum Non-Detect	0	
2321				Maximum Non-Detect	4					Maximum Non-Detect	1.386	
2322												
2323	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	19	
2324	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	1	
2325	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	95.00%	
2326												
2327	**UCL Statistics**											
2328	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2329				Shapiro Wilk Test Statistic	0.63					Shapiro Wilk Test Statistic	0.777	
2330				5% Shapiro Wilk Critical Value	0.897					5% Shapiro Wilk Critical Value	0.897	
2331	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2332												

	A	B	C	D	E	F	G	H	I	J	K	L
2333	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2334					DL/2 Substitution Method						DL/2 Substitution Method	
2335					Mean	2.103					Mean	0.678
2336					SD	0.773					SD	0.398
2337					95% DL/2 (t) UCL	2.401					95% H-Stat (DL/2) UCL	2.194
2338												
2339					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2340	**MLE method failed to converge properly**										Mean in Log Scale	0.724
2341											SD in Log Scale	0.262
2342											Mean in Original Scale	2.141
2343											SD in Original Scale	0.707
2344											95% Percentile Bootstrap UCL	2.405
2345											95% BCA Bootstrap UCL	2.526
2346												
2347	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2348					k star (bias corrected)	12.41	**Data do not follow a Discernable Distribution (0.05)**					
2349					Theta Star	0.177						
2350					nu star	446.7						
2351												
2352					A-D Test Statistic	1.443	**Nonparametric Statistics**					
2353					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
2354					K-S Test Statistic	0.739					Mean	2.162
2355					5% K-S Critical Value	0.203					SD	0.671
2356	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.155
2357											95% KM (t) UCL	2.43
2358	**Assuming Gamma Distribution**										95% KM (z) UCL	2.417
2359					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.429
2360					Minimum	1.091					95% KM (bootstrap t) UCL	2.737
2361					Maximum	4.79					95% KM (BCA) UCL	2.45
2362					Mean	2.147					95% KM (Percentile Bootstrap) UCL	2.42
2363					Median	1.985					95% KM (Chebyshev) UCL	2.838
2364					SD	0.718					97.5% KM (Chebyshev) UCL	3.131
2365					k star	10.73					99% KM (Chebyshev) UCL	3.705
2366					Theta star	0.2						
2367					Nu star	429	**Potential UCLs to Use**					
2368					AppChi2	382					95% KM (Chebyshev) UCL	2.838
2369					95% Gamma Approximate UCL	2.411						
2370					95% Adjusted Gamma UCL	2.433						
2371	**Note: DL/2 is not a recommended method.**											
2372												
2373												
2374	**Hexachlorobutadiene**											
2375												
2376	**General Statistics**											
2377					Number of Valid Data	19					Number of Detected Data	11
2378					Number of Distinct Detected Data	11					Number of Non-Detect Data	8
2379					Number of Missing Values	5					Percent Non-Detects	42.11%
2380												
2381	**Raw Statistics**						**Log-transformed Statistics**					
2382					Minimum Detected	0.0052					Minimum Detected	-5.259
2383					Maximum Detected	1.4					Maximum Detected	0.336
2384					Mean of Detected	0.19					Mean of Detected	-2.933
2385					SD of Detected	0.408					SD of Detected	1.571

2386					Minimum Non-Detect	0.017					Minimum Non-Detect	-4.075
2387					Maximum Non-Detect	1					Maximum Non-Detect	0
2388												
2389	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
2390	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
2391	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.74%
2392												
2393	**UCL Statistics**											
2394	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2395					Shapiro Wilk Test Statistic	0.488					Shapiro Wilk Test Statistic	0.973
2396					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
2397	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2398												
2399	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2400					DL/2 Substitution Method						DL/2 Substitution Method	
2401					Mean	0.14					Mean	-3.408
2402					SD	0.328					SD	1.569
2403					95% DL/2 (t) UCL	0.271					95% H-Stat (DL/2) UCL	0.234
2404												
2405					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2406	**MLE method failed to converge properly**										Mean in Log Scale	-3.798
2407											SD in Log Scale	1.6
2408											Mean in Original Scale	0.113
2409											SD in Original Scale	0.318
2410											95% Percentile Bootstrap UCL	0.25
2411											95% BCA Bootstrap UCL	0.33
2412												
2413	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2414					k star (bias corrected)	0.424	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
2415					Theta Star	0.447						
2416					nu star	9.337						
2417												
2418					A-D Test Statistic	0.797	**Nonparametric Statistics**					
2419					5% A-D Critical Value	0.781					Kaplan-Meier (KM) Method	
2420					K-S Test Statistic	0.781					Mean	0.115
2421					5% K-S Critical Value	0.269					SD	0.309
2422	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	0.0745
2423											95% KM (t) UCL	0.244
2424	**Assuming Gamma Distribution**										95% KM (z) UCL	0.238
2425					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.242
2426					Minimum	1E-09					95% KM (bootstrap t) UCL	0.854
2427					Maximum	1.4					95% KM (BCA) UCL	0.268
2428					Mean	0.143					95% KM (Percentile Bootstrap) UCL	0.252
2429					Median	0.0392					95% KM (Chebyshev) UCL	0.44
2430					SD	0.319					97.5% KM (Chebyshev) UCL	0.58
2431					k star	0.304					99% KM (Chebyshev) UCL	0.856
2432					Theta star	0.47						
2433					Nu star	11.57	**Potential UCLs to Use**					
2434					AppChi2	4.946					95% KM (BCA) UCL	0.268
2435					95% Gamma Approximate UCL	0.335						
2436					95% Adjusted Gamma UCL	0.362						
2437	**Note: DL/2 is not a recommended method.**											
2438												

	A	B	C	D	E	F	G	H	I	J	K	L
2439												
2440	**Indeno(1,2,3-cd)pyrene**											
2441												
2442						**General Statistics**						
2443						Number of Valid Data	18				Number of Detected Data	7
2444						Number of Distinct Detected Data	6				Number of Non-Detect Data	11
2445											Percent Non-Detects	61.11%
2446												
2447				**Raw Statistics**					**Log-transformed Statistics**			
2448						Minimum Detected	0.12				Minimum Detected	-2.12
2449						Maximum Detected	1.8				Maximum Detected	0.588
2450						Mean of Detected	0.58				Mean of Detected	-1.128
2451						SD of Detected	0.666				SD of Detected	1.156
2452						Minimum Non-Detect	0.2				Minimum Non-Detect	-1.609
2453						Maximum Non-Detect	0.51				Maximum Non-Detect	-0.673
2454												
2455	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
2456	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
2457	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.33%
2458												
2459						**Warning: There are only 7 Detected Values in this data**							
2460						**Note: It should be noted that even though bootstrap may be performed on this data set**						
2461						**the resulting calculations may not be reliable enough tp draw conclusions**						
2462												
2463						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**						
2464												
2465												
2466						**UCL Statistics**						
2467				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
2468						Shapiro Wilk Test Statistic	0.765				Shapiro Wilk Test Statistic	0.829
2469						5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value	0.803
2470				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
2471												
2472				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
2473						DL/2 Substitution Method					DL/2 Substitution Method	
2474						Mean	0.319				Mean	-1.637
2475						SD	0.453				SD	0.868
2476						95% DL/2 (t) UCL	0.505				95% H-Stat (DL/2) UCL	0.526
2477												
2478						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
2479						**MLE yields a negative mean**					Mean in Log Scale	-1.591
2480											SD in Log Scale	0.87
2481											Mean in Original Scale	0.329
2482											SD in Original Scale	0.451
2483											95% Percentile Bootstrap UCL	0.51
2484											95% BCA Bootstrap UCL	0.587
2485												
2486				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
2487						k star (bias corrected)	0.661		**Data appear Gamma Distributed at 5% Significance Level**			
2488						Theta Star	0.877					
2489						nu star	9.254					
2490												
2491						A-D Test Statistic	0.671		**Nonparametric Statistics**			

2492				5% A-D Critical Value	0.728					Kaplan-Meier (KM) Method		
2493				K-S Test Statistic	0.728					Mean		0.31
2494				5% K-S Critical Value	0.32					SD		0.441
2495				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.113
2496										95% KM (t) UCL		0.506
2497				**Assuming Gamma Distribution**						95% KM (z) UCL		0.495
2498				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.497
2499				Minimum	0.12					95% KM (bootstrap t) UCL		0.968
2500				Maximum	1.8					95% KM (BCA) UCL		0.532
2501				Mean	0.564					95% KM (Percentile Bootstrap) UCL		0.496
2502				Median	0.538					95% KM (Chebyshev) UCL		0.801
2503				SD	0.41					97.5% KM (Chebyshev) UCL		1.014
2504				k star	1.847					99% KM (Chebyshev) UCL		1.432
2505				Theta star	0.305							
2506				Nu star	66.51					**Potential UCLs to Use**		
2507				AppChi2	48.74					95% KM (t) UCL		0.506
2508				95% Gamma Approximate UCL	0.769							
2509				95% Adjusted Gamma UCL	0.793							
2510	**Note: DL/2 is not a recommended method.**											
2511												
2512												
2513	**Lead**											
2514	**Lead UCLs were recalculated with reanalysis of SMB sample. See additional file.**											
2515												
2516												
2517												
2518												
2519												
2520												
2521												
2522												
2523												
2524												
2525												
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2545												
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2552												
2553												
2554												
2555												
2556												
2557												
2558												
2559												
2560	**Manganese**											
2561												
2562						**General Statistics**							
2563						Number of Valid Observations	32				Number of Distinct Observations	32	
2564												
2565						**Raw Statistics**					**Log-transformed Statistics**	
2566						Minimum	0.445				Minimum of Log Data	-0.81
2567						Maximum	3.14				Maximum of Log Data	1.144
2568						Mean	1.702				Mean of log Data	0.443
2569						Median	1.82				SD of log Data	0.45
2570						SD	0.686					
2571						Coefficient of Variation	0.403					
2572						Skewness	0.275					
2573												
2574						**Relevant UCL Statistics**							
2575						**Normal Distribution Test**					**Lognormal Distribution Test**	
2576						Shapiro Wilk Test Statistic	0.962				Shapiro Wilk Test Statistic	0.948
2577						Shapiro Wilk Critical Value	0.93				Shapiro Wilk Critical Value	0.93
2578						**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
2579												
2580						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
2581						95% Student's-t UCL	1.908				95% H-UCL	2.006
2582						**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	2.333
2583						95% Adjusted-CLT UCL	1.908				97.5% Chebyshev (MVUE) UCL	2.6
2584						95% Modified-t UCL	1.909				99% Chebyshev (MVUE) UCL	3.125
2585												
2586						**Gamma Distribution Test**					**Data Distribution**	
2587						k star (bias corrected)	5.24				**Data appear Normal at 5% Significance Level**	
2588						Theta Star	0.325					
2589						nu star	335.3					
2590						Approximate Chi Square Value (.05)	293.9				**Nonparametric Statistics**	
2591						Adjusted Level of Significance	0.0416				95% CLT UCL	1.902
2592						Adjusted Chi Square Value	291.8				95% Jackknife UCL	1.908
2593											95% Standard Bootstrap UCL	1.895
2594						Anderson-Darling Test Statistic	0.435				95% Bootstrap-t UCL	1.924
2595						Anderson-Darling 5% Critical Value	0.748				95% Hall's Bootstrap UCL	1.915
2596						Kolmogorov-Smirnov Test Statistic	0.139				95% Percentile Bootstrap UCL	1.903
2597						Kolmogorov-Smirnov 5% Critical Value	0.156				95% BCA Bootstrap UCL	1.893

	A	B	C	D	E	F	G	H	I	J	K	L
2598	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		2.231
2599										97.5% Chebyshev(Mean, Sd) UCL		2.46
2600	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		2.909
2601					95% Approximate Gamma UCL	1.942						
2602					95% Adjusted Gamma UCL	1.956						
2603												
2604	**Potential UCL to Use**									Use 95% Student's-t UCL		1.908
2605												
2606												
2607	**Mercury**											
2608												
2609	**General Statistics**											
2610					Number of Valid Observations	32				Number of Distinct Observations		31
2611												
2612	**Raw Statistics**						**Log-transformed Statistics**					
2613					Minimum	0.0509				Minimum of Log Data		-2.978
2614					Maximum	0.166				Maximum of Log Data		-1.796
2615					Mean	0.0934				Mean of log Data		-2.414
2616					Median	0.0899				SD of log Data		0.3
2617					SD	0.0281						
2618					Coefficient of Variation	0.301						
2619					Skewness	0.673						
2620												
2621	**Relevant UCL Statistics**											
2622	**Normal Distribution Test**						**Lognormal Distribution Test**					
2623					Shapiro Wilk Test Statistic	0.959				Shapiro Wilk Test Statistic		0.981
2624					Shapiro Wilk Critical Value	0.93				Shapiro Wilk Critical Value		0.93
2625	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2626												
2627	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2628					95% Student's-t UCL	0.102				95% H-UCL		0.103
2629	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		0.115
2630					95% Adjusted-CLT UCL	0.102				97.5% Chebyshev (MVUE) UCL		0.125
2631					95% Modified-t UCL	0.102				99% Chebyshev (MVUE) UCL		0.144
2632												
2633	**Gamma Distribution Test**						**Data Distribution**					
2634					k star (bias corrected)	10.64	**Data appear Normal at 5% Significance Level**					
2635					Theta Star	0.00877						
2636					nu star	681.2						
2637					Approximate Chi Square Value (.05)	621.6	**Nonparametric Statistics**					
2638					Adjusted Level of Significance	0.0416				95% CLT UCL		0.102
2639					Adjusted Chi Square Value	618.6				95% Jackknife UCL		0.102
2640										95% Standard Bootstrap UCL		0.101
2641					Anderson-Darling Test Statistic	0.134				95% Bootstrap-t UCL		0.102
2642					Anderson-Darling 5% Critical Value	0.746				95% Hall's Bootstrap UCL		0.102
2643					Kolmogorov-Smirnov Test Statistic	0.0661				95% Percentile Bootstrap UCL		0.102
2644					Kolmogorov-Smirnov 5% Critical Value	0.155				95% BCA Bootstrap UCL		0.102
2645	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		0.115
2646										97.5% Chebyshev(Mean, Sd) UCL		0.124
2647	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		0.143
2648					95% Approximate Gamma UCL	0.102						
2649					95% Adjusted Gamma UCL	0.103						
2650												

2651	**Potential UCL to Use**									Use 95% Student's-t UCL		0.102
2652												
2653												
2654	**Naphthalene**											
2655												
2656	**General Statistics**											
2657	Number of Valid Data					32				Number of Detected Data		20
2658	Number of Distinct Detected Data					16				Number of Non-Detect Data		12
2659										Percent Non-Detects		37.50%
2660												
2661	**Raw Statistics**							**Log-transformed Statistics**				
2662	Minimum Detected					0.73		Minimum Detected				-0.315
2663	Maximum Detected					86		Maximum Detected				4.454
2664	Mean of Detected					10.04		Mean of Detected				1.141
2665	SD of Detected					21.28		SD of Detected				1.333
2666	Minimum Non-Detect					30		Minimum Non-Detect				3.401
2667	Maximum Non-Detect					33		Maximum Non-Detect				3.497
2668												
2669	Note: Data have multiple DLs - Use of KM Method is recommended							Number treated as Non-Detect				30
2670	For all methods (except KM, DL/2, and ROS Methods),							Number treated as Detected				2
2671	Observations < Largest ND are treated as NDs							Single DL Non-Detect Percentage				93.75%
2672												
2673	**UCL Statistics**											
2674	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
2675	Shapiro Wilk Test Statistic					0.486		Shapiro Wilk Test Statistic				0.83
2676	5% Shapiro Wilk Critical Value					0.905		5% Shapiro Wilk Critical Value				0.905
2677	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**				
2678												
2679	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
2680	DL/2 Substitution Method							DL/2 Substitution Method				
2681	Mean					12.18		Mean				1.747
2682	SD					16.9		SD				1.312
2683	95% DL/2 (t) UCL					17.24		95% H-Stat (DL/2) UCL				24.93
2684												
2685	Maximum Likelihood Estimate(MLE) Method					N/A		Log ROS Method				
2686	**MLE method failed to converge properly**							Mean in Log Scale				1.056
2687								SD in Log Scale				1.129
2688								Mean in Original Scale				7.43
2689								SD in Original Scale				17.05
2690								95% Percentile Bootstrap UCL				12.54
2691								95% BCA Bootstrap UCL				15.56
2692												
2693	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
2694	k star (bias corrected)					0.491		**Data do not follow a Discernable Distribution (0.05)**				
2695	Theta Star					20.42						
2696	nu star					19.66						
2697												
2698	A-D Test Statistic					2.567		**Nonparametric Statistics**				
2699	5% A-D Critical Value					0.799		Kaplan-Meier (KM) Method				
2700	K-S Test Statistic					0.799		Mean				7.601
2701	5% K-S Critical Value					0.204		SD				16.94
2702	**Data not Gamma Distributed at 5% Significance Level**							SE of Mean				3.144
2703								95% KM (t) UCL				12.93

	A	B	C	D	E	F	G	H	I	J	K	L
2704	**Assuming Gamma Distribution**										95% KM (z) UCL	12.77
2705	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	12.89
2706					Minimum	0.73					95% KM (bootstrap t) UCL	20.76
2707					Maximum	86					95% KM (BCA) UCL	13.9
2708					Mean	9.904					95% KM (Percentile Bootstrap) UCL	12.99
2709					Median	6.352					95% KM (Chebyshev) UCL	21.31
2710					SD	16.74					97.5% KM (Chebyshev) UCL	27.24
2711					k star	0.746					99% KM (Chebyshev) UCL	38.89
2712					Theta star	13.28						
2713					Nu star	47.72	**Potential UCLs to Use**					
2714					AppChi2	32.86					97.5% KM (Chebyshev) UCL	27.24
2715					95% Gamma Approximate UCL	14.38						
2716					95% Adjusted Gamma UCL	14.68						
2717	**Note: DL/2 is not a recommended method.**											
2718												
2719												
2720	**Nickel**											
2721												
2722	**General Statistics**											
2723					Number of Valid Data	32					Number of Detected Data	25
2724					Number of Distinct Detected Data	18					Number of Non-Detect Data	7
2725											Percent Non-Detects	21.88%
2726												
2727	**Raw Statistics**						**Log-transformed Statistics**					
2728					Minimum Detected	0.045					Minimum Detected	-3.101
2729					Maximum Detected	0.2					Maximum Detected	-1.609
2730					Mean of Detected	0.117					Mean of Detected	-2.277
2731					SD of Detected	0.0549					SD of Detected	0.54
2732					Minimum Non-Detect	0.02					Minimum Non-Detect	-3.912
2733					Maximum Non-Detect	0.07					Maximum Non-Detect	-2.659
2734												
2735	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
2736	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	18
2737	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	43.75%
2738												
2739	**UCL Statistics**											
2740	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2741					Shapiro Wilk Test Statistic	0.871					Shapiro Wilk Test Statistic	0.856
2742					5% Shapiro Wilk Critical Value	0.918					5% Shapiro Wilk Critical Value	0.918
2743	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2744												
2745	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2746					DL/2 Substitution Method						DL/2 Substitution Method	
2747					Mean	0.0959					Mean	-2.64
2748					SD	0.0627					SD	0.877
2749					95% DL/2 (t) UCL	0.115					95% H-Stat (DL/2) UCL	0.1
2750												
2751					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
2752					Mean	0.0869					Mean in Log Scale	-2.5
2753					SD	0.0752					SD in Log Scale	0.65
2754					95% MLE (t) UCL	0.109					Mean in Original Scale	0.0994
2755					95% MLE (Tiku) UCL	0.113					SD in Original Scale	0.0587
2756											95% Percentile Bootstrap UCL	0.116

2757											95% BCA Bootstrap UCL	0.116
2758												
2759	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2760					k star (bias corrected)	3.599	**Data do not follow a Discernable Distribution (0.05)**					
2761					Theta Star	0.0324						
2762					nu star	179.9						
2763												
2764					A-D Test Statistic	1.374	**Nonparametric Statistics**					
2765					5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method					
2766					K-S Test Statistic	0.749	Mean	0.101				
2767					5% K-S Critical Value	0.175	SD	0.0557				
2768	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0101				
2769							95% KM (t) UCL	0.118				
2770	**Assuming Gamma Distribution**						95% KM (z) UCL	0.118				
2771				Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	0.118				
2772					Minimum	0.0231	95% KM (bootstrap t) UCL	0.119				
2773					Maximum	0.2	95% KM (BCA) UCL	0.118				
2774					Mean	0.104	95% KM (Percentile Bootstrap) UCL	0.118				
2775					Median	0.0854	95% KM (Chebyshev) UCL	0.145				
2776					SD	0.0557	97.5% KM (Chebyshev) UCL	0.164				
2777					k star	2.989	99% KM (Chebyshev) UCL	0.201				
2778					Theta star	0.0348						
2779					Nu star	191.3	**Potential UCLs to Use**					
2780					AppChi2	160.3	95% KM (BCA) UCL	0.118				
2781					95% Gamma Approximate UCL	0.124						
2782					95% Adjusted Gamma UCL	0.125						
2783	**Note: DL/2 is not a recommended method.**											
2784												
2785												
2786	**Phenanthrene**											
2787												
2788	**General Statistics**											
2789					Number of Valid Data	32	Number of Detected Data	20				
2790					Number of Distinct Detected Data	20	Number of Non-Detect Data	12				
2791							Percent Non-Detects	37.50%				
2792												
2793	**Raw Statistics**						**Log-transformed Statistics**					
2794					Minimum Detected	3.6	Minimum Detected	1.281				
2795					Maximum Detected	85	Maximum Detected	4.443				
2796					Mean of Detected	20.31	Mean of Detected	2.545				
2797					SD of Detected	21.43	SD of Detected	0.975				
2798					Minimum Non-Detect	25	Minimum Non-Detect	3.219				
2799					Maximum Non-Detect	33	Maximum Non-Detect	3.497				
2800												
2801	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	27				
2802	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	5				
2803	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	84.38%				
2804												
2805	**UCL Statistics**											
2806	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2807					Shapiro Wilk Test Statistic	0.771	Shapiro Wilk Test Statistic	0.928				
2808					5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905				
2809	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

2810												
2811	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2812				DL/2 Substitution Method						DL/2 Substitution Method		
2813				Mean		18.47				Mean		2.616
2814				SD		16.96				SD		0.77
2815				95% DL/2 (t) UCL		23.55				95% H-Stat (DL/2) UCL		22.69
2816												
2817				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
2818				**MLE yields a negative mean**						Mean in Log Scale		2.399
2819										SD in Log Scale		0.832
2820										Mean in Original Scale		16.24
2821										SD in Original Scale		17.78
2822										95% Percentile Bootstrap UCL		21.63
2823										95% BCA Bootstrap UCL		22.4
2824												
2825	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2826				k star (bias corrected)		1.065	**Data appear Lognormal at 5% Significance Level**					
2827				Theta Star		19.06						
2828				nu star		42.61						
2829												
2830				A-D Test Statistic		0.818	**Nonparametric Statistics**					
2831				5% A-D Critical Value		0.764				Kaplan-Meier (KM) Method		
2832				K-S Test Statistic		0.764				Mean		16.42
2833				5% K-S Critical Value		0.199				SD		17.8
2834	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		3.396
2835										95% KM (t) UCL		22.18
2836	**Assuming Gamma Distribution**									95% KM (z) UCL		22.01
2837				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		22.16
2838				Minimum		3.6				95% KM (bootstrap t) UCL		24.67
2839				Maximum		85				95% KM (BCA) UCL		22.48
2840				Mean		20.39				95% KM (Percentile Bootstrap) UCL		22.58
2841				Median		19.04				95% KM (Chebyshev) UCL		31.22
2842				SD		16.83				97.5% KM (Chebyshev) UCL		37.63
2843				k star		1.702				99% KM (Chebyshev) UCL		50.21
2844				Theta star		11.98						
2845				Nu star		108.9	**Potential UCLs to Use**					
2846				AppChi2		85.84				95% KM (BCA) UCL		22.48
2847				95% Gamma Approximate UCL		25.87						
2848				95% Adjusted Gamma UCL		26.2						
2849	**Note: DL/2 is not a recommended method.**											
2850												
2851												
2852	**Pyrene**											
2853												
2854	**General Statistics**											
2855				Number of Valid Data		32				Number of Detected Data		7
2856				Number of Distinct Detected Data		7				Number of Non-Detect Data		25
2857										Percent Non-Detects		78.13%
2858												
2859	**Raw Statistics**						**Log-transformed Statistics**					
2860				Minimum Detected		2.2				Minimum Detected		0.788
2861				Maximum Detected		49				Maximum Detected		3.892
2862				Mean of Detected		16.9				Mean of Detected		2.222

2863					SD of Detected	19					SD of Detected	1.228
2864					Minimum Non-Detect	0.32					Minimum Non-Detect	-1.139
2865					Maximum Non-Detect	33					Maximum Non-Detect	3.497
2866												
2867	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	30
2868	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
2869	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.75%
2870												
2871	**Warning: There are only 7 Detected Values in this data**											
2872	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2873	**the resulting calculations may not be reliable enough tp draw conclusions**											
2874												
2875	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2876												
2877												
2878	**UCL Statistics**											
2879	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2880					Shapiro Wilk Test Statistic	0.775					Shapiro Wilk Test Statistic	0.912
2881					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
2882	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2883												
2884	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2885					DL/2 Substitution Method						DL/2 Substitution Method	
2886					Mean	10.07					Mean	1.06
2887					SD	11.42					SD	2.057
2888					95% DL/2 (t) UCL	13.5					95% H-Stat (DL/2) UCL	75.01
2889												
2890					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2891	**MLE method failed to converge properly**										Mean in Log Scale	-0.191
2892											SD in Log Scale	1.621
2893											Mean in Original Scale	4.222
2894											SD in Original Scale	10.81
2895											95% Percentile Bootstrap UCL	7.568
2896											95% BCA Bootstrap UCL	9.003
2897												
2898	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2899					k star (bias corrected)	0.643	**Data appear Gamma Distributed at 5% Significance Level**					
2900					Theta Star	26.3						
2901					nu star	8.996						
2902												
2903					A-D Test Statistic	0.439	**Nonparametric Statistics**					
2904					5% A-D Critical Value	0.729					Kaplan-Meier (KM) Method	
2905					K-S Test Statistic	0.729					Mean	5.877
2906					5% K-S Critical Value	0.32					SD	10.23
2907	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.997
2908											95% KM (t) UCL	9.263
2909	**Assuming Gamma Distribution**										95% KM (z) UCL	9.162
2910					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	9.014
2911					Minimum	2.2					95% KM (bootstrap t) UCL	13.07
2912					Maximum	69.64					95% KM (BCA) UCL	12.96
2913					Mean	23.49					95% KM (Percentile Bootstrap) UCL	10.83
2914					Median	16.25					95% KM (Chebyshev) UCL	14.58
2915					SD	18.28					97.5% KM (Chebyshev) UCL	18.35

2916					k star	1.438				99% KM (Chebyshev) UCL		25.75
2917					Theta star	16.34						
2918					Nu star	92.02				**Potential UCLs to Use**		
2919					AppChi2	70.9				95% KM (t) UCL		9.263
2920				95% Gamma Approximate UCL		30.49						
2921				95% Adjusted Gamma UCL		30.92						
2922	**Note: DL/2 is not a recommended method.**											
2923												
2924												
2925	**Silver**											
2926												
2927	**General Statistics**											
2928					Number of Valid Data	32				Number of Detected Data		9
2929				Number of Distinct Detected Data		8				Number of Non-Detect Data		23
2930										Percent Non-Detects		71.88%
2931												
2932	**Raw Statistics**						**Log-transformed Statistics**					
2933					Minimum Detected	0.0013				Minimum Detected		-6.645
2934					Maximum Detected	0.064				Maximum Detected		-2.749
2935					Mean of Detected	0.0091				Mean of Detected		-5.772
2936					SD of Detected	0.0206				SD of Detected		1.175
2937					Minimum Non-Detect	0.0002				Minimum Non-Detect		-8.517
2938					Maximum Non-Detect	0.007				Maximum Non-Detect		-4.962
2939												
2940	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		31
2941	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
2942	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		96.88%
2943												
2944	**Warning: There are only 9 Detected Values in this data**											
2945	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2946	**the resulting calculations may not be reliable enough tp draw conclusions**											
2947												
2948	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2949												
2950												
2951	**UCL Statistics**											
2952	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2953					Shapiro Wilk Test Statistic	0.421				Shapiro Wilk Test Statistic		0.646
2954					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
2955	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2956												
2957	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2958					DL/2 Substitution Method					DL/2 Substitution Method		
2959					Mean	0.00363				Mean		-6.436
2960					SD	0.011				SD		0.954
2961					95% DL/2 (t) UCL	0.00694				95% H-Stat (DL/2) UCL		0.00292
2962												
2963					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
2964	**MLE method failed to converge properly**									Mean in Log Scale		-6.793
2965										SD in Log Scale		1.015
2966										Mean in Original Scale		0.00319
2967										SD in Original Scale		0.0111
2968										95% Percentile Bootstrap UCL		0.00709

2969											95% BCA Bootstrap UCL	0.00926
2970												
2971	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2972					k star (bias corrected)	0.46	**Data do not follow a Discernable Distribution (0.05)**					
2973					Theta Star	0.0198						
2974					nu star	8.284						
2975												
2976					A-D Test Statistic	2.081	**Nonparametric Statistics**					
2977					5% A-D Critical Value	0.765	Kaplan-Meier (KM) Method					
2978					K-S Test Statistic	0.765					Mean	0.00367
2979					5% K-S Critical Value	0.293					SD	0.0109
2980	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.00204
2981											95% KM (t) UCL	0.00713
2982	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00702
2983					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00689
2984					Minimum	1E-09					95% KM (bootstrap t) UCL	0.0439
2985					Maximum	0.064					95% KM (BCA) UCL	0.00788
2986					Mean	0.00822					95% KM (Percentile Bootstrap) UCL	0.00754
2987					Median	0.00529					95% KM (Chebyshev) UCL	0.0126
2988					SD	0.0113					97.5% KM (Chebyshev) UCL	0.0164
2989					k star	0.452					99% KM (Chebyshev) UCL	0.0239
2990					Theta star	0.0182						
2991					Nu star	28.9	**Potential UCLs to Use**					
2992					AppChi2	17.63					95% KM (BCA) UCL	0.00788
2993					95% Gamma Approximate UCL	0.0135						
2994					95% Adjusted Gamma UCL	0.0138						
2995	**Note: DL/2 is not a recommended method.**											
2996												
2997												
2998	**Thallium**											
2999												
3000	**General Statistics**											
3001					Number of Valid Observations	32					Number of Distinct Observations	26
3002												
3003	**Raw Statistics**						**Log-transformed Statistics**					
3004					Minimum	0.002					Minimum of Log Data	-6.215
3005					Maximum	0.0085					Maximum of Log Data	-4.768
3006					Mean	0.00413					Mean of log Data	-5.564
3007					Median	0.0036					SD of log Data	0.377
3008					SD	0.00173						
3009					Coefficient of Variation	0.418						
3010					Skewness	1.227						
3011												
3012	**Relevant UCL Statistics**											
3013	**Normal Distribution Test**						**Lognormal Distribution Test**					
3014					Shapiro Wilk Test Statistic	0.853					Shapiro Wilk Test Statistic	0.94
3015					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3016	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3017												
3018	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3019					95% Student's-t UCL	0.00464					95% H-UCL	0.00466
3020	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.00533
3021					95% Adjusted-CLT UCL	0.0047					97.5% Chebyshev (MVUE) UCL	0.00586

3022					95% Modified-t UCL	0.00465					99% Chebyshev (MVUE) UCL	0.0069
3023												
3024					**Gamma Distribution Test**						**Data Distribution**	
3025					k star (bias corrected)	6.36					**Data appear Lognormal at 5% Significance Level**	
3026					Theta Star	0.0006485						
3027					nu star	407.1						
3028					Approximate Chi Square Value (.05)	361.3					**Nonparametric Statistics**	
3029					Adjusted Level of Significance	0.0416					95% CLT UCL	0.00463
3030					Adjusted Chi Square Value	359					95% Jackknife UCL	0.00464
3031											95% Standard Bootstrap UCL	0.00461
3032					Anderson-Darling Test Statistic	1.028					95% Bootstrap-t UCL	0.00471
3033					Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	0.00468
3034					Kolmogorov-Smirnov Test Statistic	0.169					95% Percentile Bootstrap UCL	0.00465
3035					Kolmogorov-Smirnov 5% Critical Value	0.156					95% BCA Bootstrap UCL	0.00467
3036					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.00545
3037											97.5% Chebyshev(Mean, Sd) UCL	0.00603
3038					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.00716
3039					95% Approximate Gamma UCL	0.00465						
3040					95% Adjusted Gamma UCL	0.00468						
3041												
3042					**Potential UCL to Use**						Use 95% Student's-t UCL	0.00464
3043											or 95% Modified-t UCL	0.00465
3044											or 95% H-UCL	0.00466
3045												
3046												
3047	**Total Aroclors**											
3048												
3049						**General Statistics**							
3050					Number of Valid Data	14					Number of Detected Data	14
3051					Number of Distinct Detected Data	14					Number of Non-Detect Data	0
3052					Number of Missing Values	18					Percent Non-Detects	0.00%
3053												
3054					**Raw Statistics**						**Log-transformed Statistics**	
3055					Minimum Detected	106.2					Minimum Detected	4.665
3056					Maximum Detected	4855					Maximum Detected	8.488
3057					Mean of Detected	1176					Mean of Detected	6.627
3058					SD of Detected	1340					SD of Detected	0.961
3059					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
3060					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
3061												
3062												
3063						**UCL Statistics**							
3064					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
3065					Shapiro Wilk Test Statistic	0.675					Shapiro Wilk Test Statistic	0.957
3066					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
3067					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
3068												
3069					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3070					DL/2 Substitution Method						DL/2 Substitution Method	
3071					Mean	1176					Mean	6.627
3072					SD	1340					SD	0.961
3073					95% DL/2 (t) UCL	1810					95% H-Stat (DL/2) UCL	2483
3074												

3075					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3076					**MLE method failed to converge properly**						Mean in Log Scale	N/A
3077											SD in Log Scale	N/A
3078											Mean in Original Scale	N/A
3079											SD in Original Scale	N/A
3080											95% Percentile Bootstrap UCL	N/A
3081											95% BCA Bootstrap UCL	N/A
3082												
3083					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
3084					k star (bias corrected)	1.046					**Data appear Gamma Distributed at 5% Significance Level**	
3085					Theta Star	1124						
3086					nu star	29.29						
3087												
3088					A-D Test Statistic	0.703					**Nonparametric Statistics**	
3089					5% A-D Critical Value	0.755					Kaplan-Meier (KM) Method	
3090					K-S Test Statistic	0.755					Mean	1176
3091					5% K-S Critical Value	0.234					SD	1291
3092					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	358
3093											95% KM (t) UCL	1810
3094					**Assuming Gamma Distribution**						95% KM (z) UCL	1765
3095					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1810
3096					Minimum	106.2					95% KM (bootstrap t) UCL	3306
3097					Maximum	4855					95% KM (BCA) UCL	1865
3098					Mean	1176					95% KM (Percentile Bootstrap) UCL	1779
3099					Median	791.4					95% KM (Chebyshev) UCL	2737
3100					SD	1340					97.5% KM (Chebyshev) UCL	3412
3101					k star	1.046					99% KM (Chebyshev) UCL	4738
3102					Theta star	1124						
3103					Nu star	29.29					**Potential UCLs to Use**	
3104					AppChi2	17.93					95% KM (Chebyshev) UCL	2737
3105					95% Gamma Approximate UCL	1921						
3106					95% Adjusted Gamma UCL	2055						
3107	**Note: DL/2 is not a recommended method.**											
3108												
3109												
3110	**Total Chlordanes**											
3111												
3112					**General Statistics**							
3113					Number of Valid Data	31					Number of Detected Data	20
3114					Number of Distinct Detected Data	20					Number of Non-Detect Data	11
3115					Number of Missing Values	1					Percent Non-Detects	35.48%
3116												
3117					**Raw Statistics**						**Log-transformed Statistics**	
3118					Minimum Detected	7.66					Minimum Detected	2.036
3119					Maximum Detected	21.7					Maximum Detected	3.077
3120					Mean of Detected	12.35					Mean of Detected	2.478
3121					SD of Detected	3.624					SD of Detected	0.268
3122					Minimum Non-Detect	7.1					Minimum Non-Detect	1.96
3123					Maximum Non-Detect	20					Maximum Non-Detect	2.996
3124												
3125	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	30
3126	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
3127	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.77%

3128												
3129	**UCL Statistics**											
3130	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3131				Shapiro Wilk Test Statistic	0.879					Shapiro Wilk Test Statistic	0.95	
3132				5% Shapiro Wilk Critical Value	0.905					5% Shapiro Wilk Critical Value	0.905	
3133	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3134												
3135	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3136				DL/2 Substitution Method						DL/2 Substitution Method		
3137				Mean	10.13					Mean	2.225	
3138				SD	4.351					SD	0.442	
3139				95% DL/2 (t) UCL	11.46					95% H-Stat (DL/2) UCL	10.27	
3140												
3141				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
3142	**MLE method failed to converge properly**									Mean in Log Scale	2.37	
3143										SD in Log Scale	0.283	
3144										Mean in Original Scale	11.14	
3145										SD in Original Scale	3.468	
3146										95% Percentile Bootstrap UCL	12.2	
3147										95% BCA Bootstrap UCL	12.37	
3148												
3149	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3150				k star (bias corrected)	11.95		**Data appear Gamma Distributed at 5% Significance Level**					
3151				Theta Star	1.034							
3152				nu star	478							
3153												
3154				A-D Test Statistic	0.569		**Nonparametric Statistics**					
3155				5% A-D Critical Value	0.741					Kaplan-Meier (KM) Method		
3156				K-S Test Statistic	0.741					Mean	11.28	
3157				5% K-S Critical Value	0.194					SD	3.337	
3158	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.643	
3159										95% KM (t) UCL	12.37	
3160	**Assuming Gamma Distribution**									95% KM (z) UCL	12.34	
3161				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	12.34	
3162				Minimum	6.342					95% KM (bootstrap t) UCL	12.55	
3163				Maximum	21.7					95% KM (BCA) UCL	12.56	
3164				Mean	12.13					95% KM (Percentile Bootstrap) UCL	12.43	
3165				Median	11.84					95% KM (Chebyshev) UCL	14.08	
3166				SD	3.281					97.5% KM (Chebyshev) UCL	15.29	
3167				k star	13.66					99% KM (Chebyshev) UCL	17.67	
3168				Theta star	0.888							
3169				Nu star	847		**Potential UCLs to Use**					
3170				AppChi2	780.4		95% KM (Percentile Bootstrap) UCL				12.43	
3171				95% Gamma Approximate UCL	13.17							
3172				95% Adjusted Gamma UCL	13.23							
3173	**Note: DL/2 is not a recommended method.**											
3174												
3175												
3176	**Total DDD**											
3177												
3178	**General Statistics**											
3179				Number of Valid Observations	32					Number of Distinct Observations	32	
3180												

	A	B	C	D	E	F	G	H	I	J	K	L
3181	**Raw Statistics**						**Log-transformed Statistics**					
3182					Minimum	4.193					Minimum of Log Data	1.433
3183					Maximum	518					Maximum of Log Data	6.25
3184					Mean	52.28					Mean of log Data	3.395
3185					Median	29.55					SD of log Data	0.956
3186					SD	91.14						
3187					Coefficient of Variation	1.743						
3188					Skewness	4.617						
3189												
3190	**Relevant UCL Statistics**											
3191	**Normal Distribution Test**						**Lognormal Distribution Test**					
3192					Shapiro Wilk Test Statistic	0.447					Shapiro Wilk Test Statistic	0.965
3193					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3194	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3195												
3196	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3197					95% Student's-t UCL	79.6					95% H-UCL	70.63
3198	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	84.94
3199					95% Adjusted-CLT UCL	92.83					97.5% Chebyshev (MVUE) UCL	101.7
3200					95% Modified-t UCL	81.79					99% Chebyshev (MVUE) UCL	134.7
3201												
3202	**Gamma Distribution Test**						**Data Distribution**					
3203					k star (bias corrected)	0.949	**Data appear Lognormal at 5% Significance Level**					
3204					Theta Star	55.09						
3205					nu star	60.73						
3206					Approximate Chi Square Value (.05)	43.81	**Nonparametric Statistics**					
3207					Adjusted Level of Significance	0.0416					95% CLT UCL	78.78
3208					Adjusted Chi Square Value	43.04					95% Jackknife UCL	79.6
3209											95% Standard Bootstrap UCL	78.24
3210					Anderson-Darling Test Statistic	1.682					95% Bootstrap-t UCL	133.8
3211					Anderson-Darling 5% Critical Value	0.775					95% Hall's Bootstrap UCL	169.8
3212					Kolmogorov-Smirnov Test Statistic	0.203					95% Percentile Bootstrap UCL	80.58
3213					Kolmogorov-Smirnov 5% Critical Value	0.16					95% BCA Bootstrap UCL	100.5
3214	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	122.5
3215											97.5% Chebyshev(Mean, Sd) UCL	152.9
3216	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	212.6
3217					95% Approximate Gamma UCL	72.47						
3218					95% Adjusted Gamma UCL	73.77						
3219												
3220	**Potential UCL to Use**										Use 95% H-UCL	70.63
3221												
3222												
3223	**Total DDE**											
3224												
3225	**General Statistics**											
3226					Number of Valid Observations	32					Number of Distinct Observations	32
3227												
3228	**Raw Statistics**						**Log-transformed Statistics**					
3229					Minimum	26.78					Minimum of Log Data	3.288
3230					Maximum	474.4					Maximum of Log Data	6.162
3231					Mean	115.9					Mean of log Data	4.589
3232					Median	94.47					SD of log Data	0.558
3233					SD	81.36						

3234					Coefficient of Variation	0.702						
3235					Skewness	2.939						
3236												
3237	**Relevant UCL Statistics**											
3238	**Normal Distribution Test**						**Lognormal Distribution Test**					
3239					Shapiro Wilk Test Statistic	0.73					Shapiro Wilk Test Statistic	0.979
3240					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3241	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3242												
3243	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3244					95% Student's-t UCL	140.3					95% H-UCL	140.1
3245	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	166.3
3246					95% Adjusted-CLT UCL	147.6					97.5% Chebyshev (MVUE) UCL	188.8
3247					95% Modified-t UCL	141.6					99% Chebyshev (MVUE) UCL	232.9
3248												
3249	**Gamma Distribution Test**						**Data Distribution**					
3250					k star (bias corrected)	2.926	**Data appear Gamma Distributed at 5% Significance Level**					
3251					Theta Star	39.62						
3252					nu star	187.3						
3253					Approximate Chi Square Value (.05)	156.6	**Nonparametric Statistics**					
3254					Adjusted Level of Significance	0.0416					95% CLT UCL	139.6
3255					Adjusted Chi Square Value	155.1					95% Jackknife UCL	140.3
3256											95% Standard Bootstrap UCL	139.3
3257					Anderson-Darling Test Statistic	0.584					95% Bootstrap-t UCL	156.1
3258					Anderson-Darling 5% Critical Value	0.752					95% Hall's Bootstrap UCL	247.3
3259					Kolmogorov-Smirnov Test Statistic	0.126					95% Percentile Bootstrap UCL	141.2
3260					Kolmogorov-Smirnov 5% Critical Value	0.156					95% BCA Bootstrap UCL	148.5
3261	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	178.6
3262											97.5% Chebyshev(Mean, Sd) UCL	205.7
3263	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	259
3264					95% Approximate Gamma UCL	138.6						
3265					95% Adjusted Gamma UCL	140						
3266												
3267	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	138.6
3268												
3269												
3270	**Total DDT**											
3271												
3272	**General Statistics**											
3273					Number of Valid Data	32					Number of Detected Data	27
3274					Number of Distinct Detected Data	26					Number of Non-Detect Data	5
3275											Percent Non-Detects	15.63%
3276												
3277	**Raw Statistics**						**Log-transformed Statistics**					
3278					Minimum Detected	0.758					Minimum Detected	-0.277
3279					Maximum Detected	462.7					Maximum Detected	6.137
3280					Mean of Detected	44.29					Mean of Detected	2.811
3281					SD of Detected	91.22					SD of Detected	1.374
3282					Minimum Non-Detect	6.9					Minimum Non-Detect	1.932
3283					Maximum Non-Detect	6.9					Maximum Non-Detect	1.932
3284												
3285												
3286	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
3287	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3288					Shapiro Wilk Test Statistic	0.463					Shapiro Wilk Test Statistic	0.975
3289					5% Shapiro Wilk Critical Value	0.923					5% Shapiro Wilk Critical Value	0.923
3290	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3291												
3292	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3293					DL/2 Substitution Method						DL/2 Substitution Method	
3294					Mean	37.91					Mean	2.565
3295					SD	84.89					SD	1.385
3296					95% DL/2 (t) UCL	63.35					95% H-Stat (DL/2) UCL	45.58
3297												
3298					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
3299					Mean	13.23					Mean in Log Scale	2.497
3300					SD	106.1					SD in Log Scale	1.476
3301					95% MLE (t) UCL	45.03					Mean in Original Scale	37.77
3302					95% MLE (Tiku) UCL	46.59					SD in Original Scale	84.95
3303											95% Percentile Bootstrap UCL	65.9
3304											95% BCA Bootstrap UCL	77.9
3305												
3306	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3307					k star (bias corrected)	0.582	**Data appear Lognormal at 5% Significance Level**					
3308					Theta Star	76.13						
3309					nu star	31.42						
3310												
3311					A-D Test Statistic	1.381	**Nonparametric Statistics**					
3312					5% A-D Critical Value	0.796					Kaplan-Meier (KM) Method	
3313					K-S Test Statistic	0.796					Mean	37.92
3314					5% K-S Critical Value	0.176					SD	83.56
3315	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	15.05
3316											95% KM (t) UCL	63.44
3317	**Assuming Gamma Distribution**										95% KM (z) UCL	62.68
3318					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	63.37
3319					Minimum	1E-09					95% KM (bootstrap t) UCL	109.8
3320					Maximum	462.7					95% KM (BCA) UCL	67.36
3321					Mean	37.37					95% KM (Percentile Bootstrap) UCL	65.3
3322					Median	10.48					95% KM (Chebyshev) UCL	103.5
3323					SD	85.13					97.5% KM (Chebyshev) UCL	131.9
3324					k star	0.173					99% KM (Chebyshev) UCL	187.7
3325					Theta star	215.5						
3326					Nu star	11.1	**Potential UCLs to Use**					
3327					AppChi2	4.64					97.5% KM (Chebyshev) UCL	131.9
3328					95% Gamma Approximate UCL	89.39						
3329					95% Adjusted Gamma UCL	93.89						
3330	**Note: DL/2 is not a recommended method.**											
3331												
3332												
3333	**Total Dioxin/Furan TEQ**											
3334												
3335	**General Statistics**											
3336					Number of Valid Observations	32					Number of Distinct Observations	32
3337												
3338	**Raw Statistics**						**Log-transformed Statistics**					
3339					Minimum	1.264					Minimum of Log Data	0.235

3340					Maximum	51.87					Maximum of Log Data	3.949
3341					Mean	4.768					Mean of log Data	1.072
3342					Median	2.689					SD of log Data	0.771
3343					SD	9.03						
3344					Coefficient of Variation	1.894						
3345					Skewness	4.923						
3346												
3347					**Relevant UCL Statistics**							
3348					**Normal Distribution Test**						**Lognormal Distribution Test**	
3349					Shapiro Wilk Test Statistic	0.367					Shapiro Wilk Test Statistic	0.812
3350					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3351					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
3352												
3353					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3354					95% Student's-t UCL	7.475					95% H-UCL	5.303
3355					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	6.418
3356					95% Adjusted-CLT UCL	8.878					97.5% Chebyshev (MVUE) UCL	7.515
3357					95% Modified-t UCL	7.706					99% Chebyshev (MVUE) UCL	9.669
3358												
3359					**Gamma Distribution Test**						**Data Distribution**	
3360					k star (bias corrected)	1.07					**Data do not follow a Discernable Distribution (0.05)**	
3361					Theta Star	4.456						
3362					nu star	68.48						
3363					Approximate Chi Square Value (.05)	50.43					**Nonparametric Statistics**	
3364					Adjusted Level of Significance	0.0416					95% CLT UCL	7.394
3365					Adjusted Chi Square Value	49.6					95% Jackknife UCL	7.475
3366											95% Standard Bootstrap UCL	7.347
3367					Anderson-Darling Test Statistic	3.734					95% Bootstrap-t UCL	16.93
3368					Anderson-Darling 5% Critical Value	0.772					95% Hall's Bootstrap UCL	16.8
3369					Kolmogorov-Smirnov Test Statistic	0.304					95% Percentile Bootstrap UCL	7.62
3370					Kolmogorov-Smirnov 5% Critical Value	0.16					95% BCA Bootstrap UCL	9.617
3371					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	11.73
3372											97.5% Chebyshev(Mean, Sd) UCL	14.74
3373					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	20.65
3374					95% Approximate Gamma UCL	6.475						
3375					95% Adjusted Gamma UCL	6.583						
3376												
3377					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	11.73
3378												
3379												
3380	**Total Dioxin-like PCBs**											
3381												
3382					**General Statistics**							
3383					Number of Valid Observations	32					Number of Distinct Observations	32
3384												
3385					**Raw Statistics**						**Log-transformed Statistics**	
3386					Minimum	17084					Minimum of Log Data	9.746
3387					Maximum	163683					Maximum of Log Data	12.01
3388					Mean	55692					Mean of log Data	10.72
3389					Median	38389					SD of log Data	0.624
3390					SD	41102						
3391					Coefficient of Variation	0.738						
3392					Skewness	1.616						

3393												
3394	**Relevant UCL Statistics**											
3395	**Normal Distribution Test**						**Lognormal Distribution Test**					
3396					Shapiro Wilk Test Statistic	0.766					Shapiro Wilk Test Statistic	0.924
3397					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3398	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3399												
3400	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3401					95% Student's-t UCL	68012					95% H-UCL	69005
3402	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	82621
3403					95% Adjusted-CLT UCL	69862					97.5% Chebyshev (MVUE) UCL	94745
3404					95% Modified-t UCL	68358					99% Chebyshev (MVUE) UCL	118561
3405												
3406	**Gamma Distribution Test**						**Data Distribution**					
3407					k star (bias corrected)	2.348	**Data do not follow a Discernable Distribution (0.05)**					
3408					Theta Star	23717						
3409					nu star	150.3						
3410					Approximate Chi Square Value (.05)	123	**Nonparametric Statistics**					
3411					Adjusted Level of Significance	0.0416					95% CLT UCL	67644
3412					Adjusted Chi Square Value	121.6					95% Jackknife UCL	68012
3413											95% Standard Bootstrap UCL	67610
3414					Anderson-Darling Test Statistic	1.422					95% Bootstrap-t UCL	71146
3415					Anderson-Darling 5% Critical Value	0.756					95% Hall's Bootstrap UCL	69277
3416					Kolmogorov-Smirnov Test Statistic	0.219					95% Percentile Bootstrap UCL	68168
3417					Kolmogorov-Smirnov 5% Critical Value	0.157					95% BCA Bootstrap UCL	70638
3418	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	87364
3419											97.5% Chebyshev(Mean, Sd) UCL	101068
3420	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	127987
3421					95% Approximate Gamma UCL	68074						
3422					95% Adjusted Gamma UCL	68814						
3423												
3424	**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	87364				
3425												
3426												
3427	**Total Endosulfan**											
3428												
3429	**General Statistics**											
3430					Number of Valid Data	32	Number of Detected Data	19				
3431					Number of Distinct Detected Data	19	Number of Non-Detect Data	13				
3432							Percent Non-Detects	40.63%				
3433												
3434	**Raw Statistics**						**Log-transformed Statistics**					
3435					Minimum Detected	0.264	Minimum Detected	-1.332				
3436					Maximum Detected	28.4	Maximum Detected	3.346				
3437					Mean of Detected	1.965	Mean of Detected	-0.525				
3438					SD of Detected	6.403	SD of Detected	0.98				
3439					Minimum Non-Detect	1	Minimum Non-Detect	0				
3440					Maximum Non-Detect	20	Maximum Non-Detect	2.996				
3441												
3442	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	31				
3443	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	1				
3444	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	96.88%				
3445												

	A	B	C	D	E	F	G	H	I	J	K	L
3446	**UCL Statistics**											
3447	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3448	Shapiro Wilk Test Statistic					0.262	Shapiro Wilk Test Statistic					0.524
3449	5% Shapiro Wilk Critical Value					0.901	5% Shapiro Wilk Critical Value					0.901
3450	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3451												
3452	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3453	DL/2 Substitution Method						DL/2 Substitution Method					
3454	Mean					2.193	Mean					-0.0625
3455	SD					5.129	SD					1.062
3456	95% DL/2 (t) UCL					3.731	95% H-Stat (DL/2) UCL					2.468
3457												
3458	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
3459	**MLE method failed to converge properly**						Mean in Log Scale					-0.557
3460							SD in Log Scale					0.799
3461							Mean in Original Scale					1.41
3462							SD in Original Scale					4.929
3463							95% Percentile Bootstrap UCL					3.153
3464							95% BCA Bootstrap UCL					4.076
3465												
3466	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3467	k star (bias corrected)					0.477	**Data do not follow a Discernable Distribution (0.05)**					
3468	Theta Star					4.116						
3469	nu star					18.14						
3470												
3471	A-D Test Statistic					5.333	**Nonparametric Statistics**					
3472	5% A-D Critical Value					0.8	Kaplan-Meier (KM) Method					
3473	K-S Test Statistic					0.8	Mean					1.368
3474	5% K-S Critical Value					0.21	SD					4.857
3475	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.882
3476							95% KM (t) UCL					2.864
3477	**Assuming Gamma Distribution**						95% KM (z) UCL					2.82
3478	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.848
3479	Minimum					0.264	95% KM (bootstrap t) UCL					31
3480	Maximum					28.4	95% KM (BCA) UCL					3.153
3481	Mean					1.979	95% KM (Percentile Bootstrap) UCL					3.113
3482	Median					0.687	95% KM (Chebyshev) UCL					5.214
3483	SD					4.881	97.5% KM (Chebyshev) UCL					6.879
3484	k star					0.77	99% KM (Chebyshev) UCL					10.15
3485	Theta star					2.57						
3486	Nu star					49.27	**Potential UCLs to Use**					
3487	AppChi2					34.16	95% KM (t) UCL					2.864
3488	95% Gamma Approximate UCL					2.854	95% KM (% Bootstrap) UCL					3.113
3489	95% Adjusted Gamma UCL					2.912						
3490	**Note: DL/2 is not a recommended method.**											
3491												
3492												
3493	**Total PCB TEQ**											
3494												
3495	**General Statistics**											
3496	Number of Valid Observations					32	Number of Distinct Observations					32
3497												
3498	**Raw Statistics**						**Log-transformed Statistics**					

3499					Minimum	1.498				Minimum of Log Data	0.404	
3500					Maximum	35.56				Maximum of Log Data	3.571	
3501					Mean	7.838				Mean of log Data	1.828	
3502					Median	6.151				SD of log Data	0.667	
3503					SD	6.555						
3504					Coefficient of Variation	0.836						
3505					Skewness	2.824						
3506												
3507					**Relevant UCL Statistics**							
3508					**Normal Distribution Test**					**Lognormal Distribution Test**		
3509					Shapiro Wilk Test Statistic	0.721				Shapiro Wilk Test Statistic	0.986	
3510					Shapiro Wilk Critical Value	0.93				Shapiro Wilk Critical Value	0.93	
3511					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
3512												
3513					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
3514					95% Student's-t UCL	9.803				95% H-UCL	9.95	
3515					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	11.97	
3516					95% Adjusted-CLT UCL	10.36				97.5% Chebyshev (MVUE) UCL	13.81	
3517					95% Modified-t UCL	9.899				99% Chebyshev (MVUE) UCL	17.44	
3518												
3519					**Gamma Distribution Test**					**Data Distribution**		
3520					k star (bias corrected)	2.117				**Data appear Gamma Distributed at 5% Significance Level**		
3521					Theta Star	3.703						
3522					nu star	135.5						
3523					Approximate Chi Square Value (.05)	109.6				**Nonparametric Statistics**		
3524					Adjusted Level of Significance	0.0416				95% CLT UCL	9.744	
3525					Adjusted Chi Square Value	108.3				95% Jackknife UCL	9.803	
3526										95% Standard Bootstrap UCL	9.71	
3527					Anderson-Darling Test Statistic	0.564				95% Bootstrap-t UCL	11.22	
3528					Anderson-Darling 5% Critical Value	0.757				95% Hall's Bootstrap UCL	18.42	
3529					Kolmogorov-Smirnov Test Statistic	0.128				95% Percentile Bootstrap UCL	9.854	
3530					Kolmogorov-Smirnov 5% Critical Value	0.157				95% BCA Bootstrap UCL	10.42	
3531					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	12.89	
3532										97.5% Chebyshev(Mean, Sd) UCL	15.07	
3533					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	19.37	
3534					95% Approximate Gamma UCL	9.69						
3535					95% Adjusted Gamma UCL	9.802						
3536												
3537					**Potential UCL to Use**					Use 95% Approximate Gamma UCL	9.69	
3538												
3539												
3540	**Total PCB_Congeners**											
3541												
3542					**General Statistics**							
3543					Number of Valid Observations	32				Number of Distinct Observations	32	
3544												
3545					**Raw Statistics**					**Log-transformed Statistics**		
3546					Minimum	205341				Minimum of Log Data	12.23	
3547					Maximum	6603200				Maximum of Log Data	15.7	
3548					Mean	1053296				Mean of log Data	13.44	
3549					Median	542109				SD of log Data	0.833	
3550					SD	1369138						
3551					Coefficient of Variation	1.3						

3552					Skewness	2.986						
3553												
3554	**Relevant UCL Statistics**											
3555	**Normal Distribution Test**						**Lognormal Distribution Test**					
3556					Shapiro Wilk Test Statistic	0.583					Shapiro Wilk Test Statistic	0.91
3557					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3558	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3559												
3560	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3561					95% Student's-t UCL	1463665					95% H-UCL	1350586
3562	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1635258
3563					95% Adjusted-CLT UCL	1587897					97.5% Chebyshev (MVUE) UCL	1930140
3564					95% Modified-t UCL	1484956					99% Chebyshev (MVUE) UCL	2509379
3565												
3566	**Gamma Distribution Test**						**Data Distribution**					
3567					k star (bias corrected)	1.198	**Data do not follow a Discernable Distribution (0.05)**					
3568					Theta Star	879443						
3569					nu star	76.65						
3570					Approximate Chi Square Value (.05)	57.48	**Nonparametric Statistics**					
3571					Adjusted Level of Significance	0.0416					95% CLT UCL	1451403
3572					Adjusted Chi Square Value	56.6					95% Jackknife UCL	1463665
3573											95% Standard Bootstrap UCL	1441135
3574					Anderson-Darling Test Statistic	2.128					95% Bootstrap-t UCL	1821498
3575					Anderson-Darling 5% Critical Value	0.769					95% Hall's Bootstrap UCL	1731626
3576					Kolmogorov-Smirnov Test Statistic	0.201					95% Percentile Bootstrap UCL	1475229
3577					Kolmogorov-Smirnov 5% Critical Value	0.159					95% BCA Bootstrap UCL	1634779
3578	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	2108288
3579											97.5% Chebyshev(Mean, Sd) UCL	2564783
3580	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	3461481
3581					95% Approximate Gamma UCL	1404499						
3582					95% Adjusted Gamma UCL	1426553						
3583												
3584	**Potential UCL to Use**										Use 95% Chebyshev (Mean, Sd) UCL	2108288
3585												
3586												
3587	**Zinc**											
3588												
3589	**General Statistics**											
3590					Number of Valid Observations	32					Number of Distinct Observations	22
3591												
3592	**Raw Statistics**						**Log-transformed Statistics**					
3593					Minimum	10.8					Minimum of Log Data	2.38
3594					Maximum	16.3					Maximum of Log Data	2.791
3595					Mean	13.2					Mean of log Data	2.574
3596					Median	12.9					SD of log Data	0.116
3597					SD	1.546						
3598					Coefficient of Variation	0.117						
3599					Skewness	0.418						
3600												
3601	**Relevant UCL Statistics**											
3602	**Normal Distribution Test**						**Lognormal Distribution Test**					
3603					Shapiro Wilk Test Statistic	0.942					Shapiro Wilk Test Statistic	0.951
3604					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93

3605	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3606												
3607	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3608					95% Student's-t UCL	13.66					95% H-UCL	13.68
3609	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	14.38
3610					95% Adjusted-CLT UCL	13.67					97.5% Chebyshev (MVUE) UCL	14.89
3611					95% Modified-t UCL	13.67					99% Chebyshev (MVUE) UCL	15.89
3612												
3613	**Gamma Distribution Test**						**Data Distribution**					
3614					k star (bias corrected)	69.62	**Data appear Normal at 5% Significance Level**					
3615					Theta Star	0.19						
3616					nu star	4456						
3617					Approximate Chi Square Value (.05)	4302	**Nonparametric Statistics**					
3618					Adjusted Level of Significance	0.0416					95% CLT UCL	13.65
3619					Adjusted Chi Square Value	4294					95% Jackknife UCL	13.66
3620											95% Standard Bootstrap UCL	13.64
3621					Anderson-Darling Test Statistic	0.547					95% Bootstrap-t UCL	13.68
3622					Anderson-Darling 5% Critical Value	0.745					95% Hall's Bootstrap UCL	13.65
3623					Kolmogorov-Smirnov Test Statistic	0.123					95% Percentile Bootstrap UCL	13.64
3624					Kolmogorov-Smirnov 5% Critical Value	0.155					95% BCA Bootstrap UCL	13.65
3625	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	14.39
3626											97.5% Chebyshev(Mean, Sd) UCL	14.91
3627	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	15.92
3628					95% Approximate Gamma UCL	13.67						
3629					95% Adjusted Gamma UCL	13.7						
3630												
3631	**Potential UCL to Use**										Use 95% Student's-t UCL	13.66
3632												
3633												
3634	**Total PCBs, Adjusted**											
3635												
3636	**General Statistics**											
3637					Number of Valid Observations	32					Number of Distinct Observations	32
3638												
3639	**Raw Statistics**						**Log-transformed Statistics**					
3640					Minimum	188257					Minimum of Log Data	12.15
3641					Maximum	6443896					Maximum of Log Data	15.68
3642					Mean	997604					Mean of log Data	13.36
3643					Median	506210					SD of log Data	0.849
3644					SD	1339671						
3645					Coefficient of Variation	1.343						
3646					Skewness	3.017						
3647												
3648	**Relevant UCL Statistics**											
3649	**Normal Distribution Test**						**Lognormal Distribution Test**					
3650					Shapiro Wilk Test Statistic	0.572					Shapiro Wilk Test Statistic	0.909
3651					Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3652	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3653												
3654	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3655					95% Student's-t UCL	1399141					95% H-UCL	1280935
3656	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1550469
3657					95% Adjusted-CLT UCL	1522121					97.5% Chebyshev (MVUE) UCL	1833650

3658				95% Modified-t UCL	1420195					99% Chebyshev (MVUE) UCL	2389904
3659											
3660				**Gamma Distribution Test**						**Data Distribution**	
3661				k star (bias corrected)	1.149					**Data do not follow a Discernable Distribution (0.05)**	
3662				Theta Star	868418						
3663				nu star	73.52						
3664				Approximate Chi Square Value (.05)	54.77					**Nonparametric Statistics**	
3665				Adjusted Level of Significance	0.0416					95% CLT UCL	1387142
3666				Adjusted Chi Square Value	53.91					95% Jackknife UCL	1399141
3667										95% Standard Bootstrap UCL	1377449
3668				Anderson-Darling Test Statistic	2.207					95% Bootstrap-t UCL	1885438
3669				Anderson-Darling 5% Critical Value	0.77					95% Hall's Bootstrap UCL	1690032
3670				Kolmogorov-Smirnov Test Statistic	0.208					95% Percentile Bootstrap UCL	1422931
3671				Kolmogorov-Smirnov 5% Critical Value	0.159					95% BCA Bootstrap UCL	1561601
3672				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2029890
3673										97.5% Chebyshev(Mean, Sd) UCL	2476560
3674				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3353959
3675				95% Approximate Gamma UCL	1339014						
3676				95% Adjusted Gamma UCL	1360533						
3677											
3678				**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	2029890
3679											
3680											
3681	**Total TEQ**										
3682											
3683				**General Statistics**							
3684				Number of Valid Observations	32					Number of Distinct Observations	32
3685											
3686				**Raw Statistics**						**Log-transformed Statistics**	
3687				Minimum	3.069					Minimum of Log Data	1.121
3688				Maximum	57.06					Maximum of Log Data	4.044
3689				Mean	12.61					Mean of log Data	2.305
3690				Median	10.08					SD of log Data	0.652
3691				SD	10.72						
3692				Coefficient of Variation	0.851						
3693				Skewness	2.836						
3694											
3695				**Relevant UCL Statistics**							
3696				**Normal Distribution Test**						**Lognormal Distribution Test**	
3697				Shapiro Wilk Test Statistic	0.698					Shapiro Wilk Test Statistic	0.969
3698				Shapiro Wilk Critical Value	0.93					Shapiro Wilk Critical Value	0.93
3699				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
3700											
3701				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3702				95% Student's-t UCL	15.82					95% H-UCL	15.77
3703				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	18.94
3704				95% Adjusted-CLT UCL	16.74					97.5% Chebyshev (MVUE) UCL	21.82
3705				95% Modified-t UCL	15.98					99% Chebyshev (MVUE) UCL	27.46
3706											
3707				**Gamma Distribution Test**						**Data Distribution**	
3708				k star (bias corrected)	2.137					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
3709				Theta Star	5.898						
3710				nu star	136.8						

3711	Approximate Chi Square Value (.05)					110.8	**Nonparametric Statistics**					
3712	Adjusted Level of Significance					0.0416	95% CLT UCL					15.73
3713	Adjusted Chi Square Value					109.5	95% Jackknife UCL					15.82
3714							95% Standard Bootstrap UCL					15.68
3715	Anderson-Darling Test Statistic					0.786	95% Bootstrap-t UCL					18.47
3716	Anderson-Darling 5% Critical Value					0.757	95% Hall's Bootstrap UCL					32.07
3717	Kolmogorov-Smirnov Test Statistic					0.152	95% Percentile Bootstrap UCL					15.73
3718	Kolmogorov-Smirnov 5% Critical Value					0.157	95% BCA Bootstrap UCL					16.8
3719	**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					20.87
3720							97.5% Chebyshev(Mean, Sd) UCL					24.45
3721	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					31.47
3722	95% Approximate Gamma UCL					15.57						
3723	95% Adjusted Gamma UCL					15.75						
3724												
3725	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					15.57
3726												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		SMB_Study_area_WB								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	Lead											
10												
11					General Statistics							
12				Number of Valid Observations	32			Number of Distinct Observations	29			
13												
14				Raw Statistics				Log-transformed Statistics				
15				Minimum	0.0048			Minimum of Log Data	-5.339			
16				Maximum	1100			Maximum of Log Data	7.003			
17				Mean	34.68			Mean of log Data	-3.361			
18				Median	0.014			SD of log Data	2.542			
19				SD	194.4							
20				Coefficient of Variation	5.606							
21				Skewness	5.656							
22												
23					Relevant UCL Statistics							
24				Normal Distribution Test				Lognormal Distribution Test				
25				Shapiro Wilk Test Statistic	0.183			Shapiro Wilk Test Statistic	0.705			
26				Shapiro Wilk Critical Value	0.93			Shapiro Wilk Critical Value	0.93			
27				Data not Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level				
28												
29				Assuming Normal Distribution				Assuming Lognormal Distribution				
30				95% Student's-t UCL	92.95			95% H-UCL	7.278			
31				95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	2.333			
32				95% Adjusted-CLT UCL	127.9			97.5% Chebyshev (MVUE) UCL	3.073			
33				95% Modified-t UCL	98.67			99% Chebyshev (MVUE) UCL	4.526			
34												
35				Gamma Distribution Test				Data Distribution				
36				k star (bias corrected)	0.125			Data do not follow a Discernable Distribution (0.05)				
37				Theta Star	276.5							
38				nu star	8.028							
39				Approximate Chi Square Value (.05)	2.751			Nonparametric Statistics				
40				Adjusted Level of Significance	0.0416			95% CLT UCL	91.2			
41				Adjusted Chi Square Value	2.588			95% Jackknife UCL	92.95			
42								95% Standard Bootstrap UCL	90.59			
43				Anderson-Darling Test Statistic	8.939			95% Bootstrap-t UCL	21379			
44				Anderson-Darling 5% Critical Value	0.943			95% Hall's Bootstrap UCL	21122			
45				Kolmogorov-Smirnov Test Statistic	0.441			95% Percentile Bootstrap UCL	103.4			
46				Kolmogorov-Smirnov 5% Critical Value	0.175			95% BCA Bootstrap UCL	138			
47				Data not Gamma Distributed at 5% Significance Level				95% Chebyshev(Mean, Sd) UCL	184.5			
48								97.5% Chebyshev(Mean, Sd) UCL	249.3			
49				Assuming Gamma Distribution				99% Chebyshev(Mean, Sd) UCL	376.6			
50				95% Approximate Gamma UCL	101.2							
51				95% Adjusted Gamma UCL	107.6							
52												
53				Potential UCL to Use				Use 99% Chebyshev (Mean, Sd) UCL	376.6			

Antimony

General Statistics

Number of Valid Data	32	Number of Detected Data	5
Number of Distinct Detected Data	4	Number of Non-Detect Data	27
		Percent Non-Detects	84.38%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.001	Minimum Detected	-6.908
Maximum Detected	5.9	Maximum Detected	1.775
Mean of Detected	1.189	Mean of Detected	-4.101
SD of Detected	2.634	SD of Detected	3.608
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.014	Maximum Non-Detect	-4.269

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	93.75%

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.556	Shapiro Wilk Test Statistic	0.847
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.188	Mean	-6.014
SD	1.042	SD	1.68
95% DL/2 (t) UCL	0.5	95% H-Stat (DL/2) UCL	0.0198
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-11.24
		SD in Log Scale	4.356
		Mean in Original Scale	0.186
		SD in Original Scale	1.043
		95% Percentile Bootstrap UCL	0.554
		95% BCA Bootstrap UCL	0.74
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.204	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	5.84		
nu star	2.036		

	A	B	C	D	E	F	G	H	I	J	K	L
107					A-D Test Statistic	0.746	**Nonparametric Statistics**					
108					5% A-D Critical Value	0.788					Kaplan-Meier (KM) Method	
109					K-S Test Statistic	0.788					Mean	0.187
110					5% K-S Critical Value	0.391					SD	1.026
111	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.203
112											95% KM (t) UCL	0.531
113	**Assuming Gamma Distribution**										95% KM (z) UCL	0.52
114					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.499
115					Minimum	1E-09					95% KM (bootstrap t) UCL	118
116					Maximum	43.72					95% KM (BCA) UCL	0.74
117					Mean	5.562					95% KM (Percentile Bootstrap) UCL	0.556
118					Median	1.747					95% KM (Chebyshev) UCL	1.071
119					SD	9.786					97.5% KM (Chebyshev) UCL	1.453
120					k star	0.12					99% KM (Chebyshev) UCL	2.205
121					Theta star	46.31						
122					Nu star	7.686	**Potential UCLs to Use**					
123					AppChi2	2.554					95% KM (t) UCL	0.531
124					95% Gamma Approximate UCL	16.73						
125					95% Adjusted Gamma UCL	17.82						
126	**Note: DL/2 is not a recommended method.**											
127												

Tissue

Brown Bullhead, Whole Body and Fillet

BB-Study_areaF	**General UCL Statistics for Data Sets with Non-Detects**	
User Selected Options		
From File	BB-_Study_area-F	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Zinc

General Statistics

Number of Valid Observations	6	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	3.96	Minimum of Log Data	1.376
Maximum	6.49	Maximum of Log Data	1.87
Mean	5.225	Mean of log Data	1.642
Median	5.32	SD of log Data	0.165
SD	0.84		
Coefficient of Variation	0.161		
Skewness	-0.0417		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.961	Shapiro Wilk Test Statistic	0.952
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.916	95% H-UCL	6.079
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.758
95% Adjusted-CLT UCL	5.783	97.5% Chebyshev (MVUE) UCL	7.421
95% Modified-t UCL	5.915	99% Chebyshev (MVUE) UCL	8.723
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	22.73	**Data appear Normal at 5% Significance Level**	
Theta Star	0.23		
nu star	272.7		
Approximate Chi Square Value (.05)	235.5	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	5.789

54					Adjusted Chi Square Value	222.9					95% Jackknife UCL	5.916
55											95% Standard Bootstrap UCL	5.741
56					Anderson-Darling Test Statistic	0.293					95% Bootstrap-t UCL	5.884
57					Anderson-Darling 5% Critical Value	0.697					95% Hall's Bootstrap UCL	5.876
58					Kolmogorov-Smirnov Test Statistic	0.235					95% Percentile Bootstrap UCL	5.747
59					Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	5.71
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	6.719
61											97.5% Chebyshev(Mean, Sd) UCL	7.366
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	8.636
63					95% Approximate Gamma UCL	6.051						
64					95% Adjusted Gamma UCL	6.393						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	5.916
67												
68												
69	**Aluminum**											
70												
71					**General Statistics**							
72					Number of Valid Observations	6					Number of Distinct Observations	6
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	1.95					Minimum of Log Data	0.668
76					Maximum	10.6					Maximum of Log Data	2.361
77					Mean	5.457					Mean of log Data	1.521
78					Median	4.67					SD of log Data	0.663
79					SD	3.406						
80					Coefficient of Variation	0.624						
81					Skewness	0.638						
82												
83												
84					**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 6 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.923					Shapiro Wilk Test Statistic	0.956
99					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	8.259					95% H-UCL	14.15
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	11.9
105					95% Adjusted-CLT UCL	8.131					97.5% Chebyshev (MVUE) UCL	14.69
106					95% Modified-t UCL	8.319					99% Chebyshev (MVUE) UCL	20.15

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	1.613	**Data appear Normal at 5% Significance Level**					
110					Theta Star	3.383						
111					nu star	19.36						
112					Approximate Chi Square Value (.05)	10.38	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0122					95% CLT UCL	7.744
114					Adjusted Chi Square Value	8.113					95% Jackknife UCL	8.259
115											95% Standard Bootstrap UCL	7.537
116					Anderson-Darling Test Statistic	0.248					95% Bootstrap-t UCL	10.57
117					Anderson-Darling 5% Critical Value	0.701					95% Hall's Bootstrap UCL	8.466
118					Kolmogorov-Smirnov Test Statistic	0.197					95% Percentile Bootstrap UCL	7.573
119					Kolmogorov-Smirnov 5% Critical Value	0.335					95% BCA Bootstrap UCL	7.68
120	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	11.52
121											97.5% Chebyshev(Mean, Sd) UCL	14.14
122	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	19.29
123					95% Approximate Gamma UCL	10.18						
124					95% Adjusted Gamma UCL	13.02						
125												
126	**Potential UCL to Use**										Use 95% Student's-t UCL	8.259
127												
128												
129	**Arsenic**											
130												
131	**General Statistics**											
132					Number of Valid Observations	6					Number of Distinct Observations	1
133												
134												
135	**Warning: There is only one distinct observation value in this data set - resulting in '0' variance!**											
136	**ProUCL (or any other software) should not be used on such a data set!**											
137	**The data set for variable Arsenic was not processed!**											
138												
139	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
140	**If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.**											
141	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
142												
143												
144												
145	**Cadmium**											
146												
147	**General Statistics**											
148					Number of Valid Data	6					Number of Detected Data	5
149					Number of Distinct Detected Data	1					Number of Non-Detect Data	1
150											Percent Non-Detects	16.67%
151												
152	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
153	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
154												
155	**The data set for variable Cadmium was not processed!**											
156												
157												
158												
159	**Copper**											

160												
161	**General Statistics**											
162					Number of Valid Observations	6				Number of Distinct Observations	6	
163												
164	**Raw Statistics**						**Log-transformed Statistics**					
165					Minimum	0.203				Minimum of Log Data	-1.595	
166					Maximum	0.292				Maximum of Log Data	-1.231	
167					Mean	0.251				Mean of log Data	-1.389	
168					Median	0.252				SD of log Data	0.117	
169					SD	0.0283						
170					Coefficient of Variation	0.113						
171					Skewness	-0.496						
172												
173												
174	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
175												
176	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
177	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
178												
179												
180	**Warning: There are only 6 Values in this data**											
181	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
182	**the resulting calculations may not be reliable enough to draw conclusions**											
183												
184	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
185												
186	**Relevant UCL Statistics**											
187	**Normal Distribution Test**						**Lognormal Distribution Test**					
188					Shapiro Wilk Test Statistic	0.868				Shapiro Wilk Test Statistic	0.852	
189					Shapiro Wilk Critical Value	0.788				Shapiro Wilk Critical Value	0.788	
190	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
191												
192	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
193					95% Student's-t UCL	0.274				95% H-UCL	0.278	
194	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.303	
195					95% Adjusted-CLT UCL	0.267				97.5% Chebyshev (MVUE) UCL	0.325	
196					95% Modified-t UCL	0.274				99% Chebyshev (MVUE) UCL	0.37	
197												
198	**Gamma Distribution Test**						**Data Distribution**					
199					k star (bias corrected)	45.29	**Data appear Normal at 5% Significance Level**					
200					Theta Star	0.00553						
201					nu star	543.5						
202					Approximate Chi Square Value (.05)	490.4	**Nonparametric Statistics**					
203					Adjusted Level of Significance	0.0122				95% CLT UCL	0.27	
204					Adjusted Chi Square Value	472				95% Jackknife UCL	0.274	
205										95% Standard Bootstrap UCL	0.268	
206					Anderson-Darling Test Statistic	0.621				95% Bootstrap-t UCL	0.269	
207					Anderson-Darling 5% Critical Value	0.696				95% Hall's Bootstrap UCL	0.27	
208					Kolmogorov-Smirnov Test Statistic	0.337				95% Percentile Bootstrap UCL	0.266	
209					Kolmogorov-Smirnov 5% Critical Value	0.332				95% BCA Bootstrap UCL	0.265	
210	**Data follow Appr. Gamma Distribution at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.301	
211										97.5% Chebyshev(Mean, Sd) UCL	0.323	
212	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.366	

213				95% Approximate Gamma UCL	0.278							
214				95% Adjusted Gamma UCL	0.289							
215												
216	**Potential UCL to Use**									Use 95% Student's-t UCL	0.274	
217												
218												
219	**Manganese**											
220												
221	**General Statistics**											
222				Number of Valid Observations	6					Number of Distinct Observations	6	
223												
224	**Raw Statistics**						**Log-transformed Statistics**					
225				Minimum	0.085					Minimum of Log Data	-2.465	
226				Maximum	0.177					Maximum of Log Data	-1.732	
227				Mean	0.109					Mean of log Data	-2.253	
228				Median	0.097					SD of log Data	0.268	
229				SD	0.0343							
230				Coefficient of Variation	0.316							
231				Skewness	2.182							
232												
233												
234	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
235												
236	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
237	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
238												
239												
240	**Warning: There are only 6 Values in this data**											
241	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
242	**the resulting calculations may not be reliable enough to draw conclusions**											
243												
244	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
245												
246	**Relevant UCL Statistics**											
247	**Normal Distribution Test**						**Lognormal Distribution Test**					
248				Shapiro Wilk Test Statistic	0.707					Shapiro Wilk Test Statistic	0.775	
249				Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788	
250	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
251												
252	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
253				95% Student's-t UCL	0.137					95% H-UCL	0.141	
254	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.16	
255				95% Adjusted-CLT UCL	0.145					97.5% Chebyshev (MVUE) UCL	0.182	
256				95% Modified-t UCL	0.139					99% Chebyshev (MVUE) UCL	0.226	
257												
258	**Gamma Distribution Test**						**Data Distribution**					
259				k star (bias corrected)	7.677		**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
260				Theta Star	0.0142							
261				nu star	92.12							
262				Approximate Chi Square Value (.05)	70.99		**Nonparametric Statistics**					
263				Adjusted Level of Significance	0.0122					95% CLT UCL	0.132	
264				Adjusted Chi Square Value	64.32					95% Jackknife UCL	0.137	
265										95% Standard Bootstrap UCL	0.13	

266				Anderson-Darling Test Statistic	0.784					95% Bootstrap-t UCL	0.204	
267				Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	0.235	
268				Kolmogorov-Smirnov Test Statistic	0.323					95% Percentile Bootstrap UCL	0.135	
269				Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	0.141	
270				**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.17	
271										97.5% Chebyshev(Mean, Sd) UCL	0.196	
272				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.248	
273				95% Approximate Gamma UCL	0.141							
274				95% Adjusted Gamma UCL	0.156							
275												
276				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	0.141	
277												
278												
279	**Mercury**											
280												
281				**General Statistics**								
282				Number of Valid Observations	6					Number of Distinct Observations	6	
283												
284				**Raw Statistics**						**Log-transformed Statistics**		
285				Minimum	0.035					Minimum of Log Data	-3.352	
286				Maximum	0.094					Maximum of Log Data	-2.364	
287				Mean	0.0608					Mean of log Data	-2.851	
288				Median	0.059					SD of log Data	0.354	
289				SD	0.0212							
290				Coefficient of Variation	0.348							
291				Skewness	0.529							
292												
293												
294				**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
295												
296				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
297				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
298												
299												
300				**Warning: There are only 6 Values in this data**								
301				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
302				**the resulting calculations may not be reliable enough to draw conclusions**								
303												
304				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
305												
306				**Relevant UCL Statistics**								
307				**Normal Distribution Test**						**Lognormal Distribution Test**		
308				Shapiro Wilk Test Statistic	0.975					Shapiro Wilk Test Statistic	0.989	
309				Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788	
310				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
311												
312				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
313				95% Student's-t UCL	0.0782					95% H-UCL	0.0889	
314				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.0992	
315				95% Adjusted-CLT UCL	0.077					97.5% Chebyshev (MVUE) UCL	0.116	
316				95% Modified-t UCL	0.0786					99% Chebyshev (MVUE) UCL	0.148	
317												
318				**Gamma Distribution Test**						**Data Distribution**		

319				k star (bias corrected)	5.063		**Data appear Normal at 5% Significance Level**					
320				Theta Star	0.012							
321				nu star	60.76							
322				Approximate Chi Square Value (.05)	43.83		**Nonparametric Statistics**					
323				Adjusted Level of Significance	0.0122					95% CLT UCL	0.075	
324				Adjusted Chi Square Value	38.7					95% Jackknife UCL	0.0782	
325										95% Standard Bootstrap UCL	0.0738	
326				Anderson-Darling Test Statistic	0.162					95% Bootstrap-t UCL	0.0837	
327				Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	0.0907	
328				Kolmogorov-Smirnov Test Statistic	0.138					95% Percentile Bootstrap UCL	0.074	
329				Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	0.0753	
330				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.0985	
331										97.5% Chebyshev(Mean, Sd) UCL	0.115	
332				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.147	
333				95% Approximate Gamma UCL	0.0843							
334				95% Adjusted Gamma UCL	0.0955							
335												
336				**Potential UCL to Use**						Use 95% Student's-t UCL	0.0782	
337												
338												
339	**Nickel**											
340												
341				**General Statistics**								
342				Number of Valid Observations	6					Number of Distinct Observations	6	
343												
344				**Raw Statistics**			**Log-transformed Statistics**					
345				Minimum	0.003					Minimum of Log Data	-5.809	
346				Maximum	0.055					Maximum of Log Data	-2.9	
347				Mean	0.0205					Mean of log Data	-4.292	
348				Median	0.014					SD of log Data	1.037	
349				SD	0.0193							
350				Coefficient of Variation	0.941							
351				Skewness	1.374							
352												
353												
354				**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
355												
356				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
357				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
358												
359												
360				**Warning: There are only 6 Values in this data**								
361				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
362				**the resulting calculations may not be reliable enough to draw conclusions**								
363												
364				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
365												
366				**Relevant UCL Statistics**								
367				**Normal Distribution Test**			**Lognormal Distribution Test**					
368				Shapiro Wilk Test Statistic	0.869					Shapiro Wilk Test Statistic	0.982	
369				Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788	
370				**Data appear Normal at 5% Significance Level**			**Data appear Lognormal at 5% Significance Level**					
371												

372	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
373					95% Student's-t UCL	0.0364					95% H-UCL	0.168
374	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.0586
375					95% Adjusted-CLT UCL	0.0382					97.5% Chebyshev (MVUE) UCL	0.075
376					95% Modified-t UCL	0.0371					99% Chebyshev (MVUE) UCL	0.107
377												
378	**Gamma Distribution Test**						**Data Distribution**					
379					k star (bias corrected)	0.8	**Data appear Normal at 5% Significance Level**					
380					Theta Star	0.0256						
381					nu star	9.604						
382					Approximate Chi Square Value (.05)	3.696	**Nonparametric Statistics**					
383					Adjusted Level of Significance	0.0122					95% CLT UCL	0.0334
384					Adjusted Chi Square Value	2.5					95% Jackknife UCL	0.0364
385											95% Standard Bootstrap UCL	0.0326
386					Anderson-Darling Test Statistic	0.205					95% Bootstrap-t UCL	0.0599
387					Anderson-Darling 5% Critical Value	0.71					95% Hall's Bootstrap UCL	0.0981
388					Kolmogorov-Smirnov Test Statistic	0.208					95% Percentile Bootstrap UCL	0.0343
389					Kolmogorov-Smirnov 5% Critical Value	0.338					95% BCA Bootstrap UCL	0.0352
390	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0548
391											97.5% Chebyshev(Mean, Sd) UCL	0.0697
392	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.0988
393					95% Approximate Gamma UCL	0.0533						
394					95% Adjusted Gamma UCL	0.0788						
395												
396	**Potential UCL to Use**										Use 95% Student's-t UCL	0.0364
397												
398												
399	**Thallium**											
400												
401	**General Statistics**											
402					Number of Valid Observations	6					Number of Distinct Observations	5
403												
404	**Raw Statistics**						**Log-transformed Statistics**					
405					Minimum	0.0012					Minimum of Log Data	-6.725
406					Maximum	0.003					Maximum of Log Data	-5.809
407					Mean	0.00208					Mean of log Data	-6.259
408					Median	0.0021					SD of log Data	0.459
409					SD	0.0008998						
410					Coefficient of Variation	0.432						
411					Skewness	-0.00599						
412												
413												
414	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
415												
416	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
417	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
418												
419												
420	**Warning: There are only 6 Values in this data**											
421	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
422	**the resulting calculations may not be reliable enough to draw conclusions**											
423												
424	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426	**Relevant UCL Statistics**											
427	**Normal Distribution Test**						**Lognormal Distribution Test**					
428	Shapiro Wilk Test Statistic					0.763	Shapiro Wilk Test Statistic					0.765
429	Shapiro Wilk Critical Value					0.788	Shapiro Wilk Critical Value					0.788
430	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
431												
432	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
433	95% Student's-t UCL					0.00282	95% H-UCL					0.00358
434	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.00379
435	95% Adjusted-CLT UCL					0.00269	97.5% Chebyshev (MVUE) UCL					0.00453
436	95% Modified-t UCL					0.00282	99% Chebyshev (MVUE) UCL					0.00597
437												
438	**Gamma Distribution Test**						**Data Distribution**					
439	k star (bias corrected)					3.135	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
440	Theta Star					0.0006646						
441	nu star					37.61						
442	Approximate Chi Square Value (.05)					24.57	**Nonparametric Statistics**					
443	Adjusted Level of Significance					0.0122	95% CLT UCL					0.00269
444	Adjusted Chi Square Value					20.85	95% Jackknife UCL					0.00282
445							95% Standard Bootstrap UCL					0.00264
446	Anderson-Darling Test Statistic					0.798	95% Bootstrap-t UCL					0.00286
447	Anderson-Darling 5% Critical Value					0.698	95% Hall's Bootstrap UCL					0.00239
448	Kolmogorov-Smirnov Test Statistic					0.315	95% Percentile Bootstrap UCL					0.00263
449	Kolmogorov-Smirnov 5% Critical Value					0.333	95% BCA Bootstrap UCL					0.00263
450	**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.00368
451							97.5% Chebyshev(Mean, Sd) UCL					0.00438
452	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.00574
453	95% Approximate Gamma UCL					0.00319						
454	95% Adjusted Gamma UCL					0.00376						
455												
456	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					0.00319
457	**Recommended UCL exceeds the maximum observation**											
458												
459												
460	**Total Aroclors**											
461												
462	**General Statistics**											
463	Number of Valid Observations					6	Number of Distinct Observations					6
464												
465	**Raw Statistics**						**Log-transformed Statistics**					
466	Minimum					37	Minimum of Log Data					3.611
467	Maximum					1336	Maximum of Log Data					7.197
468	Mean					363.3	Mean of log Data					4.988
469	Median					86.5	SD of log Data					1.462
470	SD					519.7						
471	Coefficient of Variation					1.431						
472	Skewness					1.754						
473												
474												
475	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
476												
477	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											

478	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
479												
480												
481	Warning: There are only 6 Values in this data											
482	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
483	the resulting calculations may not be reliable enough to draw conclusions											
484												
485	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
486												
487	Relevant UCL Statistics											
488	Normal Distribution Test						Lognormal Distribution Test					
489				Shapiro Wilk Test Statistic	0.724					Shapiro Wilk Test Statistic	0.866	
490				Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788	
491	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
492												
493	Assuming Normal Distribution						Assuming Lognormal Distribution					
494				95% Student's-t UCL	790.8					95% H-UCL	18236	
495	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL	1129	
496				95% Adjusted-CLT UCL	874.6					97.5% Chebyshev (MVUE) UCL	1477	
497				95% Modified-t UCL	816.1					99% Chebyshev (MVUE) UCL	2159	
498												
499	Gamma Distribution Test						Data Distribution					
500				k star (bias corrected)	0.446		Data appear Gamma Distributed at 5% Significance Level					
501				Theta Star	813.7							
502				nu star	5.357							
503				Approximate Chi Square Value (.05)	1.321		Nonparametric Statistics					
504				Adjusted Level of Significance	0.0122					95% CLT UCL	712.2	
505				Adjusted Chi Square Value	0.731					95% Jackknife UCL	790.8	
506										95% Standard Bootstrap UCL	676.3	
507				Anderson-Darling Test Statistic	0.599					95% Bootstrap-t UCL	5044	
508				Anderson-Darling 5% Critical Value	0.726					95% Hall's Bootstrap UCL	4916	
509				Kolmogorov-Smirnov Test Statistic	0.303					95% Percentile Bootstrap UCL	702.8	
510				Kolmogorov-Smirnov 5% Critical Value	0.345					95% BCA Bootstrap UCL	803.6	
511	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL	1288	
512										97.5% Chebyshev(Mean, Sd) UCL	1688	
513	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL	2474	
514				95% Approximate Gamma UCL	1474							
515				95% Adjusted Gamma UCL	2663							
516												
517	Potential UCL to Use									Use 95% Approximate Gamma UCL	1474	
518	Recommended UCL exceeds the maximum observation											
519												
520												
521	Total DDE											
522												
523	General Statistics											
524				Number of Valid Observations	6					Number of Distinct Observations	6	
525												
526	Raw Statistics						Log-transformed Statistics					
527				Minimum	6.6					Minimum of Log Data	1.887	
528				Maximum	26.5					Maximum of Log Data	3.277	
529				Mean	13.5					Mean of log Data	2.508	
530				Median	11.5					SD of log Data	0.464	

531					SD	6.933						
532					Coefficient of Variation	0.514						
533					Skewness	1.626						
534												
535												
536	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
537												
538	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
539	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
540												
541												
542	**Warning: There are only 6 Values in this data**											
543	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
544	**the resulting calculations may not be reliable enough to draw conclusions**											
545												
546	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
547												
548	**Relevant UCL Statistics**											
549	**Normal Distribution Test**						**Lognormal Distribution Test**					
550					Shapiro Wilk Test Statistic	0.853					Shapiro Wilk Test Statistic	0.963
551					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
552	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
553												
554	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
555					95% Student's-t UCL	19.2					95% H-UCL	23.23
556	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	24.48
557					95% Adjusted-CLT UCL	20.16					97.5% Chebyshev (MVUE) UCL	29.27
558					95% Modified-t UCL	19.52					99% Chebyshev (MVUE) UCL	38.68
559												
560	**Gamma Distribution Test**						**Data Distribution**					
561					k star (bias corrected)	2.83	**Data appear Normal at 5% Significance Level**					
562					Theta Star	4.77						
563					nu star	33.96						
564					Approximate Chi Square Value (.05)	21.63	**Nonparametric Statistics**					
565					Adjusted Level of Significance	0.0122					95% CLT UCL	18.16
566					Adjusted Chi Square Value	18.17					95% Jackknife UCL	19.2
567											95% Standard Bootstrap UCL	17.67
568					Anderson-Darling Test Statistic	0.319					95% Bootstrap-t UCL	26.2
569					Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	44.7
570					Kolmogorov-Smirnov Test Statistic	0.216					95% Percentile Bootstrap UCL	17.95
571					Kolmogorov-Smirnov 5% Critical Value	0.333					95% BCA Bootstrap UCL	19.25
572	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	25.84
573											97.5% Chebyshev(Mean, Sd) UCL	31.18
574	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	41.66
575					95% Approximate Gamma UCL	21.19						
576					95% Adjusted Gamma UCL	25.24						
577												
578	**Potential UCL to Use**										Use 95% Student's-t UCL	19.2
579												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	BB-Study_area-WB	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Zinc

General Statistics

Number of Valid Observations	6	Number of Distinct Observations	6

Raw Statistics		**Log-transformed Statistics**	
Minimum	12.7	Minimum of Log Data	2.542
Maximum	15.6	Maximum of Log Data	2.747
Mean	14.1	Mean of log Data	2.643
Median	14.25	SD of log Data	0.0806
SD	1.13		
Coefficient of Variation	0.0801		
Skewness	-0.116		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

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If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.943	Shapiro Wilk Test Statistic	0.937
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15.03	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16.12
95% Adjusted-CLT UCL	14.84	97.5% Chebyshev (MVUE) UCL	17
95% Modified-t UCL	15.03	99% Chebyshev (MVUE) UCL	18.72
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	92.88	**Data appear Normal at 5% Significance Level**	
Theta Star	0.152		
nu star	1115		
Approximate Chi Square Value (.05)	1038	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	14.86

54					Adjusted Chi Square Value	1011					95% Jackknife UCL	15.03
55											95% Standard Bootstrap UCL	14.81
56					Anderson-Darling Test Statistic	0.286					95% Bootstrap-t UCL	14.98
57					Anderson-Darling 5% Critical Value	0.696					95% Hall's Bootstrap UCL	14.74
58					Kolmogorov-Smirnov Test Statistic	0.212					95% Percentile Bootstrap UCL	14.8
59					Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	14.78
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	16.11
61											97.5% Chebyshev(Mean, Sd) UCL	16.98
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	18.69
63					95% Approximate Gamma UCL	15.14						
64					95% Adjusted Gamma UCL	15.54						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	15.03
67												
68												
69	**Aluminum**											
70												
71					**General Statistics**							
72					Number of Valid Observations	6					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	4.2					Minimum of Log Data	1.435
76					Maximum	31.7					Maximum of Log Data	3.456
77					Mean	9.8					Mean of log Data	1.963
78					Median	5					SD of log Data	0.763
79					SD	10.81						
80					Coefficient of Variation	1.103						
81					Skewness	2.371						
82												
83												
84					**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 6 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.59					Shapiro Wilk Test Statistic	0.713
99					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
100					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	18.69					95% H-UCL	30.03
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	21.16
105					95% Adjusted-CLT UCL	21.62					97.5% Chebyshev (MVUE) UCL	26.42
106					95% Modified-t UCL	19.4					99% Chebyshev (MVUE) UCL	36.75

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	0.968	**Data do not follow a Discernable Distribution (0.05)**					
110					Theta Star	10.12						
111					nu star	11.62						
112					Approximate Chi Square Value (.05)	4.975	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0122					95% CLT UCL	17.06
114					Adjusted Chi Square Value	3.529					95% Jackknife UCL	18.69
115											95% Standard Bootstrap UCL	16.36
116					Anderson-Darling Test Statistic	1.086					95% Bootstrap-t UCL	149.4
117					Anderson-Darling 5% Critical Value	0.706					95% Hall's Bootstrap UCL	126.2
118					Kolmogorov-Smirnov Test Statistic	0.359					95% Percentile Bootstrap UCL	18.18
119					Kolmogorov-Smirnov 5% Critical Value	0.337					95% BCA Bootstrap UCL	19.33
120	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	29.04
121											97.5% Chebyshev(Mean, Sd) UCL	37.36
122	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	53.71
123					95% Approximate Gamma UCL	22.88						
124					95% Adjusted Gamma UCL	32.25						
125												
126	**Potential UCL to Use**										Use 95% Chebyshev (Mean, Sd) UCL	29.04
127												
128												
129	**Arsenic**											
130												
131	**General Statistics**											
132					Number of Valid Observations	6					Number of Distinct Observations	5
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	0.04					Minimum of Log Data	-3.219
136					Maximum	0.08					Maximum of Log Data	-2.526
137					Mean	0.0558					Mean of log Data	-2.911
138					Median	0.055					SD of log Data	0.247
139					SD	0.0143						
140					Coefficient of Variation	0.256						
141					Skewness	0.907						
142												
143												
144	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
145												
146	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
147	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
148												
149												
150	**Warning: There are only 6 Values in this data**											
151	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
152	**the resulting calculations may not be reliable enough to draw conclusions**											
153												
154	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
155												
156	**Relevant UCL Statistics**											
157	**Normal Distribution Test**						**Lognormal Distribution Test**					
158					Shapiro Wilk Test Statistic	0.93					Shapiro Wilk Test Statistic	0.963
159					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788

160	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
161												
162	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
163				95% Student's-t UCL	0.0676					95% H-UCL	0.0711	
164	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.0803	
165				95% Adjusted-CLT UCL	0.0677					97.5% Chebyshev (MVUE) UCL	0.091	
166				95% Modified-t UCL	0.0679					99% Chebyshev (MVUE) UCL	0.112	
167												
168	**Gamma Distribution Test**						**Data Distribution**					
169				k star (bias corrected)	9.812		**Data appear Normal at 5% Significance Level**					
170				Theta Star	0.00569							
171				nu star	117.7							
172				Approximate Chi Square Value (.05)	93.69		**Nonparametric Statistics**					
173				Adjusted Level of Significance	0.0122					95% CLT UCL	0.0654	
174				Adjusted Chi Square Value	85.95					95% Jackknife UCL	0.0676	
175										95% Standard Bootstrap UCL	0.0648	
176				Anderson-Darling Test Statistic	0.256					95% Bootstrap-t UCL	0.0731	
177				Anderson-Darling 5% Critical Value	0.697					95% Hall's Bootstrap UCL	0.069	
178				Kolmogorov-Smirnov Test Statistic	0.179					95% Percentile Bootstrap UCL	0.0642	
179				Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	0.0667	
180	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.0813	
181										97.5% Chebyshev(Mean, Sd) UCL	0.0923	
182	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.114	
183				95% Approximate Gamma UCL	0.0702							
184				95% Adjusted Gamma UCL	0.0765							
185												
186	**Potential UCL to Use**									Use 95% Student's-t UCL	0.0676	
187												
188												
189	**Cadmium**											
190												
191					**General Statistics**							
192				Number of Valid Observations	6					Number of Distinct Observations	5	
193												
194	**Raw Statistics**						**Log-transformed Statistics**					
195				Minimum	0.008					Minimum of Log Data	-4.828	
196				Maximum	0.014					Maximum of Log Data	-4.269	
197				Mean	0.0116					Mean of log Data	-4.483	
198				Median	0.0125					SD of log Data	0.251	
199				SD	0.00269							
200				Coefficient of Variation	0.232							
201				Skewness	-0.68							
202												
203												
204	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
205												
206	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
207	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
208												
209												
210	**Warning: There are only 6 Values in this data**											
211	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
212	**the resulting calculations may not be reliable enough to draw conclusions**											

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218				Shapiro Wilk Test Statistic	0.832					Shapiro Wilk Test Statistic	0.815	
219				Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788	
220	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223				95% Student's-t UCL	0.0138					95% H-UCL	0.0148	
224	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.0168	
225				95% Adjusted-CLT UCL	0.0131					97.5% Chebyshev (MVUE) UCL	0.019	
226				95% Modified-t UCL	0.0137					99% Chebyshev (MVUE) UCL	0.0234	
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229				k star (bias corrected)	10.2		**Data appear Normal at 5% Significance Level**					
230				Theta Star	0.00114							
231				nu star	122.4							
232				Approximate Chi Square Value (.05)	97.84		**Nonparametric Statistics**					
233				Adjusted Level of Significance	0.0122					95% CLT UCL	0.0134	
234				Adjusted Chi Square Value	89.92					95% Jackknife UCL	0.0138	
235										95% Standard Bootstrap UCL	0.0133	
236				Anderson-Darling Test Statistic	0.605					95% Bootstrap-t UCL	0.0135	
237				Anderson-Darling 5% Critical Value	0.697					95% Hall's Bootstrap UCL	0.0127	
238				Kolmogorov-Smirnov Test Statistic	0.259					95% Percentile Bootstrap UCL	0.0132	
239				Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	0.013	
240	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.0164	
241										97.5% Chebyshev(Mean, Sd) UCL	0.0184	
242	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.0225	
243				95% Approximate Gamma UCL	0.0145							
244				95% Adjusted Gamma UCL	0.0158							
245												
246	**Potential UCL to Use**									Use 95% Student's-t UCL	0.0138	
247												
248												
249	**Chromium**											
250												
251	**General Statistics**											
252				Number of Valid Observations	6					Number of Distinct Observations	6	
253												
254	**Raw Statistics**						**Log-transformed Statistics**					
255				Minimum	0.39					Minimum of Log Data	-0.942	
256				Maximum	1.32					Maximum of Log Data	0.278	
257				Mean	0.73					Mean of log Data	-0.419	
258				Median	0.565					SD of log Data	0.488	
259				SD	0.379							
260				Coefficient of Variation	0.519							
261				Skewness	0.984							
262												
263												
264	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
267	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
268												
269												
270	Warning: There are only 6 Values in this data											
271	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
272	the resulting calculations may not be reliable enough to draw conclusions											
273												
274	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
275												
276	Relevant UCL Statistics											
277	Normal Distribution Test						Lognormal Distribution Test					
278					Shapiro Wilk Test Statistic	0.848					Shapiro Wilk Test Statistic	0.902
279					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
280	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
281												
282	Assuming Normal Distribution						Assuming Lognormal Distribution					
283					95% Student's-t UCL	1.042					95% H-UCL	1.311
284	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	1.356
285					95% Adjusted-CLT UCL	1.051					97.5% Chebyshev (MVUE) UCL	1.628
286					95% Modified-t UCL	1.052					99% Chebyshev (MVUE) UCL	2.164
287												
288	Gamma Distribution Test						Data Distribution					
289					k star (bias corrected)	2.597	Data appear Normal at 5% Significance Level					
290					Theta Star	0.281						
291					nu star	31.17						
292					Approximate Chi Square Value (.05)	19.41	Nonparametric Statistics					
293					Adjusted Level of Significance	0.0122					95% CLT UCL	0.984
294					Adjusted Chi Square Value	16.15					95% Jackknife UCL	1.042
295											95% Standard Bootstrap UCL	0.965
296					Anderson-Darling Test Statistic	0.449					95% Bootstrap-t UCL	1.828
297					Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	3.075
298					Kolmogorov-Smirnov Test Statistic	0.26					95% Percentile Bootstrap UCL	0.978
299					Kolmogorov-Smirnov 5% Critical Value	0.333					95% BCA Bootstrap UCL	1.017
300	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	1.404
301											97.5% Chebyshev(Mean, Sd) UCL	1.696
302	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	2.269
303					95% Approximate Gamma UCL	1.172						
304					95% Adjusted Gamma UCL	1.408						
305												
306	Potential UCL to Use										Use 95% Student's-t UCL	1.042
307												
308												
309	Copper											
310												
311	General Statistics											
312					Number of Valid Observations	6					Number of Distinct Observations	6
313												
314	Raw Statistics						Log-transformed Statistics					
315					Minimum	0.586					Minimum of Log Data	-0.534
316					Maximum	0.798					Maximum of Log Data	-0.226
317					Mean	0.69					Mean of log Data	-0.378
318					Median	0.691					SD of log Data	0.128

SD	0.0879	
Coefficient of Variation	0.127	
Skewness	0.00613	

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If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.924	Shapiro Wilk Test Statistic	0.922
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.762	95% H-UCL	0.774
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.847
95% Adjusted-CLT UCL	0.749	97.5% Chebyshev (MVUE) UCL	0.916
95% Modified-t UCL	0.762	99% Chebyshev (MVUE) UCL	1.049
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	36.75	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0188		
nu star	440.9		
Approximate Chi Square Value (.05)	393.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	0.749
Adjusted Chi Square Value	376.8	95% Jackknife UCL	0.762
		95% Standard Bootstrap UCL	0.744
Anderson-Darling Test Statistic	0.302	95% Bootstrap-t UCL	0.768
Anderson-Darling 5% Critical Value	0.697	95% Hall's Bootstrap UCL	0.751
Kolmogorov-Smirnov Test Statistic	0.206	95% Percentile Bootstrap UCL	0.741
Kolmogorov-Smirnov 5% Critical Value	0.332	95% BCA Bootstrap UCL	0.744
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.846
		97.5% Chebyshev(Mean, Sd) UCL	0.914
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.047
95% Approximate Gamma UCL	0.773		
95% Adjusted Gamma UCL	0.807		
Potential UCL to Use		Use 95% Student's-t UCL	0.762

Lead

General Statistics

372				Number of Valid Data	6					Number of Detected Data	5	
373				Number of Distinct Detected Data	3					Number of Non-Detect Data	1	
374										Percent Non-Detects	16.67%	
375												
376	**Raw Statistics**									**Log-transformed Statistics**		
377				Minimum Detected	0.023					Minimum Detected	-3.772	
378				Maximum Detected	0.0435					Maximum Detected	-3.135	
379				Mean of Detected	0.0289					Mean of Detected	-3.571	
380				SD of Detected	0.00826					SD of Detected	0.25	
381				Minimum Non-Detect	0.014					Minimum Non-Detect	-4.269	
382				Maximum Non-Detect	0.014					Maximum Non-Detect	-4.269	
383												
384												
385	**Warning: There are only 3 Distinct Detected Values in this data set**											
386	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
387	**Those methods will return a 'N/A' value on your output display!**											
388												
389	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
390	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
391												
392												
393	**UCL Statistics**											
394	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
395				Shapiro Wilk Test Statistic	0.679					Shapiro Wilk Test Statistic	0.72	
396				5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762	
397	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
398												
399	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
400				DL/2 Substitution Method						DL/2 Substitution Method		
401				Mean	0.0253					Mean	-3.803	
402				SD	0.0116					SD	0.61	
403				95% DL/2 (t) UCL	0.0348					95% H-Stat (DL/2) UCL	0.0289	
404												
405				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
406				Mean	0.0256					Mean in Log Scale	-3.664	
407				SD	0.0102					SD in Log Scale	0.318	
408				95% MLE (t) UCL	0.034					Mean in Original Scale	0.0268	
409				95% MLE (Tiku) UCL	0.0343					SD in Original Scale	0.00904	
410										95% Percentile Bootstrap UCL	0.0331	
411										95% BCA Bootstrap UCL	0.0331	
412												
413	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
414				k star (bias corrected)	7.517					**Data do not follow a Discernable Distribution (0.05)**		
415				Theta Star	0.00384							
416				nu star	75.17							
417												
418				A-D Test Statistic	0.916					**Nonparametric Statistics**		
419				5% A-D Critical Value	0.679					Kaplan-Meier (KM) Method		
420				K-S Test Statistic	0.679					Mean	0.0279	
421				5% K-S Critical Value	0.357					SD	0.0071	
422	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean	0.00324	
423										95% KM (t) UCL	0.0344	
424	**Assuming Gamma Distribution**									95% KM (z) UCL	0.0332	

425	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.0342
426					Minimum	0.0202				95% KM (bootstrap t) UCL		1.8E+308
427					Maximum	0.0435				95% KM (BCA) UCL		0.0338
428					Mean	0.0274				95% KM (Percentile Bootstrap) UCL		0.0343
429					Median	0.026				95% KM (Chebyshev) UCL		0.042
430					SD	0.0082				97.5% KM (Chebyshev) UCL		0.0481
431					k star	8.251				99% KM (Chebyshev) UCL		0.0601
432					Theta star	0.00333						
433					Nu star	99.01				**Potential UCLs to Use**		
434					AppChi2	77.06				95% KM (Chebyshev) UCL		0.042
435				95% Gamma Approximate UCL		0.0353						
436				95% Adjusted Gamma UCL		0.0388						
437	**Note: DL/2 is not a recommended method.**											
438												
439												
440	**Mercury**											
441												
442	**General Statistics**											
443	Number of Valid Observations				6					Number of Distinct Observations		6
444												
445	**Raw Statistics**									**Log-transformed Statistics**		
446	Minimum				0.025					Minimum of Log Data		-3.689
447	Maximum				0.054					Maximum of Log Data		-2.919
448	Mean				0.0367					Mean of log Data		-3.342
449	Median				0.033					SD of log Data		0.292
450	SD				0.0111							
451	Coefficient of Variation				0.303							
452	Skewness				0.83							
453												
454												
455	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
456												
457	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
458	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
459												
460												
461	**Warning: There are only 6 Values in this data**											
462	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
463	**the resulting calculations may not be reliable enough to draw conclusions**											
464												
465	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
466												
467	**Relevant UCL Statistics**											
468	**Normal Distribution Test**									**Lognormal Distribution Test**		
469	Shapiro Wilk Test Statistic				0.915					Shapiro Wilk Test Statistic		0.949
470	Shapiro Wilk Critical Value				0.788					Shapiro Wilk Critical Value		0.788
471	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
472												
473	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
474	95% Student's-t UCL				0.0458					95% H-UCL		0.0492
475	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		0.0556
476	95% Adjusted-CLT UCL				0.0458					97.5% Chebyshev (MVUE) UCL		0.0639
477	95% Modified-t UCL				0.0461					99% Chebyshev (MVUE) UCL		0.08

478												
479	**Gamma Distribution Test**						**Data Distribution**					
480					k star (bias corrected)	7.072	**Data appear Normal at 5% Significance Level**					
481					Theta Star	0.00518						
482					nu star	84.86						
483					Approximate Chi Square Value (.05)	64.63	**Nonparametric Statistics**					
484					Adjusted Level of Significance	0.0122					95% CLT UCL	0.0441
485					Adjusted Chi Square Value	58.29					95% Jackknife UCL	0.0458
486											95% Standard Bootstrap UCL	0.0435
487					Anderson-Darling Test Statistic	0.297					95% Bootstrap-t UCL	0.0546
488					Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	0.103
489					Kolmogorov-Smirnov Test Statistic	0.2					95% Percentile Bootstrap UCL	0.044
490					Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	0.0445
491	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0564
492											97.5% Chebyshev(Mean, Sd) UCL	0.065
493	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.0818
494					95% Approximate Gamma UCL	0.0481						
495					95% Adjusted Gamma UCL	0.0534						
496												
497	**Potential UCL to Use**										Use 95% Student's-t UCL	0.0458
498												
499												
500	**Manganese**											
501												
502	**General Statistics**											
503					Number of Valid Observations	6					Number of Distinct Observations	6
504												
505	**Raw Statistics**						**Log-transformed Statistics**					
506					Minimum	3.15					Minimum of Log Data	1.147
507					Maximum	10.8					Maximum of Log Data	2.38
508					Mean	5.09					Mean of log Data	1.521
509					Median	3.96					SD of log Data	0.473
510					SD	2.939						
511					Coefficient of Variation	0.577						
512					Skewness	1.978						
513												
514												
515	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
516												
517	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
518	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
519												
520												
521	**Warning: There are only 6 Values in this data**											
522	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
523	**the resulting calculations may not be reliable enough to draw conclusions**											
524												
525	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
526												
527	**Relevant UCL Statistics**											
528	**Normal Distribution Test**						**Lognormal Distribution Test**					
529					Shapiro Wilk Test Statistic	0.737					Shapiro Wilk Test Statistic	0.831
530					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788

531	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
532												
533	Assuming Normal Distribution						Assuming Lognormal Distribution					
534					95% Student's-t UCL	7.507					95% H-UCL	8.826
535	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	9.237
536					95% Adjusted-CLT UCL	8.098					97.5% Chebyshev (MVUE) UCL	11.06
537					95% Modified-t UCL	7.669					99% Chebyshev (MVUE) UCL	14.65
538												
539	Gamma Distribution Test						Data Distribution					
540					k star (bias corrected)	2.536	Data appear Gamma Distributed at 5% Significance Level					
541					Theta Star	2.007						
542					nu star	30.44						
543					Approximate Chi Square Value (.05)	18.84	Nonparametric Statistics					
544					Adjusted Level of Significance	0.0122					95% CLT UCL	7.063
545					Adjusted Chi Square Value	15.63					95% Jackknife UCL	7.507
546											95% Standard Bootstrap UCL	6.891
547					Anderson-Darling Test Statistic	0.618					95% Bootstrap-t UCL	11.47
548					Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	14.84
549					Kolmogorov-Smirnov Test Statistic	0.254					95% Percentile Bootstrap UCL	7.065
550					Kolmogorov-Smirnov 5% Critical Value	0.333					95% BCA Bootstrap UCL	7.97
551	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	10.32
552											97.5% Chebyshev(Mean, Sd) UCL	12.58
553	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	17.03
554					95% Approximate Gamma UCL	8.225						
555					95% Adjusted Gamma UCL	9.909						
556												
557	Potential UCL to Use										Use 95% Approximate Gamma UCL	8.225
558												
559												
560	Nickel											
561												
562	General Statistics											
563					Number of Valid Observations	5					Number of Distinct Observations	5
564												
565	Raw Statistics						Log-transformed Statistics					
566					Minimum	0.213					Minimum of Log Data	-1.546
567					Maximum	0.321					Maximum of Log Data	-1.136
568					Mean	0.264					Mean of log Data	-1.342
569					Median	0.261					SD of log Data	0.162
570					SD	0.0428						
571					Coefficient of Variation	0.162						
572					Skewness	0.233						
573												
574												
575	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
576												
577	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
578	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
579												
580												
581	Warning: There are only 5 Values in this data											
582	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
583	the resulting calculations may not be reliable enough to draw conclusions											

584												
585	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
586												
587	**Relevant UCL Statistics**											
588	**Normal Distribution Test**						**Lognormal Distribution Test**					
589				Shapiro Wilk Test Statistic	0.983					Shapiro Wilk Test Statistic	0.986	
590				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
591	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
592												
593	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
594				95% Student's-t UCL	0.305					95% H-UCL	0.315	
595	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.348	
596				95% Adjusted-CLT UCL	0.298					97.5% Chebyshev (MVUE) UCL	0.384	
597				95% Modified-t UCL	0.305					99% Chebyshev (MVUE) UCL	0.455	
598												
599	**Gamma Distribution Test**						**Data Distribution**					
600				k star (bias corrected)	19.22		**Data appear Normal at 5% Significance Level**					
601				Theta Star	0.0137							
602				nu star	192.2							
603				Approximate Chi Square Value (.05)	161.2		**Nonparametric Statistics**					
604				Adjusted Level of Significance	0.0086					95% CLT UCL	0.296	
605				Adjusted Chi Square Value	148.7					95% Jackknife UCL	0.305	
606										95% Standard Bootstrap UCL	0.292	
607				Anderson-Darling Test Statistic	0.181					95% Bootstrap-t UCL	0.312	
608				Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	0.318	
609				Kolmogorov-Smirnov Test Statistic	0.163					95% Percentile Bootstrap UCL	0.292	
610				Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.292	
611	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.348	
612										97.5% Chebyshev(Mean, Sd) UCL	0.384	
613	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.455	
614				95% Approximate Gamma UCL	0.315							
615				95% Adjusted Gamma UCL	0.342							
616												
617	**Potential UCL to Use**									Use 95% Student's-t UCL	0.305	
618												
619												
620	**Total Aroclors**											
621												
622	**General Statistics**											
623				Number of Valid Observations	6					Number of Distinct Observations	6	
624												
625	**Raw Statistics**						**Log-transformed Statistics**					
626				Minimum	67					Minimum of Log Data	4.205	
627				Maximum	1719					Maximum of Log Data	7.449	
628				Mean	415.2					Mean of log Data	5.331	
629				Median	139.8					SD of log Data	1.153	
630				SD	644.3							
631				Coefficient of Variation	1.552							
632				Skewness	2.359							
633												
634												
635	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
636												

	A	B	C	D	E	F	G	H	I	J	K	L
637	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
638	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
639												
640												
641	Warning: There are only 6 Values in this data											
642	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
643	the resulting calculations may not be reliable enough to draw conclusions											
644												
645	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
646												
647	Relevant UCL Statistics											
648	Normal Distribution Test						Lognormal Distribution Test					
649	Shapiro Wilk Test Statistic					0.606	Shapiro Wilk Test Statistic					0.863
650	Shapiro Wilk Critical Value					0.788	Shapiro Wilk Critical Value					0.788
651	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
652												
653	Assuming Normal Distribution						Assuming Lognormal Distribution					
654	95% Student's-t UCL					945.2	95% H-UCL					4447
655	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					1038
656	95% Adjusted-CLT UCL					1118	97.5% Chebyshev (MVUE) UCL					1337
657	95% Modified-t UCL					987.4	99% Chebyshev (MVUE) UCL					1925
658												
659	Gamma Distribution Test						Data Distribution					
660	k star (bias corrected)					0.533	Data Follow Appr. Gamma Distribution at 5% Significance Level					
661	Theta Star					778.3						
662	nu star					6.402						
663	Approximate Chi Square Value (.05)					1.848	Nonparametric Statistics					
664	Adjusted Level of Significance					0.0122	95% CLT UCL					847.8
665	Adjusted Chi Square Value					1.098	95% Jackknife UCL					945.2
666							95% Standard Bootstrap UCL					803.5
667	Anderson-Darling Test Statistic					0.771	95% Bootstrap-t UCL					6213
668	Anderson-Darling 5% Critical Value					0.719	95% Hall's Bootstrap UCL					4729
669	Kolmogorov-Smirnov Test Statistic					0.32	95% Percentile Bootstrap UCL					910.1
670	Kolmogorov-Smirnov 5% Critical Value					0.342	95% BCA Bootstrap UCL					951.3
671	Data follow Appr. Gamma Distribution at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1562
672							97.5% Chebyshev(Mean, Sd) UCL					2058
673	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					3032
674	95% Approximate Gamma UCL					1438						
675	95% Adjusted Gamma UCL					2421						
676												
677	Potential UCL to Use						Use 95% Approximate Gamma UCL					1438
678												
679												
680	Total DDD											
681												
682	General Statistics											
683	Number of Valid Observations					6	Number of Distinct Observations					6
684												
685	Raw Statistics						Log-transformed Statistics					
686	Minimum					7.7	Minimum of Log Data					2.041
687	Maximum					25	Maximum of Log Data					3.219
688	Mean					12.86	Mean of log Data					2.47
689	Median					11.2	SD of log Data					0.427

SD	6.372	
Coefficient of Variation	0.496	
Skewness	1.787	

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.81	Shapiro Wilk Test Statistic	0.913
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	18.1	95% H-UCL	20.79
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.44
95% Adjusted-CLT UCL	19.16	97.5% Chebyshev (MVUE) UCL	26.64
95% Modified-t UCL	18.42	99% Chebyshev (MVUE) UCL	34.88
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.18	**Data appear Normal at 5% Significance Level**	
Theta Star	4.044		
nu star	38.16		
Approximate Chi Square Value (.05)	25.01	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	17.14
Adjusted Chi Square Value	21.25	95% Jackknife UCL	18.1
		95% Standard Bootstrap UCL	16.68
Anderson-Darling Test Statistic	0.401	95% Bootstrap-t UCL	23.56
Anderson-Darling 5% Critical Value	0.698	95% Hall's Bootstrap UCL	34.83
Kolmogorov-Smirnov Test Statistic	0.218	95% Percentile Bootstrap UCL	16.87
Kolmogorov-Smirnov 5% Critical Value	0.333	95% BCA Bootstrap UCL	18.23
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	24.2
		97.5% Chebyshev(Mean, Sd) UCL	29.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	38.74
95% Approximate Gamma UCL	19.62		
95% Adjusted Gamma UCL	23.09		
Potential UCL to Use		Use 95% Student's-t UCL	18.1

Total DDE

General Statistics

Number of Valid Observations	6	Number of Distinct Observations 6
Raw Statistics		**Log-transformed Statistics**
Minimum	29.5	Minimum of Log Data 3.384
Maximum	70	Maximum of Log Data 4.248
Mean	47.42	Mean of log Data 3.811
Median	47.5	SD of log Data 0.342
SD	15.76	
Coefficient of Variation	0.332	
Skewness	0.253	

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.948	Shapiro Wilk Test Statistic	0.943
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	60.38	95% H-UCL	68.17
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	76.33
95% Adjusted-CLT UCL	58.71	97.5% Chebyshev (MVUE) UCL	88.83
95% Modified-t UCL	60.49	99% Chebyshev (MVUE) UCL	113.4
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.423	**Data appear Normal at 5% Significance Level**	
Theta Star	8.744		
nu star	65.07		
Approximate Chi Square Value (.05)	47.51	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	58
Adjusted Chi Square Value	42.15	95% Jackknife UCL	60.38
		95% Standard Bootstrap UCL	57.35
Anderson-Darling Test Statistic	0.259	95% Bootstrap-t UCL	61.82
Anderson-Darling 5% Critical Value	0.698	95% Hall's Bootstrap UCL	57.48
Kolmogorov-Smirnov Test Statistic	0.197	95% Percentile Bootstrap UCL	57.67
Kolmogorov-Smirnov 5% Critical Value	0.332	95% BCA Bootstrap UCL	57.83
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	75.45
		97.5% Chebyshev(Mean, Sd) UCL	87.59
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	111.4
95% Approximate Gamma UCL	64.94		
95% Adjusted Gamma UCL	73.21		

796												
797	**Potential UCL to Use**										Use 95% Student's-t UCL	60.38
798												
799												
800	**Total Dioxin/Furan TEQ**											
801												
802	**General Statistics**											
803	Number of Valid Observations					6					Number of Distinct Observations	6
804												
805	**Raw Statistics**										**Log-transformed Statistics**	
806	Minimum					1.291					Minimum of Log Data	0.255
807	Maximum					2.117					Maximum of Log Data	0.75
808	Mean					1.582					Mean of log Data	0.444
809	Median					1.529					SD of log Data	0.183
810	SD					0.305						
811	Coefficient of Variation					0.193						
812	Skewness					1.173						
813												
814												
815	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
816												
817	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
818	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
819												
820												
821	**Warning: There are only 6 Values in this data**											
822	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
823	**the resulting calculations may not be reliable enough to draw conclusions**											
824												
825	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
826												
827	**Relevant UCL Statistics**											
828	**Normal Distribution Test**										**Lognormal Distribution Test**	
829	Shapiro Wilk Test Statistic					0.89					Shapiro Wilk Test Statistic	0.918
830	Shapiro Wilk Critical Value					0.788					Shapiro Wilk Critical Value	0.788
831	**Data appear Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
832												
833	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
834	95% Student's-t UCL					1.833					95% H-UCL	1.875
835	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	2.097
836	95% Adjusted-CLT UCL					1.851					97.5% Chebyshev (MVUE) UCL	2.32
837	95% Modified-t UCL					1.843					99% Chebyshev (MVUE) UCL	2.758
838												
839	**Gamma Distribution Test**										**Data Distribution**	
840	k star (bias corrected)					17.52					**Data appear Normal at 5% Significance Level**	
841	Theta Star					0.0903						
842	nu star					210.2						
843	Approximate Chi Square Value (.05)					177.7					**Nonparametric Statistics**	
844	Adjusted Level of Significance					0.0122					95% CLT UCL	1.787
845	Adjusted Chi Square Value					166.8					95% Jackknife UCL	1.833
846											95% Standard Bootstrap UCL	1.769
847	Anderson-Darling Test Statistic					0.346					95% Bootstrap-t UCL	1.992
848	Anderson-Darling 5% Critical Value					0.697					95% Hall's Bootstrap UCL	3.027

849				Kolmogorov-Smirnov Test Statistic	0.222					95% Percentile Bootstrap UCL	1.786	
850				Kolmogorov-Smirnov 5% Critical Value	0.332					95% BCA Bootstrap UCL	1.818	
851				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2.125	
852										97.5% Chebyshev(Mean, Sd) UCL	2.359	
853				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	2.82	
854				95% Approximate Gamma UCL	1.872							
855				95% Adjusted Gamma UCL	1.994							
856												
857				**Potential UCL to Use**						Use 95% Student's-t UCL	1.833	
858												
859												
860	**Total DDT**											
861												
862				**General Statistics**								
863				Number of Valid Data	6					Number of Detected Data	5	
864				Number of Distinct Detected Data	5					Number of Non-Detect Data	1	
865										Percent Non-Detects	16.67%	
866												
867				**Raw Statistics**						**Log-transformed Statistics**		
868				Minimum Detected	8.6					Minimum Detected	2.152	
869				Maximum Detected	58					Maximum Detected	4.06	
870				Mean of Detected	32.16					Mean of Detected	3.298	
871				SD of Detected	18.3					SD of Detected	0.72	
872				Minimum Non-Detect	6.9					Minimum Non-Detect	1.932	
873				Maximum Non-Detect	6.9					Maximum Non-Detect	1.932	
874												
875												
876				**Warning: There are only 5 Detected Values in this data**								
877				**Note: It should be noted that even though bootstrap may be performed on this data set**								
878				**the resulting calculations may not be reliable enough tp draw conclusions**								
879												
880				**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**								
881												
882												
883				**UCL Statistics**								
884				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
885				Shapiro Wilk Test Statistic	0.99					Shapiro Wilk Test Statistic	0.929	
886				5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762	
887				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
888												
889				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
890				DL/2 Substitution Method						DL/2 Substitution Method		
891				Mean	27.38					Mean	2.955	
892				SD	20.13					SD	1.059	
893				95% DL/2 (t) UCL	43.94					95% H-Stat (DL/2) UCL	101.4	
894												
895				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
896				Mean	26.11					Mean in Log Scale	3.003	
897				SD	20.51					SD in Log Scale	0.969	
898				95% MLE (t) UCL	42.99					Mean in Original Scale	27.57	
899				95% MLE (Tiku) UCL	43.31					SD in Original Scale	19.86	
900										95% Percentile Bootstrap UCL	39.73	
901										95% BCA Bootstrap UCL	40.2	

902												
903	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
904				k star (bias corrected)	1.353		**Data appear Normal at 5% Significance Level**					
905				Theta Star	23.77							
906				nu star	13.53							
907												
908				A-D Test Statistic	0.237		**Nonparametric Statistics**					
909				5% A-D Critical Value	0.683					Kaplan-Meier (KM) Method		
910				K-S Test Statistic	0.683					Mean		28.23
911				5% K-S Critical Value	0.359					SD		17.33
912	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		7.911
913										95% KM (t) UCL		44.17
914	**Assuming Gamma Distribution**									95% KM (z) UCL		41.25
915				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		44.38
916				Minimum	6.397					95% KM (bootstrap t) UCL		44.66
917				Maximum	58					95% KM (BCA) UCL		43.03
918				Mean	27.87					95% KM (Percentile Bootstrap) UCL		42.22
919				Median	28.1					95% KM (Chebyshev) UCL		62.72
920				SD	19.46					97.5% KM (Chebyshev) UCL		77.64
921				k star	1.113					99% KM (Chebyshev) UCL		106.9
922				Theta star	25.04							
923				Nu star	13.35		**Potential UCLs to Use**					
924				AppChi2	6.13					95% KM (t) UCL		44.17
925				95% Gamma Approximate UCL	60.7					95% KM (Percentile Bootstrap) UCL		42.22
926				95% Adjusted Gamma UCL	82.98							
927	**Note: DL/2 is not a recommended method.**											
928												
929												
930	**Total Dioxin-like PCBs**											
931												
932	**General Statistics**											
933				Number of Valid Observations	6					Number of Distinct Observations		6
934												
935	**Raw Statistics**						**Log-transformed Statistics**					
936				Minimum	5531					Minimum of Log Data		8.618
937				Maximum	56350					Maximum of Log Data		10.94
938				Mean	22840					Mean of log Data		9.795
939				Median	16811					SD of log Data		0.772
940				SD	17930							
941				Coefficient of Variation	0.785							
942				Skewness	1.629							
943												
944												
945	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
946												
947	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
948	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
949												
950												
951	**Warning: There are only 6 Values in this data**											
952	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
953	**the resulting calculations may not be reliable enough to draw conclusions**											
954												

	A	B	C	D	E	F	G	H	I	J	K	L
955	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
956												
957	**Relevant UCL Statistics**											
958	**Normal Distribution Test**						**Lognormal Distribution Test**					
959	Shapiro Wilk Test Statistic					0.846	Shapiro Wilk Test Statistic					0.976
960	Shapiro Wilk Critical Value					0.788	Shapiro Wilk Critical Value					0.788
961	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
962												
963	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
964	95% Student's-t UCL					37590	95% H-UCL					77989
965	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					53967
966	95% Adjusted-CLT UCL					40082	97.5% Chebyshev (MVUE) UCL					67446
967	95% Modified-t UCL					38402	99% Chebyshev (MVUE) UCL					93922
968												
969	**Gamma Distribution Test**						**Data Distribution**					
970	k star (bias corrected)					1.223	**Data appear Normal at 5% Significance Level**					
971	Theta Star					18672						
972	nu star					14.68						
973	Approximate Chi Square Value (.05)					7.039	**Nonparametric Statistics**					
974	Adjusted Level of Significance					0.0122	95% CLT UCL					34881
975	Adjusted Chi Square Value					5.246	95% Jackknife UCL					37590
976							95% Standard Bootstrap UCL					33691
977	Anderson-Darling Test Statistic					0.264	95% Bootstrap-t UCL					58313
978	Anderson-Darling 5% Critical Value					0.704	95% Hall's Bootstrap UCL					107392
979	Kolmogorov-Smirnov Test Statistic					0.206	95% Percentile Bootstrap UCL					34659
980	Kolmogorov-Smirnov 5% Critical Value					0.336	95% BCA Bootstrap UCL					38126
981	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					54748
982							97.5% Chebyshev(Mean, Sd) UCL					68554
983	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					95674
984	95% Approximate Gamma UCL					47632						
985	95% Adjusted Gamma UCL					63905						
986												
987	**Potential UCL to Use**						Use 95% Student's-t UCL					37590
988												
989												
990	**Total PCB TEQ**											
991												
992	**General Statistics**											
993	Number of Valid Observations					6	Number of Distinct Observations					6
994												
995	**Raw Statistics**						**Log-transformed Statistics**					
996	Minimum					1.602	Minimum of Log Data					0.471
997	Maximum					6.038	Maximum of Log Data					1.798
998	Mean					3.464	Mean of log Data					1.145
999	Median					2.903	SD of log Data					0.484
1000	SD					1.675						
1001	Coefficient of Variation					0.483						
1002	Skewness					0.775						
1003												
1004												
1005	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1006												
1007	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											

1008	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
1009												
1010												
1011	Warning: There are only 6 Values in this data											
1012	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
1013	the resulting calculations may not be reliable enough to draw conclusions											
1014												
1015	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
1016												
1017	Relevant UCL Statistics											
1018	Normal Distribution Test						Lognormal Distribution Test					
1019					Shapiro Wilk Test Statistic	0.917					Shapiro Wilk Test Statistic	0.965
1020					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
1021	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1022												
1023	Assuming Normal Distribution						Assuming Lognormal Distribution					
1024					95% Student's-t UCL	4.842					95% H-UCL	6.206
1025	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	6.44
1026					95% Adjusted-CLT UCL	4.82					97.5% Chebyshev (MVUE) UCL	7.729
1027					95% Modified-t UCL	4.878					99% Chebyshev (MVUE) UCL	10.26
1028												
1029	Gamma Distribution Test						Data Distribution					
1030					k star (bias corrected)	2.769	Data appear Normal at 5% Significance Level					
1031					Theta Star	1.251						
1032					nu star	33.23						
1033					Approximate Chi Square Value (.05)	21.05	Nonparametric Statistics					
1034					Adjusted Level of Significance	0.0122					95% CLT UCL	4.589
1035					Adjusted Chi Square Value	17.64					95% Jackknife UCL	4.842
1036											95% Standard Bootstrap UCL	4.49
1037					Anderson-Darling Test Statistic	0.27					95% Bootstrap-t UCL	6.313
1038					Anderson-Darling 5% Critical Value	0.698					95% Hall's Bootstrap UCL	16.26
1039					Kolmogorov-Smirnov Test Statistic	0.221					95% Percentile Bootstrap UCL	4.566
1040					Kolmogorov-Smirnov 5% Critical Value	0.333					95% BCA Bootstrap UCL	4.566
1041	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	6.444
1042											97.5% Chebyshev(Mean, Sd) UCL	7.734
1043	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	10.27
1044					95% Approximate Gamma UCL	5.468						
1045					95% Adjusted Gamma UCL	6.526						
1046												
1047	Potential UCL to Use										Use 95% Student's-t UCL	4.842
1048												
1049												
1050	Total PCB_Congeners											
1051												
1052	General Statistics											
1053					Number of Valid Observations	6					Number of Distinct Observations	6
1054												
1055	Raw Statistics						Log-transformed Statistics					
1056					Minimum	83372					Minimum of Log Data	11.33
1057					Maximum	1950160					Maximum of Log Data	14.48
1058					Mean	510891					Mean of log Data	12.59
1059					Median	250841					SD of log Data	1.051
1060					SD	710847						

1061					Coefficient of Variation	1.391						
1062					Skewness	2.361						
1063												
1064												
1065	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1066												
1067	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1068	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1069												
1070												
1071	**Warning: There are only 6 Values in this data**											
1072	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1073	**the resulting calculations may not be reliable enough to draw conclusions**											
1074												
1075	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1076												
1077	**Relevant UCL Statistics**											
1078	**Normal Distribution Test**						**Lognormal Distribution Test**					
1079	Shapiro Wilk Test Statistic					0.621	Shapiro Wilk Test Statistic					0.903
1080	Shapiro Wilk Critical Value					0.788	Shapiro Wilk Critical Value					0.788
1081	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1082												
1083	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1084	95% Student's-t UCL					1095662	95% H-UCL					3854465
1085	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					1281721
1086	95% Adjusted-CLT UCL					1287076	97.5% Chebyshev (MVUE) UCL					1640578
1087	95% Modified-t UCL					1142276	99% Chebyshev (MVUE) UCL					2345484
1088												
1089	**Gamma Distribution Test**						**Data Distribution**					
1090	k star (bias corrected)					0.629	**Data appear Gamma Distributed at 5% Significance Level**					
1091	Theta Star					812281						
1092	nu star					7.548						
1093	Approximate Chi Square Value (.05)					2.476	**Nonparametric Statistics**					
1094	Adjusted Level of Significance					0.0122	95% CLT UCL					988231
1095	Adjusted Chi Square Value					1.558	95% Jackknife UCL					1095662
1096							95% Standard Bootstrap UCL					949195
1097	Anderson-Darling Test Statistic					0.686	95% Bootstrap-t UCL					3773977
1098	Anderson-Darling 5% Critical Value					0.715	95% Hall's Bootstrap UCL					3772418
1099	Kolmogorov-Smirnov Test Statistic					0.339	95% Percentile Bootstrap UCL					1067487
1100	Kolmogorov-Smirnov 5% Critical Value					0.341	95% BCA Bootstrap UCL					1122367
1101	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					1775853
1102							97.5% Chebyshev(Mean, Sd) UCL					2323203
1103	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					3398366
1104	95% Approximate Gamma UCL					1557418						
1105	95% Adjusted Gamma UCL					2474504						
1106												
1107	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					1557418
1108												
1109												
1110	**Total PCBs, Adjusted**											
1111												
1112	**General Statistics**											
1113	Number of Valid Observations					6	Number of Distinct Observations					6

Raw Statistics		
Minimum	77841	
Maximum	1893810	
Mean	488051	
Median	230072	
SD	694080	
Coefficient of Variation	1.422	
Skewness	2.364	

Log-transformed Statistics	
Minimum of Log Data	11.26
Maximum of Log Data	14.45
Mean of log Data	12.52
SD of log Data	1.07

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.619	Shapiro Wilk Test Statistic	0.904
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1059029	95% H-UCL	3933926
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1226779
95% Adjusted-CLT UCL	1246392	97.5% Chebyshev (MVUE) UCL	1572318
95% Modified-t UCL	1104616	99% Chebyshev (MVUE) UCL	2251063
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.609	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	800917		
nu star	7.312		
Approximate Chi Square Value (.05)	2.344	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	954132
Adjusted Chi Square Value	1.46	95% Jackknife UCL	1059029
		95% Standard Bootstrap UCL	924065
Anderson-Darling Test Statistic	0.684	95% Bootstrap-t UCL	3794478
Anderson-Darling 5% Critical Value	0.715	95% Hall's Bootstrap UCL	3656282
Kolmogorov-Smirnov Test Statistic	0.336	95% Percentile Bootstrap UCL	1021343
Kolmogorov-Smirnov 5% Critical Value	0.341	95% BCA Bootstrap UCL	1093326
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1723175
		97.5% Chebyshev(Mean, Sd) UCL	2257614
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3307417
95% Approximate Gamma UCL	1522802		
95% Adjusted Gamma UCL	2445196		

1167	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		1522802
1168												
1169												
1170	**Total TEQ**											
1171												
1172	**General Statistics**											
1173	Number of Valid Observations					6				Number of Distinct Observations		6
1174												
1175	**Raw Statistics**									**Log-transformed Statistics**		
1176	Minimum					2.918				Minimum of Log Data		1.071
1177	Maximum					8.155				Maximum of Log Data		2.099
1178	Mean					5.046				Mean of log Data		1.564
1179	Median					4.524				SD of log Data		0.36
1180	SD					1.869						
1181	Coefficient of Variation					0.37						
1182	Skewness					0.928						
1183												
1184												
1185	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1186												
1187	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1188	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1189												
1190												
1191	**Warning: There are only 6 Values in this data**											
1192	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1193	**the resulting calculations may not be reliable enough to draw conclusions**											
1194												
1195	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1196												
1197	**Relevant UCL Statistics**											
1198	**Normal Distribution Test**									**Lognormal Distribution Test**		
1199	Shapiro Wilk Test Statistic					0.94				Shapiro Wilk Test Statistic		0.984
1200	Shapiro Wilk Critical Value					0.788				Shapiro Wilk Critical Value		0.788
1201	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
1202												
1203	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1204	95% Student's-t UCL					6.584				95% H-UCL		7.424
1205	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		8.268
1206	95% Adjusted-CLT UCL					6.61				97.5% Chebyshev (MVUE) UCL		9.665
1207	95% Modified-t UCL					6.632				99% Chebyshev (MVUE) UCL		12.41
1208												
1209	**Gamma Distribution Test**									**Data Distribution**		
1210	k star (bias corrected)					4.763				**Data appear Normal at 5% Significance Level**		
1211	Theta Star					1.06						
1212	nu star					57.15						
1213	Approximate Chi Square Value (.05)					40.77				**Nonparametric Statistics**		
1214	Adjusted Level of Significance					0.0122				95% CLT UCL		6.301
1215	Adjusted Chi Square Value					35.84				95% Jackknife UCL		6.584
1216										95% Standard Bootstrap UCL		6.18
1217	Anderson-Darling Test Statistic					0.212				95% Bootstrap-t UCL		7.787
1218	Anderson-Darling 5% Critical Value					0.698				95% Hall's Bootstrap UCL		16.67
1219	Kolmogorov-Smirnov Test Statistic					0.191				95% Percentile Bootstrap UCL		6.299

	A	B	C	D	E	F	G	H	I	J	K	L
1220	Kolmogorov-Smirnov 5% Critical Value					0.333	95% BCA Bootstrap UCL					6.54
1221	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					8.372
1222							97.5% Chebyshev(Mean, Sd) UCL					9.811
1223	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					12.64
1224	95% Approximate Gamma UCL					7.073						
1225	95% Adjusted Gamma UCL					8.047						
1226												
1227	**Potential UCL to Use**						Use 95% Student's-t UCL					6.584
1228												

1061					Coefficient of Variation	1.391						
1062					Skewness	2.361						
1063												
1064												
1065	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1066												
1067	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1068	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1069												
1070												
1071	**Warning: There are only 6 Values in this data**											
1072	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1073	**the resulting calculations may not be reliable enough to draw conclusions**											
1074												
1075	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1076												
1077	**Relevant UCL Statistics**											
1078	**Normal Distribution Test**						**Lognormal Distribution Test**					
1079	Shapiro Wilk Test Statistic					0.621	Shapiro Wilk Test Statistic					0.903
1080	Shapiro Wilk Critical Value					0.788	Shapiro Wilk Critical Value					0.788
1081	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1082												
1083	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1084	95% Student's-t UCL					1095662	95% H-UCL					3854465
1085	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					1281721
1086	95% Adjusted-CLT UCL					1287076	97.5% Chebyshev (MVUE) UCL					1640578
1087	95% Modified-t UCL					1142276	99% Chebyshev (MVUE) UCL					2345484
1088												
1089	**Gamma Distribution Test**						**Data Distribution**					
1090	k star (bias corrected)					0.629	**Data appear Gamma Distributed at 5% Significance Level**					
1091	Theta Star					812281						
1092	nu star					7.548						
1093	Approximate Chi Square Value (.05)					2.476	**Nonparametric Statistics**					
1094	Adjusted Level of Significance					0.0122	95% CLT UCL					988231
1095	Adjusted Chi Square Value					1.558	95% Jackknife UCL					1095662
1096							95% Standard Bootstrap UCL					949195
1097	Anderson-Darling Test Statistic					0.686	95% Bootstrap-t UCL					3773977
1098	Anderson-Darling 5% Critical Value					0.715	95% Hall's Bootstrap UCL					3772418
1099	Kolmogorov-Smirnov Test Statistic					0.339	95% Percentile Bootstrap UCL					1067487
1100	Kolmogorov-Smirnov 5% Critical Value					0.341	95% BCA Bootstrap UCL					1122367
1101	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					1775853
1102							97.5% Chebyshev(Mean, Sd) UCL					2323203
1103	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					3398366
1104	95% Approximate Gamma UCL					1557418						
1105	95% Adjusted Gamma UCL					2474504						
1106												
1107	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					1557418
1108												
1109												
1110	**Total PCBs, Adjusted**											
1111												
1112	**General Statistics**											
1113	Number of Valid Observations					6	Number of Distinct Observations					6

Raw Statistics		
Minimum	77841	
Maximum	1893810	
Mean	488051	
Median	230072	
SD	694080	
Coefficient of Variation	1.422	
Skewness	2.364	

Log-transformed Statistics	
Minimum of Log Data	11.26
Maximum of Log Data	14.45
Mean of log Data	12.52
SD of log Data	1.07

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.619	Shapiro Wilk Test Statistic	0.904
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1059029	95% H-UCL	3933926
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1226779
95% Adjusted-CLT UCL	1246392	97.5% Chebyshev (MVUE) UCL	1572318
95% Modified-t UCL	1104616	99% Chebyshev (MVUE) UCL	2251063
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.609	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	800917		
nu star	7.312		
Approximate Chi Square Value (.05)	2.344	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	954132
Adjusted Chi Square Value	1.46	95% Jackknife UCL	1059029
		95% Standard Bootstrap UCL	924065
Anderson-Darling Test Statistic	0.684	95% Bootstrap-t UCL	3794478
Anderson-Darling 5% Critical Value	0.715	95% Hall's Bootstrap UCL	3656282
Kolmogorov-Smirnov Test Statistic	0.336	95% Percentile Bootstrap UCL	1021343
Kolmogorov-Smirnov 5% Critical Value	0.341	95% BCA Bootstrap UCL	1093326
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1723175
		97.5% Chebyshev(Mean, Sd) UCL	2257614
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3307417
95% Approximate Gamma UCL	1522802		
95% Adjusted Gamma UCL	2445196		

1167	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		1522802
1168												
1169												
1170	**Total TEQ**											
1171												
1172	**General Statistics**											
1173	Number of Valid Observations					6				Number of Distinct Observations		6
1174												
1175	**Raw Statistics**									**Log-transformed Statistics**		
1176	Minimum					2.918				Minimum of Log Data		1.071
1177	Maximum					8.155				Maximum of Log Data		2.099
1178	Mean					5.046				Mean of log Data		1.564
1179	Median					4.524				SD of log Data		0.36
1180	SD					1.869						
1181	Coefficient of Variation					0.37						
1182	Skewness					0.928						
1183												
1184												
1185	**Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1186												
1187	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1188	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1189												
1190												
1191	**Warning: There are only 6 Values in this data**											
1192	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1193	**the resulting calculations may not be reliable enough to draw conclusions**											
1194												
1195	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1196												
1197	**Relevant UCL Statistics**											
1198	**Normal Distribution Test**									**Lognormal Distribution Test**		
1199	Shapiro Wilk Test Statistic					0.94				Shapiro Wilk Test Statistic		0.984
1200	Shapiro Wilk Critical Value					0.788				Shapiro Wilk Critical Value		0.788
1201	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
1202												
1203	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1204	95% Student's-t UCL					6.584				95% H-UCL		7.424
1205	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		8.268
1206	95% Adjusted-CLT UCL					6.61				97.5% Chebyshev (MVUE) UCL		9.665
1207	95% Modified-t UCL					6.632				99% Chebyshev (MVUE) UCL		12.41
1208												
1209	**Gamma Distribution Test**									**Data Distribution**		
1210	k star (bias corrected)					4.763				**Data appear Normal at 5% Significance Level**		
1211	Theta Star					1.06						
1212	nu star					57.15						
1213	Approximate Chi Square Value (.05)					40.77				**Nonparametric Statistics**		
1214	Adjusted Level of Significance					0.0122				95% CLT UCL		6.301
1215	Adjusted Chi Square Value					35.84				95% Jackknife UCL		6.584
1216										95% Standard Bootstrap UCL		6.18
1217	Anderson-Darling Test Statistic					0.212				95% Bootstrap-t UCL		7.787
1218	Anderson-Darling 5% Critical Value					0.698				95% Hall's Bootstrap UCL		16.67
1219	Kolmogorov-Smirnov Test Statistic					0.191				95% Percentile Bootstrap UCL		6.299

	A	B	C	D	E	F	G	H	I	J	K	L
1220	Kolmogorov-Smirnov 5% Critical Value					0.333	95% BCA Bootstrap UCL					6.54
1221	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					8.372
1222							97.5% Chebyshev(Mean, Sd) UCL					9.811
1223	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					12.64
1224	95% Approximate Gamma UCL					7.073						
1225	95% Adjusted Gamma UCL					8.047						
1226												
1227	**Potential UCL to Use**						Use 95% Student's-t UCL					6.584
1228												

Tissue

Carp, Whole Body Fillet

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	Carp-Study_area-F	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

1-Methylnaphthalene

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.5	Minimum of Log Data	0.405
Maximum	5.9	Maximum of Log Data	1.775
Mean	3.4	Mean of log Data	1.134
Median	3.3	SD of log Data	0.454
SD	1.506		
Coefficient of Variation	0.443		
Skewness	0.595		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.938	Shapiro Wilk Test Statistic	0.972
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.333	95% H-UCL	4.898
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.679
95% Adjusted-CLT UCL	4.332	97.5% Chebyshev (MVUE) UCL	6.662
95% Modified-t UCL	4.35	99% Chebyshev (MVUE) UCL	8.595
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.91	**Data appear Normal at 5% Significance Level**	
Theta Star	0.869		
nu star	70.39		
Approximate Chi Square Value (.05)	52.07	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	4.226
Adjusted Chi Square Value	48.77	95% Jackknife UCL	4.333
		95% Standard Bootstrap UCL	4.189
Anderson-Darling Test Statistic	0.197	95% Bootstrap-t UCL	4.675
Anderson-Darling 5% Critical Value	0.723	95% Hall's Bootstrap UCL	4.68
Kolmogorov-Smirnov Test Statistic	0.156	95% Percentile Bootstrap UCL	4.189
Kolmogorov-Smirnov 5% Critical Value	0.28	95% BCA Bootstrap UCL	4.333

54	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		5.588
55										97.5% Chebyshev(Mean, Sd) UCL		6.535
56	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		8.394
57					95% Approximate Gamma UCL	4.596						
58					95% Adjusted Gamma UCL	4.908						
59												
60	Potential UCL to Use									Use 95% Student's-t UCL		4.333
61												
62												
63	2-Methylnaphthalene											
64												
65	General Statistics											
66					Number of Valid Observations	9				Number of Distinct Observations		6
67												
68	Raw Statistics									Log-transformed Statistics		
69					Minimum	1.2				Minimum of Log Data		0.182
70					Maximum	3.7				Maximum of Log Data		1.308
71					Mean	2.489				Mean of log Data		0.854
72					Median	2.4				SD of log Data		0.371
73					SD	0.859						
74					Coefficient of Variation	0.345						
75					Skewness	0.183						
76												
77												
78	Warning: There are only 9 Values in this data											
79	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
80	the resulting calculations may not be reliable enough to draw conclusions											
81												
82	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
83												
84	Relevant UCL Statistics											
85	Normal Distribution Test									Lognormal Distribution Test		
86					Shapiro Wilk Test Statistic	0.935				Shapiro Wilk Test Statistic		0.938
87					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
88	Data appear Normal at 5% Significance Level									Data appear Lognormal at 5% Significance Level		
89												
90	Assuming Normal Distribution									Assuming Lognormal Distribution		
91					95% Student's-t UCL	3.022				95% H-UCL		3.311
92	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL		3.852
93					95% Adjusted-CLT UCL	2.979				97.5% Chebyshev (MVUE) UCL		4.438
94					95% Modified-t UCL	3.025				99% Chebyshev (MVUE) UCL		5.59
95												
96	Gamma Distribution Test									Data Distribution		
97					k star (bias corrected)	5.959				Data appear Normal at 5% Significance Level		
98					Theta Star	0.418						
99					nu star	107.3						
100					Approximate Chi Square Value (.05)	84.36				Nonparametric Statistics		
101					Adjusted Level of Significance	0.0231				95% CLT UCL		2.96
102					Adjusted Chi Square Value	80.09				95% Jackknife UCL		3.022
103										95% Standard Bootstrap UCL		2.938
104					Anderson-Darling Test Statistic	0.291				95% Bootstrap-t UCL		3.124
105					Anderson-Darling 5% Critical Value	0.722				95% Hall's Bootstrap UCL		3.084
106					Kolmogorov-Smirnov Test Statistic	0.169				95% Percentile Bootstrap UCL		2.922

107				Kolmogorov-Smirnov 5% Critical Value	0.279					95% BCA Bootstrap UCL	2.956	
108				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	3.738	
109										97.5% Chebyshev(Mean, Sd) UCL	4.278	
110				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	5.339	
111				95% Approximate Gamma UCL	3.165							
112				95% Adjusted Gamma UCL	3.334							
113												
114				**Potential UCL to Use**						Use 95% Student's-t UCL	3.022	
115												
116												
117	**4-Nitrophenol**											
118												
119				**General Statistics**								
120				Number of Valid Data	9					Number of Detected Data	8	
121				Number of Distinct Detected Data	5					Number of Non-Detect Data	1	
122										Percent Non-Detects	11.11%	
123												
124				**Raw Statistics**						**Log-transformed Statistics**		
125				Minimum Detected	12					Minimum Detected	2.485	
126				Maximum Detected	19					Maximum Detected	2.944	
127				Mean of Detected	14.25					Mean of Detected	2.647	
128				SD of Detected	2.188					SD of Detected	0.143	
129				Minimum Non-Detect	9.9					Minimum Non-Detect	2.293	
130				Maximum Non-Detect	9.9					Maximum Non-Detect	2.293	
131												
132												
133				**Warning: There are only 8 Detected Values in this data**								
134				**Note: It should be noted that even though bootstrap may be performed on this data set**								
135				**the resulting calculations may not be reliable enough tp draw conclusions**								
136												
137				**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**								
138												
139												
140				**UCL Statistics**								
141				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
142				Shapiro Wilk Test Statistic	0.83					Shapiro Wilk Test Statistic	0.872	
143				5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818	
144				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
145												
146				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
147				DL/2 Substitution Method						DL/2 Substitution Method		
148				Mean	13.22					Mean	2.531	
149				SD	3.714					SD	0.374	
150				95% DL/2 (t) UCL	15.52					95% H-Stat (DL/2) UCL	17.79	
151												
152				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
153				Mean	13.64					Mean in Log Scale	2.61	
154				SD	2.619					SD in Log Scale	0.174	
155				95% MLE (t) UCL	15.26					Mean in Original Scale	13.79	
156				95% MLE (Tiku) UCL	15.3					SD in Original Scale	2.473	
157										95% Percentile Bootstrap UCL	15.12	
158										95% BCA Bootstrap UCL	15.33	
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
161					k star (bias corrected)	33.65	**Data appear Normal at 5% Significance Level**					
162					Theta Star	0.423						
163					nu star	538.4						
164												
165					A-D Test Statistic	0.561	**Nonparametric Statistics**					
166					5% A-D Critical Value	0.715	Kaplan-Meier (KM) Method					
167					K-S Test Statistic	0.715	Mean					14
168					5% K-S Critical Value	0.293	SD					2.055
169	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.732
170							95% KM (t) UCL					15.36
171	**Assuming Gamma Distribution**						95% KM (z) UCL					15.2
172	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					15.32
173					Minimum	10.9	95% KM (bootstrap t) UCL					16.41
174					Maximum	19	95% KM (BCA) UCL					15.22
175					Mean	13.88	95% KM (Percentile Bootstrap) UCL					15.33
176					Median	13	95% KM (Chebyshev) UCL					17.19
177					SD	2.332	97.5% KM (Chebyshev) UCL					18.57
178					k star	28.88	99% KM (Chebyshev) UCL					21.29
179					Theta star	0.481						
180					Nu star	519.8	**Potential UCLs to Use**					
181					AppChi2	468	95% KM (t) UCL					15.36
182					95% Gamma Approximate UCL	15.42	95% KM (Percentile Bootstrap) UCL					15.33
183					95% Adjusted Gamma UCL	15.77						
184	**Note: DL/2 is not a recommended method.**											
185												
186												
187	**Acenaphthene**											
188												
189	**General Statistics**											
190	Number of Valid Observations					9	Number of Distinct Observations					8
191												
192	**Raw Statistics**						**Log-transformed Statistics**					
193					Minimum	4.2	Minimum of Log Data					1.435
194					Maximum	84	Maximum of Log Data					4.431
195					Mean	21.42	Mean of log Data					2.612
196					Median	12	SD of log Data					0.954
197					SD	25.33						
198					Coefficient of Variation	1.183						
199					Skewness	2.299						
200												
201												
202	**Warning: There are only 9 Values in this data**											
203	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
204	**the resulting calculations may not be reliable enough to draw conclusions**											
205												
206	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
207												
208	**Relevant UCL Statistics**											
209	**Normal Distribution Test**						**Lognormal Distribution Test**					
210					Shapiro Wilk Test Statistic	0.692	Shapiro Wilk Test Statistic					0.942
211					Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value					0.829
212	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

213												
214	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
215				95% Student's-t UCL	37.12					95% H-UCL	61.92	
216	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	48.98	
217				95% Adjusted-CLT UCL	42.23					97.5% Chebyshev (MVUE) UCL	61.47	
218				95% Modified-t UCL	38.2					99% Chebyshev (MVUE) UCL	86	
219												
220	**Gamma Distribution Test**						**Data Distribution**					
221				k star (bias corrected)	0.905		**Data appear Gamma Distributed at 5% Significance Level**					
222				Theta Star	23.67							
223				nu star	16.29							
224				Approximate Chi Square Value (.05)	8.167		**Nonparametric Statistics**					
225				Adjusted Level of Significance	0.0231					95% CLT UCL	35.31	
226				Adjusted Chi Square Value	6.989					95% Jackknife UCL	37.12	
227										95% Standard Bootstrap UCL	34.67	
228				Anderson-Darling Test Statistic	0.514					95% Bootstrap-t UCL	75.32	
229				Anderson-Darling 5% Critical Value	0.739					95% Hall's Bootstrap UCL	95.8	
230				Kolmogorov-Smirnov Test Statistic	0.247					95% Percentile Bootstrap UCL	34.53	
231				Kolmogorov-Smirnov 5% Critical Value	0.285					95% BCA Bootstrap UCL	42.31	
232	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	58.23	
233										97.5% Chebyshev(Mean, Sd) UCL	74.16	
234	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	105.4	
235				95% Approximate Gamma UCL	42.73							
236				95% Adjusted Gamma UCL	49.93							
237												
238	**Potential UCL to Use**									Use 95% Approximate Gamma UCL	42.73	
239												
240												
241	**Acenaphthylene**											
242												
243	**General Statistics**											
244				Number of Valid Observations	9					Number of Distinct Observations	8	
245												
246	**Raw Statistics**						**Log-transformed Statistics**					
247				Minimum	1					Minimum of Log Data	0	
248				Maximum	4.1					Maximum of Log Data	1.411	
249				Mean	1.967					Mean of log Data	0.568	
250				Median	1.5					SD of log Data	0.476	
251				SD	1.056							
252				Coefficient of Variation	0.537							
253				Skewness	1.373							
254												
255												
256	**Warning: There are only 9 Values in this data**											
257	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
258	**the resulting calculations may not be reliable enough to draw conclusions**											
259												
260	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
261												
262	**Relevant UCL Statistics**											
263	**Normal Distribution Test**						**Lognormal Distribution Test**					
264				Shapiro Wilk Test Statistic	0.826					Shapiro Wilk Test Statistic	0.92	
265				Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829	

266	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
267												
268	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
269					95% Student's-t UCL	2.621					95% H-UCL	2.865
270	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	3.315
271					95% Adjusted-CLT UCL	2.718					97.5% Chebyshev (MVUE) UCL	3.906
272					95% Modified-t UCL	2.648					99% Chebyshev (MVUE) UCL	5.066
273												
274	**Gamma Distribution Test**						**Data Distribution**					
275					k star (bias corrected)	3.246	**Data appear Gamma Distributed at 5% Significance Level**					
276					Theta Star	0.606						
277					nu star	58.43						
278					Approximate Chi Square Value (.05)	41.86	**Nonparametric Statistics**					
279					Adjusted Level of Significance	0.0231					95% CLT UCL	2.546
280					Adjusted Chi Square Value	38.92					95% Jackknife UCL	2.621
281											95% Standard Bootstrap UCL	2.512
282					Anderson-Darling Test Statistic	0.497					95% Bootstrap-t UCL	3.591
283					Anderson-Darling 5% Critical Value	0.723					95% Hall's Bootstrap UCL	5.904
284					Kolmogorov-Smirnov Test Statistic	0.214					95% Percentile Bootstrap UCL	2.567
285					Kolmogorov-Smirnov 5% Critical Value	0.28					95% BCA Bootstrap UCL	2.711
286	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	3.501
287											97.5% Chebyshev(Mean, Sd) UCL	4.165
288	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	5.469
289					95% Approximate Gamma UCL	2.745						
290					95% Adjusted Gamma UCL	2.953						
291												
292	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					2.745
293												
294												
295	**Aldrin**											
296												
297	**General Statistics**											
298					Number of Valid Observations	9					Number of Distinct Observations	9
299												
300	**Raw Statistics**						**Log-transformed Statistics**					
301					Minimum	0.046					Minimum of Log Data	-3.079
302					Maximum	0.119					Maximum of Log Data	-2.129
303					Mean	0.0845					Mean of log Data	-2.518
304					Median	0.079					SD of log Data	0.335
305					SD	0.0263						
306					Coefficient of Variation	0.311						
307					Skewness	-0.101						
308												
309												
310	**Warning: There are only 9 Values in this data**											
311	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
312	**the resulting calculations may not be reliable enough to draw conclusions**											
313												
314	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
315												
316	**Relevant UCL Statistics**											
317	**Normal Distribution Test**						**Lognormal Distribution Test**					
318					Shapiro Wilk Test Statistic	0.942					Shapiro Wilk Test Statistic	0.933

319	Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829				
320	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
321												
322	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
323	95% Student's-t UCL	0.101					95% H-UCL	0.109				
324	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.126				
325	95% Adjusted-CLT UCL	0.0986					97.5% Chebyshev (MVUE) UCL	0.144				
326	95% Modified-t UCL	0.101					99% Chebyshev (MVUE) UCL	0.179				
327												
328	**Gamma Distribution Test**						**Data Distribution**					
329	k star (bias corrected)	7.239					**Data appear Normal at 5% Significance Level**					
330	Theta Star	0.0117										
331	nu star	130.3										
332	Approximate Chi Square Value (.05)	104.9					**Nonparametric Statistics**					
333	Adjusted Level of Significance	0.0231					95% CLT UCL	0.0989				
334	Adjusted Chi Square Value	100.1					95% Jackknife UCL	0.101				
335							95% Standard Bootstrap UCL	0.0979				
336	Anderson-Darling Test Statistic	0.291					95% Bootstrap-t UCL	0.1				
337	Anderson-Darling 5% Critical Value	0.722					95% Hall's Bootstrap UCL	0.0973				
338	Kolmogorov-Smirnov Test Statistic	0.193					95% Percentile Bootstrap UCL	0.0988				
339	Kolmogorov-Smirnov 5% Critical Value	0.279					95% BCA Bootstrap UCL	0.0968				
340	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.123				
341							97.5% Chebyshev(Mean, Sd) UCL	0.139				
342	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.172				
343	95% Approximate Gamma UCL	0.105										
344	95% Adjusted Gamma UCL	0.11										
345												
346	**Potential UCL to Use**						Use 95% Student's-t UCL	0.101				
347												
348												
349	**alpha-Hexachlorocyclohexane**											
350												
351	**General Statistics**											
352	Number of Valid Data	9					Number of Detected Data	6				
353	Number of Distinct Detected Data	6					Number of Non-Detect Data	3				
354							Percent Non-Detects	33.33%				
355												
356	**Raw Statistics**						**Log-transformed Statistics**					
357	Minimum Detected	0.0177					Minimum Detected	-4.034				
358	Maximum Detected	0.0403					Maximum Detected	-3.211				
359	Mean of Detected	0.0272					Mean of Detected	-3.639				
360	SD of Detected	0.0077					SD of Detected	0.276				
361	Minimum Non-Detect	0.0217					Minimum Non-Detect	-3.83				
362	Maximum Non-Detect	0.0228					Maximum Non-Detect	-3.781				
363												
364	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	4				
365	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	5				
366	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	44.44%				
367												
368	**Warning: There are only 6 Detected Values in this data**											
369	**Note: It should be noted that even though bootstrap may be performed on this data set**											
370	**the resulting calculations may not be reliable enough tp draw conclusions**											
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
373												
374												
375	**UCL Statistics**											
376	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
377	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Test Statistic					0.976
378	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
379	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
380												
381	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
382	DL/2 Substitution Method						DL/2 Substitution Method					
383	Mean					0.0218	Mean					-3.924
384	SD					0.01	SD					0.48
385	95% DL/2 (t) UCL					0.0281	95% H-Stat (DL/2) UCL					0.0264
386												
387	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
388	Mean					0.0233	Mean in Log Scale					-3.785
389	SD					0.00859	SD in Log Scale					0.31
390	95% MLE (t) UCL					0.0286	Mean in Original Scale					0.0237
391	95% MLE (Tiku) UCL					0.0295	SD in Original Scale					0.00795
392							95% Percentile Bootstrap UCL					0.028
393							95% BCA Bootstrap UCL					0.0287
394												
395	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
396	k star (bias corrected)					7.965	**Data appear Normal at 5% Significance Level**					
397	Theta Star					0.00341						
398	nu star					95.58						
399												
400	A-D Test Statistic					0.242	**Nonparametric Statistics**					
401	5% A-D Critical Value					0.698	Kaplan-Meier (KM) Method					
402	K-S Test Statistic					0.698	Mean					0.024
403	5% K-S Critical Value					0.332	SD					0.00727
404	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.00265
405							95% KM (t) UCL					0.0289
406	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0284
407	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0289
408	Minimum					0.0177	95% KM (bootstrap t) UCL					0.0307
409	Maximum					0.0403	95% KM (BCA) UCL					0.0307
410	Mean					0.0257	95% KM (Percentile Bootstrap) UCL					0.0296
411	Median					0.0234	95% KM (Chebyshev) UCL					0.0356
412	SD					0.00647	97.5% KM (Chebyshev) UCL					0.0406
413	k star					13.63	99% KM (Chebyshev) UCL					0.0504
414	Theta star					0.00189						
415	Nu star					245.3	**Potential UCLs to Use**					
416	AppChi2					210	95% KM (t) UCL					0.0289
417	95% Gamma Approximate UCL					0.03	95% KM (Percentile Bootstrap) UCL					0.0296
418	95% Adjusted Gamma UCL					0.031						
419	**Note: DL/2 is not a recommended method.**											
420												
421												
422	**Aluminum**											
423												
424	**General Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
425					Number of Valid Data	15					Number of Detected Data	15
426					Number of Distinct Detected Data	14					Number of Non-Detect Data	0
427					Number of Missing Values	3					Percent Non-Detects	0.00%
428												
429					**Raw Statistics**						**Log-transformed Statistics**	
430					Minimum Detected	1					Minimum Detected	0
431					Maximum Detected	2.8					Maximum Detected	1.03
432					Mean of Detected	1.671					Mean of Detected	0.453
433					SD of Detected	0.618					SD of Detected	0.356
434					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
435					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
436												
437												
438					**UCL Statistics**							
439					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
440					Shapiro Wilk Test Statistic	0.882					Shapiro Wilk Test Statistic	0.913
441					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
442					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
443												
444					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
445					DL/2 Substitution Method						DL/2 Substitution Method	
446					Mean	1.671					Mean	0.453
447					SD	0.618					SD	0.356
448					95% DL/2 (t) UCL	1.952					95% H-Stat (DL/2) UCL	2.013
449												
450					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
451					**MLE method failed to converge properly**						Mean in Log Scale	N/A
452											SD in Log Scale	N/A
453											Mean in Original Scale	N/A
454											SD in Original Scale	N/A
455											95% Percentile Bootstrap UCL	N/A
456											95% BCA Bootstrap UCL	N/A
457												
458					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
459					k star (bias corrected)	6.77					**Data appear Normal at 5% Significance Level**	
460					Theta Star	0.247						
461					nu star	203.1						
462												
463					A-D Test Statistic	0.572					**Nonparametric Statistics**	
464					5% A-D Critical Value	0.738					Kaplan-Meier (KM) Method	
465					K-S Test Statistic	0.738					Mean	1.671
466					5% K-S Critical Value	0.222					SD	0.597
467					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.159
468											95% KM (t) UCL	1.952
469					**Assuming Gamma Distribution**						95% KM (z) UCL	1.933
470					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.952
471					Minimum	1					95% KM (bootstrap t) UCL	1.997
472					Maximum	2.8					95% KM (BCA) UCL	1.933
473					Mean	1.671					95% KM (Percentile Bootstrap) UCL	1.937
474					Median	1.4					95% KM (Chebyshev) UCL	2.366
475					SD	0.618					97.5% KM (Chebyshev) UCL	2.667
476					k star	6.77					99% KM (Chebyshev) UCL	3.257
477					Theta star	0.247						

478					Nu star	203.1	**Potential UCLs to Use**					
479					AppChi2	171.1				95% KM (t) UCL		1.952
480					95% Gamma Approximate UCL	1.983				95% KM (Percentile Bootstrap) UCL		1.937
481					95% Adjusted Gamma UCL	2.026						
482	**Note: DL/2 is not a recommended method.**											
483												
484												
485	**Anthracene**											
486												
487	**General Statistics**											
488					Number of Valid Observations	9				Number of Distinct Observations		8
489												
490	**Raw Statistics**						**Log-transformed Statistics**					
491					Minimum	1.4				Minimum of Log Data		0.336
492					Maximum	9				Maximum of Log Data		2.197
493					Mean	3.7				Mean of log Data		1.12
494					Median	2.4				SD of log Data		0.632
495					SD	2.571						
496					Coefficient of Variation	0.695						
497					Skewness	1.306						
498												
499												
500	**Warning: There are only 9 Values in this data**											
501	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
502	**the resulting calculations may not be reliable enough to draw conclusions**											
503												
504	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
505												
506	**Relevant UCL Statistics**											
507	**Normal Distribution Test**						**Lognormal Distribution Test**					
508					Shapiro Wilk Test Statistic	0.824				Shapiro Wilk Test Statistic		0.918
509					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
510	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
511												
512	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
513					95% Student's-t UCL	5.293				95% H-UCL		6.544
514	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		7.07
515					95% Adjusted-CLT UCL	5.508				97.5% Chebyshev (MVUE) UCL		8.551
516					95% Modified-t UCL	5.355				99% Chebyshev (MVUE) UCL		11.46
517												
518	**Gamma Distribution Test**						**Data Distribution**					
519					k star (bias corrected)	1.944	**Data appear Gamma Distributed at 5% Significance Level**					
520					Theta Star	1.904						
521					nu star	34.99						
522					Approximate Chi Square Value (.05)	22.45	**Nonparametric Statistics**					
523					Adjusted Level of Significance	0.0231				95% CLT UCL		5.109
524					Adjusted Chi Square Value	20.36				95% Jackknife UCL		5.293
525										95% Standard Bootstrap UCL		5.018
526					Anderson-Darling Test Statistic	0.541				95% Bootstrap-t UCL		6.214
527					Anderson-Darling 5% Critical Value	0.727				95% Hall's Bootstrap UCL		5.205
528					Kolmogorov-Smirnov Test Statistic	0.241				95% Percentile Bootstrap UCL		5.133
529					Kolmogorov-Smirnov 5% Critical Value	0.282				95% BCA Bootstrap UCL		5.322
530	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		7.435

531											97.5% Chebyshev(Mean, Sd) UCL	9.051
532			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	12.23
533					95% Approximate Gamma UCL	5.765						
534					95% Adjusted Gamma UCL	6.358						
535												
536			**Potential UCL to Use**								Use 95% Approximate Gamma UCL	5.765
537												
538												
539	**Arsenic**											
540												
541					**General Statistics**							
542					Number of Valid Data	15					Number of Detected Data	15
543					Number of Distinct Detected Data	13					Number of Non-Detect Data	0
544					Number of Missing Values	3					Percent Non-Detects	0.00%
545												
546			**Raw Statistics**								**Log-transformed Statistics**	
547					Minimum Detected	0.04					Minimum Detected	-3.219
548					Maximum Detected	0.21					Maximum Detected	-1.561
549					Mean of Detected	0.0967					Mean of Detected	-2.457
550					SD of Detected	0.0522					SD of Detected	0.494
551					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
552					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
553												
554												
555					**UCL Statistics**							
556			**Normal Distribution Test with Detected Values Only**								**Lognormal Distribution Test with Detected Values Only**	
557					Shapiro Wilk Test Statistic	0.852					Shapiro Wilk Test Statistic	0.943
558					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
559			**Data not Normal at 5% Significance Level**								**Data appear Lognormal at 5% Significance Level**	
560												
561			**Assuming Normal Distribution**								**Assuming Lognormal Distribution**	
562					DL/2 Substitution Method						DL/2 Substitution Method	
563					Mean	0.0967					Mean	-2.457
564					SD	0.0522					SD	0.494
565					95% DL/2 (t) UCL	0.12					95% H-Stat (DL/2) UCL	0.127
566												
567					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
568			**MLE method failed to converge properly**								Mean in Log Scale	N/A
569											SD in Log Scale	N/A
570											Mean in Original Scale	N/A
571											SD in Original Scale	N/A
572											95% Percentile Bootstrap UCL	N/A
573											95% BCA Bootstrap UCL	N/A
574												
575			**Gamma Distribution Test with Detected Values Only**								**Data Distribution Test with Detected Values Only**	
576					k star (bias corrected)	3.505					**Data appear Gamma Distributed at 5% Significance Level**	
577					Theta Star	0.0276						
578					nu star	105.2						
579												
580					A-D Test Statistic	0.557					**Nonparametric Statistics**	
581					5% A-D Critical Value	0.74					Kaplan-Meier (KM) Method	
582					K-S Test Statistic	0.74					Mean	0.0967
583					5% K-S Critical Value	0.222					SD	0.0505

584	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.0135
585											95% KM (t) UCL	0.12
586	Assuming Gamma Distribution										95% KM (z) UCL	0.119
587	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.12
588	Minimum	0.04									95% KM (bootstrap t) UCL	0.127
589	Maximum	0.21									95% KM (BCA) UCL	0.12
590	Mean	0.0967									95% KM (Percentile Bootstrap) UCL	0.118
591	Median	0.075									95% KM (Chebyshev) UCL	0.155
592	SD	0.0522									97.5% KM (Chebyshev) UCL	0.181
593	k star	3.505									99% KM (Chebyshev) UCL	0.231
594	Theta star	0.0276										
595	Nu star	105.2									Potential UCLs to Use	
596	AppChi2	82.49									95% KM (BCA) UCL	0.12
597	95% Gamma Approximate UCL	0.123										
598	95% Adjusted Gamma UCL	0.127										
599	Note: DL/2 is not a recommended method.											
600												
601												
602	Benzo(a)anthracene											
603												
604	General Statistics											
605	Number of Valid Data	9									Number of Detected Data	1
606	Number of Distinct Detected Data	1									Number of Non-Detect Data	8
607											Percent Non-Detects	88.89%
608												
609	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
610	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
611												
612	The data set for variable Benzo(a)anthracene was not processed!											
613												
614												
615												
616	Benzo(b)fluoranthene											
617												
618	General Statistics											
619	Number of Valid Data	9									Number of Detected Data	1
620	Number of Distinct Detected Data	1									Number of Non-Detect Data	8
621											Percent Non-Detects	88.89%
622												
623	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
624	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
625												
626	The data set for variable Benzo(b)fluoranthene was not processed!											
627												
628												
629												
630	Benzo(g,h,i)perylene											
631												
632	General Statistics											
633	Number of Valid Data	9									Number of Detected Data	1
634	Number of Distinct Detected Data	1									Number of Non-Detect Data	8
635											Percent Non-Detects	88.89%
636												

	A	B	C	D	E	F	G	H	I	J	K	L
637	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
638	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
639												
640	The data set for variable Benzo(g,h,i)perylene was not processed!											
641												
642												
643												
644	Benzo(k)fluoranthene											
645												
646	General Statistics											
647	Number of Valid Data					9	Number of Detected Data					1
648	Number of Distinct Detected Data					1	Number of Non-Detect Data					8
649							Percent Non-Detects					88.89%
650												
651	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
652	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
653												
654	The data set for variable Benzo(k)fluoranthene was not processed!											
655												
656												
657												
658	Benzyl alcohol											
659												
660	General Statistics											
661	Number of Valid Data					9	Number of Detected Data					5
662	Number of Distinct Detected Data					5	Number of Non-Detect Data					4
663							Percent Non-Detects					44.44%
664												
665	Raw Statistics						Log-transformed Statistics					
666	Minimum Detected					23	Minimum Detected					3.135
667	Maximum Detected					37	Maximum Detected					3.611
668	Mean of Detected					30.4	Mean of Detected					3.401
669	SD of Detected					5.413	SD of Detected					0.184
670	Minimum Non-Detect					22	Minimum Non-Detect					3.091
671	Maximum Non-Detect					22	Maximum Non-Detect					3.091
672												
673												
674	Warning: There are only 5 Detected Values in this data											
675	Note: It should be noted that even though bootstrap may be performed on this data set											
676	the resulting calculations may not be reliable enough tp draw conclusions											
677												
678	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
679												
680												
681	UCL Statistics											
682	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
683	Shapiro Wilk Test Statistic					0.986	Shapiro Wilk Test Statistic					0.975
684	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
685	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
686												
687	Assuming Normal Distribution						Assuming Lognormal Distribution					
688	DL/2 Substitution Method						DL/2 Substitution Method					
689	Mean					21.78	Mean					2.955

690					SD	10.92					SD	0.545
691					95% DL/2 (t) UCL	28.55					95% H-Stat (DL/2) UCL	30.58
692												
693					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
694					Mean	23.79					Mean in Log Scale	3.162
695					SD	8.888					SD in Log Scale	0.326
696					95% MLE (t) UCL	29.3					Mean in Original Scale	24.75
697					95% MLE (Tiku) UCL	30.23					SD in Original Scale	7.891
698											95% Percentile Bootstrap UCL	28.76
699											95% BCA Bootstrap UCL	28.83
700												
701	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
702					k star (bias corrected)	15.34					**Data appear Normal at 5% Significance Level**	
703					Theta Star	1.981						
704					nu star	153.4						
705												
706					A-D Test Statistic	0.195					**Nonparametric Statistics**	
707					5% A-D Critical Value	0.678					Kaplan-Meier (KM) Method	
708					K-S Test Statistic	0.678					Mean	27.11
709					5% K-S Critical Value	0.357					SD	5.152
710	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.92
711											95% KM (t) UCL	30.68
712	**Assuming Gamma Distribution**										95% KM (z) UCL	30.27
713					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	30.93
714					Minimum	23					95% KM (bootstrap t) UCL	30.33
715					Maximum	37					95% KM (BCA) UCL	34
716					Mean	29.65					95% KM (Percentile Bootstrap) UCL	32.33
717					Median	30					95% KM (Chebyshev) UCL	35.48
718					SD	4.777					97.5% KM (Chebyshev) UCL	39.1
719					k star	28.17					99% KM (Chebyshev) UCL	46.22
720					Theta star	1.053						
721					Nu star	507.1					**Potential UCLs to Use**	
722					AppChi2	455.8					95% KM (t) UCL	30.68
723					95% Gamma Approximate UCL	32.98					95% KM (Percentile Bootstrap) UCL	32.33
724					95% Adjusted Gamma UCL	33.74						
725	**Note: DL/2 is not a recommended method.**											
726												
727												
728	**beta-Hexachlorocyclohexane**											
729												
730	**General Statistics**											
731					Number of Valid Data	9					Number of Detected Data	6
732					Number of Distinct Detected Data	6					Number of Non-Detect Data	3
733											Percent Non-Detects	33.33%
734												
735	**Raw Statistics**										**Log-transformed Statistics**	
736					Minimum Detected	0.00836					Minimum Detected	-4.784
737					Maximum Detected	0.0231					Maximum Detected	-3.768
738					Mean of Detected	0.0143					Mean of Detected	-4.299
739					SD of Detected	0.00518					SD of Detected	0.359
740					Minimum Non-Detect	0.0108					Minimum Non-Detect	-4.528
741					Maximum Non-Detect	0.013					Maximum Non-Detect	-4.343
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	5
744	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
745	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	55.56%
746												
747	**Warning: There are only 6 Detected Values in this data**											
748	**Note: It should be noted that even though bootstrap may be performed on this data set**											
749	**the resulting calculations may not be reliable enough tp draw conclusions**											
750												
751	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
752												
753												
754	**UCL Statistics**											
755	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
756	Shapiro Wilk Test Statistic					0.934	Shapiro Wilk Test Statistic					0.965
757	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
758	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
759												
760	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
761	DL/2 Substitution Method						DL/2 Substitution Method					
762	Mean					0.0115	Mean					-4.582
763	SD					0.0059	SD					0.512
764	95% DL/2 (t) UCL					0.0152	95% H-Stat (DL/2) UCL					0.0141
765												
766	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
767	Mean					0.012	Mean in Log Scale					-4.431
768	SD					0.00569	SD in Log Scale					0.346
769	95% MLE (t) UCL					0.0155	Mean in Original Scale					0.0126
770	95% MLE (Tiku) UCL					0.0167	SD in Original Scale					0.00484
771							95% Percentile Bootstrap UCL					0.0152
772							95% BCA Bootstrap UCL					0.0159
773												
774	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
775	k star (bias corrected)					4.869	**Data appear Normal at 5% Significance Level**					
776	Theta Star					0.00294						
777	nu star					58.43						
778												
779	A-D Test Statistic					0.251	**Nonparametric Statistics**					
780	5% A-D Critical Value					0.698	Kaplan-Meier (KM) Method					
781	K-S Test Statistic					0.698	Mean					0.0126
782	5% K-S Critical Value					0.333	SD					0.00458
783	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0017
784							95% KM (t) UCL					0.0158
785	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0154
786	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0158
787	Minimum					0.00836	95% KM (bootstrap t) UCL					0.0166
788	Maximum					0.0231	95% KM (BCA) UCL					0.0163
789	Mean					0.0139	95% KM (Percentile Bootstrap) UCL					0.0161
790	Median					0.013	95% KM (Chebyshev) UCL					0.02
791	SD					0.00415	97.5% KM (Chebyshev) UCL					0.0232
792	k star					9.252	99% KM (Chebyshev) UCL					0.0295
793	Theta star					0.0015						
794	Nu star					166.5	**Potential UCLs to Use**					
795	AppChi2					137.7	95% KM (t) UCL					0.0158

796				95% Gamma Approximate UCL		0.0168				95% KM (Percentile Bootstrap) UCL		0.0161
797				95% Adjusted Gamma UCL		0.0175						
798	**Note: DL/2 is not a recommended method.**											
799												
800												
801	**Butyltin ion**											
802												
803	**General Statistics**											
804				Number of Valid Data		8				Number of Detected Data		2
805				Number of Distinct Detected Data		2				Number of Non-Detect Data		6
806				Number of Missing Values		1				Percent Non-Detects		75.00%
807												
808	**Raw Statistics**						**Log-transformed Statistics**					
809				Minimum Detected		0.35				Minimum Detected		-1.05
810				Maximum Detected		1.2				Maximum Detected		0.182
811				Mean of Detected		0.775				Mean of Detected		-0.434
812				SD of Detected		0.601				SD of Detected		0.871
813				Minimum Non-Detect		0.55				Minimum Non-Detect		-0.598
814				Maximum Non-Detect		0.55				Maximum Non-Detect		-0.598
815												
816												
817	**Warning: Data set has only 2 Distinct Detected Values.**											
818	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
819	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
820												
821	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
822												
823	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
824	**Those methods will return a 'N/A' value on your output display!**											
825												
826	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
827	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
828												
829												
830	**UCL Statistics**											
831	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
832				Shapiro Wilk Test Statistic		1				Shapiro Wilk Test Statistic		1
833				5% Shapiro Wilk Critical Value		N/A				5% Shapiro Wilk Critical Value		N/A
834	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
835												
836	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
837				DL/2 Substitution Method						DL/2 Substitution Method		
838				Mean		0.4				Mean		-1.077
839				SD		0.324				SD		0.516
840				95% DL/2 (t) UCL		0.617				95% H-Stat (DL/2) UCL		0.47
841												
842				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
843	**MLE method failed to converge properly**									Mean in Log Scale		N/A
844										SD in Log Scale		N/A
845										Mean in Original Scale		N/A
846										SD in Original Scale		N/A
847										95% Percentile Bootstrap UCL		N/A
848										95% BCA Bootstrap UCL		N/A

849												
850	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
851					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
852					Theta Star	N/A						
853					nu star	N/A						
854												
855					A-D Test Statistic	0.359	**Nonparametric Statistics**					
856					5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method					
857					K-S Test Statistic	N/A	Mean	0.456				
858					5% K-S Critical Value	N/A	SD	0.281				
859	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.141				
860							95% KM (t) UCL	0.723				
861	**Assuming Gamma Distribution**						95% KM (z) UCL	0.687				
862	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	N/A				
863					Minimum	N/A	95% KM (bootstrap t) UCL	N/A				
864					Maximum	N/A	95% KM (BCA) UCL	N/A				
865					Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A				
866					Median	N/A	95% KM (Chebyshev) UCL	1.069				
867					SD	N/A	97.5% KM (Chebyshev) UCL	1.334				
868					k star	N/A	99% KM (Chebyshev) UCL	1.855				
869					Theta star	N/A						
870					Nu star	N/A	**Potential UCLs to Use**					
871					AppChi2	N/A	95% KM (t) UCL	0.723				
872					95% Gamma Approximate UCL	N/A	95% KM (% Bootstrap) UCL	N/A				
873					95% Adjusted Gamma UCL	N/A						
874	**Note: DL/2 is not a recommended method.**											
875												
876												
877	**Cadmium**											
878												
879	**General Statistics**											
880					Number of Valid Data	15	Number of Detected Data	11				
881					Number of Distinct Detected Data	6	Number of Non-Detect Data	4				
882					Number of Missing Values	3	Percent Non-Detects	26.67%				
883												
884	**Raw Statistics**						**Log-transformed Statistics**					
885					Minimum Detected	0.002	Minimum Detected	-6.215				
886					Maximum Detected	0.009	Maximum Detected	-4.711				
887					Mean of Detected	0.00455	Mean of Detected	-5.486				
888					SD of Detected	0.00205	SD of Detected	0.459				
889					Minimum Non-Detect	0.003	Minimum Non-Detect	-5.809				
890					Maximum Non-Detect	0.003	Maximum Non-Detect	-5.809				
891												
892												
893	**UCL Statistics**											
894	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
895					Shapiro Wilk Test Statistic	0.911	Shapiro Wilk Test Statistic	0.938				
896					5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85				
897	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
898												
899	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
900					DL/2 Substitution Method		DL/2 Substitution Method					
901					Mean	0.00373	Mean	-5.757				

902					SD	0.00223					SD	0.605
903					95% DL/2 (t) UCL	0.00475					95% H-Stat (DL/2) UCL	0.00522
904												
905					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
906					Mean	0.00354					Mean in Log Scale	-5.676
907					SD	0.0025					SD in Log Scale	0.517
908					95% MLE (t) UCL	0.00468					Mean in Original Scale	0.00389
909					95% MLE (Tiku) UCL	0.00482					SD in Original Scale	0.00208
910											95% Percentile Bootstrap UCL	0.00475
911											95% BCA Bootstrap UCL	0.00487
912												
913					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
914					k star (bias corrected)	4.101					**Data appear Normal at 5% Significance Level**	
915					Theta Star	0.00111						
916					nu star	90.23						
917												
918					A-D Test Statistic	0.336					**Nonparametric Statistics**	
919					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
920					K-S Test Statistic	0.731					Mean	0.00387
921					5% K-S Critical Value	0.256					SD	0.00202
922					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0005471
923											95% KM (t) UCL	0.00483
924					**Assuming Gamma Distribution**						95% KM (z) UCL	0.00477
925					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00482
926					Minimum	0.00182					95% KM (bootstrap t) UCL	0.00512
927					Maximum	0.009					95% KM (BCA) UCL	0.00493
928					Mean	0.0042					95% KM (Percentile Bootstrap) UCL	0.0049
929					Median	0.004					95% KM (Chebyshev) UCL	0.00625
930					SD	0.00191					97.5% KM (Chebyshev) UCL	0.00728
931					k star	4.512					99% KM (Chebyshev) UCL	0.00931
932					Theta star	0.0009317						
933					Nu star	135.4					**Potential UCLs to Use**	
934					AppChi2	109.5					95% KM (t) UCL	0.00483
935					95% Gamma Approximate UCL	0.0052					95% KM (Percentile Bootstrap) UCL	0.0049
936					95% Adjusted Gamma UCL	0.00534						
937	**Note: DL/2 is not a recommended method.**											
938												
939												
940	**Chromium**											
941												
942						**General Statistics**							
943					Number of Valid Data	15					Number of Detected Data	4
944					Number of Distinct Detected Data	4					Number of Non-Detect Data	11
945					Number of Missing Values	3					Percent Non-Detects	73.33%
946												
947					**Raw Statistics**						**Log-transformed Statistics**	
948					Minimum Detected	0.12					Minimum Detected	-2.12
949					Maximum Detected	1.49					Maximum Detected	0.399
950					Mean of Detected	0.628					Mean of Detected	-0.922
951					SD of Detected	0.63					SD of Detected	1.151
952					Minimum Non-Detect	0.07					Minimum Non-Detect	-2.659
953					Maximum Non-Detect	0.2					Maximum Non-Detect	-1.609
954												

955	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	12
956	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
957	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	80.00%
958												
959	**Warning: There are only 4 Distinct Detected Values in this data**											
960	**Note: It should be noted that even though bootstrap may be performed on this data set**											
961	**the resulting calculations may not be reliable enough tp draw conclusions**											
962												
963	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
964												
965												
966	**UCL Statistics**											
967	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
968	Shapiro Wilk Test Statistic				0.884		Shapiro Wilk Test Statistic					0.949
969	5% Shapiro Wilk Critical Value				0.748		5% Shapiro Wilk Critical Value					0.748
970	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
971												
972	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
973	DL/2 Substitution Method						DL/2 Substitution Method					
974	Mean				0.204		Mean					-2.468
975	SD				0.394		SD					1.129
976	95% DL/2 (t) UCL				0.383		95% H-Stat (DL/2) UCL					0.238
977												
978	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
979	**MLE yields a negative mean**						Mean in Log Scale					-4.205
980							SD in Log Scale					2.457
981							Mean in Original Scale					0.174
982							SD in Original Scale					0.406
983							95% Percentile Bootstrap UCL					0.36
984							95% BCA Bootstrap UCL					0.454
985												
986	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
987	k star (bias corrected)				0.476		**Data appear Normal at 5% Significance Level**					
988	Theta Star				1.319							
989	nu star				3.807							
990												
991	A-D Test Statistic				0.294		**Nonparametric Statistics**					
992	5% A-D Critical Value				0.665		Kaplan-Meier (KM) Method					
993	K-S Test Statistic				0.665		Mean					0.255
994	5% K-S Critical Value				0.401		SD					0.36
995	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.107
996							95% KM (t) UCL					0.444
997	**Assuming Gamma Distribution**						95% KM (z) UCL					0.432
998	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.404
999	Minimum				0.12		95% KM (bootstrap t) UCL					0.49
1000	Maximum				1.49		95% KM (BCA) UCL					1.49
1001	Mean				0.602		95% KM (Percentile Bootstrap) UCL					0.805
1002	Median				0.618		95% KM (Chebyshev) UCL					0.723
1003	SD				0.305		97.5% KM (Chebyshev) UCL					0.926
1004	k star				3.173		99% KM (Chebyshev) UCL					1.324
1005	Theta star				0.19							
1006	Nu star				95.2		**Potential UCLs to Use**					
1007	AppChi2				73.7		95% KM (t) UCL					0.444

1008				95% Gamma Approximate UCL		0.777				95% KM (Percentile Bootstrap) UCL		0.805
1009				95% Adjusted Gamma UCL		N/A						
1010	**Note: DL/2 is not a recommended method.**											
1011												
1012												
1013	**Copper**											
1014												
1015					**General Statistics**							
1016				Number of Valid Data		15				Number of Detected Data		15
1017				Number of Distinct Detected Data		15				Number of Non-Detect Data		0
1018				Number of Missing Values		3				Percent Non-Detects		0.00%
1019												
1020				**Raw Statistics**						**Log-transformed Statistics**		
1021				Minimum Detected		0.313				Minimum Detected		-1.162
1022				Maximum Detected		0.686				Maximum Detected		-0.377
1023				Mean of Detected		0.459				Mean of Detected		-0.802
1024				SD of Detected		0.105				SD of Detected		0.218
1025				Minimum Non-Detect		N/A				Minimum Non-Detect		N/A
1026				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
1027												
1028												
1029					**UCL Statistics**							
1030				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1031				Shapiro Wilk Test Statistic		0.92				Shapiro Wilk Test Statistic		0.963
1032				5% Shapiro Wilk Critical Value		0.881				5% Shapiro Wilk Critical Value		0.881
1033				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1034												
1035				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1036				DL/2 Substitution Method						DL/2 Substitution Method		
1037				Mean		0.459				Mean		-0.802
1038				SD		0.105				SD		0.218
1039				95% DL/2 (t) UCL		0.506				95% H-Stat (DL/2) UCL		0.51
1040												
1041				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
1042				**MLE method failed to converge properly**						Mean in Log Scale		N/A
1043										SD in Log Scale		N/A
1044										Mean in Original Scale		N/A
1045										SD in Original Scale		N/A
1046										95% Percentile Bootstrap UCL		N/A
1047										95% BCA Bootstrap UCL		N/A
1048												
1049				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1050				k star (bias corrected)		17.79				**Data appear Normal at 5% Significance Level**		
1051				Theta Star		0.0258						
1052				nu star		533.8						
1053												
1054				A-D Test Statistic		0.351				**Nonparametric Statistics**		
1055				5% A-D Critical Value		0.735				Kaplan-Meier (KM) Method		
1056				K-S Test Statistic		0.735				Mean		0.459
1057				5% K-S Critical Value		0.221				SD		0.101
1058				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.027
1059										95% KM (t) UCL		0.506
1060				**Assuming Gamma Distribution**						95% KM (z) UCL		0.503

1061	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.506
1062					Minimum	0.313				95% KM (bootstrap t) UCL		0.516
1063					Maximum	0.686				95% KM (BCA) UCL		0.505
1064					Mean	0.459				95% KM (Percentile Bootstrap) UCL		0.501
1065					Median	0.428				95% KM (Chebyshev) UCL		0.576
1066					SD	0.105				97.5% KM (Chebyshev) UCL		0.627
1067					k star	17.79				99% KM (Chebyshev) UCL		0.727
1068					Theta star	0.0258						
1069					Nu star	533.8				**Potential UCLs to Use**		
1070					AppChi2	481.2				95% KM (t) UCL		0.506
1071				95% Gamma Approximate UCL		0.509				95% KM (Percentile Bootstrap) UCL		0.501
1072				95% Adjusted Gamma UCL		0.515						
1073	**Note: DL/2 is not a recommended method.**											
1074												
1075												
1076	**Dibenzo(a,h)anthracene**											
1077												
1078	**General Statistics**											
1079				Number of Valid Data		9				Number of Detected Data		1
1080				Number of Distinct Detected Data		1				Number of Non-Detect Data		8
1081										Percent Non-Detects		88.89%
1082												
1083	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
1084	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
1085												
1086	**The data set for variable Dibenzo(a,h)anthracene was not processed!**											
1087												
1088												
1089												
1090	**Dibenzofuran**											
1091												
1092	**General Statistics**											
1093				Number of Valid Observations		9				Number of Distinct Observations		8
1094												
1095	**Raw Statistics**									**Log-transformed Statistics**		
1096					Minimum	0.58				Minimum of Log Data		-0.545
1097					Maximum	3.6				Maximum of Log Data		1.281
1098					Mean	1.722				Mean of log Data		0.311
1099					Median	1.1				SD of log Data		0.742
1100					SD	1.171						
1101					Coefficient of Variation	0.68						
1102					Skewness	0.464						
1103												
1104												
1105	**Warning: There are only 9 Values in this data**											
1106	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1107	**the resulting calculations may not be reliable enough to draw conclusions**											
1108												
1109	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1110												
1111	**Relevant UCL Statistics**											
1112	**Normal Distribution Test**									**Lognormal Distribution Test**		
1113				Shapiro Wilk Test Statistic		0.847				Shapiro Wilk Test Statistic		0.858

1114					Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829
1115	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1116												
1117	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1118					95% Student's-t UCL	2.448					95% H-UCL	3.648
1119	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	3.651
1120					95% Adjusted-CLT UCL	2.429					97.5% Chebyshev (MVUE) UCL	4.481
1121					95% Modified-t UCL	2.458					99% Chebyshev (MVUE) UCL	6.111
1122												
1123	**Gamma Distribution Test**						**Data Distribution**					
1124					k star (bias corrected)	1.607	**Data appear Normal at 5% Significance Level**					
1125					Theta Star	1.072						
1126					nu star	28.92						
1127					Approximate Chi Square Value (.05)	17.65	**Nonparametric Statistics**					
1128					Adjusted Level of Significance	0.0231					95% CLT UCL	2.364
1129					Adjusted Chi Square Value	15.82					95% Jackknife UCL	2.448
1130											95% Standard Bootstrap UCL	2.333
1131					Anderson-Darling Test Statistic	0.649					95% Bootstrap-t UCL	2.521
1132					Anderson-Darling 5% Critical Value	0.729					95% Hall's Bootstrap UCL	2.241
1133					Kolmogorov-Smirnov Test Statistic	0.217					95% Percentile Bootstrap UCL	2.311
1134					Kolmogorov-Smirnov 5% Critical Value	0.282					95% BCA Bootstrap UCL	2.44
1135	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	3.424
1136											97.5% Chebyshev(Mean, Sd) UCL	4.16
1137	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	5.607
1138					95% Approximate Gamma UCL	2.823						
1139					95% Adjusted Gamma UCL	3.149						
1140												
1141	**Potential UCL to Use**										Use 95% Student's-t UCL	2.448
1142												
1143												
1144	**Dibenzothiophene**											
1145												
1146	**General Statistics**											
1147					Number of Valid Data	9					Number of Detected Data	8
1148					Number of Distinct Detected Data	8					Number of Non-Detect Data	1
1149											Percent Non-Detects	11.11%
1150												
1151	**Raw Statistics**						**Log-transformed Statistics**					
1152					Minimum Detected	0.33					Minimum Detected	-1.109
1153					Maximum Detected	3					Maximum Detected	1.099
1154					Mean of Detected	1.188					Mean of Detected	-0.0892
1155					SD of Detected	0.942					SD of Detected	0.771
1156					Minimum Non-Detect	0.074					Minimum Non-Detect	-2.604
1157					Maximum Non-Detect	0.074					Maximum Non-Detect	-2.604
1158												
1159												
1160	**Warning: There are only 8 Detected Values in this data**											
1161	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1162	**the resulting calculations may not be reliable enough tp draw conclusions**											
1163												
1164	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1165												
1166												

	A	B	C	D	E	F	G	H	I	J	K	L
1167	**UCL Statistics**											
1168	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1169	Shapiro Wilk Test Statistic					0.849	Shapiro Wilk Test Statistic					0.961
1170	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
1171	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1172												
1173	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1174	DL/2 Substitution Method						DL/2 Substitution Method					
1175	Mean					1.06	Mean					-0.446
1176	SD					0.961	SD					1.29
1177	95% DL/2 (t) UCL					1.655	95% H-Stat (DL/2) UCL					4.32
1178												
1179	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
1180	Mean					1.005	Mean in Log Scale					-0.303
1181	SD					0.99	SD in Log Scale					0.966
1182	95% MLE (t) UCL					1.618	Mean in Original Scale					1.07
1183	95% MLE (Tiku) UCL					1.61	SD in Original Scale					0.948
1184							95% Percentile Bootstrap UCL					1.595
1185							95% BCA Bootstrap UCL					1.714
1186												
1187	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1188	k star (bias corrected)					1.375	**Data appear Normal at 5% Significance Level**					
1189	Theta Star					0.864						
1190	nu star					22						
1191												
1192	A-D Test Statistic					0.291	**Nonparametric Statistics**					
1193	5% A-D Critical Value					0.724	Kaplan-Meier (KM) Method					
1194	K-S Test Statistic					0.724	Mean					1.092
1195	5% K-S Critical Value					0.297	SD					0.873
1196	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.311
1197							95% KM (t) UCL					1.671
1198	**Assuming Gamma Distribution**						95% KM (z) UCL					1.604
1199	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.663
1200	Minimum					1E-09	95% KM (bootstrap t) UCL					2.375
1201	Maximum					3	95% KM (BCA) UCL					1.668
1202	Mean					1.056	95% KM (Percentile Bootstrap) UCL					1.614
1203	Median					0.71	95% KM (Chebyshev) UCL					2.448
1204	SD					0.966	97.5% KM (Chebyshev) UCL					3.035
1205	k star					0.264	99% KM (Chebyshev) UCL					4.188
1206	Theta star					3.993						
1207	Nu star					4.758	**Potential UCLs to Use**					
1208	AppChi2					1.042	95% KM (t) UCL					1.671
1209	95% Gamma Approximate UCL					4.82	95% KM (Percentile Bootstrap) UCL					1.614
1210	95% Adjusted Gamma UCL					6.914						
1211	**Note: DL/2 is not a recommended method.**											
1212												
1213												
1214	**Dibutyltin ion**											
1215												
1216	**General Statistics**											
1217	Number of Valid Data					9	Number of Detected Data					4
1218	Number of Distinct Detected Data					4	Number of Non-Detect Data					5
1219							Percent Non-Detects					55.56%

1220												
1221	**Raw Statistics**						**Log-transformed Statistics**					
1222					Minimum Detected	0.67					Minimum Detected	-0.4
1223					Maximum Detected	7.3					Maximum Detected	1.988
1224					Mean of Detected	2.768					Mean of Detected	0.616
1225					SD of Detected	3.05					SD of Detected	0.997
1226					Minimum Non-Detect	0.85					Minimum Non-Detect	-0.163
1227					Maximum Non-Detect	0.85					Maximum Non-Detect	-0.163
1228												
1229												
1230	**Warning: There are only 4 Distinct Detected Values in this data**											
1231	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1232	**the resulting calculations may not be reliable enough tp draw conclusions**											
1233												
1234	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1235												
1236												
1237	**UCL Statistics**											
1238	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1239					Shapiro Wilk Test Statistic	0.749					Shapiro Wilk Test Statistic	0.916
1240					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
1241	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1242												
1243	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1244					DL/2 Substitution Method						DL/2 Substitution Method	
1245					Mean	1.466					Mean	-0.202
1246					SD	2.239					SD	0.987
1247					95% DL/2 (t) UCL	2.854					95% H-Stat (DL/2) UCL	2.035
1248												
1249					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1250	**MLE yields a negative mean**										Mean in Log Scale	-0.0987
1251											SD in Log Scale	1.007
1252											Mean in Original Scale	1.556
1253											SD in Original Scale	2.205
1254											95% Percentile Bootstrap UCL	2.852
1255											95% BCA Bootstrap UCL	3.224
1256												
1257	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1258					k star (bias corrected)	0.513	**Data appear Normal at 5% Significance Level**					
1259					Theta Star	5.393						
1260					nu star	4.106						
1261												
1262					A-D Test Statistic	0.473	**Nonparametric Statistics**					
1263					5% A-D Critical Value	0.663					Kaplan-Meier (KM) Method	
1264					K-S Test Statistic	0.663					Mean	1.602
1265					5% K-S Critical Value	0.4					SD	2.046
1266	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.788
1267											95% KM (t) UCL	3.067
1268	**Assuming Gamma Distribution**										95% KM (z) UCL	2.898
1269					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.849
1270					Minimum	0.67					95% KM (bootstrap t) UCL	6.037
1271					Maximum	9.171					95% KM (BCA) UCL	3.5
1272					Mean	3.738					95% KM (Percentile Bootstrap) UCL	3.444

1273					Median	2.181				95% KM (Chebyshev) UCL		5.036
1274					SD	3.092				97.5% KM (Chebyshev) UCL		6.521
1275					k star	1.14				99% KM (Chebyshev) UCL		9.439
1276					Theta star	3.279						
1277					Nu star	20.52				**Potential UCLs to Use**		
1278					AppChi2	11.24				95% KM (t) UCL		3.067
1279				95% Gamma Approximate UCL		6.827				95% KM (Percentile Bootstrap) UCL		3.444
1280				95% Adjusted Gamma UCL		N/A						
1281	**Note: DL/2 is not a recommended method.**											
1282												
1283												
1284	**Dieldrin**											
1285												
1286	**General Statistics**											
1287	Number of Valid Observations	9		Number of Distinct Observations	9							
1288												
1289	**Raw Statistics**						**Log-transformed Statistics**					
1290	Minimum	1.29					Minimum of Log Data	0.255				
1291	Maximum	2.3					Maximum of Log Data	0.833				
1292	Mean	1.677					Mean of log Data	0.499				
1293	Median	1.62					SD of log Data	0.196				
1294	SD	0.339										
1295	Coefficient of Variation	0.202										
1296	Skewness	0.742										
1297												
1298												
1299	**Warning: There are only 9 Values in this data**											
1300	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1301	**the resulting calculations may not be reliable enough to draw conclusions**											
1302												
1303	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1304												
1305	**Relevant UCL Statistics**											
1306	**Normal Distribution Test**						**Lognormal Distribution Test**					
1307	Shapiro Wilk Test Statistic	0.934					Shapiro Wilk Test Statistic	0.955				
1308	Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829				
1309	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1310												
1311	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1312	95% Student's-t UCL	1.887					95% H-UCL	1.916				
1313	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	2.154				
1314	95% Adjusted-CLT UCL	1.892					97.5% Chebyshev (MVUE) UCL	2.361				
1315	95% Modified-t UCL	1.891					99% Chebyshev (MVUE) UCL	2.768				
1316												
1317	**Gamma Distribution Test**						**Data Distribution**					
1318	k star (bias corrected)	19.35					**Data appear Normal at 5% Significance Level**					
1319	Theta Star	0.0867										
1320	nu star	348.3										
1321	Approximate Chi Square Value (.05)	306					**Nonparametric Statistics**					
1322	Adjusted Level of Significance	0.0231					95% CLT UCL	1.863				
1323	Adjusted Chi Square Value	297.7					95% Jackknife UCL	1.887				
1324							95% Standard Bootstrap UCL	1.852				
1325	Anderson-Darling Test Statistic	0.253					95% Bootstrap-t UCL	1.929				

1326				Anderson-Darling 5% Critical Value	0.721					95% Hall's Bootstrap UCL	1.924	
1327				Kolmogorov-Smirnov Test Statistic	0.163					95% Percentile Bootstrap UCL	1.86	
1328				Kolmogorov-Smirnov 5% Critical Value	0.279					95% BCA Bootstrap UCL	1.868	
1329				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2.169	
1330										97.5% Chebyshev(Mean, Sd) UCL	2.382	
1331				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	2.801	
1332				95% Approximate Gamma UCL	1.908							
1333				95% Adjusted Gamma UCL	1.962							
1334												
1335				**Potential UCL to Use**						Use 95% Student's-t UCL	1.887	
1336												
1337												
1338	**Endrin**											
1339												
1340				**General Statistics**								
1341				Number of Valid Data	7					Number of Detected Data	6	
1342				Number of Distinct Detected Data	6					Number of Non-Detect Data	1	
1343				Number of Missing Values	2					Percent Non-Detects	14.29%	
1344												
1345				**Raw Statistics**						**Log-transformed Statistics**		
1346				Minimum Detected	0.00691					Minimum Detected	-4.975	
1347				Maximum Detected	0.0223					Maximum Detected	-3.803	
1348				Mean of Detected	0.0172					Mean of Detected	-4.131	
1349				SD of Detected	0.00592					SD of Detected	0.451	
1350				Minimum Non-Detect	0.0119					Minimum Non-Detect	-4.431	
1351				Maximum Non-Detect	0.0119					Maximum Non-Detect	-4.431	
1352												
1353												
1354				**Warning: There are only 6 Detected Values in this data**								
1355				**Note: It should be noted that even though bootstrap may be performed on this data set**								
1356				**the resulting calculations may not be reliable enough tp draw conclusions**								
1357												
1358				**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**								
1359												
1360												
1361				**UCL Statistics**								
1362				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1363				Shapiro Wilk Test Statistic	0.828					Shapiro Wilk Test Statistic	0.763	
1364				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788	
1365				**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1366												
1367				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1368				DL/2 Substitution Method						DL/2 Substitution Method		
1369				Mean	0.0156					Mean	-4.273	
1370				SD	0.00689					SD	0.557	
1371				95% DL/2 (t) UCL	0.0207					95% H-Stat (DL/2) UCL	0.0234	
1372												
1373				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
1374				Mean	0.0163					Mean in Log Scale	-4.224	
1375				SD	0.00566					SD in Log Scale	0.479	
1376				95% MLE (t) UCL	0.0204					Mean in Original Scale	0.016	
1377				95% MLE (Tiku) UCL	0.0208					SD in Original Scale	0.00636	
1378										95% Percentile Bootstrap UCL	0.0196	

1379											95% BCA Bootstrap UCL	0.0192
1380												
1381	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1382					k star (bias corrected)	3.74	**Data appear Normal at 5% Significance Level**					
1383					Theta Star	0.00461						
1384					nu star	44.88						
1385												
1386					A-D Test Statistic	0.718	**Nonparametric Statistics**					
1387					5% A-D Critical Value	0.698					Kaplan-Meier (KM) Method	
1388					K-S Test Statistic	0.698					Mean	0.0158
1389					5% K-S Critical Value	0.333					SD	0.00617
1390	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.00256
1391											95% KM (t) UCL	0.0207
1392	**Assuming Gamma Distribution**										95% KM (z) UCL	0.02
1393					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.021
1394					Minimum	0.00691					95% KM (bootstrap t) UCL	0.0197
1395					Maximum	0.0223					95% KM (BCA) UCL	0.0208
1396					Mean	0.0163					95% KM (Percentile Bootstrap) UCL	0.0205
1397					Median	0.0196					95% KM (Chebyshev) UCL	0.0269
1398					SD	0.00594					97.5% KM (Chebyshev) UCL	0.0317
1399					k star	4.121					99% KM (Chebyshev) UCL	0.0412
1400					Theta star	0.00396						
1401					Nu star	57.7	**Potential UCLs to Use**					
1402					AppChi2	41.24					95% KM (t) UCL	0.0207
1403					95% Gamma Approximate UCL	0.0228					95% KM (Percentile Bootstrap) UCL	0.0205
1404					95% Adjusted Gamma UCL	0.0254						
1405	**Note: DL/2 is not a recommended method.**											
1406												
1407												
1408	**Endrin aldehyde**											
1409												
1410	**General Statistics**											
1411					Number of Valid Data	7					Number of Detected Data	2
1412					Number of Distinct Detected Data	2					Number of Non-Detect Data	5
1413					Number of Missing Values	2					Percent Non-Detects	71.43%
1414												
1415	**Raw Statistics**						**Log-transformed Statistics**					
1416					Minimum Detected	0.00157					Minimum Detected	-6.457
1417					Maximum Detected	0.00338					Maximum Detected	-5.69
1418					Mean of Detected	0.00248					Mean of Detected	-6.073
1419					SD of Detected	0.00128					SD of Detected	0.542
1420					Minimum Non-Detect	0.00107					Minimum Non-Detect	-6.84
1421					Maximum Non-Detect	0.00267					Maximum Non-Detect	-5.926
1422												
1423	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
1424	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
1425	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	85.71%
1426												
1427	**Warning: Data set has only 2 Distinct Detected Values.**											
1428	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
1429	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
1430												
1431	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											

	A	B	C	D	E	F	G	H	I	J	K	L
1432												
1433	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
1434	**Those methods will return a 'N/A' value on your output display!**											
1435												
1436	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
1437	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
1438												
1439												
1440	**UCL Statistics**											
1441	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1442	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
1443	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
1444	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1445												
1446	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1447	DL/2 Substitution Method						DL/2 Substitution Method					
1448	Mean					0.00132	Mean					-6.818
1449	SD					0.0009811	SD					0.627
1450	95% DL/2 (t) UCL					0.00204	95% H-Stat (DL/2) UCL					0.00185
1451												
1452	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1453	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1454							SD in Log Scale					N/A
1455							Mean in Original Scale					N/A
1456							SD in Original Scale					N/A
1457							95% Percentile Bootstrap UCL					N/A
1458							95% BCA Bootstrap UCL					N/A
1459												
1460	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1461	k star (bias corrected)					N/A	**Data do not follow a Discernable Distribution (0.05)**					
1462	Theta Star					N/A						
1463	nu star					N/A						
1464												
1465	A-D Test Statistic					0.359	**Nonparametric Statistics**					
1466	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
1467	K-S Test Statistic					N/A	Mean					0.00183
1468	5% K-S Critical Value					N/A	SD					0.0006334
1469	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0003386
1470							95% KM (t) UCL					0.00249
1471	**Assuming Gamma Distribution**						95% KM (z) UCL					0.00239
1472	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.00318
1473	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
1474	Maximum					N/A	95% KM (BCA) UCL					N/A
1475	Mean					N/A	95% KM (Percentile Bootstrap) UCL					0.00338
1476	Median					N/A	95% KM (Chebyshev) UCL					0.0033
1477	SD					N/A	97.5% KM (Chebyshev) UCL					0.00394
1478	k star					N/A	99% KM (Chebyshev) UCL					0.0052
1479	Theta star					N/A						
1480	Nu star					N/A	**Potential UCLs to Use**					
1481	AppChi2					N/A	95% KM (t) UCL					0.00249
1482	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					0.00338
1483	95% Adjusted Gamma UCL					N/A						
1484	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
1485												
1486												
1487	**Endrin ketone**											
1488												
1489						**General Statistics**							
1490					Number of Valid Data	5			Number of Detected Data			2
1491					Number of Distinct Detected Data	2			Number of Non-Detect Data			3
1492					Number of Missing Values	3			Percent Non-Detects			60.00%
1493												
1494					**Raw Statistics**				**Log-transformed Statistics**			
1495					Minimum Detected	0.00106			Minimum Detected			-6.849
1496					Maximum Detected	0.00669			Maximum Detected			-5.007
1497					Mean of Detected	0.00388			Mean of Detected			-5.928
1498					SD of Detected	0.00398			SD of Detected			1.303
1499					Minimum Non-Detect	0.00135			Minimum Non-Detect			-6.608
1500					Maximum Non-Detect	0.00197			Maximum Non-Detect			-6.23
1501												
1502	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			4
1503	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			1
1504	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			80.00%
1505												
1506	**Warning: Data set has only 2 Distinct Detected Values.**											
1507	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
1508	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
1509												
1510	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
1511												
1512	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
1513	**Those methods will return a 'N/A' value on your output display!**											
1514												
1515	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
1516	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
1517												
1518												
1519						**UCL Statistics**							
1520					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
1521					Shapiro Wilk Test Statistic	1			Shapiro Wilk Test Statistic			1
1522					5% Shapiro Wilk Critical Value	N/A			5% Shapiro Wilk Critical Value			N/A
1523					**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**			
1524												
1525					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
1526					DL/2 Substitution Method				DL/2 Substitution Method			
1527					Mean	0.00204			Mean			-6.645
1528					SD	0.0026			SD			0.933
1529					95% DL/2 (t) UCL	0.00452			95% H-Stat (DL/2) UCL			0.00779
1530												
1531					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1532					**MLE method failed to converge properly**				Mean in Log Scale			N/A
1533									SD in Log Scale			N/A
1534									Mean in Original Scale			N/A
1535									SD in Original Scale			N/A
1536									95% Percentile Bootstrap UCL			N/A
1537									95% BCA Bootstrap UCL			N/A

1538												
1539	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1540					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
1541					Theta Star	N/A						
1542					nu star	N/A						
1543												
1544					A-D Test Statistic	0.358	**Nonparametric Statistics**					
1545					5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method					
1546					K-S Test Statistic	N/A	Mean	0.00219				
1547					5% K-S Critical Value	N/A	SD	0.00225				
1548	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.00142				
1549							95% KM (t) UCL	0.00522				
1550	**Assuming Gamma Distribution**						95% KM (z) UCL	0.00453				
1551	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00695				
1552					Minimum	N/A	95% KM (bootstrap t) UCL	1.8E+308				
1553					Maximum	N/A	95% KM (BCA) UCL	0.00669				
1554					Mean	N/A	95% KM (Percentile Bootstrap) UCL	0.00669				
1555					Median	N/A	95% KM (Chebyshev) UCL	0.00839				
1556					SD	N/A	97.5% KM (Chebyshev) UCL	0.0111				
1557					k star	N/A	99% KM (Chebyshev) UCL	0.0164				
1558					Theta star	N/A						
1559					Nu star	N/A	**Potential UCLs to Use**					
1560					AppChi2	N/A	95% KM (BCA) UCL	0.00669				
1561					95% Gamma Approximate UCL	N/A						
1562					95% Adjusted Gamma UCL	N/A						
1563	**Note: DL/2 is not a recommended method.**											
1564												
1565												
1566	**Fluoranthene**											
1567												
1568	**General Statistics**											
1569					Number of Valid Data	9	Number of Detected Data	6				
1570					Number of Distinct Detected Data	6	Number of Non-Detect Data	3				
1571							Percent Non-Detects	33.33%				
1572												
1573	**Raw Statistics**						**Log-transformed Statistics**					
1574					Minimum Detected	2.6	Minimum Detected	0.956				
1575					Maximum Detected	5.4	Maximum Detected	1.686				
1576					Mean of Detected	3.767	Mean of Detected	1.294				
1577					SD of Detected	1.067	SD of Detected	0.275				
1578					Minimum Non-Detect	0.86	Minimum Non-Detect	-0.151				
1579					Maximum Non-Detect	1.7	Maximum Non-Detect	0.531				
1580												
1581	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	3				
1582	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	6				
1583	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	33.33%				
1584												
1585	**Warning: There are only 6 Detected Values in this data**											
1586	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1587	**the resulting calculations may not be reliable enough tp draw conclusions**											
1588												
1589	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1590												

	A	B	C	D	E	F	G	H	I	J	K	L
1591												
1592	**UCL Statistics**											
1593	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1594					Shapiro Wilk Test Statistic	0.918				Shapiro Wilk Test Statistic		0.949
1595					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
1596	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1597												
1598	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1599					DL/2 Substitution Method					DL/2 Substitution Method		
1600					Mean	2.737				Mean		0.719
1601					SD	1.764				SD		0.908
1602					95% DL/2 (t) UCL	3.83				95% H-Stat (DL/2) UCL		3.119
1603												
1604					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
1605					Mean	2.711				Mean in Log Scale		1.054
1606					SD	1.77				SD in Log Scale		0.421
1607					95% MLE (t) UCL	3.808				Mean in Original Scale		3.102
1608					95% MLE (Tiku) UCL	3.915				SD in Original Scale		1.306
1609										95% Percentile Bootstrap UCL		3.786
1610										95% BCA Bootstrap UCL		3.839
1611												
1612	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1613					k star (bias corrected)	7.985	**Data appear Normal at 5% Significance Level**					
1614					Theta Star	0.472						
1615					nu star	95.82						
1616												
1617					A-D Test Statistic	0.304	**Nonparametric Statistics**					
1618					5% A-D Critical Value	0.698				Kaplan-Meier (KM) Method		
1619					K-S Test Statistic	0.698				Mean		3.378
1620					5% K-S Critical Value	0.332				SD		0.967
1621	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.353
1622										95% KM (t) UCL		4.034
1623	**Assuming Gamma Distribution**									95% KM (z) UCL		3.959
1624					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		3.99
1625					Minimum	2.6				95% KM (bootstrap t) UCL		4.524
1626					Maximum	5.4				95% KM (BCA) UCL		4.189
1627					Mean	3.484				95% KM (Percentile Bootstrap) UCL		4.078
1628					Median	3				95% KM (Chebyshev) UCL		4.917
1629					SD	0.944				97.5% KM (Chebyshev) UCL		5.583
1630					k star	11.92				99% KM (Chebyshev) UCL		6.891
1631					Theta star	0.292						
1632					Nu star	214.6	**Potential UCLs to Use**					
1633					AppChi2	181.7				95% KM (t) UCL		4.034
1634					95% Gamma Approximate UCL	4.115				95% KM (Percentile Bootstrap) UCL		4.078
1635					95% Adjusted Gamma UCL	4.265						
1636	**Note: DL/2 is not a recommended method.**											
1637												
1638												
1639	**Fluorene**											
1640												
1641	**General Statistics**											
1642					Number of Valid Observations	9				Number of Distinct Observations		9
1643												

1644	**Raw Statistics**						**Log-transformed Statistics**					
1645					Minimum	1.6					Minimum of Log Data	0.47
1646					Maximum	13					Maximum of Log Data	2.565
1647					Mean	5.356					Mean of log Data	1.427
1648					Median	3.9					SD of log Data	0.758
1649					SD	3.998						
1650					Coefficient of Variation	0.747						
1651					Skewness	1.028						
1652												
1653												
1654	**Warning: There are only 9 Values in this data**											
1655	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1656	**the resulting calculations may not be reliable enough to draw conclusions**											
1657												
1658	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1659												
1660	**Relevant UCL Statistics**											
1661	**Normal Distribution Test**						**Lognormal Distribution Test**					
1662					Shapiro Wilk Test Statistic	0.878					Shapiro Wilk Test Statistic	0.944
1663					Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829
1664	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1665												
1666	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1667					95% Student's-t UCL	7.834					95% H-UCL	11.55
1668	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	11.4
1669					95% Adjusted-CLT UCL	8.036					97.5% Chebyshev (MVUE) UCL	14.01
1670					95% Modified-t UCL	7.91					99% Chebyshev (MVUE) UCL	19.16
1671												
1672	**Gamma Distribution Test**						**Data Distribution**					
1673					k star (bias corrected)	1.505	**Data appear Normal at 5% Significance Level**					
1674					Theta Star	3.559						
1675					nu star	27.09						
1676					Approximate Chi Square Value (.05)	16.22	**Nonparametric Statistics**					
1677					Adjusted Level of Significance	0.0231					95% CLT UCL	7.548
1678					Adjusted Chi Square Value	14.47					95% Jackknife UCL	7.834
1679											95% Standard Bootstrap UCL	7.484
1680					Anderson-Darling Test Statistic	0.287					95% Bootstrap-t UCL	8.912
1681					Anderson-Darling 5% Critical Value	0.729					95% Hall's Bootstrap UCL	8.601
1682					Kolmogorov-Smirnov Test Statistic	0.161					95% Percentile Bootstrap UCL	7.6
1683					Kolmogorov-Smirnov 5% Critical Value	0.282					95% BCA Bootstrap UCL	7.967
1684	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	11.17
1685											97.5% Chebyshev(Mean, Sd) UCL	13.68
1686	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	18.62
1687					95% Approximate Gamma UCL	8.944						
1688					95% Adjusted Gamma UCL	10.02						
1689												
1690	**Potential UCL to Use**										Use 95% Student's-t UCL	7.834
1691												
1692												
1693	**gamma-Hexachlorocyclohexane**											
1694												
1695	**General Statistics**											
1696					Number of Valid Data	9					Number of Detected Data	8

1697	Number of Distinct Detected Data				8	Number of Non-Detect Data						1
1698						Percent Non-Detects						11.11%
1699												
1700	**Raw Statistics**					**Log-transformed Statistics**						
1701	Minimum Detected				0.0196	Minimum Detected						-3.932
1702	Maximum Detected				0.0356	Maximum Detected						-3.335
1703	Mean of Detected				0.0259	Mean of Detected						-3.67
1704	SD of Detected				0.0054	SD of Detected						0.204
1705	Minimum Non-Detect				0.0196	Minimum Non-Detect						-3.932
1706	Maximum Non-Detect				0.0196	Maximum Non-Detect						-3.932
1707												
1708												
1709	**Warning: There are only 8 Detected Values in this data**											
1710	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1711	**the resulting calculations may not be reliable enough tp draw conclusions**											
1712												
1713	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1714												
1715												
1716	**UCL Statistics**											
1717	**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**						
1718	Shapiro Wilk Test Statistic				0.953	Shapiro Wilk Test Statistic						0.97
1719	5% Shapiro Wilk Critical Value				0.818	5% Shapiro Wilk Critical Value						0.818
1720	**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**						
1721												
1722	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
1723	DL/2 Substitution Method					DL/2 Substitution Method						
1724	Mean				0.0241	Mean						-3.777
1725	SD				0.00738	SD						0.371
1726	95% DL/2 (t) UCL				0.0287	95% H-Stat (DL/2) UCL						0.032
1727												
1728	Maximum Likelihood Estimate(MLE) Method					Log ROS Method						
1729	Mean				0.0249	Mean in Log Scale						-3.727
1730	SD				0.00567	SD in Log Scale						0.256
1731	95% MLE (t) UCL				0.0284	Mean in Original Scale						0.0248
1732	95% MLE (Tiku) UCL				0.0284	SD in Original Scale						0.00617
1733						95% Percentile Bootstrap UCL						0.028
1734						95% BCA Bootstrap UCL						0.0281
1735												
1736	**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**						
1737	k star (bias corrected)				17.2	**Data appear Normal at 5% Significance Level**						
1738	Theta Star				0.00151							
1739	nu star				275.2							
1740												
1741	A-D Test Statistic				0.182	**Nonparametric Statistics**						
1742	5% A-D Critical Value				0.716	Kaplan-Meier (KM) Method						
1743	K-S Test Statistic				0.716	Mean						0.0252
1744	5% K-S Critical Value				0.294	SD						0.00516
1745	**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean						0.00184
1746						95% KM (t) UCL						0.0287
1747	**Assuming Gamma Distribution**					95% KM (z) UCL						0.0283
1748	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL						0.0286
1749	Minimum				0.0165	95% KM (bootstrap t) UCL						0.0295

1750					Maximum	0.0356				95% KM (BCA) UCL		0.0284
1751					Mean	0.0249				95% KM (Percentile Bootstrap) UCL		0.0283
1752					Median	0.0248				95% KM (Chebyshev) UCL		0.0332
1753					SD	0.00595				97.5% KM (Chebyshev) UCL		0.0367
1754					k star	13.32				99% KM (Chebyshev) UCL		0.0435
1755					Theta star	0.00187						
1756					Nu star	239.7				**Potential UCLs to Use**		
1757					AppChi2	204.9				95% KM (t) UCL		0.0287
1758				95% Gamma Approximate UCL		0.0291				95% KM (Percentile Bootstrap) UCL		0.0283
1759				95% Adjusted Gamma UCL		0.0301						
1760	**Note: DL/2 is not a recommended method.**											
1761												
1762												
1763	**Heptachlor epoxide**											
1764												
1765	**General Statistics**											
1766				Number of Valid Observations		9				Number of Distinct Observations		9
1767												
1768	**Raw Statistics**						**Log-transformed Statistics**					
1769				Minimum		0.0682				Minimum of Log Data		-2.685
1770				Maximum		0.151				Maximum of Log Data		-1.89
1771				Mean		0.105				Mean of log Data		-2.303
1772				Median		0.0832				SD of log Data		0.319
1773				SD		0.0335						
1774				Coefficient of Variation		0.32						
1775				Skewness		0.357						
1776												
1777												
1778	**Warning: There are only 9 Values in this data**											
1779	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1780	**the resulting calculations may not be reliable enough to draw conclusions**											
1781												
1782	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1783												
1784	**Relevant UCL Statistics**											
1785	**Normal Distribution Test**						**Lognormal Distribution Test**					
1786				Shapiro Wilk Test Statistic		0.841				Shapiro Wilk Test Statistic		0.852
1787				Shapiro Wilk Critical Value		0.829				Shapiro Wilk Critical Value		0.829
1788	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1789												
1790	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1791				95% Student's-t UCL		0.125				95% H-UCL		0.132
1792	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		0.153
1793				95% Adjusted-CLT UCL		0.124				97.5% Chebyshev (MVUE) UCL		0.174
1794				95% Modified-t UCL		0.126				99% Chebyshev (MVUE) UCL		0.216
1795												
1796	**Gamma Distribution Test**						**Data Distribution**					
1797				k star (bias corrected)		7.52	**Data appear Normal at 5% Significance Level**					
1798				Theta Star		0.0139						
1799				nu star		135.4						
1800				Approximate Chi Square Value (.05)		109.5	**Nonparametric Statistics**					
1801				Adjusted Level of Significance		0.0231				95% CLT UCL		0.123
1802				Adjusted Chi Square Value		104.6				95% Jackknife UCL		0.125

1803											95% Standard Bootstrap UCL	0.122
1804					Anderson-Darling Test Statistic	0.724					95% Bootstrap-t UCL	0.128
1805					Anderson-Darling 5% Critical Value	0.722					95% Hall's Bootstrap UCL	0.118
1806					Kolmogorov-Smirnov Test Statistic	0.293					95% Percentile Bootstrap UCL	0.122
1807					Kolmogorov-Smirnov 5% Critical Value	0.279					95% BCA Bootstrap UCL	0.123
1808					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.153
1809											97.5% Chebyshev(Mean, Sd) UCL	0.174
1810					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.216
1811					95% Approximate Gamma UCL	0.129						
1812					95% Adjusted Gamma UCL	0.135						
1813												
1814					**Potential UCL to Use**						Use 95% Student's-t UCL	0.125
1815												
1816												
1817	**Hexachlorobenzene**											
1818												
1819						**General Statistics**						
1820					Number of Valid Data	15					Number of Detected Data	11
1821					Number of Distinct Detected Data	10					Number of Non-Detect Data	4
1822					Number of Missing Values	3					Percent Non-Detects	26.67%
1823												
1824					**Raw Statistics**						**Log-transformed Statistics**	
1825					Minimum Detected	1.5					Minimum Detected	0.405
1826					Maximum Detected	140					Maximum Detected	4.942
1827					Mean of Detected	14.94					Mean of Detected	1.213
1828					SD of Detected	41.49					SD of Detected	1.272
1829					Minimum Non-Detect	4					Minimum Non-Detect	1.386
1830					Maximum Non-Detect	6.4					Maximum Non-Detect	1.856
1831												
1832	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
1833	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
1834	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.33%
1835												
1836						**UCL Statistics**						
1837					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1838					Shapiro Wilk Test Statistic	0.361					Shapiro Wilk Test Statistic	0.549
1839					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
1840					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
1841												
1842					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1843					DL/2 Substitution Method						DL/2 Substitution Method	
1844					Mean	11.57					Mean	1.105
1845					SD	35.54					SD	1.096
1846					95% DL/2 (t) UCL	27.73					95% H-Stat (DL/2) UCL	9.265
1847												
1848					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1849					**MLE method failed to converge properly**						Mean in Log Scale	1.14
1850											SD in Log Scale	1.105
1851											Mean in Original Scale	11.69
1852											SD in Original Scale	35.51
1853											95% Percentile Bootstrap UCL	30
1854											95% BCA Bootstrap UCL	39.3
1855												

1856	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1857					k star (bias corrected)	0.377	**Data do not follow a Discernable Distribution (0.05)**					
1858					Theta Star	39.59						
1859					nu star	8.299						
1860												
1861					A-D Test Statistic	3.015	**Nonparametric Statistics**					
1862					5% A-D Critical Value	0.794				Kaplan-Meier (KM) Method		
1863					K-S Test Statistic	0.794				Mean		11.56
1864					5% K-S Critical Value	0.271				SD		34.34
1865	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		9.299
1866										95% KM (t) UCL		27.94
1867	**Assuming Gamma Distribution**									95% KM (z) UCL		26.85
1868					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		27.72
1869					Minimum	1.5				95% KM (bootstrap t) UCL		560.3
1870					Maximum	140				95% KM (BCA) UCL		30.04
1871					Mean	14.97				95% KM (Percentile Bootstrap) UCL		29.79
1872					Median	2.29				95% KM (Chebyshev) UCL		52.09
1873					SD	35.08				97.5% KM (Chebyshev) UCL		69.63
1874					k star	0.499				99% KM (Chebyshev) UCL		104.1
1875					Theta star	30						
1876					Nu star	14.97	**Potential UCLs to Use**					
1877					AppChi2	7.242				97.5% KM (Chebyshev) UCL		69.63
1878					95% Gamma Approximate UCL	30.95						
1879					95% Adjusted Gamma UCL	34.02						
1880	**Note: DL/2 is not a recommended method.**											
1881												
1882												
1883	**Hexachlorobutadiene**											
1884												
1885	**General Statistics**											
1886					Number of Valid Data	9				Number of Detected Data		8
1887					Number of Distinct Detected Data	8				Number of Non-Detect Data		1
1888										Percent Non-Detects		11.11%
1889												
1890	**Raw Statistics**						**Log-transformed Statistics**					
1891					Minimum Detected	0.00456				Minimum Detected		-5.39
1892					Maximum Detected	0.172				Maximum Detected		-1.76
1893					Mean of Detected	0.0604				Mean of Detected		-3.415
1894					SD of Detected	0.0645				SD of Detected		1.257
1895					Minimum Non-Detect	0.0196				Minimum Non-Detect		-3.932
1896					Maximum Non-Detect	0.0196				Maximum Non-Detect		-3.932
1897												
1898												
1899	**Warning: There are only 8 Detected Values in this data**											
1900	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1901	**the resulting calculations may not be reliable enough tp draw conclusions**											
1902												
1903	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1904												
1905												
1906	**UCL Statistics**											
1907	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1908					Shapiro Wilk Test Statistic	0.813				Shapiro Wilk Test Statistic		0.946

1909	5% Shapiro Wilk Critical Value				0.818		5% Shapiro Wilk Critical Value					0.818
1910	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1911												
1912	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1913	DL/2 Substitution Method						DL/2 Substitution Method					
1914	Mean				0.0548		Mean					-3.549
1915	SD				0.0626		SD					1.243
1916	95% DL/2 (t) UCL				0.0936		95% H-Stat (DL/2) UCL					0.36
1917												
1918	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
1919	Mean				0.0287		Mean in Log Scale					-3.551
1920	SD				0.0882		SD in Log Scale					1.245
1921	95% MLE (t) UCL				0.0834		Mean in Original Scale					0.0548
1922	95% MLE (Tiku) UCL				0.0926		SD in Original Scale					0.0626
1923							95% Percentile Bootstrap UCL					0.0883
1924							95% BCA Bootstrap UCL					0.0954
1925												
1926	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1927	k star (bias corrected)				0.68		**Data appear Gamma Distributed at 5% Significance Level**					
1928	Theta Star				0.0888							
1929	nu star				10.88							
1930												
1931	A-D Test Statistic				0.383		**Nonparametric Statistics**					
1932	5% A-D Critical Value				0.737		Kaplan-Meier (KM) Method					
1933	K-S Test Statistic				0.737		Mean					0.055
1934	5% K-S Critical Value				0.302		SD					0.0589
1935	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.021
1936							95% KM (t) UCL					0.094
1937	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0895
1938	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0937
1939	Minimum				0.00456		95% KM (bootstrap t) UCL					0.137
1940	Maximum				0.172		95% KM (BCA) UCL					0.0924
1941	Mean				0.0545		95% KM (Percentile Bootstrap) UCL					0.0903
1942	Median				0.0217		95% KM (Chebyshev) UCL					0.147
1943	SD				0.0629		97.5% KM (Chebyshev) UCL					0.186
1944	k star				0.655		99% KM (Chebyshev) UCL					0.264
1945	Theta star				0.0832							
1946	Nu star				11.79		**Potential UCLs to Use**					
1947	AppChi2				5.089		95% KM (Chebyshev) UCL					0.147
1948	95% Gamma Approximate UCL				0.126							
1949	95% Adjusted Gamma UCL				0.153							
1950	**Note: DL/2 is not a recommended method.**											
1951												
1952												
1953	**Indeno(1,2,3-cd)pyrene**											
1954												
1955	**General Statistics**											
1956	Number of Valid Data				9		Number of Detected Data					1
1957	Number of Distinct Detected Data				1		Number of Non-Detect Data					8
1958							Percent Non-Detects					88.89%
1959												
1960	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
1961	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											

	A	B	C	D	E	F	G	H	I	J	K	L
1962												
1963	**The data set for variable Indeno(1,2,3-cd)pyrene was not processed!**											
1964												
1965												
1966												
1967	**Isophorone**											
1968												
1969	**General Statistics**											
1970					Number of Valid Data	9			Number of Detected Data	3		
1971					Number of Distinct Detected Data	3			Number of Non-Detect Data	6		
1972									Percent Non-Detects	66.67%		
1973												
1974	**Raw Statistics**						**Log-transformed Statistics**					
1975					Minimum Detected	9.3			Minimum Detected	2.23		
1976					Maximum Detected	9.8			Maximum Detected	2.282		
1977					Mean of Detected	9.5			Mean of Detected	2.251		
1978					SD of Detected	0.265			SD of Detected	0.0277		
1979					Minimum Non-Detect	9.2			Minimum Non-Detect	2.219		
1980					Maximum Non-Detect	9.2			Maximum Non-Detect	2.219		
1981												
1982												
1983	**Warning: There are only 3 Distinct Detected Values in this data set**											
1984	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
1985	**Those methods will return a 'N/A' value on your output display!**											
1986												
1987	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
1988	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
1989												
1990												
1991	**UCL Statistics**											
1992	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1993					Shapiro Wilk Test Statistic	0.893			Shapiro Wilk Test Statistic	0.896		
1994					5% Shapiro Wilk Critical Value	0.767			5% Shapiro Wilk Critical Value	0.767		
1995	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1996												
1997	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1998					DL/2 Substitution Method				DL/2 Substitution Method			
1999					Mean	6.233			Mean	1.768		
2000					SD	2.454			SD	0.363		
2001					95% DL/2 (t) UCL	7.754			95% H-Stat (DL/2) UCL	7.94		
2002												
2003					Maximum Likelihood Estimate(MLE) Method				Log ROS Method			
2004					Mean	9.534			Mean in Log Scale	2.175		
2005					SD	0.216			SD in Log Scale	0.0669		
2006					95% MLE (t) UCL	9.668			Mean in Original Scale	8.824		
2007					95% MLE (Tiku) UCL	9.76			SD in Original Scale	0.592		
2008									95% Percentile Bootstrap UCL	9.11		
2009									95% BCA Bootstrap UCL	9.152		
2010												
2011	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2012					k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**					
2013					Theta Star	N/A						
2014					nu star	N/A						

2015												
2016					A-D Test Statistic	0.402	**Nonparametric Statistics**					
2017					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
2018					K-S Test Statistic	N/A				Mean		9.367
2019					5% K-S Critical Value	N/A				SD		0.156
2020			**Data not Gamma Distributed at 5% Significance Level**							SE of Mean		0.0638
2021										95% KM (t) UCL		9.485
2022			**Assuming Gamma Distribution**							95% KM (z) UCL		9.472
2023			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		9.473
2024					Minimum	N/A				95% KM (bootstrap t) UCL		9.55
2025					Maximum	N/A				95% KM (BCA) UCL		9.8
2026					Mean	N/A				95% KM (Percentile Bootstrap) UCL		9.8
2027					Median	N/A				95% KM (Chebyshev) UCL		9.645
2028					SD	N/A				97.5% KM (Chebyshev) UCL		9.765
2029					k star	N/A				99% KM (Chebyshev) UCL		10
2030					Theta star	N/A						
2031					Nu star	N/A	**Potential UCLs to Use**					
2032					AppChi2	N/A				95% KM (t) UCL		9.485
2033					95% Gamma Approximate UCL	N/A				95% KM (Percentile Bootstrap) UCL		9.8
2034					95% Adjusted Gamma UCL	N/A						
2035	**Note: DL/2 is not a recommended method.**											
2036												
2037												
2038	**Lead**											
2039												
2040					**General Statistics**							
2041					Number of Valid Data	15				Number of Detected Data		11
2042					Number of Distinct Detected Data	11				Number of Non-Detect Data		4
2043					Number of Missing Values	3				Percent Non-Detects		26.67%
2044												
2045				**Raw Statistics**					**Log-transformed Statistics**			
2046					Minimum Detected	0.012				Minimum Detected		-4.423
2047					Maximum Detected	0.356				Maximum Detected		-1.033
2048					Mean of Detected	0.0764				Mean of Detected		-2.925
2049					SD of Detected	0.0941				SD of Detected		0.79
2050					Minimum Non-Detect	0.004				Minimum Non-Detect		-5.521
2051					Maximum Non-Detect	0.008				Maximum Non-Detect		-4.828
2052												
2053	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		4
2054	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		11
2055	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		26.67%
2056												
2057					**UCL Statistics**							
2058			**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**			
2059					Shapiro Wilk Test Statistic	0.506				Shapiro Wilk Test Statistic		0.821
2060					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
2061			**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**			
2062												
2063			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
2064					DL/2 Substitution Method					DL/2 Substitution Method		
2065					Mean	0.0567				Mean		-3.756
2066					SD	0.0864				SD		1.583
2067					95% DL/2 (t) UCL	0.096				95% H-Stat (DL/2) UCL		0.114

2068												
2069					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
2070					Mean	0.039					Mean in Log Scale	-3.377
2071					SD	0.103					SD in Log Scale	1.032
2072					95% MLE (t) UCL	0.0858					Mean in Original Scale	0.0587
2073					95% MLE (Tiku) UCL	0.0869					SD in Original Scale	0.0851
2074											95% Percentile Bootstrap UCL	0.0968
2075											95% BCA Bootstrap UCL	0.124
2076												
2077					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2078					k star (bias corrected)	1.195					**Data do not follow a Discernable Distribution (0.05)**	
2079					Theta Star	0.0639						
2080					nu star	26.3						
2081												
2082					A-D Test Statistic	1.448					**Nonparametric Statistics**	
2083					5% A-D Critical Value	0.742					Kaplan-Meier (KM) Method	
2084					K-S Test Statistic	0.742					Mean	0.0592
2085					5% K-S Critical Value	0.26					SD	0.082
2086					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0222
2087											95% KM (t) UCL	0.0983
2088					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0957
2089					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0948
2090					Minimum	1E-09					95% KM (bootstrap t) UCL	0.186
2091					Maximum	0.356					95% KM (BCA) UCL	0.115
2092					Mean	0.0601					95% KM (Percentile Bootstrap) UCL	0.102
2093					Median	0.0472					95% KM (Chebyshev) UCL	0.156
2094					SD	0.0845					97.5% KM (Chebyshev) UCL	0.198
2095					k star	0.389					99% KM (Chebyshev) UCL	0.28
2096					Theta star	0.155						
2097					Nu star	11.67					**Potential UCLs to Use**	
2098					AppChi2	5.013					95% KM (BCA) UCL	0.115
2099					95% Gamma Approximate UCL	0.14						
2100					95% Adjusted Gamma UCL	0.156						
2101	**Note: DL/2 is not a recommended method.**											
2102												
2103												
2104	**Manganese**											
2105												
2106							**General Statistics**					
2107					Number of Valid Data	15					Number of Detected Data	15
2108					Number of Distinct Detected Data	15					Number of Non-Detect Data	0
2109					Number of Missing Values	3					Percent Non-Detects	0.00%
2110												
2111					**Raw Statistics**						**Log-transformed Statistics**	
2112					Minimum Detected	0.191					Minimum Detected	-1.655
2113					Maximum Detected	2.81					Maximum Detected	1.033
2114					Mean of Detected	1.448					Mean of Detected	-0.0516
2115					SD of Detected	1.023					SD of Detected	1.088
2116					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2117					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2118												
2119												
2120							**UCL Statistics**					

	A	B	C	D	E	F	G	H	I	J	K	L
2121	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2122					Shapiro Wilk Test Statistic	0.814					Shapiro Wilk Test Statistic	0.775
2123					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
2124	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2125												
2126	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2127					DL/2 Substitution Method						DL/2 Substitution Method	
2128					Mean	1.448					Mean	-0.0516
2129					SD	1.023					SD	1.088
2130					95% DL/2 (t) UCL	1.913					95% H-Stat (DL/2) UCL	3.97
2131												
2132					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2133	**MLE method failed to converge properly**										Mean in Log Scale	N/A
2134											SD in Log Scale	N/A
2135											Mean in Original Scale	N/A
2136											SD in Original Scale	N/A
2137											95% Percentile Bootstrap UCL	N/A
2138											95% BCA Bootstrap UCL	N/A
2139												
2140	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2141					k star (bias corrected)	1.106	**Data do not follow a Discernable Distribution (0.05)**					
2142					Theta Star	1.309						
2143					nu star	33.19						
2144												
2145					A-D Test Statistic	1.55	**Nonparametric Statistics**					
2146					5% A-D Critical Value	0.757					Kaplan-Meier (KM) Method	
2147					K-S Test Statistic	0.757					Mean	1.448
2148					5% K-S Critical Value	0.226					SD	0.988
2149	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.264
2150											95% KM (t) UCL	1.913
2151	**Assuming Gamma Distribution**										95% KM (z) UCL	1.882
2152					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.913
2153					Minimum	0.191					95% KM (bootstrap t) UCL	1.879
2154					Maximum	2.81					95% KM (BCA) UCL	1.863
2155					Mean	1.448					95% KM (Percentile Bootstrap) UCL	1.881
2156					Median	1.86					95% KM (Chebyshev) UCL	2.599
2157					SD	1.023					97.5% KM (Chebyshev) UCL	3.097
2158					k star	1.106					99% KM (Chebyshev) UCL	4.076
2159					Theta star	1.309						
2160					Nu star	33.19	**Potential UCLs to Use**					
2161					AppChi2	21.02					97.5% KM (Chebyshev) UCL	3.097
2162					95% Gamma Approximate UCL	2.286						
2163					95% Adjusted Gamma UCL	2.423						
2164	**Warning: Recommended UCL exceeds the maximum observation**											
2165	**Note: DL/2 is not a recommended method.**											
2166												
2167												
2168	**Mercury**											
2169												
2170	**General Statistics**											
2171					Number of Valid Data	12					Number of Detected Data	12
2172					Number of Distinct Detected Data	12					Number of Non-Detect Data	0
2173					Number of Missing Values	3					Percent Non-Detects	0.00%

Raw Statistics		
Minimum Detected	0.0411	
Maximum Detected	0.191	
Mean of Detected	0.0879	
SD of Detected	0.0519	
Minimum Non-Detect	N/A	
Maximum Non-Detect	N/A	
Log-transformed Statistics		
Minimum Detected	-3.192	
Maximum Detected	-1.655	
Mean of Detected	-2.561	
SD of Detected	0.503	
Minimum Non-Detect	N/A	
Maximum Non-Detect	N/A	

UCL Statistics

Normal Distribution Test with Detected Values Only		
Shapiro Wilk Test Statistic	0.751	
5% Shapiro Wilk Critical Value	0.859	
Data not Normal at 5% Significance Level		
Assuming Normal Distribution		
DL/2 Substitution Method		
Mean	0.0879	
SD	0.0519	
95% DL/2 (t) UCL	0.115	
Maximum Likelihood Estimate(MLE) Method	N/A	
MLE method failed to converge properly		
Gamma Distribution Test with Detected Values Only		
k star (bias corrected)	3.08	
Theta Star	0.0285	
nu star	73.91	
A-D Test Statistic	1.011	
5% A-D Critical Value	0.736	
K-S Test Statistic	0.736	
5% K-S Critical Value	0.246	
Data not Gamma Distributed at 5% Significance Level		
Assuming Gamma Distribution		
Gamma ROS Statistics using Extrapolated Data		
Minimum	0.0411	
Maximum	0.191	
Mean	0.0879	
Median	0.0669	
SD	0.0519	
k star	3.08	
Theta star	0.0285	
Nu star	73.91	
AppChi2	55.11	
95% Gamma Approximate UCL	0.118	

Lognormal Distribution Test with Detected Values Only		
Shapiro Wilk Test Statistic	0.862	
5% Shapiro Wilk Critical Value	0.859	
Data appear Lognormal at 5% Significance Level		
Assuming Lognormal Distribution		
DL/2 Substitution Method		
Mean	-2.561	
SD	0.503	
95% H-Stat (DL/2) UCL	0.121	
Log ROS Method		
Mean in Log Scale	N/A	
SD in Log Scale	N/A	
Mean in Original Scale	N/A	
SD in Original Scale	N/A	
95% Percentile Bootstrap UCL	N/A	
95% BCA Bootstrap UCL	N/A	
Data Distribution Test with Detected Values Only		
Data appear Lognormal at 5% Significance Level		
Nonparametric Statistics		
Kaplan-Meier (KM) Method		
Mean	0.0879	
SD	0.0497	
SE of Mean	0.015	
95% KM (t) UCL	0.115	
95% KM (z) UCL	0.113	
95% KM (jackknife) UCL	0.115	
95% KM (bootstrap t) UCL	0.136	
95% KM (BCA) UCL	0.11	
95% KM (Percentile Bootstrap) UCL	0.114	
95% KM (Chebyshev) UCL	0.153	
97.5% KM (Chebyshev) UCL	0.182	
99% KM (Chebyshev) UCL	0.237	
Potential UCLs to Use		
95% KM (Chebyshev) UCL	0.153	

2227				95% Adjusted Gamma UCL		0.123						
2228	**Note: DL/2 is not a recommended method.**											
2229												
2230												
2231	**Methoxychlor**											
2232												
2233	**General Statistics**											
2234					Number of Valid Data	15				Number of Detected Data	2	
2235					Number of Distinct Detected Data	2				Number of Non-Detect Data	13	
2236					Number of Missing Values	3				Percent Non-Detects	86.67%	
2237												
2238	**Raw Statistics**						**Log-transformed Statistics**					
2239					Minimum Detected	0.00688				Minimum Detected	-4.979	
2240					Maximum Detected	7.2				Maximum Detected	1.974	
2241					Mean of Detected	3.603				Mean of Detected	-1.503	
2242					SD of Detected	5.086				SD of Detected	4.917	
2243					Minimum Non-Detect	0.00241				Minimum Non-Detect	-6.028	
2244					Maximum Non-Detect	4.8				Maximum Non-Detect	1.569	
2245												
2246	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	14	
2247	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	1	
2248	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	93.33%	
2249												
2250	**Warning: Data set has only 2 Distinct Detected Values.**											
2251	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
2252	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
2253												
2254	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
2255												
2256	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
2257	**Those methods will return a 'N/A' value on your output display!**											
2258												
2259	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
2260	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
2261												
2262												
2263	**UCL Statistics**											
2264	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2265					Shapiro Wilk Test Statistic	1				Shapiro Wilk Test Statistic	1	
2266					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value	N/A	
2267	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2268												
2269	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2270					DL/2 Substitution Method					DL/2 Substitution Method		
2271					Mean	1.234				Mean	-2.684	
2272					SD	1.969				SD	3.309	
2273					95% DL/2 (t) UCL	2.129				95% H-Stat (DL/2) UCL	10838	
2274												
2275					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
2276	**MLE method failed to converge properly**									Mean in Log Scale	N/A	
2277										SD in Log Scale	N/A	
2278										Mean in Original Scale	N/A	
2279										SD in Original Scale	N/A	

2280											95% Percentile Bootstrap UCL	N/A
2281											95% BCA Bootstrap UCL	N/A
2282												
2283	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2284					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
2285					Theta Star	N/A						
2286					nu star	N/A						
2287												
2288					A-D Test Statistic	0.366	**Nonparametric Statistics**					
2289					5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method					
2290					K-S Test Statistic	N/A	Mean	0.486				
2291					5% K-S Critical Value	N/A	SD	1.794				
2292	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.655				
2293							95% KM (t) UCL	1.64				
2294	**Assuming Gamma Distribution**						95% KM (z) UCL	1.564				
2295					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.325				
2296					Minimum	N/A	95% KM (bootstrap t) UCL	0.486				
2297					Maximum	N/A	95% KM (BCA) UCL	N/A				
2298					Mean	N/A	95% KM (Percentile Bootstrap) UCL	7.2				
2299					Median	N/A	95% KM (Chebyshev) UCL	3.342				
2300					SD	N/A	97.5% KM (Chebyshev) UCL	4.578				
2301					k star	N/A	99% KM (Chebyshev) UCL	7.005				
2302					Theta star	N/A						
2303					Nu star	N/A	**Potential UCLs to Use**					
2304					AppChi2	N/A	99% KM (Chebyshev) UCL	7.005				
2305					95% Gamma Approximate UCL	N/A						
2306					95% Adjusted Gamma UCL	N/A						
2307	**Note: DL/2 is not a recommended method.**											
2308												
2309												
2310	**Naphthalene**											
2311												
2312	**General Statistics**											
2313					Number of Valid Data	9	Number of Detected Data	4				
2314					Number of Distinct Detected Data	4	Number of Non-Detect Data	5				
2315							Percent Non-Detects	55.56%				
2316												
2317	**Raw Statistics**						**Log-transformed Statistics**					
2318					Minimum Detected	2.6	Minimum Detected	0.956				
2319					Maximum Detected	6.8	Maximum Detected	1.917				
2320					Mean of Detected	4.775	Mean of Detected	1.473				
2321					SD of Detected	2.234	SD of Detected	0.501				
2322					Minimum Non-Detect	1.8	Minimum Non-Detect	0.588				
2323					Maximum Non-Detect	2.1	Maximum Non-Detect	0.742				
2324												
2325	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	5				
2326	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	4				
2327	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	55.56%				
2328												
2329	**Warning: There are only 4 Distinct Detected Values in this data**											
2330	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2331	**the resulting calculations may not be reliable enough tp draw conclusions**											
2332												

	A	B	C	D	E	F	G	H	I	J	K	L
2333	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2334												
2335												
2336	**UCL Statistics**											
2337	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2338	Shapiro Wilk Test Statistic					0.806	Shapiro Wilk Test Statistic					0.823
2339	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
2340	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2341												
2342	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2343	DL/2 Substitution Method						DL/2 Substitution Method					
2344	Mean					2.667	Mean					0.642
2345	SD					2.424	SD					0.848
2346	95% DL/2 (t) UCL					4.169	95% H-Stat (DL/2) UCL					3.148
2347												
2348	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
2349	Mean					1.654	Mean in Log Scale					0.611
2350	SD					3.477	SD in Log Scale					0.9
2351	95% MLE (t) UCL					3.809	Mean in Original Scale					2.655
2352	95% MLE (Tiku) UCL					4.493	SD in Original Scale					2.441
2353							95% Percentile Bootstrap UCL					4.005
2354							95% BCA Bootstrap UCL					4.157
2355												
2356	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2357	k star (bias corrected)					1.586	**Data appear Normal at 5% Significance Level**					
2358	Theta Star					3.011						
2359	nu star					12.69						
2360												
2361	A-D Test Statistic					0.543	**Nonparametric Statistics**					
2362	5% A-D Critical Value					0.659	Kaplan-Meier (KM) Method					
2363	K-S Test Statistic					0.659	Mean					3.567
2364	5% K-S Critical Value					0.396	SD					1.683
2365	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.648
2366							95% KM (t) UCL					4.771
2367	**Assuming Gamma Distribution**						95% KM (z) UCL					4.632
2368	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.601
2369	Minimum					2.6	95% KM (bootstrap t) UCL					4.217
2370	Maximum					6.8	95% KM (BCA) UCL					6.667
2371	Mean					4.704	95% KM (Percentile Bootstrap) UCL					6.622
2372	Median					4.627	95% KM (Chebyshev) UCL					6.39
2373	SD					1.417	97.5% KM (Chebyshev) UCL					7.611
2374	k star					7.91	99% KM (Chebyshev) UCL					10.01
2375	Theta star					0.595						
2376	Nu star					142.4	**Potential UCLs to Use**					
2377	AppChi2					115.8	95% KM (t) UCL					4.771
2378	95% Gamma Approximate UCL					5.783	95% KM (Percentile Bootstrap) UCL					6.622
2379	95% Adjusted Gamma UCL					N/A						
2380	**Note: DL/2 is not a recommended method.**											
2381												
2382												
2383	**Nickel**											
2384												
2385	**General Statistics**											

2386					Number of Valid Data	15					Number of Detected Data	14
2387					Number of Distinct Detected Data	14					Number of Non-Detect Data	1
2388					Number of Missing Values	3					Percent Non-Detects	6.67%
2389												
2390					**Raw Statistics**						**Log-transformed Statistics**	
2391					Minimum Detected	0.012					Minimum Detected	-4.423
2392					Maximum Detected	0.396					Maximum Detected	-0.926
2393					Mean of Detected	0.0706					Mean of Detected	-3.033
2394					SD of Detected	0.0957					SD of Detected	0.779
2395					Minimum Non-Detect	0.002					Minimum Non-Detect	-6.215
2396					Maximum Non-Detect	0.002					Maximum Non-Detect	-6.215
2397												
2398												
2399					**UCL Statistics**							
2400					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
2401					Shapiro Wilk Test Statistic	0.486					Shapiro Wilk Test Statistic	0.876
2402					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
2403					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2404												
2405					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2406					DL/2 Substitution Method						DL/2 Substitution Method	
2407					Mean	0.0659					Mean	-3.291
2408					SD	0.0939					SD	1.251
2409					95% DL/2 (t) UCL	0.109					95% H-Stat (DL/2) UCL	0.164
2410												
2411					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
2412					Mean	0.0621					Mean in Log Scale	-3.151
2413					SD	0.0953					SD in Log Scale	0.879
2414					95% MLE (t) UCL	0.105					Mean in Original Scale	0.0664
2415					95% MLE (Tiku) UCL	0.103					SD in Original Scale	0.0936
2416											95% Percentile Bootstrap UCL	0.113
2417											95% BCA Bootstrap UCL	0.129
2418												
2419					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2420					k star (bias corrected)	1.19					**Data appear Lognormal at 5% Significance Level**	
2421					Theta Star	0.0593						
2422					nu star	33.33						
2423												
2424					A-D Test Statistic	1.405					**Nonparametric Statistics**	
2425					5% A-D Critical Value	0.751					Kaplan-Meier (KM) Method	
2426					K-S Test Statistic	0.751					Mean	0.0667
2427					5% K-S Critical Value	0.233					SD	0.0903
2428					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0242
2429											95% KM (t) UCL	0.109
2430					**Assuming Gamma Distribution**						95% KM (z) UCL	0.106
2431					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.109
2432					Minimum	1E-09					95% KM (bootstrap t) UCL	0.225
2433					Maximum	0.396					95% KM (BCA) UCL	0.115
2434					Mean	0.0659					95% KM (Percentile Bootstrap) UCL	0.114
2435					Median	0.04					95% KM (Chebyshev) UCL	0.172
2436					SD	0.094					97.5% KM (Chebyshev) UCL	0.218
2437					k star	0.393					99% KM (Chebyshev) UCL	0.307
2438					Theta star	0.168						

2439					Nu star	11.78	**Potential UCLs to Use**					
2440					AppChi2	5.08				95% KM (Chebyshev) UCL		0.172
2441					95% Gamma Approximate UCL	0.153						
2442					95% Adjusted Gamma UCL	0.17						
2443	**Note: DL/2 is not a recommended method.**											
2444												
2445												
2446	**Phenanthrene**											
2447												
2448	**General Statistics**											
2449					Number of Valid Data	9				Number of Detected Data		5
2450					Number of Distinct Detected Data	5				Number of Non-Detect Data		4
2451										Percent Non-Detects		44.44%
2452												
2453	**Raw Statistics**						**Log-transformed Statistics**					
2454					Minimum Detected	4.9				Minimum Detected		1.589
2455					Maximum Detected	13				Maximum Detected		2.565
2456					Mean of Detected	8.84				Mean of Detected		2.114
2457					SD of Detected	3.492				SD of Detected		0.408
2458					Minimum Non-Detect	1.7				Minimum Non-Detect		0.531
2459					Maximum Non-Detect	4.4				Maximum Non-Detect		1.482
2460												
2461	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		4
2462	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		5
2463	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		44.44%
2464												
2465	**Warning: There are only 5 Detected Values in this data**											
2466	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2467	**the resulting calculations may not be reliable enough tp draw conclusions**											
2468												
2469	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2470												
2471												
2472	**UCL Statistics**											
2473	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2474					Shapiro Wilk Test Statistic	0.903				Shapiro Wilk Test Statistic		0.928
2475					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
2476	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2477												
2478	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2479					DL/2 Substitution Method					DL/2 Substitution Method		
2480					Mean	5.517				Mean		1.281
2481					SD	4.665				SD		1.06
2482					95% DL/2 (t) UCL	8.408				95% H-Stat (DL/2) UCL		8.02
2483												
2484					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
2485					Mean	5.178				Mean in Log Scale		1.605
2486					SD	5.1				SD in Log Scale		0.669
2487					95% MLE (t) UCL	8.34				Mean in Original Scale		6.081
2488					95% MLE (Tiku) UCL	8.87				SD in Original Scale		4.099
2489										95% Percentile Bootstrap UCL		8.352
2490										95% BCA Bootstrap UCL		8.385
2491												

	A	B	C	D	E	F	G	H	I	J	K	L
2492	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2493					k star (bias corrected)	3.271	**Data appear Normal at 5% Significance Level**					
2494					Theta Star	2.703						
2495					nu star	32.71						
2496												
2497					A-D Test Statistic	0.337	**Nonparametric Statistics**					
2498					5% A-D Critical Value	0.68				Kaplan-Meier (KM) Method		
2499					K-S Test Statistic	0.68				Mean		7.089
2500					5% K-S Critical Value	0.358				SD		3.042
2501	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		1.134
2502										95% KM (t) UCL		9.197
2503	**Assuming Gamma Distribution**									95% KM (z) UCL		8.953
2504					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		9.084
2505					Minimum	4.9				95% KM (bootstrap t) UCL		9.855
2506					Maximum	13				95% KM (BCA) UCL		12.11
2507					Mean	8.378				95% KM (Percentile Bootstrap) UCL		9.722
2508					Median	7.8				95% KM (Chebyshev) UCL		12.03
2509					SD	2.529				97.5% KM (Chebyshev) UCL		14.17
2510					k star	8.934				99% KM (Chebyshev) UCL		18.37
2511					Theta star	0.938						
2512					Nu star	160.8	**Potential UCLs to Use**					
2513					AppChi2	132.5				95% KM (t) UCL		9.197
2514					95% Gamma Approximate UCL	10.17				95% KM (Percentile Bootstrap) UCL		9.722
2515					95% Adjusted Gamma UCL	10.6						
2516	**Note: DL/2 is not a recommended method.**											
2517												
2518												
2519	**Pyrene**											
2520												
2521	**General Statistics**											
2522					Number of Valid Observations	9				Number of Distinct Observations		9
2523												
2524	**Raw Statistics**						**Log-transformed Statistics**					
2525					Minimum	0.64				Minimum of Log Data		-0.446
2526					Maximum	4.5				Maximum of Log Data		1.504
2527					Mean	2.449				Mean of log Data		0.712
2528					Median	2.6				SD of log Data		0.681
2529					SD	1.418						
2530					Coefficient of Variation	0.579						
2531					Skewness	0.207						
2532												
2533												
2534	**Warning: There are only 9 Values in this data**											
2535	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
2536	**the resulting calculations may not be reliable enough to draw conclusions**											
2537												
2538	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
2539												
2540	**Relevant UCL Statistics**											
2541	**Normal Distribution Test**						**Lognormal Distribution Test**					
2542					Shapiro Wilk Test Statistic	0.918				Shapiro Wilk Test Statistic		0.924
2543					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
2544	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

2545												
2546	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2547				95% Student's-t UCL	3.328					95% H-UCL	4.788	
2548	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	5.018	
2549				95% Adjusted-CLT UCL	3.261					97.5% Chebyshev (MVUE) UCL	6.111	
2550				95% Modified-t UCL	3.333					99% Chebyshev (MVUE) UCL	8.256	
2551												
2552	**Gamma Distribution Test**						**Data Distribution**					
2553				k star (bias corrected)	1.996		**Data appear Normal at 5% Significance Level**					
2554				Theta Star	1.227							
2555				nu star	35.94							
2556				Approximate Chi Square Value (.05)	23.22		**Nonparametric Statistics**					
2557				Adjusted Level of Significance	0.0231					95% CLT UCL	3.226	
2558				Adjusted Chi Square Value	21.09					95% Jackknife UCL	3.328	
2559										95% Standard Bootstrap UCL	3.181	
2560				Anderson-Darling Test Statistic	0.352					95% Bootstrap-t UCL	3.38	
2561				Anderson-Darling 5% Critical Value	0.727					95% Hall's Bootstrap UCL	3.116	
2562				Kolmogorov-Smirnov Test Statistic	0.173					95% Percentile Bootstrap UCL	3.171	
2563				Kolmogorov-Smirnov 5% Critical Value	0.281					95% BCA Bootstrap UCL	3.216	
2564	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	4.509	
2565										97.5% Chebyshev(Mean, Sd) UCL	5.4	
2566	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	7.15	
2567				95% Approximate Gamma UCL	3.79							
2568				95% Adjusted Gamma UCL	4.174							
2569												
2570	**Potential UCL to Use**									Use 95% Student's-t UCL	3.328	
2571												
2572												
2573	**Selenium**											
2574												
2575	**General Statistics**											
2576				Number of Valid Data	13					Number of Detected Data	9	
2577				Number of Distinct Detected Data	2					Number of Non-Detect Data	4	
2578				Number of Missing Values	4					Percent Non-Detects	30.77%	
2579												
2580	**Raw Statistics**						**Log-transformed Statistics**					
2581				Minimum Detected	0.2					Minimum Detected	-1.609	
2582				Maximum Detected	0.3					Maximum Detected	-1.204	
2583				Mean of Detected	0.222					Mean of Detected	-1.519	
2584				SD of Detected	0.0441					SD of Detected	0.179	
2585				Minimum Non-Detect	0.3					Minimum Non-Detect	-1.204	
2586				Maximum Non-Detect	0.3					Maximum Non-Detect	-1.204	
2587												
2588												
2589	**Warning: Data set has only 2 Distinct Detected Values.**											
2590	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
2591	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
2592												
2593	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
2594												
2595	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
2596	**Those methods will return a 'N/A' value on your output display!**											
2597												

	A	B	C	D	E	F	G	H	I	J	K	L
2598	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
2599	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
2600												
2601												
2602	UCL Statistics											
2603	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
2604					Shapiro Wilk Test Statistic	0.536					Shapiro Wilk Test Statistic	0.536
2605					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
2606	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
2607												
2608	Assuming Normal Distribution						Assuming Lognormal Distribution					
2609					DL/2 Substitution Method						DL/2 Substitution Method	
2610					Mean	0.2					Mean	-1.636
2611					SD	0.05					SD	0.233
2612					95% DL/2 (t) UCL	0.225					95% H-Stat (DL/2) UCL	0.227
2613												
2614					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2615	MLE method failed to converge properly										Mean in Log Scale	-1.536
2616											SD in Log Scale	0.155
2617											Mean in Original Scale	0.218
2618											SD in Original Scale	0.0378
2619											95% Percentile Bootstrap UCL	0.234
2620											95% BCA Bootstrap UCL	0.242
2621												
2622	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
2623					k star (bias corrected)	22.03	Data do not follow a Discernable Distribution (0.05)					
2624					Theta Star	0.0101						
2625					nu star	396.6						
2626												
2627					A-D Test Statistic	2.288	Nonparametric Statistics					
2628					5% A-D Critical Value	0.721					Kaplan-Meier (KM) Method	
2629					K-S Test Statistic	0.721					Mean	0.215
2630					5% K-S Critical Value	0.279					SD	0.0361
2631	Data not Gamma Distributed at 5% Significance Level										SE of Mean	0.0106
2632											95% KM (t) UCL	0.234
2633	Assuming Gamma Distribution										95% KM (z) UCL	0.233
2634					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	N/A
2635					Minimum	0.2					95% KM (bootstrap t) UCL	N/A
2636					Maximum	0.3					95% KM (BCA) UCL	N/A
2637					Mean	0.221					95% KM (Percentile Bootstrap) UCL	N/A
2638					Median	0.2					95% KM (Chebyshev) UCL	0.262
2639					SD	0.0366					97.5% KM (Chebyshev) UCL	0.282
2640					k star	35.3					99% KM (Chebyshev) UCL	0.321
2641					Theta star	0.00627						
2642					Nu star	917.7	Potential UCLs to Use					
2643					AppChi2	848.4					95% KM (BCA) UCL	N/A
2644					95% Gamma Approximate UCL	0.239						
2645					95% Adjusted Gamma UCL	0.242						
2646	Note: DL/2 is not a recommended method.											
2647												
2648												
2649	Thallium											
2650												

	A	B	C	D	E	F	G	H	I	J	K	L
2651	**General Statistics**											
2652					Number of Valid Data	15				Number of Detected Data		11
2653					Number of Distinct Detected Data	11				Number of Non-Detect Data		4
2654					Number of Missing Values	3				Percent Non-Detects		26.67%
2655												
2656	**Raw Statistics**						**Log-transformed Statistics**					
2657					Minimum Detected	0.00075				Minimum Detected		-7.195
2658					Maximum Detected	0.0062				Maximum Detected		-5.083
2659					Mean of Detected	0.00241				Mean of Detected		-6.266
2660					SD of Detected	0.00173				SD of Detected		0.734
2661					Minimum Non-Detect	0.0008				Minimum Non-Detect		-7.131
2662					Maximum Non-Detect	0.0008				Maximum Non-Detect		-7.131
2663												
2664												
2665	**UCL Statistics**											
2666	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2667					Shapiro Wilk Test Statistic	0.882				Shapiro Wilk Test Statistic		0.93
2668					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
2669	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2670												
2671	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2672					DL/2 Substitution Method					DL/2 Substitution Method		
2673					Mean	0.00187				Mean		-6.681
2674					SD	0.00173				SD		0.945
2675					95% DL/2 (t) UCL	0.00266				95% H-Stat (DL/2) UCL		0.00372
2676												
2677					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
2678					Mean	0.00149				Mean in Log Scale		-6.632
2679					SD	0.00215				SD in Log Scale		0.9
2680					95% MLE (t) UCL	0.00247				Mean in Original Scale		0.0019
2681					95% MLE (Tiku) UCL	0.00254				SD in Original Scale		0.00171
2682										95% Percentile Bootstrap UCL		0.00265
2683										95% BCA Bootstrap UCL		0.00275
2684												
2685	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2686					k star (bias corrected)	1.703	**Data appear Normal at 5% Significance Level**					
2687					Theta Star	0.00141						
2688					nu star	37.46						
2689												
2690					A-D Test Statistic	0.338	**Nonparametric Statistics**					
2691					5% A-D Critical Value	0.738				Kaplan-Meier (KM) Method		
2692					K-S Test Statistic	0.738				Mean		0.00197
2693					5% K-S Critical Value	0.258				SD		0.00159
2694	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0004315
2695										95% KM (t) UCL		0.00273
2696	**Assuming Gamma Distribution**									95% KM (z) UCL		0.00268
2697					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00271
2698					Minimum	1E-09				95% KM (bootstrap t) UCL		0.00302
2699					Maximum	0.0062				95% KM (BCA) UCL		0.00277
2700					Mean	0.00201				95% KM (Percentile Bootstrap) UCL		0.00273
2701					Median	0.0016				95% KM (Chebyshev) UCL		0.00385
2702					SD	0.00165				97.5% KM (Chebyshev) UCL		0.00466
2703					k star	0.489				99% KM (Chebyshev) UCL		0.00626

2704					Theta star	0.00412						
2705					Nu star	14.67	**Potential UCLs to Use**					
2706					AppChi2	7.031					95% KM (t) UCL	0.00273
2707				95% Gamma Approximate UCL		0.0042					95% KM (Percentile Bootstrap) UCL	0.00273
2708				95% Adjusted Gamma UCL		0.00462						
2709	**Note: DL/2 is not a recommended method.**											
2710												
2711												
2712	**Total Aroclors**											
2713												
2714					**General Statistics**							
2715					Number of Valid Data	6					Number of Detected Data	6
2716					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
2717					Number of Missing Values	12					Percent Non-Detects	0.00%
2718												
2719					**Raw Statistics**		**Log-transformed Statistics**					
2720					Minimum Detected	350					Minimum Detected	5.858
2721					Maximum Detected	1295					Maximum Detected	7.166
2722					Mean of Detected	842.5					Mean of Detected	6.604
2723					SD of Detected	431.1					SD of Detected	0.589
2724					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2725					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2726												
2727												
2728					**Warning: There are only 6 Detected Values in this data**							
2729					**Note: It should be noted that even though bootstrap may be performed on this data set**							
2730					**the resulting calculations may not be reliable enough tp draw conclusions**							
2731												
2732					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
2733												
2734												
2735					**UCL Statistics**							
2736					**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**					
2737					Shapiro Wilk Test Statistic	0.861					Shapiro Wilk Test Statistic	0.855
2738					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
2739					**Data appear Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**					
2740												
2741					**Assuming Normal Distribution**		**Assuming Lognormal Distribution**					
2742					DL/2 Substitution Method						DL/2 Substitution Method	
2743					Mean	842.5					Mean	6.604
2744					SD	431.1					SD	0.589
2745					95% DL/2 (t) UCL	1197					95% H-Stat (DL/2) UCL	1864
2746												
2747					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2748					**MLE method failed to converge properly**						Mean in Log Scale	N/A
2749											SD in Log Scale	N/A
2750											Mean in Original Scale	N/A
2751											SD in Original Scale	N/A
2752											95% Percentile Bootstrap UCL	N/A
2753											95% BCA Bootstrap UCL	N/A
2754												
2755					**Gamma Distribution Test with Detected Values Only**		**Data Distribution Test with Detected Values Only**					
2756					k star (bias corrected)	2.084	**Data appear Normal at 5% Significance Level**					

2757					Theta Star	404.3						
2758					nu star	25.01						
2759												
2760					A-D Test Statistic	0.471	**Nonparametric Statistics**					
2761					5% A-D Critical Value	0.7	Kaplan-Meier (KM) Method					
2762					K-S Test Statistic	0.7	Mean	842.5				
2763					5% K-S Critical Value	0.334	SD	393.6				
2764	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	176				
2765							95% KM (t) UCL	1197				
2766	**Assuming Gamma Distribution**						95% KM (z) UCL	1132				
2767	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1197				
2768					Minimum	350	95% KM (bootstrap t) UCL	1203				
2769					Maximum	1295	95% KM (BCA) UCL	1103				
2770					Mean	842.5	95% KM (Percentile Bootstrap) UCL	1112				
2771					Median	865	95% KM (Chebyshev) UCL	1610				
2772					SD	431.1	97.5% KM (Chebyshev) UCL	1942				
2773					k star	2.084	99% KM (Chebyshev) UCL	2594				
2774					Theta star	404.3						
2775					Nu star	25.01	**Potential UCLs to Use**					
2776					AppChi2	14.62	95% KM (t) UCL	1197				
2777					95% Gamma Approximate UCL	1441	95% KM (Percentile Bootstrap) UCL	1112				
2778					95% Adjusted Gamma UCL	1778						
2779	**Note: DL/2 is not a recommended method.**											
2780												
2781												
2782	**Total Chlordanes**											
2783												
2784	**General Statistics**											
2785					Number of Valid Data	13	Number of Detected Data	10				
2786					Number of Distinct Detected Data	10	Number of Non-Detect Data	3				
2787					Number of Missing Values	5	Percent Non-Detects	23.08%				
2788												
2789	**Raw Statistics**						**Log-transformed Statistics**					
2790					Minimum Detected	7.712	Minimum Detected	2.043				
2791					Maximum Detected	15	Maximum Detected	2.708				
2792					Mean of Detected	10.22	Mean of Detected	2.303				
2793					SD of Detected	2.305	SD of Detected	0.215				
2794					Minimum Non-Detect	7.1	Minimum Non-Detect	1.96				
2795					Maximum Non-Detect	11	Maximum Non-Detect	2.398				
2796												
2797	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	9				
2798	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	4				
2799	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	69.23%				
2800												
2801	**UCL Statistics**											
2802	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2803					Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Test Statistic	0.928				
2804					5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842				
2805	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2806												
2807	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2808					DL/2 Substitution Method		DL/2 Substitution Method					
2809					Mean	8.937	Mean	2.123				

2810					SD	3.182					SD	0.401
2811					95% DL/2 (t) UCL	10.51					95% H-Stat (DL/2) UCL	9.581
2812												
2813					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
2814					Mean	12.91					Mean in Log Scale	2.238
2815					SD	1.404					SD in Log Scale	0.236
2816					95% MLE (t) UCL	13.6					Mean in Original Scale	9.627
2817					95% MLE (Tiku) UCL	14.11					SD in Original Scale	2.362
2818											95% Percentile Bootstrap UCL	10.65
2819											95% BCA Bootstrap UCL	10.82
2820												
2821				**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**	
2822					k star (bias corrected)	16.54					**Data appear Normal at 5% Significance Level**	
2823					Theta Star	0.618						
2824					nu star	330.7						
2825												
2826					A-D Test Statistic	0.406					**Nonparametric Statistics**	
2827					5% A-D Critical Value	0.725					Kaplan-Meier (KM) Method	
2828					K-S Test Statistic	0.725					Mean	9.768
2829					5% K-S Critical Value	0.266					SD	2.117
2830				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.626
2831											95% KM (t) UCL	10.88
2832				**Assuming Gamma Distribution**							95% KM (z) UCL	10.8
2833					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	10.87
2834					Minimum	6.524					95% KM (bootstrap t) UCL	11.21
2835					Maximum	15					95% KM (BCA) UCL	10.87
2836					Mean	9.948					95% KM (Percentile Bootstrap) UCL	10.82
2837					Median	9.503					95% KM (Chebyshev) UCL	12.5
2838					SD	2.246					97.5% KM (Chebyshev) UCL	13.68
2839					k star	17.04					99% KM (Chebyshev) UCL	16
2840					Theta star	0.584						
2841					Nu star	443					**Potential UCLs to Use**	
2842					AppChi2	395.2					95% KM (t) UCL	10.88
2843					95% Gamma Approximate UCL	11.15					95% KM (Percentile Bootstrap) UCL	10.82
2844					95% Adjusted Gamma UCL	11.34						
2845	**Note: DL/2 is not a recommended method.**											
2846												
2847												
2848	**Total DDD**											
2849												
2850						**General Statistics**							
2851					Number of Valid Data	15					Number of Detected Data	15
2852					Number of Distinct Detected Data	15					Number of Non-Detect Data	0
2853					Number of Missing Values	3					Percent Non-Detects	0.00%
2854												
2855				**Raw Statistics**							**Log-transformed Statistics**	
2856					Minimum Detected	11.46					Minimum Detected	2.439
2857					Maximum Detected	201.7					Maximum Detected	5.307
2858					Mean of Detected	50.03					Mean of Detected	3.57
2859					SD of Detected	50.27					SD of Detected	0.816
2860					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2861					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2862												

	A	B	C	D	E	F	G	H	I	J	K	L
2863												
2864	**UCL Statistics**											
2865	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2866	Shapiro Wilk Test Statistic					0.73	Shapiro Wilk Test Statistic					0.961
2867	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881
2868	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2869												
2870	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2871	DL/2 Substitution Method						DL/2 Substitution Method					
2872	Mean					50.03	Mean					3.57
2873	SD					50.27	SD					0.816
2874	95% DL/2 (t) UCL					72.89	95% H-Stat (DL/2) UCL					84.84
2875												
2876	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2877	**MLE method failed to converge properly**						Mean in Log Scale					N/A
2878							SD in Log Scale					N/A
2879							Mean in Original Scale					N/A
2880							SD in Original Scale					N/A
2881							95% Percentile Bootstrap UCL					N/A
2882							95% BCA Bootstrap UCL					N/A
2883												
2884	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2885	k star (bias corrected)					1.329	**Data appear Gamma Distributed at 5% Significance Level**					
2886	Theta Star					37.65						
2887	nu star					39.86						
2888												
2889	A-D Test Statistic					0.494	**Nonparametric Statistics**					
2890	5% A-D Critical Value					0.752	Kaplan-Meier (KM) Method					
2891	K-S Test Statistic					0.752	Mean					50.03
2892	5% K-S Critical Value					0.225	SD					48.56
2893	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					12.98
2894							95% KM (t) UCL					72.89
2895	**Assuming Gamma Distribution**						95% KM (z) UCL					71.38
2896	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					72.89
2897	Minimum					11.46	95% KM (bootstrap t) UCL					97.41
2898	Maximum					201.7	95% KM (BCA) UCL					73.68
2899	Mean					50.03	95% KM (Percentile Bootstrap) UCL					71.48
2900	Median					30.8	95% KM (Chebyshev) UCL					106.6
2901	SD					50.27	97.5% KM (Chebyshev) UCL					131.1
2902	k star					1.329	99% KM (Chebyshev) UCL					179.2
2903	Theta star					37.65						
2904	Nu star					39.86	**Potential UCLs to Use**					
2905	AppChi2					26.39	95% KM (Chebyshev) UCL					106.6
2906	95% Gamma Approximate UCL					75.55						
2907	95% Adjusted Gamma UCL					79.6						
2908	**Note: DL/2 is not a recommended method.**											
2909												
2910												
2911	**Total DDE**											
2912												
2913	**General Statistics**											
2914	Number of Valid Data					15	Number of Detected Data					15
2915	Number of Distinct Detected Data					15	Number of Non-Detect Data					0

2916					Number of Missing Values	3					Percent Non-Detects	0.00%
2917												
2918					**Raw Statistics**						**Log-transformed Statistics**	
2919					Minimum Detected	35.44					Minimum Detected	3.568
2920					Maximum Detected	252.5					Maximum Detected	5.531
2921					Mean of Detected	93.96					Mean of Detected	4.424
2922					SD of Detected	52.8					SD of Detected	0.492
2923					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2924					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2925												
2926												
2927					**UCL Statistics**							
2928					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
2929					Shapiro Wilk Test Statistic	0.815					Shapiro Wilk Test Statistic	0.973
2930					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
2931					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2932												
2933					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2934					DL/2 Substitution Method						DL/2 Substitution Method	
2935					Mean	93.96					Mean	4.424
2936					SD	52.8					SD	0.492
2937					95% DL/2 (t) UCL	118					95% H-Stat (DL/2) UCL	123.4
2938												
2939					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2940					**MLE method failed to converge properly**						Mean in Log Scale	N/A
2941											SD in Log Scale	N/A
2942											Mean in Original Scale	N/A
2943											SD in Original Scale	N/A
2944											95% Percentile Bootstrap UCL	N/A
2945											95% BCA Bootstrap UCL	N/A
2946												
2947					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2948					k star (bias corrected)	3.536					**Data appear Gamma Distributed at 5% Significance Level**	
2949					Theta Star	26.57						
2950					nu star	106.1						
2951												
2952					A-D Test Statistic	0.316					**Nonparametric Statistics**	
2953					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
2954					K-S Test Statistic	0.739					Mean	93.96
2955					5% K-S Critical Value	0.222					SD	51.01
2956					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	13.63
2957											95% KM (t) UCL	118
2958					**Assuming Gamma Distribution**						95% KM (z) UCL	116.4
2959					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	118
2960					Minimum	35.44					95% KM (bootstrap t) UCL	132.4
2961					Maximum	252.5					95% KM (BCA) UCL	117.8
2962					Mean	93.96					95% KM (Percentile Bootstrap) UCL	117.9
2963					Median	87.25					95% KM (Chebyshev) UCL	153.4
2964					SD	52.8					97.5% KM (Chebyshev) UCL	179.1
2965					k star	3.536					99% KM (Chebyshev) UCL	229.6
2966					Theta star	26.57						
2967					Nu star	106.1					**Potential UCLs to Use**	
2968					AppChi2	83.3					95% KM (BCA) UCL	117.8

	A	B	C	D	E	F	G	H	I	J	K	L
2969				95% Gamma Approximate UCL		119.6						
2970				95% Adjusted Gamma UCL		123.3						
2971	**Note: DL/2 is not a recommended method.**											
2972												
2973												
2974	**Total DDT**											
2975												
2976					**General Statistics**							
2977				Number of Valid Data		15			Number of Detected Data			10
2978				Number of Distinct Detected Data		10			Number of Non-Detect Data			5
2979				Number of Missing Values		3			Percent Non-Detects			33.33%
2980												
2981				**Raw Statistics**					**Log-transformed Statistics**			
2982				Minimum Detected		0.328			Minimum Detected			-1.115
2983				Maximum Detected		63			Maximum Detected			4.143
2984				Mean of Detected		13.46			Mean of Detected			1.094
2985				SD of Detected		21.33			SD of Detected			1.975
2986				Minimum Non-Detect		6.9			Minimum Non-Detect			1.932
2987				Maximum Non-Detect		6.9			Maximum Non-Detect			1.932
2988												
2989												
2990					**UCL Statistics**							
2991				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
2992				Shapiro Wilk Test Statistic		0.692			Shapiro Wilk Test Statistic			0.885
2993				5% Shapiro Wilk Critical Value		0.842			5% Shapiro Wilk Critical Value			0.842
2994				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
2995												
2996				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
2997				DL/2 Substitution Method					DL/2 Substitution Method			
2998				Mean		10.12			Mean			1.142
2999				SD		17.79			SD			1.585
3000				95% DL/2 (t) UCL		18.21			95% H-Stat (DL/2) UCL			30.98
3001												
3002				Maximum Likelihood Estimate(MLE) Method		N/A			Log ROS Method			
3003				**MLE yields a negative mean**					Mean in Log Scale			0.674
3004									SD in Log Scale			1.807
3005									Mean in Original Scale			9.418
3006									SD in Original Scale			18.11
3007									95% Percentile Bootstrap UCL			17.29
3008									95% BCA Bootstrap UCL			21.04
3009												
3010				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
3011				k star (bias corrected)		0.369			**Data Follow Appr. Gamma Distribution at 5% Significance Level**			
3012				Theta Star		36.49						
3013				nu star		7.378						
3014												
3015				A-D Test Statistic		0.715			**Nonparametric Statistics**			
3016				5% A-D Critical Value		0.789			Kaplan-Meier (KM) Method			
3017				K-S Test Statistic		0.789			Mean			9.251
3018				5% K-S Critical Value		0.283			SD			17.57
3019				**Data follow Appr. Gamma Distribution at 5% Significance Level**					SE of Mean			4.782
3020									95% KM (t) UCL			17.67
3021				**Assuming Gamma Distribution**					95% KM (z) UCL			17.12

3022	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		17.52
3023					Minimum	0.328				95% KM (bootstrap t) UCL		36.73
3024					Maximum	63				95% KM (BCA) UCL		17.88
3025					Mean	13.55				95% KM (Percentile Bootstrap) UCL		16.91
3026					Median	12.31				95% KM (Chebyshev) UCL		30.09
3027					SD	17.14				97.5% KM (Chebyshev) UCL		39.11
3028					k star	0.534				99% KM (Chebyshev) UCL		56.83
3029					Theta star	25.37						
3030					Nu star	16.03				**Potential UCLs to Use**		
3031					AppChi2	7.981				95% KM (BCA) UCL		17.88
3032					95% Gamma Approximate UCL	27.21						
3033					95% Adjusted Gamma UCL	29.79						
3034	**Note: DL/2 is not a recommended method.**											
3035												
3036												
3037	**Total Dioxin/Furan TEQ**											
3038												
3039	**General Statistics**											
3040					Number of Valid Observations	9				Number of Distinct Observations		9
3041												
3042	**Raw Statistics**									**Log-transformed Statistics**		
3043					Minimum	1.884				Minimum of Log Data		0.633
3044					Maximum	4.372				Maximum of Log Data		1.475
3045					Mean	2.83				Mean of log Data		0.99
3046					Median	2.443				SD of log Data		0.329
3047					SD	0.985						
3048					Coefficient of Variation	0.348						
3049					Skewness	0.801						
3050												
3051												
3052	**Warning: There are only 9 Values in this data**											
3053	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
3054	**the resulting calculations may not be reliable enough to draw conclusions**											
3055												
3056	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
3057												
3058	**Relevant UCL Statistics**											
3059	**Normal Distribution Test**									**Lognormal Distribution Test**		
3060					Shapiro Wilk Test Statistic	0.822				Shapiro Wilk Test Statistic		0.855
3061					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
3062	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
3063												
3064	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
3065					95% Student's-t UCL	3.441				95% H-UCL		3.605
3066	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		4.184
3067					95% Adjusted-CLT UCL	3.464				97.5% Chebyshev (MVUE) UCL		4.772
3068					95% Modified-t UCL	3.456				99% Chebyshev (MVUE) UCL		5.927
3069												
3070	**Gamma Distribution Test**									**Data Distribution**		
3071					k star (bias corrected)	6.838				**Data appear Gamma Distributed at 5% Significance Level**		
3072					Theta Star	0.414						
3073					nu star	123.1						
3074					Approximate Chi Square Value (.05)	98.46				**Nonparametric Statistics**		

3075					Adjusted Level of Significance	0.0231					95% CLT UCL	3.371
3076					Adjusted Chi Square Value	93.83					95% Jackknife UCL	3.441
3077											95% Standard Bootstrap UCL	3.351
3078					Anderson-Darling Test Statistic	0.704					95% Bootstrap-t UCL	3.69
3079					Anderson-Darling 5% Critical Value	0.722					95% Hall's Bootstrap UCL	3.301
3080					Kolmogorov-Smirnov Test Statistic	0.237					95% Percentile Bootstrap UCL	3.343
3081					Kolmogorov-Smirnov 5% Critical Value	0.279					95% BCA Bootstrap UCL	3.375
3082					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	4.262
3083											97.5% Chebyshev(Mean, Sd) UCL	4.882
3084					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	6.099
3085					95% Approximate Gamma UCL	3.538						
3086					95% Adjusted Gamma UCL	3.713						
3087												
3088					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	3.538
3089												
3090												
3091	**Total Dioxin-like PCBs**											
3092												
3093					**General Statistics**							
3094					Number of Valid Observations	9					Number of Distinct Observations	9
3095												
3096					**Raw Statistics**						**Log-transformed Statistics**	
3097					Minimum	12553					Minimum of Log Data	9.438
3098					Maximum	267700					Maximum of Log Data	12.5
3099					Mean	45521					Mean of log Data	10.06
3100					Median	17525					SD of log Data	0.941
3101					SD	83425						
3102					Coefficient of Variation	1.833						
3103					Skewness	2.985						
3104												
3105												
3106					**Warning: There are only 9 Values in this data**							
3107					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
3108					**the resulting calculations may not be reliable enough to draw conclusions**							
3109												
3110					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
3111												
3112					**Relevant UCL Statistics**							
3113					**Normal Distribution Test**						**Lognormal Distribution Test**	
3114					Shapiro Wilk Test Statistic	0.436					Shapiro Wilk Test Statistic	0.616
3115					Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829
3116					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
3117												
3118					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3119					95% Student's-t UCL	97232					95% H-UCL	102571
3120					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	82639
3121					95% Adjusted-CLT UCL	120829					97.5% Chebyshev (MVUE) UCL	103580
3122					95% Modified-t UCL	101844					99% Chebyshev (MVUE) UCL	144714
3123												
3124					**Gamma Distribution Test**						**Data Distribution**	
3125					k star (bias corrected)	0.663					**Data do not follow a Discernable Distribution (0.05)**	
3126					Theta Star	68688						
3127					nu star	11.93						

3128					Approximate Chi Square Value (.05)	5.18		**Nonparametric Statistics**				
3129					Adjusted Level of Significance	0.0231					95% CLT UCL	91261
3130					Adjusted Chi Square Value	4.281					95% Jackknife UCL	97232
3131											95% Standard Bootstrap UCL	87208
3132					Anderson-Darling Test Statistic	2.071					95% Bootstrap-t UCL	937526
3133					Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	457715
3134					Kolmogorov-Smirnov Test Statistic	0.424					95% Percentile Bootstrap UCL	100300
3135					Kolmogorov-Smirnov 5% Critical Value	0.288					95% BCA Bootstrap UCL	129068
3136	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	166734
3137											97.5% Chebyshev(Mean, Sd) UCL	219183
3138	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	322209
3139					95% Approximate Gamma UCL	104825						
3140					95% Adjusted Gamma UCL	126842						
3141												
3142	**Potential UCL to Use**										Use 95% Chebyshev (Mean, Sd) UCL	166734
3143												
3144												
3145	**Total Endosulfan**											
3146												
3147	**General Statistics**											
3148					Number of Valid Data	13					Number of Detected Data	10
3149					Number of Distinct Detected Data	10					Number of Non-Detect Data	3
3150					Number of Missing Values	4					Percent Non-Detects	23.08%
3151												
3152	**Raw Statistics**							**Log-transformed Statistics**				
3153					Minimum Detected	0.341					Minimum Detected	-1.077
3154					Maximum Detected	8.1					Maximum Detected	2.092
3155					Mean of Detected	1.303					Mean of Detected	-0.371
3156					SD of Detected	2.393					SD of Detected	0.914
3157					Minimum Non-Detect	4					Minimum Non-Detect	1.386
3158					Maximum Non-Detect	4					Maximum Non-Detect	1.386
3159												
3160												
3161	**UCL Statistics**											
3162	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
3163					Shapiro Wilk Test Statistic	0.428					Shapiro Wilk Test Statistic	0.674
3164					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
3165	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**				
3166												
3167	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
3168					DL/2 Substitution Method						DL/2 Substitution Method	
3169					Mean	1.464					Mean	-0.125
3170					SD	2.095					SD	0.919
3171					95% DL/2 (t) UCL	2.5					95% H-Stat (DL/2) UCL	2.512
3172												
3173					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3174	**MLE method failed to converge properly**										Mean in Log Scale	-0.405
3175											SD in Log Scale	0.823
3176											Mean in Original Scale	1.153
3177											SD in Original Scale	2.097
3178											95% Percentile Bootstrap UCL	2.301
3179											95% BCA Bootstrap UCL	2.861
3180												

3181	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3182					k star (bias corrected)	0.709	**Data do not follow a Discernable Distribution (0.05)**					
3183					Theta Star	1.839						
3184					nu star	14.18						
3185												
3186					A-D Test Statistic	2.017	**Nonparametric Statistics**					
3187					5% A-D Critical Value	0.751				Kaplan-Meier (KM) Method		
3188					K-S Test Statistic	0.751				Mean		1.129
3189					5% K-S Critical Value	0.274				SD		2.018
3190	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.591
3191										95% KM (t) UCL		2.182
3192	**Assuming Gamma Distribution**									95% KM (z) UCL		2.101
3193					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		2.169
3194					Minimum	0.341				95% KM (bootstrap t) UCL		9.637
3195					Maximum	8.1				95% KM (BCA) UCL		2.341
3196					Mean	1.297				95% KM (Percentile Bootstrap) UCL		2.267
3197					Median	0.673				95% KM (Chebyshev) UCL		3.704
3198					SD	2.084				97.5% KM (Chebyshev) UCL		4.818
3199					k star	0.921				99% KM (Chebyshev) UCL		7.006
3200					Theta star	1.408						
3201					Nu star	23.95	**Potential UCLs to Use**					
3202					AppChi2	13.81				95% KM (BCA) UCL		2.341
3203					95% Gamma Approximate UCL	2.249						
3204					95% Adjusted Gamma UCL	2.441						
3205	**Note: DL/2 is not a recommended method.**											
3206												
3207												
3208	**Total PCB TEQ**											
3209												
3210	**General Statistics**											
3211					Number of Valid Observations	9				Number of Distinct Observations		9
3212												
3213	**Raw Statistics**						**Log-transformed Statistics**					
3214					Minimum	0.966				Minimum of Log Data		-0.035
3215					Maximum	16.46				Maximum of Log Data		2.801
3216					Mean	3.333				Mean of log Data		0.746
3217					Median	1.897				SD of log Data		0.82
3218					SD	4.942						
3219					Coefficient of Variation	1.483						
3220					Skewness	2.953						
3221												
3222												
3223	**Warning: There are only 9 Values in this data**											
3224	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
3225	**the resulting calculations may not be reliable enough to draw conclusions**											
3226												
3227	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
3228												
3229	**Relevant UCL Statistics**											
3230	**Normal Distribution Test**						**Lognormal Distribution Test**					
3231					Shapiro Wilk Test Statistic	0.478				Shapiro Wilk Test Statistic		0.725
3232					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
3233	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					

3234												
3235	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3236				95% Student's-t UCL	6.396					95% H-UCL	6.747	
3237	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	6.275	
3238				95% Adjusted-CLT UCL	7.775					97.5% Chebyshev (MVUE) UCL	7.771	
3239				95% Modified-t UCL	6.667					99% Chebyshev (MVUE) UCL	10.71	
3240												
3241	**Gamma Distribution Test**						**Data Distribution**					
3242				k star (bias corrected)	0.895		**Data do not follow a Discernable Distribution (0.05)**					
3243				Theta Star	3.725							
3244				nu star	16.1							
3245				Approximate Chi Square Value (.05)	8.035		**Nonparametric Statistics**					
3246				Adjusted Level of Significance	0.0231					95% CLT UCL	6.043	
3247				Adjusted Chi Square Value	6.868					95% Jackknife UCL	6.396	
3248										95% Standard Bootstrap UCL	5.893	
3249				Anderson-Darling Test Statistic	1.621					95% Bootstrap-t UCL	27.38	
3250				Anderson-Darling 5% Critical Value	0.739					95% Hall's Bootstrap UCL	23.09	
3251				Kolmogorov-Smirnov Test Statistic	0.393					95% Percentile Bootstrap UCL	6.554	
3252				Kolmogorov-Smirnov 5% Critical Value	0.286					95% BCA Bootstrap UCL	8.139	
3253	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	10.51	
3254										97.5% Chebyshev(Mean, Sd) UCL	13.62	
3255	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	19.72	
3256				95% Approximate Gamma UCL	6.68							
3257				95% Adjusted Gamma UCL	7.815							
3258												
3259	**Potential UCL to Use**									Use 95% Chebyshev (Mean, Sd) UCL	10.51	
3260												
3261												
3262	**Total PCB_Congeners**											
3263												
3264	**General Statistics**											
3265				Number of Valid Observations	9					Number of Distinct Observations	9	
3266												
3267	**Raw Statistics**						**Log-transformed Statistics**					
3268				Minimum	210268					Minimum of Log Data	12.26	
3269				Maximum	19722060					Maximum of Log Data	16.8	
3270				Mean	2520900					Mean of log Data	13.19	
3271				Median	308131					SD of log Data	1.413	
3272				SD	6452787							
3273				Coefficient of Variation	2.56							
3274				Skewness	2.996							
3275												
3276												
3277	**Warning: There are only 9 Values in this data**											
3278	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
3279	**the resulting calculations may not be reliable enough to draw conclusions**											
3280												
3281	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
3282												
3283	**Relevant UCL Statistics**											
3284	**Normal Distribution Test**						**Lognormal Distribution Test**					
3285				Shapiro Wilk Test Statistic	0.412					Shapiro Wilk Test Statistic	0.64	
3286				Shapiro Wilk Critical Value	0.829					Shapiro Wilk Critical Value	0.829	

3287	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3288												
3289	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3290					95% Student's-t UCL	6520656					95% H-UCL	11890052
3291	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	3783351
3292					95% Adjusted-CLT UCL	8353959					97.5% Chebyshev (MVUE) UCL	4896707
3293					95% Modified-t UCL	6878645					99% Chebyshev (MVUE) UCL	7083678
3294												
3295	**Gamma Distribution Test**						**Data Distribution**					
3296					k star (bias corrected)	0.354	**Data do not follow a Discernable Distribution (0.05)**					
3297					Theta Star	7119393						
3298					nu star	6.374						
3299					Approximate Chi Square Value (.05)	1.834	**Nonparametric Statistics**					
3300					Adjusted Level of Significance	0.0231					95% CLT UCL	6058864
3301					Adjusted Chi Square Value	1.367					95% Jackknife UCL	6520656
3302											95% Standard Bootstrap UCL	5951375
3303					Anderson-Darling Test Statistic	2.132					95% Bootstrap-t UCL	165600000
3304					Anderson-Darling 5% Critical Value	0.785					95% Hall's Bootstrap UCL	82411833
3305					Kolmogorov-Smirnov Test Statistic	0.429					95% Percentile Bootstrap UCL	6796658
3306					Kolmogorov-Smirnov 5% Critical Value	0.297					95% BCA Bootstrap UCL	8974277
3307	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	11896583
3308											97.5% Chebyshev(Mean, Sd) UCL	15953448
3309	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	23922375
3310					95% Approximate Gamma UCL	8762325						
3311					95% Adjusted Gamma UCL	11752624						
3312												
3313	**Potential UCL to Use**										Use 99% Chebyshev (Mean, Sd) UCL	23922375
3314	**Recommended UCL exceeds the maximum observation**											
3315												
3316												
3317	**Tributyltin ion**											
3318												
3319	**General Statistics**											
3320					Number of Valid Data	9					Number of Detected Data	8
3321					Number of Distinct Detected Data	8					Number of Non-Detect Data	1
3322											Percent Non-Detects	11.11%
3323												
3324	**Raw Statistics**						**Log-transformed Statistics**					
3325					Minimum Detected	2.6					Minimum Detected	0.956
3326					Maximum Detected	11					Maximum Detected	2.398
3327					Mean of Detected	5.425					Mean of Detected	1.595
3328					SD of Detected	2.702					SD of Detected	0.456
3329					Minimum Non-Detect	1.8					Minimum Non-Detect	0.588
3330					Maximum Non-Detect	1.8					Maximum Non-Detect	0.588
3331												
3332												
3333	**Warning: There are only 8 Detected Values in this data**											
3334	**Note: It should be noted that even though bootstrap may be performed on this data set**											
3335	**the resulting calculations may not be reliable enough tp draw conclusions**											
3336												
3337	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
3338												
3339												

	A	B	C	D	E	F	G	H	I	J	K	L
3340	**UCL Statistics**											
3341	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3342					Shapiro Wilk Test Statistic	0.867					Shapiro Wilk Test Statistic	0.955
3343					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
3344	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3345												
3346	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3347					DL/2 Substitution Method						DL/2 Substitution Method	
3348					Mean	4.922					Mean	1.406
3349					SD	2.943					SD	0.71
3350					95% DL/2 (t) UCL	6.747					95% H-Stat (DL/2) UCL	6.271
3351												
3352					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
3353					Mean	4.856					Mean in Log Scale	1.47
3354					SD	2.907					SD in Log Scale	0.568
3355					95% MLE (t) UCL	6.658					Mean in Original Scale	5
3356					95% MLE (Tiku) UCL	6.653					SD in Original Scale	2.831
3357											95% Percentile Bootstrap UCL	6.511
3358											95% BCA Bootstrap UCL	6.856
3359												
3360	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3361					k star (bias corrected)	3.454	**Data appear Normal at 5% Significance Level**					
3362					Theta Star	1.571						
3363					nu star	55.26						
3364												
3365					A-D Test Statistic	0.351	**Nonparametric Statistics**					
3366					5% A-D Critical Value	0.719					Kaplan-Meier (KM) Method	
3367					K-S Test Statistic	0.719					Mean	5.111
3368					5% K-S Critical Value	0.295					SD	2.543
3369	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.906
3370											95% KM (t) UCL	6.796
3371	**Assuming Gamma Distribution**										95% KM (z) UCL	6.602
3372					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	6.753
3373					Minimum	1.205					95% KM (bootstrap t) UCL	7.713
3374					Maximum	11					95% KM (BCA) UCL	6.744
3375					Mean	4.956					95% KM (Percentile Bootstrap) UCL	6.611
3376					Median	4					95% KM (Chebyshev) UCL	9.061
3377					SD	2.892					97.5% KM (Chebyshev) UCL	10.77
3378					k star	2.24					99% KM (Chebyshev) UCL	14.13
3379					Theta star	2.213						
3380					Nu star	40.32	**Potential UCLs to Use**					
3381					AppChi2	26.77					95% KM (t) UCL	6.796
3382					95% Gamma Approximate UCL	7.465					95% KM (Percentile Bootstrap) UCL	6.611
3383					95% Adjusted Gamma UCL	8.168						
3384	**Note: DL/2 is not a recommended method.**											
3385												
3386												
3387	**Zinc**											
3388												
3389	**General Statistics**											
3390					Number of Valid Data	15					Number of Detected Data	15
3391					Number of Distinct Detected Data	15					Number of Non-Detect Data	0
3392					Number of Missing Values	3					Percent Non-Detects	0.00%

Raw Statistics		
Minimum Detected	17.4	
Maximum Detected	31	
Mean of Detected	25.66	
SD of Detected	4.319	
Minimum Non-Detect	N/A	
Maximum Non-Detect	N/A	
Log-transformed Statistics		
Minimum Detected	2.856	
Maximum Detected	3.434	
Mean of Detected	3.231	
SD of Detected	0.179	
Minimum Non-Detect	N/A	
Maximum Non-Detect	N/A	

UCL Statistics

Normal Distribution Test with Detected Values Only		
Shapiro Wilk Test Statistic	0.915	
5% Shapiro Wilk Critical Value	0.881	
Data appear Normal at 5% Significance Level		
Assuming Normal Distribution		
DL/2 Substitution Method		
Mean	25.66	
SD	4.319	
95% DL/2 (t) UCL	27.62	
Maximum Likelihood Estimate(MLE) Method	N/A	
MLE method failed to converge properly		
Gamma Distribution Test with Detected Values Only		
k star (bias corrected)	28.03	
Theta Star	0.916	
nu star	840.8	
A-D Test Statistic	0.608	
5% A-D Critical Value	0.735	
K-S Test Statistic	0.735	
5% K-S Critical Value	0.221	
Data appear Gamma Distributed at 5% Significance Level		
Assuming Gamma Distribution		
Gamma ROS Statistics using Extrapolated Data		
Minimum	17.4	
Maximum	31	
Mean	25.66	
Median	24.8	
SD	4.319	
k star	28.03	
Theta star	0.916	
Nu star	840.8	
AppChi2	774.5	
95% Gamma Approximate UCL	27.86	

Lognormal Distribution Test with Detected Values Only		
Shapiro Wilk Test Statistic	0.895	
5% Shapiro Wilk Critical Value	0.881	
Data appear Lognormal at 5% Significance Level		
Assuming Lognormal Distribution		
DL/2 Substitution Method		
Mean	3.231	
SD	0.179	
95% H-Stat (DL/2) UCL	28.01	
Log ROS Method		
Mean in Log Scale	N/A	
SD in Log Scale	N/A	
Mean in Original Scale	N/A	
SD in Original Scale	N/A	
95% Percentile Bootstrap UCL	N/A	
95% BCA Bootstrap UCL	N/A	
Data Distribution Test with Detected Values Only		
Data appear Normal at 5% Significance Level		
Nonparametric Statistics		
Kaplan-Meier (KM) Method		
Mean	25.66	
SD	4.173	
SE of Mean	1.115	
95% KM (t) UCL	27.62	
95% KM (z) UCL	27.49	
95% KM (jackknife) UCL	27.62	
95% KM (bootstrap t) UCL	27.5	
95% KM (BCA) UCL	27.37	
95% KM (Percentile Bootstrap) UCL	27.4	
95% KM (Chebyshev) UCL	30.52	
97.5% KM (Chebyshev) UCL	32.62	
99% KM (Chebyshev) UCL	36.76	
Potential UCLs to Use		
95% KM (t) UCL	27.62	
95% KM (Percentile Bootstrap) UCL	27.4	

3446					95% Adjusted Gamma UCL	28.14						
3447	**Note: DL/2 is not a recommended method.**											
3448												
3449												
3450	**Total PCBs, Adjusted**											
3451												
3452	**General Statistics**											
3453					Number of Valid Observations	9				Number of Distinct Observations	9	
3454												
3455	**Raw Statistics**						**Log-transformed Statistics**					
3456					Minimum	195119				Minimum of Log Data	12.18	
3457					Maximum	19454360				Maximum of Log Data	16.78	
3458					Mean	2475379				Mean of log Data	13.14	
3459					Median	295578				SD of log Data	1.429	
3460					SD	6369401						
3461					Coefficient of Variation	2.573						
3462					Skewness	2.996						
3463												
3464												
3465	**Warning: There are only 9 Values in this data**											
3466	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
3467	**the resulting calculations may not be reliable enough to draw conclusions**											
3468												
3469	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
3470												
3471	**Relevant UCL Statistics**											
3472	**Normal Distribution Test**						**Lognormal Distribution Test**					
3473					Shapiro Wilk Test Statistic	0.412				Shapiro Wilk Test Statistic	0.646	
3474					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value	0.829	
3475	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3476												
3477	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3478					95% Student's-t UCL	6423448				95% H-UCL	12117939	
3479	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	3692265	
3480					95% Adjusted-CLT UCL	8233113				97.5% Chebyshev (MVUE) UCL	4782662	
3481					95% Modified-t UCL	6776819				99% Chebyshev (MVUE) UCL	6924534	
3482												
3483	**Gamma Distribution Test**						**Data Distribution**					
3484					k star (bias corrected)	0.349	**Data do not follow a Discernable Distribution (0.05)**					
3485					Theta Star	7087064						
3486					nu star	6.287						
3487					Approximate Chi Square Value (.05)	1.788	**Nonparametric Statistics**					
3488					Adjusted Level of Significance	0.0231				95% CLT UCL	5967623	
3489					Adjusted Chi Square Value	1.329				95% Jackknife UCL	6423448	
3490										95% Standard Bootstrap UCL	5755848	
3491					Anderson-Darling Test Statistic	2.117				95% Bootstrap-t UCL	160800000	
3492					Anderson-Darling 5% Critical Value	0.787				95% Hall's Bootstrap UCL	80860575	
3493					Kolmogorov-Smirnov Test Statistic	0.428				95% Percentile Bootstrap UCL	6697068	
3494					Kolmogorov-Smirnov 5% Critical Value	0.297				95% BCA Bootstrap UCL	8846161	
3495	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	11729904	
3496										97.5% Chebyshev(Mean, Sd) UCL	15734344	
3497	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	23600291	
3498					95% Approximate Gamma UCL	8702712						

3499					95% Adjusted Gamma UCL	11706190						
3500												
3501	**Potential UCL to Use**									Use 99% Chebyshev (Mean, Sd) UCL		23600291
3502	**Recommended UCL exceeds the maximum observation**											
3503												
3504												
3505	**Total TEQ**											
3506												
3507	**General Statistics**											
3508					Number of Valid Observations	9				Number of Distinct Observations		9
3509												
3510	**Raw Statistics**						**Log-transformed Statistics**					
3511					Minimum	3.124				Minimum of Log Data		1.139
3512					Maximum	20.17				Maximum of Log Data		3.004
3513					Mean	6.163				Mean of log Data		1.625
3514					Median	4.483				SD of log Data		0.576
3515					SD	5.374						
3516					Coefficient of Variation	0.872						
3517					Skewness	2.75						
3518												
3519												
3520	**Warning: There are only 9 Values in this data**											
3521	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
3522	**the resulting calculations may not be reliable enough to draw conclusions**											
3523												
3524	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
3525												
3526	**Relevant UCL Statistics**											
3527	**Normal Distribution Test**						**Lognormal Distribution Test**					
3528					Shapiro Wilk Test Statistic	0.583				Shapiro Wilk Test Statistic		0.783
3529					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
3530	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3531												
3532	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3533					95% Student's-t UCL	9.495				95% H-UCL		9.724
3534	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		10.87
3535					95% Adjusted-CLT UCL	10.86				97.5% Chebyshev (MVUE) UCL		13.04
3536					95% Modified-t UCL	9.768				99% Chebyshev (MVUE) UCL		17.29
3537												
3538	**Gamma Distribution Test**						**Data Distribution**					
3539					k star (bias corrected)	1.895	**Data do not follow a Discernable Distribution (0.05)**					
3540					Theta Star	3.253						
3541					nu star	34.1						
3542					Approximate Chi Square Value (.05)	21.75	**Nonparametric Statistics**					
3543					Adjusted Level of Significance	0.0231				95% CLT UCL		9.11
3544					Adjusted Chi Square Value	19.69				95% Jackknife UCL		9.495
3545										95% Standard Bootstrap UCL		8.912
3546					Anderson-Darling Test Statistic	1.083				95% Bootstrap-t UCL		17.97
3547					Anderson-Darling 5% Critical Value	0.728				95% Hall's Bootstrap UCL		20.29
3548					Kolmogorov-Smirnov Test Statistic	0.304				95% Percentile Bootstrap UCL		9.554
3549					Kolmogorov-Smirnov 5% Critical Value	0.282				95% BCA Bootstrap UCL		10.5
3550	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		13.97
3551										97.5% Chebyshev(Mean, Sd) UCL		17.35

	A	B	C	D	E	F	G	H	I	J	K	L
3552	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					23.99
3553	95% Approximate Gamma UCL					9.665						
3554	95% Adjusted Gamma UCL					10.67						
3555												
3556	**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL					13.97
3557												

1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3		From File		Carp-Study_area-WB								
4		Full Precision		OFF								
5		Confidence Coefficient		95%								
6		Number of Bootstrap Operations		2000								
7												
8												
9	1-Methylnaphthalene											
10												
11				General Statistics								
12				Number of Valid Data	9			Number of Detected Data	9			
13				Number of Distinct Detected Data	9			Number of Non-Detect Data	0			
14				Number of Missing Values	6			Percent Non-Detects	0.00%			
15												
16				Raw Statistics				Log-transformed Statistics				
17				Minimum Detected	2.371			Minimum Detected	0.863			
18				Maximum Detected	12.29			Maximum Detected	2.508			
19				Mean of Detected	5.406			Mean of Detected	1.571			
20				SD of Detected	3.026			SD of Detected	0.498			
21				Minimum Non-Detect	N/A			Minimum Non-Detect	N/A			
22				Maximum Non-Detect	N/A			Maximum Non-Detect	N/A			
23												
24												
25				Warning: There are only 9 Detected Values in this data								
26				Note: It should be noted that even though bootstrap may be performed on this data set								
27				the resulting calculations may not be reliable enough tp draw conclusions								
28												
29				It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.								
30												
31												
32				UCL Statistics								
33				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
34				Shapiro Wilk Test Statistic	0.844			Shapiro Wilk Test Statistic	0.969			
35				5% Shapiro Wilk Critical Value	0.829			5% Shapiro Wilk Critical Value	0.829			
36				Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level				
37												
38				Assuming Normal Distribution				Assuming Lognormal Distribution				
39				DL/2 Substitution Method				DL/2 Substitution Method				
40				Mean	5.406			Mean	1.571			
41				SD	3.026			SD	0.498			
42				95% DL/2 (t) UCL	7.282			95% H-Stat (DL/2) UCL	8.052			
43												
44				Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method				
45				MLE method failed to converge properly				Mean in Log Scale	N/A			
46								SD in Log Scale	N/A			
47								Mean in Original Scale	N/A			
48								SD in Original Scale	N/A			
49								95% Percentile Bootstrap UCL	N/A			
50								95% BCA Bootstrap UCL	N/A			
51												
52				Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only				
53				k star (bias corrected)	3.033			Data appear Normal at 5% Significance Level				

54					Theta Star	1.782						
55					nu star	54.6						
56												
57					A-D Test Statistic	0.307	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.724	Kaplan-Meier (KM) Method					
59					K-S Test Statistic	0.724	Mean	5.406				
60					5% K-S Critical Value	0.28	SD	2.853				
61	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	1.009				
62							95% KM (t) UCL	7.282				
63	**Assuming Gamma Distribution**						95% KM (z) UCL	7.066				
64					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.282				
65					Minimum	2.371	95% KM (bootstrap t) UCL	8.905				
66					Maximum	12.29	95% KM (BCA) UCL	7.179				
67					Mean	5.406	95% KM (Percentile Bootstrap) UCL	7.154				
68					Median	4.623	95% KM (Chebyshev) UCL	9.803				
69					SD	3.026	97.5% KM (Chebyshev) UCL	11.71				
70					k star	3.033	99% KM (Chebyshev) UCL	15.44				
71					Theta star	1.782						
72					Nu star	54.6	**Potential UCLs to Use**					
73					AppChi2	38.62	95% KM (t) UCL	7.282				
74					95% Gamma Approximate UCL	7.643	95% KM (Percentile Bootstrap) UCL	7.154				
75					95% Adjusted Gamma UCL	8.244						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**2-Methylnaphthalene**											
80												
81	**General Statistics**											
82					Number of Valid Data	15	Number of Detected Data	10				
83					Number of Distinct Detected Data	10	Number of Non-Detect Data	5				
84							Percent Non-Detects	33.33%				
85												
86	**Raw Statistics**						**Log-transformed Statistics**					
87					Minimum Detected	1.926	Minimum Detected	0.655				
88					Maximum Detected	38	Maximum Detected	3.638				
89					Mean of Detected	7.565	Mean of Detected	1.578				
90					SD of Detected	10.82	SD of Detected	0.835				
91					Minimum Non-Detect	32	Minimum Non-Detect	3.466				
92					Maximum Non-Detect	33	Maximum Non-Detect	3.497				
93												
94	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	14				
95	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	1				
96	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	93.33%				
97												
98	**UCL Statistics**											
99	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
100					Shapiro Wilk Test Statistic	0.507	Shapiro Wilk Test Statistic	0.828				
101					5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842				
102	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
103												
104	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
105					DL/2 Substitution Method		DL/2 Substitution Method					
106					Mean	10.44	Mean	1.98				

107					SD	9.644					SD	0.892
108					95% DL/2 (t) UCL	14.83					95% H-Stat (DL/2) UCL	53.68
109												
110					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
111					**MLE method failed to converge properly**						Mean in Log Scale	1.529
112											SD in Log Scale	0.713
113											Mean in Original Scale	6.545
114											SD in Original Scale	8.86
115											95% Percentile Bootstrap UCL	10.9
116											95% BCA Bootstrap UCL	13.13
117												
118					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
119					k star (bias corrected)	0.951					**Data do not follow a Discernable Distribution (0.05)**	
120					Theta Star	7.958						
121					nu star	19.01						
122												
123					A-D Test Statistic	1.262					**Nonparametric Statistics**	
124					5% A-D Critical Value	0.744					Kaplan-Meier (KM) Method	
125					K-S Test Statistic	0.744					Mean	6.438
126					5% K-S Critical Value	0.272					SD	8.582
127					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	2.358
128											95% KM (t) UCL	10.59
129					**Assuming Gamma Distribution**						95% KM (z) UCL	10.32
130					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	10.53
131					Minimum	1.926					95% KM (bootstrap t) UCL	23.7
132					Maximum	38					95% KM (BCA) UCL	11.3
133					Mean	7.52					95% KM (Percentile Bootstrap) UCL	11.02
134					Median	5.468					95% KM (Chebyshev) UCL	16.71
135					SD	8.701					97.5% KM (Chebyshev) UCL	21.16
136					k star	1.492					99% KM (Chebyshev) UCL	29.9
137					Theta star	5.041						
138					Nu star	44.75					**Potential UCLs to Use**	
139					AppChi2	30.41					95% KM (BCA) UCL	11.3
140					95% Gamma Approximate UCL	11.07						
141					95% Adjusted Gamma UCL	11.62						
142	**Note: DL/2 is not a recommended method.**											
143												
144												
145	**4-Nitrophenol**											
146												
147							**General Statistics**					
148					Number of Valid Data	8					Number of Detected Data	8
149					Number of Distinct Detected Data	8					Number of Non-Detect Data	0
150					Number of Missing Values	6					Percent Non-Detects	0.00%
151												
152					**Raw Statistics**						**Log-transformed Statistics**	
153					Minimum Detected	7.071					Minimum Detected	1.956
154					Maximum Detected	9.46					Maximum Detected	2.247
155					Mean of Detected	8.048					Mean of Detected	2.08
156					SD of Detected	0.879					SD of Detected	0.107
157					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
158					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
159												

160												
161	**Warning: There are only 8 Detected Values in this data**											
162	**Note: It should be noted that even though bootstrap may be performed on this data set**											
163	**the resulting calculations may not be reliable enough tp draw conclusions**											
164												
165	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
166												
167												
168	**UCL Statistics**											
169	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
170	Shapiro Wilk Test Statistic				0.887		Shapiro Wilk Test Statistic					0.897
171	5% Shapiro Wilk Critical Value				0.818		5% Shapiro Wilk Critical Value					0.818
172	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
173												
174	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
175	DL/2 Substitution Method						DL/2 Substitution Method					
176	Mean				8.048		Mean					2.08
177	SD				0.879		SD					0.107
178	95% DL/2 (t) UCL				8.637		95% H-Stat (DL/2) UCL					8.679
179												
180	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
181	**MLE method failed to converge properly**						Mean in Log Scale					N/A
182							SD in Log Scale					N/A
183							Mean in Original Scale					N/A
184							SD in Original Scale					N/A
185							95% Percentile Bootstrap UCL					N/A
186							95% BCA Bootstrap UCL					N/A
187												
188	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
189	k star (bias corrected)				61.9		**Data appear Normal at 5% Significance Level**					
190	Theta Star				0.13							
191	nu star				990.4							
192												
193	A-D Test Statistic				0.499		**Nonparametric Statistics**					
194	5% A-D Critical Value				0.715		Kaplan-Meier (KM) Method					
195	K-S Test Statistic				0.715		Mean					8.048
196	5% K-S Critical Value				0.294		SD					0.822
197	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.311
198							95% KM (t) UCL					8.637
199	**Assuming Gamma Distribution**						95% KM (z) UCL					8.56
200	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					8.637
201	Minimum				7.071		95% KM (bootstrap t) UCL					8.861
202	Maximum				9.46		95% KM (BCA) UCL					8.572
203	Mean				8.048		95% KM (Percentile Bootstrap) UCL					8.554
204	Median				7.654		95% KM (Chebyshev) UCL					9.403
205	SD				0.879		97.5% KM (Chebyshev) UCL					9.989
206	k star				61.9		99% KM (Chebyshev) UCL					11.14
207	Theta star				0.13							
208	Nu star				990.4		**Potential UCLs to Use**					
209	AppChi2				918.4		95% KM (t) UCL					8.637
210	95% Gamma Approximate UCL				8.68		95% KM (Percentile Bootstrap) UCL					8.554
211	95% Adjusted Gamma UCL				8.85							
212	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214												
215	**Acenaphthene**											
216												
217						**General Statistics**							
218					Number of Valid Data	15				Number of Detected Data	11	
219					Number of Distinct Detected Data	11				Number of Non-Detect Data	4	
220										Percent Non-Detects	26.67%	
221												
222					**Raw Statistics**					**Log-transformed Statistics**		
223					Minimum Detected	4.414				Minimum Detected	1.485	
224					Maximum Detected	124.2				Maximum Detected	4.822	
225					Mean of Detected	39.5				Mean of Detected	3.221	
226					SD of Detected	37.06				SD of Detected	1.067	
227					Minimum Non-Detect	32				Minimum Non-Detect	3.466	
228					Maximum Non-Detect	33				Maximum Non-Detect	3.497	
229												
230	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	10	
231	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	5	
232	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	66.67%	
233												
234						**UCL Statistics**							
235					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
236					Shapiro Wilk Test Statistic	0.865				Shapiro Wilk Test Statistic	0.97	
237					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value	0.85	
238					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
239												
240					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
241					DL/2 Substitution Method					DL/2 Substitution Method		
242					Mean	33.27				Mean	3.103	
243					SD	33.1				SD	0.924	
244					95% DL/2 (t) UCL	48.32				95% H-Stat (DL/2) UCL	94.29	
245												
246					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
247					Mean	8.684				Mean in Log Scale	3.017	
248					SD	56.85				SD in Log Scale	0.991	
249					95% MLE (t) UCL	34.54				Mean in Original Scale	32.32	
250					95% MLE (Tiku) UCL	50.15				SD in Original Scale	33.76	
251										95% Percentile Bootstrap UCL	46.83	
252										95% BCA Bootstrap UCL	50.01	
253												
254					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
255					k star (bias corrected)	0.961				**Data appear Normal at 5% Significance Level**		
256					Theta Star	41.11						
257					nu star	21.14						
258												
259					A-D Test Statistic	0.205				**Nonparametric Statistics**		
260					5% A-D Critical Value	0.747				Kaplan-Meier (KM) Method		
261					K-S Test Statistic	0.747				Mean	32.53	
262					5% K-S Critical Value	0.261				SD	32.62	
263					**Data appear Gamma Distributed at 5% Significance Level**					SE of Mean	8.935	
264										95% KM (t) UCL	48.26	
265					**Assuming Gamma Distribution**					95% KM (z) UCL	47.22	

266	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		48.13
267					Minimum	4.414				95% KM (bootstrap t) UCL		56.46
268					Maximum	124.2				95% KM (BCA) UCL		47.7
269					Mean	38.25				95% KM (Percentile Bootstrap) UCL		46.51
270					Median	34.64				95% KM (Chebyshev) UCL		71.47
271					SD	32.4				97.5% KM (Chebyshev) UCL		88.32
272					k star	1.254				99% KM (Chebyshev) UCL		121.4
273					Theta star	30.5						
274					Nu star	37.63				**Potential UCLs to Use**		
275					AppChi2	24.58				95% KM (t) UCL		48.26
276				95% Gamma Approximate UCL		58.55				95% KM (Percentile Bootstrap) UCL		46.51
277				95% Adjusted Gamma UCL		61.8						
278	**Note: DL/2 is not a recommended method.**											
279												
280												
281	**Acenaphthylene**											
282												
283	**General Statistics**											
284				Number of Valid Data		9				Number of Detected Data		9
285				Number of Distinct Detected Data		9				Number of Non-Detect Data		0
286				Number of Missing Values		6				Percent Non-Detects		0.00%
287												
288	**Raw Statistics**									**Log-transformed Statistics**		
289				Minimum Detected		0.405				Minimum Detected		-0.905
290				Maximum Detected		4.174				Maximum Detected		1.429
291				Mean of Detected		1.544				Mean of Detected		0.219
292				SD of Detected		1.151				SD of Detected		0.694
293				Minimum Non-Detect		N/A				Minimum Non-Detect		N/A
294				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
295												
296												
297	**Warning: There are only 9 Detected Values in this data**											
298	**Note: It should be noted that even though bootstrap may be performed on this data set**											
299	**the resulting calculations may not be reliable enough tp draw conclusions**											
300												
301	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
302												
303												
304	**UCL Statistics**											
305	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
306				Shapiro Wilk Test Statistic		0.825				Shapiro Wilk Test Statistic		0.975
307				5% Shapiro Wilk Critical Value		0.829				5% Shapiro Wilk Critical Value		0.829
308	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
309												
310	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
311				DL/2 Substitution Method						DL/2 Substitution Method		
312				Mean		1.544				Mean		0.219
313				SD		1.151				SD		0.694
314				95% DL/2 (t) UCL		2.257				95% H-Stat (DL/2) UCL		3.001
315												
316				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
317	**MLE method failed to converge properly**									Mean in Log Scale		N/A
318										SD in Log Scale		N/A

319											Mean in Original Scale	N/A
320											SD in Original Scale	N/A
321											95% Percentile Bootstrap UCL	N/A
322											95% BCA Bootstrap UCL	N/A
323												
324	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
325					k star (bias corrected)	1.723	**Data appear Gamma Distributed at 5% Significance Level**					
326					Theta Star	0.896						
327					nu star	31.02						
328												
329					A-D Test Statistic	0.298	**Nonparametric Statistics**					
330					5% A-D Critical Value	0.728	Kaplan-Meier (KM) Method					
331					K-S Test Statistic	0.728	Mean	1.544				
332					5% K-S Critical Value	0.282	SD	1.085				
333	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.384				
334							95% KM (t) UCL	2.257				
335	**Assuming Gamma Distribution**						95% KM (z) UCL	2.174				
336					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.257				
337					Minimum	0.405	95% KM (bootstrap t) UCL	3.023				
338					Maximum	4.174	95% KM (BCA) UCL	2.194				
339					Mean	1.544	95% KM (Percentile Bootstrap) UCL	2.153				
340					Median	1.325	95% KM (Chebyshev) UCL	3.215				
341					SD	1.151	97.5% KM (Chebyshev) UCL	3.939				
342					k star	1.723	99% KM (Chebyshev) UCL	5.36				
343					Theta star	0.896						
344					Nu star	31.02	**Potential UCLs to Use**					
345					AppChi2	19.29	95% KM (Chebyshev) UCL	3.215				
346					95% Gamma Approximate UCL	2.482						
347					95% Adjusted Gamma UCL	2.756						
348	**Note: DL/2 is not a recommended method.**											
349												
350												
351	**Aldrin**											
352												
353	**General Statistics**											
354					Number of Valid Data	9	Number of Detected Data	9				
355					Number of Distinct Detected Data	9	Number of Non-Detect Data	0				
356					Number of Missing Values	6	Percent Non-Detects	0.00%				
357												
358	**Raw Statistics**						**Log-transformed Statistics**					
359					Minimum Detected	0.0591	Minimum Detected	-2.828				
360					Maximum Detected	0.163	Maximum Detected	-1.814				
361					Mean of Detected	0.121	Mean of Detected	-2.169				
362					SD of Detected	0.0391	SD of Detected	0.364				
363					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
364					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
365												
366												
367	**Warning: There are only 9 Detected Values in this data**											
368	**Note: It should be noted that even though bootstrap may be performed on this data set**											
369	**the resulting calculations may not be reliable enough tp draw conclusions**											
370												
371	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											

	A	B	C	D	E	F	G	H	I	J	K	L
372												
373												
374	**UCL Statistics**											
375	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
376					Shapiro Wilk Test Statistic	0.894				Shapiro Wilk Test Statistic		0.884
377					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
378	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
379												
380	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
381					DL/2 Substitution Method					DL/2 Substitution Method		
382					Mean	0.121				Mean		-2.169
383					SD	0.0391				SD		0.364
384					95% DL/2 (t) UCL	0.145				95% H-Stat (DL/2) UCL		0.16
385												
386					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
387	**MLE method failed to converge properly**									Mean in Log Scale		N/A
388										SD in Log Scale		N/A
389										Mean in Original Scale		N/A
390										SD in Original Scale		N/A
391										95% Percentile Bootstrap UCL		N/A
392										95% BCA Bootstrap UCL		N/A
393												
394	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
395					k star (bias corrected)	6.32	**Data appear Normal at 5% Significance Level**					
396					Theta Star	0.0191						
397					nu star	113.8						
398												
399					A-D Test Statistic	0.478	**Nonparametric Statistics**					
400					5% A-D Critical Value	0.722				Kaplan-Meier (KM) Method		
401					K-S Test Statistic	0.722				Mean		0.121
402					5% K-S Critical Value	0.279				SD		0.0368
403	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.013
404										95% KM (t) UCL		0.145
405	**Assuming Gamma Distribution**									95% KM (z) UCL		0.142
406					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.145
407					Minimum	0.0591				95% KM (bootstrap t) UCL		0.143
408					Maximum	0.163				95% KM (BCA) UCL		0.139
409					Mean	0.121				95% KM (Percentile Bootstrap) UCL		0.141
410					Median	0.113				95% KM (Chebyshev) UCL		0.177
411					SD	0.0391				97.5% KM (Chebyshev) UCL		0.202
412					k star	6.32				99% KM (Chebyshev) UCL		0.25
413					Theta star	0.0191						
414					Nu star	113.8	**Potential UCLs to Use**					
415					AppChi2	90.14				95% KM (t) UCL		0.145
416					95% Gamma Approximate UCL	0.152				95% KM (Percentile Bootstrap) UCL		0.141
417					95% Adjusted Gamma UCL	0.16						
418	**Note: DL/2 is not a recommended method.**											
419												
420												
421	**alpha-Hexachlorocyclohexane**											
422												
423	**General Statistics**											
424					Number of Valid Data	9				Number of Detected Data		9

425					Number of Distinct Detected Data	9					Number of Non-Detect Data	0
426					Number of Missing Values	6					Percent Non-Detects	0.00%
427												
428					**Raw Statistics**						**Log-transformed Statistics**	
429					Minimum Detected	0.0269					Minimum Detected	-3.616
430					Maximum Detected	0.0499					Maximum Detected	-2.998
431					Mean of Detected	0.0349					Mean of Detected	-3.372
432					SD of Detected	0.00724					SD of Detected	0.197
433					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
434					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
435												
436												
437					**Warning: There are only 9 Detected Values in this data**							
438					**Note: It should be noted that even though bootstrap may be performed on this data set**							
439					**the resulting calculations may not be reliable enough tp draw conclusions**							
440												
441					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
442												
443												
444					**UCL Statistics**							
445					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
446					Shapiro Wilk Test Statistic	0.92					Shapiro Wilk Test Statistic	0.953
447					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
448					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
449												
450					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
451					DL/2 Substitution Method						DL/2 Substitution Method	
452					Mean	0.0349					Mean	-3.372
453					SD	0.00724					SD	0.197
454					95% DL/2 (t) UCL	0.0394					95% H-Stat (DL/2) UCL	0.04
455												
456					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
457					**MLE method failed to converge properly**						Mean in Log Scale	N/A
458											SD in Log Scale	N/A
459											Mean in Original Scale	N/A
460											SD in Original Scale	N/A
461											95% Percentile Bootstrap UCL	N/A
462											95% BCA Bootstrap UCL	N/A
463												
464					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
465					k star (bias corrected)	18.88					**Data appear Normal at 5% Significance Level**	
466					Theta Star	0.00185						
467					nu star	339.9						
468												
469					A-D Test Statistic	0.251					**Nonparametric Statistics**	
470					5% A-D Critical Value	0.721					Kaplan-Meier (KM) Method	
471					K-S Test Statistic	0.721					Mean	0.0349
472					5% K-S Critical Value	0.279					SD	0.00683
473					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.00241
474											95% KM (t) UCL	0.0394
475					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0389
476					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0394
477					Minimum	0.0269					95% KM (bootstrap t) UCL	0.0406

478					Maximum	0.0499					95% KM (BCA) UCL	0.039
479					Mean	0.0349					95% KM (Percentile Bootstrap) UCL	0.0392
480					Median	0.0331					95% KM (Chebyshev) UCL	0.0454
481					SD	0.00724					97.5% KM (Chebyshev) UCL	0.05
482					k star	18.88					99% KM (Chebyshev) UCL	0.0589
483					Theta star	0.00185						
484					Nu star	339.9					**Potential UCLs to Use**	
485					AppChi2	298.1					95% KM (t) UCL	0.0394
486					95% Gamma Approximate UCL	0.0398					95% KM (Percentile Bootstrap) UCL	0.0392
487					95% Adjusted Gamma UCL	0.0409						
488	**Note: DL/2 is not a recommended method.**											
489												
490												
491	**Aluminum**											
492												
493					**General Statistics**							
494					Number of Valid Observations	15					Number of Distinct Observations	15
495												
496					**Raw Statistics**						**Log-transformed Statistics**	
497					Minimum	33.61					Minimum of Log Data	3.515
498					Maximum	134					Maximum of Log Data	4.898
499					Mean	76.99					Mean of log Data	4.263
500					Median	65.53					SD of log Data	0.421
501					SD	31.36						
502					Coefficient of Variation	0.407						
503					Skewness	0.461						
504												
505					**Relevant UCL Statistics**							
506					**Normal Distribution Test**						**Lognormal Distribution Test**	
507					Shapiro Wilk Test Statistic	0.944					Shapiro Wilk Test Statistic	0.968
508					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
509					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
510												
511					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
512					95% Student's-t UCL	91.25					95% H-UCL	97.06
513					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	114.4
514					95% Adjusted-CLT UCL	91.33					97.5% Chebyshev (MVUE) UCL	130.6
515					95% Modified-t UCL	91.41					99% Chebyshev (MVUE) UCL	162.3
516												
517					**Gamma Distribution Test**						**Data Distribution**	
518					k star (bias corrected)	5.159					**Data appear Normal at 5% Significance Level**	
519					Theta Star	14.92						
520					nu star	154.8						
521					Approximate Chi Square Value (.05)	127					**Nonparametric Statistics**	
522					Adjusted Level of Significance	0.0324					95% CLT UCL	90.3
523					Adjusted Chi Square Value	123.9					95% Jackknife UCL	91.25
524											95% Standard Bootstrap UCL	90.17
525					Anderson-Darling Test Statistic	0.237					95% Bootstrap-t UCL	92.37
526					Anderson-Darling 5% Critical Value	0.738					95% Hall's Bootstrap UCL	90.7
527					Kolmogorov-Smirnov Test Statistic	0.137					95% Percentile Bootstrap UCL	90.26
528					Kolmogorov-Smirnov 5% Critical Value	0.222					95% BCA Bootstrap UCL	91.43
529					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	112.3
530											97.5% Chebyshev(Mean, Sd) UCL	127.6

531	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	157.5
532				95% Approximate Gamma UCL	93.81							
533				95% Adjusted Gamma UCL	96.15							
534												
535	**Potential UCL to Use**										Use 95% Student's-t UCL	91.25
536												
537												
538	**Anthracene**											
539												
540	**General Statistics**											
541				Number of Valid Data	9						Number of Detected Data	9
542				Number of Distinct Detected Data	9						Number of Non-Detect Data	0
543				Number of Missing Values	6						Percent Non-Detects	0.00%
544												
545	**Raw Statistics**						**Log-transformed Statistics**					
546				Minimum Detected	0.512						Minimum Detected	-0.669
547				Maximum Detected	7.601						Maximum Detected	2.028
548				Mean of Detected	2.742						Mean of Detected	0.716
549				SD of Detected	2.195						SD of Detected	0.846
550				Minimum Non-Detect	N/A						Minimum Non-Detect	N/A
551				Maximum Non-Detect	N/A						Maximum Non-Detect	N/A
552												
553												
554	**Warning: There are only 9 Detected Values in this data**											
555	**Note: It should be noted that even though bootstrap may be performed on this data set**											
556	**the resulting calculations may not be reliable enough tp draw conclusions**											
557												
558	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
559												
560												
561	**UCL Statistics**											
562	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
563				Shapiro Wilk Test Statistic	0.876						Shapiro Wilk Test Statistic	0.981
564				5% Shapiro Wilk Critical Value	0.829						5% Shapiro Wilk Critical Value	0.829
565	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
566												
567	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
568				DL/2 Substitution Method							DL/2 Substitution Method	
569				Mean	2.742						Mean	0.716
570				SD	2.195						SD	0.846
571				95% DL/2 (t) UCL	4.103						95% H-Stat (DL/2) UCL	6.983
572												
573				Maximum Likelihood Estimate(MLE) Method	N/A						Log ROS Method	
574	**MLE method failed to converge properly**										Mean in Log Scale	N/A
575											SD in Log Scale	N/A
576											Mean in Original Scale	N/A
577											SD in Original Scale	N/A
578											95% Percentile Bootstrap UCL	N/A
579											95% BCA Bootstrap UCL	N/A
580												
581	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
582				k star (bias corrected)	1.314		**Data appear Normal at 5% Significance Level**					
583				Theta Star	2.087							

584					nu star	23.65						
585												
586					A-D Test Statistic	0.163	**Nonparametric Statistics**					
587					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
588					K-S Test Statistic	0.731					Mean	2.742
589					5% K-S Critical Value	0.283					SD	2.069
590	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.732
591											95% KM (t) UCL	4.103
592	**Assuming Gamma Distribution**										95% KM (z) UCL	3.946
593					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.103
594					Minimum	0.512					95% KM (bootstrap t) UCL	4.751
595					Maximum	7.601					95% KM (BCA) UCL	3.957
596					Mean	2.742					95% KM (Percentile Bootstrap) UCL	4.017
597					Median	2.426					95% KM (Chebyshev) UCL	5.931
598					SD	2.195					97.5% KM (Chebyshev) UCL	7.311
599					k star	1.314					99% KM (Chebyshev) UCL	10.02
600					Theta star	2.087						
601					Nu star	23.65	**Potential UCLs to Use**					
602					AppChi2	13.58					95% KM (t) UCL	4.103
603					95% Gamma Approximate UCL	4.775					95% KM (Percentile Bootstrap) UCL	4.017
604					95% Adjusted Gamma UCL	5.403						
605	**Note: DL/2 is not a recommended method.**											
606												
607												
608	**Antimony**											
609												
610	**General Statistics**											
611					Number of Valid Data	15					Number of Detected Data	3
612					Number of Distinct Detected Data	3					Number of Non-Detect Data	12
613											Percent Non-Detects	80.00%
614												
615	**Raw Statistics**						**Log-transformed Statistics**					
616					Minimum Detected	0.00376					Minimum Detected	-5.585
617					Maximum Detected	0.00644					Maximum Detected	-5.045
618					Mean of Detected	0.00509					Mean of Detected	-5.305
619					SD of Detected	0.00134					SD of Detected	0.271
620					Minimum Non-Detect	0.001					Minimum Non-Detect	-6.908
621					Maximum Non-Detect	0.004					Maximum Non-Detect	-5.521
622												
623	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
624	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
625	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	86.67%
626												
627	**Warning: There are only 3 Distinct Detected Values in this data set**											
628	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
629	**Those methods will return a 'N/A' value on your output display!**											
630												
631	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
632	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
633												
634												
635	**UCL Statistics**											
636	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

	A	B	C	D	E	F	G	H	I	J	K	L
637					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	0.996
638					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
639					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
640												
641					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
642					DL/2 Substitution Method						DL/2 Substitution Method	
643					Mean	0.00221					Mean	-6.321
644					SD	0.00163					SD	0.653
645					95% DL/2 (t) UCL	0.00295					95% H-Stat (DL/2) UCL	0.00274
646												
647					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
648					**MLE method failed to converge properly**						Mean in Log Scale	-6.191
649											SD in Log Scale	0.492
650											Mean in Original Scale	0.00235
651											SD in Original Scale	0.00152
652											95% Percentile Bootstrap UCL	0.00302
653											95% BCA Bootstrap UCL	0.00321
654												
655					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
656					k star (bias corrected)	N/A					**Data appear Normal at 5% Significance Level**	
657					Theta Star	N/A						
658					nu star	N/A						
659												
660					A-D Test Statistic	0.247					**Nonparametric Statistics**	
661					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
662					K-S Test Statistic	N/A					Mean	0.00402
663					5% K-S Critical Value	N/A					SD	0.0007244
664					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0002291
665											95% KM (t) UCL	0.00443
666					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0044
667					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00488
668					Minimum	N/A					95% KM (bootstrap t) UCL	0.00419
669					Maximum	N/A					95% KM (BCA) UCL	0.00644
670					Mean	N/A					95% KM (Percentile Bootstrap) UCL	0.00644
671					Median	N/A					95% KM (Chebyshev) UCL	0.00502
672					SD	N/A					97.5% KM (Chebyshev) UCL	0.00545
673					k star	N/A					99% KM (Chebyshev) UCL	0.0063
674					Theta star	N/A						
675					Nu star	N/A					**Potential UCLs to Use**	
676					AppChi2	N/A					95% KM (t) UCL	0.00443
677					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	0.00644
678					95% Adjusted Gamma UCL	N/A						
679	**Note: DL/2 is not a recommended method.**											
680												
681												
682	**Arsenic**											
683												
684						**General Statistics**							
685					Number of Valid Observations	15					Number of Distinct Observations	14
686												
687					**Raw Statistics**						**Log-transformed Statistics**	
688					Minimum	0.0339					Minimum of Log Data	-3.383
689					Maximum	0.228					Maximum of Log Data	-1.478

690					Mean	0.133					Mean of log Data	-2.122
691					Median	0.125					SD of log Data	0.503
692					SD	0.0571						
693					Coefficient of Variation	0.43						
694					Skewness	0.239						
695												
696					**Relevant UCL Statistics**							
697					**Normal Distribution Test**						**Lognormal Distribution Test**	
698					Shapiro Wilk Test Statistic	0.952					Shapiro Wilk Test Statistic	0.917
699					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
700					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
701												
702					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
703					95% Student's-t UCL	0.159					95% H-UCL	0.18
704					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.213
705					95% Adjusted-CLT UCL	0.158					97.5% Chebyshev (MVUE) UCL	0.247
706					95% Modified-t UCL	0.159					99% Chebyshev (MVUE) UCL	0.314
707												
708					**Gamma Distribution Test**						**Data Distribution**	
709					k star (bias corrected)	4.047					**Data appear Normal at 5% Significance Level**	
710					Theta Star	0.0328						
711					nu star	121.4						
712					Approximate Chi Square Value (.05)	96.97					**Nonparametric Statistics**	
713					Adjusted Level of Significance	0.0324					95% CLT UCL	0.157
714					Adjusted Chi Square Value	94.28					95% Jackknife UCL	0.159
715											95% Standard Bootstrap UCL	0.156
716					Anderson-Darling Test Statistic	0.313					95% Bootstrap-t UCL	0.161
717					Anderson-Darling 5% Critical Value	0.739					95% Hall's Bootstrap UCL	0.16
718					Kolmogorov-Smirnov Test Statistic	0.129					95% Percentile Bootstrap UCL	0.157
719					Kolmogorov-Smirnov 5% Critical Value	0.222					95% BCA Bootstrap UCL	0.155
720					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.197
721											97.5% Chebyshev(Mean, Sd) UCL	0.225
722					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.279
723					95% Approximate Gamma UCL	0.166						
724					95% Adjusted Gamma UCL	0.171						
725												
726					**Potential UCL to Use**						Use 95% Student's-t UCL	0.159
727												
728												
729	**Benzo(a)anthracene**											
730												
731					**General Statistics**							
732					Number of Valid Data	5					Number of Detected Data	1
733					Number of Distinct Detected Data	1					Number of Non-Detect Data	4
734					Number of Missing Values	10					Percent Non-Detects	80.00%
735												
736	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
737	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
738												
739	**The data set for variable Benzo(a)anthracene was not processed!**											
740												
741												
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**Benzo(a)pyrene**											
744												
745	**General Statistics**											
746					Number of Valid Data	4			Number of Detected Data	1		
747					Number of Distinct Detected Data	1			Number of Non-Detect Data	3		
748					Number of Missing Values	10			Percent Non-Detects	75.00%		
749												
750	**Warning: This data set only has 4 observations!**											
751	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
752	**The data set for variable Benzo(a)pyrene was not processed!**											
753												
754	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
755	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
756												
757												
758												
759	**Benzo(b)fluoranthene**											
760												
761	**General Statistics**											
762					Number of Valid Data	7			Number of Detected Data	2		
763					Number of Distinct Detected Data	2			Number of Non-Detect Data	5		
764					Number of Missing Values	8			Percent Non-Detects	71.43%		
765												
766				**Raw Statistics**					**Log-transformed Statistics**			
767					Minimum Detected	0.343			Minimum Detected	-1.071		
768					Maximum Detected	1.033			Maximum Detected	0.0327		
769					Mean of Detected	0.688			Mean of Detected	-0.519		
770					SD of Detected	0.488			SD of Detected	0.78		
771					Minimum Non-Detect	0.07			Minimum Non-Detect	-2.659		
772					Maximum Non-Detect	0.534			Maximum Non-Detect	-0.627		
773												
774	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect	6		
775	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected	1		
776	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage	85.71%		
777												
778	**Warning: Data set has only 2 Distinct Detected Values.**											
779	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
780	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
781												
782	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
783												
784	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
785	**Those methods will return a 'N/A' value on your output display!**											
786												
787	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
788	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
789												
790												
791	**UCL Statistics**											
792				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
793					Shapiro Wilk Test Statistic	1			Shapiro Wilk Test Statistic	1		
794					5% Shapiro Wilk Critical Value	N/A			5% Shapiro Wilk Critical Value	N/A		
795	**Data not Normal at 5% Significance Level**								**Data not Lognormal at 5% Significance Level**			

796												
797	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
798	DL/2 Substitution Method						DL/2 Substitution Method					
799	Mean				0.316		Mean					-1.577
800	SD				0.333		SD					1.04
801	95% DL/2 (t) UCL				0.561		95% H-Stat (DL/2) UCL					1.64
802												
803	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
804	**MLE method failed to converge properly**						Mean in Log Scale					N/A
805							SD in Log Scale					N/A
806							Mean in Original Scale					N/A
807							SD in Original Scale					N/A
808							95% Percentile Bootstrap UCL					N/A
809							95% BCA Bootstrap UCL					N/A
810												
811	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
812	k star (bias corrected)				N/A		**Data do not follow a Discernable Distribution (0.05)**					
813	Theta Star				N/A							
814	nu star				N/A							
815												
816	A-D Test Statistic				0.359		**Nonparametric Statistics**					
817	5% A-D Critical Value				N/A		Kaplan-Meier (KM) Method					
818	K-S Test Statistic				N/A		Mean					0.441
819	5% K-S Critical Value				N/A		SD					0.242
820	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.129
821							95% KM (t) UCL					0.692
822	**Assuming Gamma Distribution**						95% KM (z) UCL					0.654
823	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.956
824	Minimum				N/A		95% KM (bootstrap t) UCL					0.441
825	Maximum				N/A		95% KM (BCA) UCL					1.033
826	Mean				N/A		95% KM (Percentile Bootstrap) UCL					N/A
827	Median				N/A		95% KM (Chebyshev) UCL					1.004
828	SD				N/A		97.5% KM (Chebyshev) UCL					1.248
829	k star				N/A		99% KM (Chebyshev) UCL					1.726
830	Theta star				N/A							
831	Nu star				N/A		**Potential UCLs to Use**					
832	AppChi2				N/A		95% KM (t) UCL					0.692
833	95% Gamma Approximate UCL				N/A		95% KM (% Bootstrap) UCL					N/A
834	95% Adjusted Gamma UCL				N/A							
835	**Note: DL/2 is not a recommended method.**											
836												
837												
838	**Benzo(g,h,i)perylene**											
839												
840	**General Statistics**											
841	Number of Valid Data				7		Number of Detected Data					2
842	Number of Distinct Detected Data				2		Number of Non-Detect Data					5
843	Number of Missing Values				8		Percent Non-Detects					71.43%
844												
845	**Raw Statistics**						**Log-transformed Statistics**					
846	Minimum Detected				0.317		Minimum Detected					-1.148
847	Maximum Detected				0.564		Maximum Detected					-0.574
848	Mean of Detected				0.44		Mean of Detected					-0.861

	A	B	C	D	E	F	G	H	I	J	K	L
849					SD of Detected	0.174					SD of Detected	0.406
850					Minimum Non-Detect	0.073					Minimum Non-Detect	-2.617
851					Maximum Non-Detect	0.557					Maximum Non-Detect	-0.585
852												
853	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
854	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
855	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	85.71%
856												
857	**Warning: Data set has only 2 Distinct Detected Values.**											
858	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
859	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
860												
861	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
862												
863	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
864	**Those methods will return a 'N/A' value on your output display!**											
865												
866	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
867	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
868												
869												
870	**UCL Statistics**											
871	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
872					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
873					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
874	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
875												
876	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
877					DL/2 Substitution Method						DL/2 Substitution Method	
878					Mean	0.251					Mean	-1.644
879					SD	0.17					SD	0.879
880					95% DL/2 (t) UCL	0.376					95% H-Stat (DL/2) UCL	0.92
881												
882					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
883	**MLE method failed to converge properly**										Mean in Log Scale	N/A
884											SD in Log Scale	N/A
885											Mean in Original Scale	N/A
886											SD in Original Scale	N/A
887											95% Percentile Bootstrap UCL	N/A
888											95% BCA Bootstrap UCL	N/A
889												
890	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
891					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
892					Theta Star	N/A						
893					nu star	N/A						
894												
895					A-D Test Statistic	0.359	**Nonparametric Statistics**					
896					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
897					K-S Test Statistic	N/A					Mean	0.352
898					5% K-S Critical Value	N/A					SD	0.0862
899	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0461
900											95% KM (t) UCL	0.442
901	**Assuming Gamma Distribution**										95% KM (z) UCL	0.428

902	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.536
903	Minimum				N/A		95% KM (bootstrap t) UCL					1.8E+308
904	Maximum				N/A		95% KM (BCA) UCL					N/A
905	Mean				N/A		95% KM (Percentile Bootstrap) UCL					0.564
906	Median				N/A		95% KM (Chebyshev) UCL					0.553
907	SD				N/A		97.5% KM (Chebyshev) UCL					0.64
908	k star				N/A		99% KM (Chebyshev) UCL					0.811
909	Theta star				N/A							
910	Nu star				N/A		**Potential UCLs to Use**					
911	AppChi2				N/A		95% KM (t) UCL					0.442
912	95% Gamma Approximate UCL				N/A		95% KM (% Bootstrap) UCL					0.564
913	95% Adjusted Gamma UCL				N/A							
914	**Note: DL/2 is not a recommended method.**											
915												
916												
917	**Benzo(k)fluoranthene**											
918												
919	**General Statistics**											
920	Number of Valid Data				5		Number of Detected Data					2
921	Number of Distinct Detected Data				2		Number of Non-Detect Data					3
922	Number of Missing Values				10		Percent Non-Detects					60.00%
923												
924	**Raw Statistics**						**Log-transformed Statistics**					
925	Minimum Detected				0.256		Minimum Detected					-1.364
926	Maximum Detected				0.411		Maximum Detected					-0.889
927	Mean of Detected				0.333		Mean of Detected					-1.127
928	SD of Detected				0.11		SD of Detected					0.336
929	Minimum Non-Detect				0.056		Minimum Non-Detect					-2.882
930	Maximum Non-Detect				0.223		Maximum Non-Detect					-1.499
931												
932	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					3
933	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					2
934	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					60.00%
935												
936	**Warning: Data set has only 2 Distinct Detected Values.**											
937	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
938	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
939												
940	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
941												
942	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
943	**Those methods will return a 'N/A' value on your output display!**											
944												
945	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
946	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
947												
948												
949	**UCL Statistics**											
950	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
951	Shapiro Wilk Test Statistic				1		Shapiro Wilk Test Statistic					1
952	5% Shapiro Wilk Critical Value				N/A		5% Shapiro Wilk Critical Value					N/A
953	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
954												

	A	B	C	D	E	F	G	H	I	J	K	L
955	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
956					DL/2 Substitution Method						DL/2 Substitution Method	
957					Mean	0.182					Mean	-2.056
958					SD	0.152					SD	1.026
959					95% DL/2 (t) UCL	0.327					95% H-Stat (DL/2) UCL	0.651
960												
961					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
962	**MLE method failed to converge properly**										Mean in Log Scale	N/A
963											SD in Log Scale	N/A
964											Mean in Original Scale	N/A
965											SD in Original Scale	N/A
966											95% Percentile Bootstrap UCL	N/A
967											95% BCA Bootstrap UCL	N/A
968												
969	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
970					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
971					Theta Star	N/A						
972					nu star	N/A						
973												
974					A-D Test Statistic	0.359	**Nonparametric Statistics**					
975					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
976					K-S Test Statistic	N/A					Mean	0.287
977					5% K-S Critical Value	N/A					SD	0.0622
978	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0393
979											95% KM (t) UCL	0.37
980	**Assuming Gamma Distribution**										95% KM (z) UCL	0.351
981					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.418
982					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
983					Maximum	N/A					95% KM (BCA) UCL	0.411
984					Mean	N/A					95% KM (Percentile Bootstrap) UCL	N/A
985					Median	N/A					95% KM (Chebyshev) UCL	0.458
986					SD	N/A					97.5% KM (Chebyshev) UCL	0.532
987					k star	N/A					99% KM (Chebyshev) UCL	0.678
988					Theta star	N/A						
989					Nu star	N/A	**Potential UCLs to Use**					
990					AppChi2	N/A					95% KM (t) UCL	0.37
991					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	N/A
992					95% Adjusted Gamma UCL	N/A						
993	**Note: DL/2 is not a recommended method.**											
994												
995												
996	**Benzoic acid**											
997												
998	**General Statistics**											
999					Number of Valid Data	9					Number of Detected Data	7
1000					Number of Distinct Detected Data	7					Number of Non-Detect Data	2
1001					Number of Missing Values	6					Percent Non-Detects	22.22%
1002												
1003	**Raw Statistics**						**Log-transformed Statistics**					
1004					Minimum Detected	360.9					Minimum Detected	5.889
1005					Maximum Detected	474					Maximum Detected	6.161
1006					Mean of Detected	412.2					Mean of Detected	6.017
1007					SD of Detected	40.48					SD of Detected	0.098

1008					Minimum Non-Detect	400					Minimum Non-Detect	5.991
1009					Maximum Non-Detect	400					Maximum Non-Detect	5.991
1010												
1011												
1012	**Warning: There are only 7 Detected Values in this data**											
1013	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1014	**the resulting calculations may not be reliable enough tp draw conclusions**											
1015												
1016	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1017												
1018												
1019	**UCL Statistics**											
1020	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1021					Shapiro Wilk Test Statistic	0.971					Shapiro Wilk Test Statistic	0.973
1022					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
1023	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1024												
1025	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1026					DL/2 Substitution Method						DL/2 Substitution Method	
1027					Mean	365					Mean	5.858
1028					SD	99.91					SD	0.328
1029					95% DL/2 (t) UCL	427					95% H-Stat (DL/2) UCL	458.6
1030												
1031					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1032					Mean	441.7					Mean in Log Scale	5.997
1033					SD	22.26					SD in Log Scale	0.0952
1034					95% MLE (t) UCL	455.5					Mean in Original Scale	403.9
1035					95% MLE (Tiku) UCL	462.1					SD in Original Scale	39.17
1036											95% Percentile Bootstrap UCL	424.3
1037											95% BCA Bootstrap UCL	427.5
1038												
1039	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1040					k star (bias corrected)	69.56	**Data appear Normal at 5% Significance Level**					
1041					Theta Star	5.926						
1042					nu star	973.8						
1043												
1044					A-D Test Statistic	0.181	**Nonparametric Statistics**					
1045					5% A-D Critical Value	0.708					Kaplan-Meier (KM) Method	
1046					K-S Test Statistic	0.708					Mean	403.9
1047					5% K-S Critical Value	0.311					SD	37.02
1048	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	13.61
1049											95% KM (t) UCL	429.2
1050	**Assuming Gamma Distribution**										95% KM (z) UCL	426.2
1051					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	429.3
1052					Minimum	360.9					95% KM (bootstrap t) UCL	430.4
1053					Maximum	474					95% KM (BCA) UCL	428.7
1054					Mean	408.9					95% KM (Percentile Bootstrap) UCL	427.4
1055					Median	414.9					95% KM (Chebyshev) UCL	463.2
1056					SD	36.7					97.5% KM (Chebyshev) UCL	488.9
1057					k star	94.6					99% KM (Chebyshev) UCL	539.3
1058					Theta star	4.322						
1059					Nu star	1703	**Potential UCLs to Use**					
1060					AppChi2	1608					95% KM (t) UCL	429.2

1061				95% Gamma Approximate UCL		433				95% KM (Percentile Bootstrap) UCL		427.4
1062				95% Adjusted Gamma UCL		438.4						
1063	**Note: DL/2 is not a recommended method.**											
1064												
1065												
1066	**Benzyl alcohol**											
1067												
1068					**General Statistics**							
1069				Number of Valid Data		6				Number of Detected Data		5
1070				Number of Distinct Detected Data		5				Number of Non-Detect Data		1
1071				Number of Missing Values		9				Percent Non-Detects		16.67%
1072												
1073				**Raw Statistics**						**Log-transformed Statistics**		
1074				Minimum Detected		25.76				Minimum Detected		3.249
1075				Maximum Detected		80.08				Maximum Detected		4.383
1076				Mean of Detected		39.18				Mean of Detected		3.567
1077				SD of Detected		22.96				SD of Detected		0.462
1078				Minimum Non-Detect		49.81				Minimum Non-Detect		3.908
1079				Maximum Non-Detect		49.81				Maximum Non-Detect		3.908
1080												
1081												
1082					**Warning: There are only 5 Detected Values in this data**							
1083					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1084					**the resulting calculations may not be reliable enough tp draw conclusions**							
1085												
1086					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1087												
1088												
1089					**UCL Statistics**							
1090				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1091				Shapiro Wilk Test Statistic		0.638				Shapiro Wilk Test Statistic		0.701
1092				5% Shapiro Wilk Critical Value		0.762				5% Shapiro Wilk Critical Value		0.762
1093				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1094												
1095				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1096				DL/2 Substitution Method						DL/2 Substitution Method		
1097				Mean		36.8				Mean		3.508
1098				SD		21.35				SD		0.438
1099				95% DL/2 (t) UCL		54.36				95% H-Stat (DL/2) UCL		80.53
1100												
1101				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
1102				**MLE method failed to converge properly**						Mean in Log Scale		3.544
1103										SD in Log Scale		0.417
1104										Mean in Original Scale		37.8
1105										SD in Original Scale		20.81
1106										95% Percentile Bootstrap UCL		54.6
1107										95% BCA Bootstrap UCL		55.47
1108												
1109				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1110				k star (bias corrected)		2.175				**Data do not follow a Discernable Distribution (0.05)**		
1111				Theta Star		18.01						
1112				nu star		21.75						
1113												

1114				A-D Test Statistic	0.96		**Nonparametric Statistics**					
1115				5% A-D Critical Value	0.681					Kaplan-Meier (KM) Method		
1116				K-S Test Statistic	0.681					Mean		37.47
1117				5% K-S Critical Value	0.358					SD		19.15
1118				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		8.751
1119										95% KM (t) UCL		55.11
1120				**Assuming Gamma Distribution**						95% KM (z) UCL		51.87
1121				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		54.76
1122				Minimum	25.76					95% KM (bootstrap t) UCL		164.1
1123				Maximum	80.08					95% KM (BCA) UCL		54.6
1124				Mean	39.21					95% KM (Percentile Bootstrap) UCL		53.81
1125				Median	30.8					95% KM (Chebyshev) UCL		75.62
1126				SD	20.54					97.5% KM (Chebyshev) UCL		92.12
1127				k star	3.159					99% KM (Chebyshev) UCL		124.5
1128				Theta star	12.41							
1129				Nu star	37.9		**Potential UCLs to Use**					
1130				AppChi2	24.81					95% KM (Chebyshev) UCL		75.62
1131				95% Gamma Approximate UCL	59.91							
1132				95% Adjusted Gamma UCL	70.56							
1133	**Note: DL/2 is not a recommended method.**											
1134												
1135												
1136	**beta-Hexachlorocyclohexane**											
1137												
1138					**General Statistics**							
1139				Number of Valid Data	9					Number of Detected Data		9
1140				Number of Distinct Detected Data	9					Number of Non-Detect Data		0
1141				Number of Missing Values	6					Percent Non-Detects		0.00%
1142												
1143				**Raw Statistics**			**Log-transformed Statistics**					
1144				Minimum Detected	0.0119					Minimum Detected		-4.434
1145				Maximum Detected	0.0424					Maximum Detected		-3.161
1146				Mean of Detected	0.0193					Mean of Detected		-4.029
1147				SD of Detected	0.00966					SD of Detected		0.397
1148				Minimum Non-Detect	N/A					Minimum Non-Detect		N/A
1149				Maximum Non-Detect	N/A					Maximum Non-Detect		N/A
1150												
1151												
1152	**Warning: There are only 9 Detected Values in this data**											
1153	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1154	**the resulting calculations may not be reliable enough tp draw conclusions**											
1155												
1156	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1157												
1158												
1159					**UCL Statistics**							
1160				**Normal Distribution Test with Detected Values Only**			**Lognormal Distribution Test with Detected Values Only**					
1161				Shapiro Wilk Test Statistic	0.706					Shapiro Wilk Test Statistic		0.816
1162				5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value		0.829
1163				**Data not Normal at 5% Significance Level**			**Data not Lognormal at 5% Significance Level**					
1164												
1165				**Assuming Normal Distribution**			**Assuming Lognormal Distribution**					
1166				DL/2 Substitution Method						DL/2 Substitution Method		

1167					Mean	0.0193					Mean	-4.029
1168					SD	0.00966					SD	0.397
1169					95% DL/2 (t) UCL	0.0253					95% H-Stat (DL/2) UCL	0.026
1170												
1171					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1172					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1173											SD in Log Scale	N/A
1174											Mean in Original Scale	N/A
1175											SD in Original Scale	N/A
1176											95% Percentile Bootstrap UCL	N/A
1177											95% BCA Bootstrap UCL	N/A
1178												
1179					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1180					k star (bias corrected)	4.269					**Data do not follow a Discernable Distribution (0.05)**	
1181					Theta Star	0.00452						
1182					nu star	76.85						
1183												
1184					A-D Test Statistic	0.973					**Nonparametric Statistics**	
1185					5% A-D Critical Value	0.722					Kaplan-Meier (KM) Method	
1186					K-S Test Statistic	0.722					Mean	0.0193
1187					5% K-S Critical Value	0.28					SD	0.00911
1188					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.00322
1189											95% KM (t) UCL	0.0253
1190					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0246
1191					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0253
1192					Minimum	0.0119					95% KM (bootstrap t) UCL	0.0459
1193					Maximum	0.0424					95% KM (BCA) UCL	0.0252
1194					Mean	0.0193					95% KM (Percentile Bootstrap) UCL	0.0246
1195					Median	0.0162					95% KM (Chebyshev) UCL	0.0334
1196					SD	0.00966					97.5% KM (Chebyshev) UCL	0.0394
1197					k star	4.269					99% KM (Chebyshev) UCL	0.0514
1198					Theta star	0.00452						
1199					Nu star	76.85					**Potential UCLs to Use**	
1200					AppChi2	57.65					95% KM (Chebyshev) UCL	0.0334
1201					95% Gamma Approximate UCL	0.0257						
1202					95% Adjusted Gamma UCL	0.0274						
1203	**Note: DL/2 is not a recommended method.**											
1204												
1205												
1206	**Bis(2-chloroethoxy) methane**											
1207												
1208							**General Statistics**					
1209					Number of Valid Data	9					Number of Detected Data	5
1210					Number of Distinct Detected Data	5					Number of Non-Detect Data	4
1211					Number of Missing Values	6					Percent Non-Detects	44.44%
1212												
1213					**Raw Statistics**						**Log-transformed Statistics**	
1214					Minimum Detected	9.747					Minimum Detected	2.277
1215					Maximum Detected	29.72					Maximum Detected	3.392
1216					Mean of Detected	20.05					Mean of Detected	2.907
1217					SD of Detected	8.861					SD of Detected	0.496
1218					Minimum Non-Detect	8.3					Minimum Non-Detect	2.116
1219					Maximum Non-Detect	8.3					Maximum Non-Detect	2.116

	A	B	C	D	E	F	G	H	I	J	K	L
1220												
1221												
1222	**Warning: There are only 5 Detected Values in this data**											
1223	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1224	**the resulting calculations may not be reliable enough tp draw conclusions**											
1225												
1226	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1227												
1228												
1229	**UCL Statistics**											
1230	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1231	Shapiro Wilk Test Statistic					0.906	Shapiro Wilk Test Statistic					0.888
1232	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
1233	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1234												
1235	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1236	DL/2 Substitution Method						DL/2 Substitution Method					
1237	Mean					12.98	Mean					2.247
1238	SD					10.46	SD					0.857
1239	95% DL/2 (t) UCL					19.47	95% H-Stat (DL/2) UCL					19.11
1240												
1241	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
1242	Mean					10.46	Mean in Log Scale					2.282
1243	SD					13.25	SD in Log Scale					0.857
1244	95% MLE (t) UCL					18.68	Mean in Original Scale					13.25
1245	95% MLE (Tiku) UCL					20.06	SD in Original Scale					10.27
1246							95% Percentile Bootstrap UCL					19.08
1247							95% BCA Bootstrap UCL					19.41
1248												
1249	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1250	k star (bias corrected)					2.385	**Data appear Normal at 5% Significance Level**					
1251	Theta Star					8.408						
1252	nu star					23.85						
1253												
1254	A-D Test Statistic					0.387	**Nonparametric Statistics**					
1255	5% A-D Critical Value					0.68	Kaplan-Meier (KM) Method					
1256	K-S Test Statistic					0.68	Mean					15.47
1257	5% K-S Critical Value					0.358	SD					7.818
1258	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					2.913
1259							95% KM (t) UCL					20.89
1260	**Assuming Gamma Distribution**						95% KM (z) UCL					20.26
1261	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					20.37
1262	Minimum					9.076	95% KM (bootstrap t) UCL					20.3
1263	Maximum					29.72	95% KM (BCA) UCL					26.45
1264	Mean					18.79	95% KM (Percentile Bootstrap) UCL					23.78
1265	Median					20.15	95% KM (Chebyshev) UCL					28.17
1266	SD					7.584	97.5% KM (Chebyshev) UCL					33.67
1267	k star					4.256	99% KM (Chebyshev) UCL					44.46
1268	Theta star					4.414						
1269	Nu star					76.61	**Potential UCLs to Use**					
1270	AppChi2					57.45	95% KM (t) UCL					20.89
1271	95% Gamma Approximate UCL					25.05	95% KM (Percentile Bootstrap) UCL					23.78
1272	95% Adjusted Gamma UCL					26.67						

1273	Note: DL/2 is not a recommended method.											
1274												
1275												
1276	Butyltin ion											
1277												
1278					General Statistics							
1279				Number of Valid Data	9			Number of Detected Data	8			
1280				Number of Distinct Detected Data	8			Number of Non-Detect Data	1			
1281				Number of Missing Values	6			Percent Non-Detects	11.11%			
1282												
1283				Raw Statistics				Log-transformed Statistics				
1284				Minimum Detected	1.108			Minimum Detected	0.103			
1285				Maximum Detected	26.87			Maximum Detected	3.291			
1286				Mean of Detected	5.15			Mean of Detected	0.945			
1287				SD of Detected	8.843			SD of Detected	1.043			
1288				Minimum Non-Detect	1.099			Minimum Non-Detect	0.094			
1289				Maximum Non-Detect	1.099			Maximum Non-Detect	0.094			
1290												
1291												
1292					Warning: There are only 8 Detected Values in this data							
1293					Note: It should be noted that even though bootstrap may be performed on this data set							
1294					the resulting calculations may not be reliable enough tp draw conclusions							
1295												
1296					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
1297												
1298												
1299					UCL Statistics							
1300				Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only				
1301				Shapiro Wilk Test Statistic	0.514			Shapiro Wilk Test Statistic	0.767			
1302				5% Shapiro Wilk Critical Value	0.818			5% Shapiro Wilk Critical Value	0.818			
1303				Data not Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level				
1304												
1305				Assuming Normal Distribution				Assuming Lognormal Distribution				
1306				DL/2 Substitution Method				DL/2 Substitution Method				
1307				Mean	4.639			Mean	0.773			
1308				SD	8.412			SD	1.103			
1309				95% DL/2 (t) UCL	9.853			95% H-Stat (DL/2) UCL	15.43			
1310												
1311				Maximum Likelihood Estimate(MLE) Method				Log ROS Method				
1312				Mean	4.051			Mean in Log Scale	0.687			
1313				SD	8.536			SD in Log Scale	1.246			
1314				95% MLE (t) UCL	9.342			Mean in Original Scale	4.606			
1315				95% MLE (Tiku) UCL	8.984			SD in Original Scale	8.431			
1316								95% Percentile Bootstrap UCL	9.902			
1317								95% BCA Bootstrap UCL	13.13			
1318												
1319				Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only				
1320				k star (bias corrected)	0.614			Data do not follow a Discernable Distribution (0.05)				
1321				Theta Star	8.395							
1322				nu star	9.816							
1323												
1324				A-D Test Statistic	1.295			Nonparametric Statistics				
1325				5% A-D Critical Value	0.741			Kaplan-Meier (KM) Method				

1326					K-S Test Statistic	0.741					Mean	4.701
1327					5% K-S Critical Value	0.303					SD	7.901
1328					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	2.816
1329											95% KM (t) UCL	9.937
1330					**Assuming Gamma Distribution**						95% KM (z) UCL	9.332
1331					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	9.885
1332					Minimum	1E-09					95% KM (bootstrap t) UCL	69
1333					Maximum	26.87					95% KM (BCA) UCL	10.27
1334					Mean	4.578					95% KM (Percentile Bootstrap) UCL	9.962
1335					Median	1.712					95% KM (Chebyshev) UCL	16.97
1336					SD	8.448					97.5% KM (Chebyshev) UCL	22.28
1337					k star	0.234					99% KM (Chebyshev) UCL	32.72
1338					Theta star	19.58						
1339					Nu star	4.209					**Potential UCLs to Use**	
1340					AppChi2	0.806					97.5% KM (Chebyshev) UCL	22.28
1341					95% Gamma Approximate UCL	23.91						
1342					95% Adjusted Gamma UCL	35.37						
1343	**Note: DL/2 is not a recommended method.**											
1344												
1345												
1346	**Cadmium**											
1347												
1348					**General Statistics**							
1349					Number of Valid Observations	15					Number of Distinct Observations	15
1350												
1351					**Raw Statistics**						**Log-transformed Statistics**	
1352					Minimum	0.034					Minimum of Log Data	-3.382
1353					Maximum	0.108					Maximum of Log Data	-2.226
1354					Mean	0.06					Mean of log Data	-2.866
1355					Median	0.0613					SD of log Data	0.338
1356					SD	0.02						
1357					Coefficient of Variation	0.333						
1358					Skewness	0.68						
1359												
1360					**Relevant UCL Statistics**							
1361					**Normal Distribution Test**						**Lognormal Distribution Test**	
1362					Shapiro Wilk Test Statistic	0.919					Shapiro Wilk Test Statistic	0.927
1363					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
1364					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1365												
1366					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1367					95% Student's-t UCL	0.0691					95% H-UCL	0.0717
1368					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.0832
1369					95% Adjusted-CLT UCL	0.0695					97.5% Chebyshev (MVUE) UCL	0.0933
1370					95% Modified-t UCL	0.0692					99% Chebyshev (MVUE) UCL	0.113
1371												
1372					**Gamma Distribution Test**						**Data Distribution**	
1373					k star (bias corrected)	7.827					**Data appear Normal at 5% Significance Level**	
1374					Theta Star	0.00767						
1375					nu star	234.8						
1376					Approximate Chi Square Value (.05)	200.3					**Nonparametric Statistics**	
1377					Adjusted Level of Significance	0.0324					95% CLT UCL	0.0685
1378					Adjusted Chi Square Value	196.4					95% Jackknife UCL	0.0691

1379											95% Standard Bootstrap UCL	0.0684
1380					Anderson-Darling Test Statistic	0.491					95% Bootstrap-t UCL	0.0707
1381					Anderson-Darling 5% Critical Value	0.737					95% Hall's Bootstrap UCL	0.0719
1382					Kolmogorov-Smirnov Test Statistic	0.163					95% Percentile Bootstrap UCL	0.0683
1383					Kolmogorov-Smirnov 5% Critical Value	0.222					95% BCA Bootstrap UCL	0.0688
1384					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.0825
1385											97.5% Chebyshev(Mean, Sd) UCL	0.0923
1386					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.111
1387					95% Approximate Gamma UCL	0.0703						
1388					95% Adjusted Gamma UCL	0.0717						
1389												
1390					**Potential UCL to Use**						Use 95% Student's-t UCL	0.0691
1391												
1392												
1393	**Chromium**											
1394												
1395					**General Statistics**							
1396					Number of Valid Observations	15					Number of Distinct Observations	15
1397												
1398					**Raw Statistics**						**Log-transformed Statistics**	
1399					Minimum	0.231					Minimum of Log Data	-1.464
1400					Maximum	2.02					Maximum of Log Data	0.703
1401					Mean	0.836					Mean of log Data	-0.344
1402					Median	0.74					SD of log Data	0.611
1403					SD	0.495						
1404					Coefficient of Variation	0.592						
1405					Skewness	1.047						
1406												
1407					**Relevant UCL Statistics**							
1408					**Normal Distribution Test**						**Lognormal Distribution Test**	
1409					Shapiro Wilk Test Statistic	0.905					Shapiro Wilk Test Statistic	0.967
1410					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
1411					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1412												
1413					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1414					95% Student's-t UCL	1.062					95% H-UCL	1.222
1415					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1.445
1416					95% Adjusted-CLT UCL	1.084					97.5% Chebyshev (MVUE) UCL	1.706
1417					95% Modified-t UCL	1.067					99% Chebyshev (MVUE) UCL	2.219
1418												
1419					**Gamma Distribution Test**						**Data Distribution**	
1420					k star (bias corrected)	2.584					**Data appear Normal at 5% Significance Level**	
1421					Theta Star	0.324						
1422					nu star	77.52						
1423					Approximate Chi Square Value (.05)	58.24					**Nonparametric Statistics**	
1424					Adjusted Level of Significance	0.0324					95% CLT UCL	1.047
1425					Adjusted Chi Square Value	56.19					95% Jackknife UCL	1.062
1426											95% Standard Bootstrap UCL	1.039
1427					Anderson-Darling Test Statistic	0.293					95% Bootstrap-t UCL	1.122
1428					Anderson-Darling 5% Critical Value	0.744					95% Hall's Bootstrap UCL	1.108
1429					Kolmogorov-Smirnov Test Statistic	0.139					95% Percentile Bootstrap UCL	1.046
1430					Kolmogorov-Smirnov 5% Critical Value	0.223					95% BCA Bootstrap UCL	1.048
1431					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1.394

1432											97.5% Chebyshev(Mean, Sd) UCL	1.635
1433			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	2.109
1434					95% Approximate Gamma UCL	1.113						
1435					95% Adjusted Gamma UCL	1.154						
1436												
1437			**Potential UCL to Use**								Use 95% Student's-t UCL	1.062
1438												
1439												
1440	**Copper**											
1441												
1442					**General Statistics**							
1443					Number of Valid Observations	15					Number of Distinct Observations	14
1444												
1445			**Raw Statistics**						**Log-transformed Statistics**			
1446					Minimum	0.895					Minimum of Log Data	-0.11
1447					Maximum	1.42					Maximum of Log Data	0.351
1448					Mean	1.122					Mean of log Data	0.106
1449					Median	1.078					SD of log Data	0.14
1450					SD	0.161						
1451					Coefficient of Variation	0.143						
1452					Skewness	0.641						
1453												
1454					**Relevant UCL Statistics**							
1455			**Normal Distribution Test**						**Lognormal Distribution Test**			
1456					Shapiro Wilk Test Statistic	0.936					Shapiro Wilk Test Statistic	0.956
1457					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
1458			**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
1459												
1460			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
1461					95% Student's-t UCL	1.195					95% H-UCL	1.2
1462			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	1.299
1463					95% Adjusted-CLT UCL	1.198					97.5% Chebyshev (MVUE) UCL	1.376
1464					95% Modified-t UCL	1.196					99% Chebyshev (MVUE) UCL	1.526
1465												
1466			**Gamma Distribution Test**						**Data Distribution**			
1467					k star (bias corrected)	43.35			**Data appear Normal at 5% Significance Level**			
1468					Theta Star	0.0259						
1469					nu star	1300						
1470					Approximate Chi Square Value (.05)	1218			**Nonparametric Statistics**			
1471					Adjusted Level of Significance	0.0324					95% CLT UCL	1.19
1472					Adjusted Chi Square Value	1208					95% Jackknife UCL	1.195
1473											95% Standard Bootstrap UCL	1.188
1474					Anderson-Darling Test Statistic	0.296					95% Bootstrap-t UCL	1.209
1475					Anderson-Darling 5% Critical Value	0.734					95% Hall's Bootstrap UCL	1.208
1476					Kolmogorov-Smirnov Test Statistic	0.136					95% Percentile Bootstrap UCL	1.187
1477					Kolmogorov-Smirnov 5% Critical Value	0.221					95% BCA Bootstrap UCL	1.194
1478			**Data appear Gamma Distributed at 5% Significance Level**								95% Chebyshev(Mean, Sd) UCL	1.303
1479											97.5% Chebyshev(Mean, Sd) UCL	1.381
1480			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	1.535
1481					95% Approximate Gamma UCL	1.198						
1482					95% Adjusted Gamma UCL	1.208						
1483												
1484			**Potential UCL to Use**								Use 95% Student's-t UCL	1.195

	A	B	C	D	E	F	G	H	I	J	K	L
1485												
1486												
1487	**delta-Hexachlorocyclohexane**											
1488												
1489	**General Statistics**											
1490					Number of Valid Data	9			Number of Detected Data			5
1491					Number of Distinct Detected Data	5			Number of Non-Detect Data			4
1492					Number of Missing Values	6			Percent Non-Detects			44.44%
1493												
1494	**Raw Statistics**						**Log-transformed Statistics**					
1495					Minimum Detected	0.00225			Minimum Detected			-6.096
1496					Maximum Detected	0.00395			Maximum Detected			-5.534
1497					Mean of Detected	0.00292			Mean of Detected			-5.865
1498					SD of Detected	0.0007835			SD of Detected			0.26
1499					Minimum Non-Detect	0.00175			Minimum Non-Detect			-6.348
1500					Maximum Non-Detect	0.00343			Maximum Non-Detect			-5.676
1501												
1502	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			7
1503	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			2
1504	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			77.78%
1505												
1506	**Warning: There are only 5 Detected Values in this data**											
1507	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1508	**the resulting calculations may not be reliable enough tp draw conclusions**											
1509												
1510	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1511												
1512												
1513	**UCL Statistics**											
1514	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1515					Shapiro Wilk Test Statistic	0.83			Shapiro Wilk Test Statistic			0.838
1516					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value			0.762
1517	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1518												
1519	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1520					DL/2 Substitution Method				DL/2 Substitution Method			
1521					Mean	0.00216			Mean			-6.254
1522					SD	0.00108			SD			0.525
1523					95% DL/2 (t) UCL	0.00283			95% H-Stat (DL/2) UCL			0.00298
1524												
1525					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1526	**MLE method failed to converge properly**								Mean in Log Scale			-6.078
1527									SD in Log Scale			0.324
1528									Mean in Original Scale			0.00241
1529									SD in Original Scale			0.0008346
1530									95% Percentile Bootstrap UCL			0.00285
1531									95% BCA Bootstrap UCL			0.00294
1532												
1533	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1534					k star (bias corrected)	7.417	**Data appear Normal at 5% Significance Level**					
1535					Theta Star	0.0003934						
1536					nu star	74.17						
1537												

1538				A-D Test Statistic	0.544		**Nonparametric Statistics**					
1539				5% A-D Critical Value	0.679					Kaplan-Meier (KM) Method		
1540				K-S Test Statistic	0.679					Mean	0.00263	
1541				5% K-S Critical Value	0.357					SD	0.0006144	
1542	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.0002293	
1543										95% KM (t) UCL	0.00306	
1544	**Assuming Gamma Distribution**									95% KM (z) UCL	0.00301	
1545	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL	0.00302	
1546				Minimum	0.00225					95% KM (bootstrap t) UCL	0.00436	
1547				Maximum	0.00395					95% KM (BCA) UCL	0.00321	
1548				Mean	0.00284					95% KM (Percentile Bootstrap) UCL	0.00311	
1549				Median	0.00249					95% KM (Chebyshev) UCL	0.00363	
1550				SD	0.0006052					97.5% KM (Chebyshev) UCL	0.00406	
1551				k star	17.87					99% KM (Chebyshev) UCL	0.00491	
1552				Theta star	0.0001592							
1553				Nu star	321.6		**Potential UCLs to Use**					
1554				AppChi2	281.1					95% KM (t) UCL	0.00306	
1555				95% Gamma Approximate UCL	0.00325					95% KM (Percentile Bootstrap) UCL	0.00311	
1556				95% Adjusted Gamma UCL	0.00335							
1557	**Note: DL/2 is not a recommended method.**											
1558												
1559												
1560	**Dibenzo(a,h)anthracene**											
1561												
1562	**General Statistics**											
1563				Number of Valid Data	5					Number of Detected Data	2	
1564				Number of Distinct Detected Data	2					Number of Non-Detect Data	3	
1565				Number of Missing Values	10					Percent Non-Detects	60.00%	
1566												
1567	**Raw Statistics**						**Log-transformed Statistics**					
1568				Minimum Detected	0.241					Minimum Detected	-1.422	
1569				Maximum Detected	0.248					Maximum Detected	-1.395	
1570				Mean of Detected	0.245					Mean of Detected	-1.409	
1571				SD of Detected	0.00473					SD of Detected	0.0193	
1572				Minimum Non-Detect	0.059					Minimum Non-Detect	-2.83	
1573				Maximum Non-Detect	0.239					Maximum Non-Detect	-1.432	
1574												
1575	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	3	
1576	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	2	
1577	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	60.00%	
1578												
1579	**Warning: Data set has only 2 Distinct Detected Values.**											
1580	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
1581	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
1582												
1583	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
1584												
1585	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
1586	**Those methods will return a 'N/A' value on your output display!**											
1587												
1588	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
1589	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
1590												

	A	B	C	D	E	F	G	H	I	J	K	L
1591												
1592	**UCL Statistics**											
1593	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1594	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
1595	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
1596	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1597												
1598	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1599	DL/2 Substitution Method						DL/2 Substitution Method					
1600	Mean					0.15	Mean					-2.131
1601	SD					0.0933	SD					0.864
1602	95% DL/2 (t) UCL					0.239	95% H-Stat (DL/2) UCL					0.288
1603												
1604	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1605	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1606							SD in Log Scale					N/A
1607							Mean in Original Scale					N/A
1608							SD in Original Scale					N/A
1609							95% Percentile Bootstrap UCL					N/A
1610							95% BCA Bootstrap UCL					N/A
1611												
1612	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1613	k star (bias corrected)					N/A	**Data do not follow a Discernable Distribution (0.05)**					
1614	Theta Star					N/A						
1615	nu star					N/A						
1616												
1617	A-D Test Statistic					0.372	**Nonparametric Statistics**					
1618	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
1619	K-S Test Statistic					N/A	Mean					0.243
1620	5% K-S Critical Value					N/A	SD					0.00268
1621	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.00169
1622							95% KM (t) UCL					0.246
1623	**Assuming Gamma Distribution**						95% KM (z) UCL					0.245
1624	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.248
1625	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
1626	Maximum					N/A	95% KM (BCA) UCL					0.248
1627	Mean					N/A	95% KM (Percentile Bootstrap) UCL					0.248
1628	Median					N/A	95% KM (Chebyshev) UCL					0.25
1629	SD					N/A	97.5% KM (Chebyshev) UCL					0.253
1630	k star					N/A	99% KM (Chebyshev) UCL					0.259
1631	Theta star					N/A						
1632	Nu star					N/A	**Potential UCLs to Use**					
1633	AppChi2					N/A	95% KM (t) UCL					0.246
1634	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					0.248
1635	95% Adjusted Gamma UCL					N/A						
1636	**Note: DL/2 is not a recommended method.**											
1637												
1638												
1639	**Dibenzofuran**											
1640												
1641	**General Statistics**											
1642	Number of Valid Data					9	Number of Detected Data					9
1643	Number of Distinct Detected Data					9	Number of Non-Detect Data					0

1644					Number of Missing Values	6					Percent Non-Detects	0.00%
1645												
1646					**Raw Statistics**						**Log-transformed Statistics**	
1647					Minimum Detected	0.716					Minimum Detected	-0.335
1648					Maximum Detected	6.038					Maximum Detected	1.798
1649					Mean of Detected	2.631					Mean of Detected	0.623
1650					SD of Detected	2.138					SD of Detected	0.902
1651					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1652					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1653												
1654												
1655					**Warning: There are only 9 Detected Values in this data**							
1656					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1657					**the resulting calculations may not be reliable enough tp draw conclusions**							
1658												
1659					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1660												
1661												
1662					**UCL Statistics**							
1663					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1664					Shapiro Wilk Test Statistic	0.821					Shapiro Wilk Test Statistic	0.831
1665					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
1666					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1667												
1668					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1669					DL/2 Substitution Method						DL/2 Substitution Method	
1670					Mean	2.631					Mean	0.623
1671					SD	2.138					SD	0.902
1672					95% DL/2 (t) UCL	3.956					95% H-Stat (DL/2) UCL	7.353
1673												
1674					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1675					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1676											SD in Log Scale	N/A
1677											Mean in Original Scale	N/A
1678											SD in Original Scale	N/A
1679											95% Percentile Bootstrap UCL	N/A
1680											95% BCA Bootstrap UCL	N/A
1681												
1682					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1683					k star (bias corrected)	1.14					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
1684					Theta Star	2.307						
1685					nu star	20.53						
1686												
1687					A-D Test Statistic	0.776					**Nonparametric Statistics**	
1688					5% A-D Critical Value	0.733					Kaplan-Meier (KM) Method	
1689					K-S Test Statistic	0.733					Mean	2.631
1690					5% K-S Critical Value	0.284					SD	2.016
1691					**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean	0.713
1692											95% KM (t) UCL	3.956
1693					**Assuming Gamma Distribution**						95% KM (z) UCL	3.803
1694					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.956
1695					Minimum	0.716					95% KM (bootstrap t) UCL	4.2
1696					Maximum	6.038					95% KM (BCA) UCL	3.831

1697					Mean	2.631				95% KM (Percentile Bootstrap) UCL		3.761
1698					Median	1.214				95% KM (Chebyshev) UCL		5.738
1699					SD	2.138				97.5% KM (Chebyshev) UCL		7.082
1700					k star	1.14				99% KM (Chebyshev) UCL		9.723
1701					Theta star	2.307						
1702					Nu star	20.53				**Potential UCLs to Use**		
1703					AppChi2	11.24				95% KM (Chebyshev) UCL		5.738
1704					95% Gamma Approximate UCL	4.804						
1705					95% Adjusted Gamma UCL	5.497						
1706	**Note: DL/2 is not a recommended method.**											
1707												
1708												
1709	**Dibenzothiophene**											
1710												
1711	**General Statistics**											
1712					Number of Valid Data	9				Number of Detected Data		9
1713					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
1714					Number of Missing Values	6				Percent Non-Detects		0.00%
1715												
1716	**Raw Statistics**						**Log-transformed Statistics**					
1717					Minimum Detected	0.137				Minimum Detected		-1.991
1718					Maximum Detected	20.77				Maximum Detected		3.034
1719					Mean of Detected	3.706				Mean of Detected		0.347
1720					SD of Detected	6.549				SD of Detected		1.442
1721					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1722					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1723												
1724												
1725	**Warning: There are only 9 Detected Values in this data**											
1726	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1727	**the resulting calculations may not be reliable enough tp draw conclusions**											
1728												
1729	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1730												
1731												
1732	**UCL Statistics**											
1733	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1734					Shapiro Wilk Test Statistic	0.568				Shapiro Wilk Test Statistic		0.978
1735					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
1736	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1737												
1738	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1739					DL/2 Substitution Method					DL/2 Substitution Method		
1740					Mean	3.706				Mean		0.347
1741					SD	6.549				SD		1.442
1742					95% DL/2 (t) UCL	7.766				95% H-Stat (DL/2) UCL		35.77
1743												
1744					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1745	**MLE method failed to converge properly**									Mean in Log Scale		N/A
1746										SD in Log Scale		N/A
1747										Mean in Original Scale		N/A
1748										SD in Original Scale		N/A
1749										95% Percentile Bootstrap UCL		N/A

1750											95% BCA Bootstrap UCL	N/A
1751												
1752	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1753					k star (bias corrected)	0.498	Data appear Gamma Distributed at 5% Significance Level					
1754					Theta Star	7.438						
1755					nu star	8.969						
1756												
1757					A-D Test Statistic	0.56	Nonparametric Statistics					
1758					5% A-D Critical Value	0.76	Kaplan-Meier (KM) Method					
1759					K-S Test Statistic	0.76	Mean	3.706				
1760					5% K-S Critical Value	0.291	SD	6.175				
1761	Data appear Gamma Distributed at 5% Significance Level						SE of Mean	2.183				
1762							95% KM (t) UCL	7.766				
1763	Assuming Gamma Distribution						95% KM (z) UCL	7.297				
1764					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.766				
1765					Minimum	0.137	95% KM (bootstrap t) UCL	26.01				
1766					Maximum	20.77	95% KM (BCA) UCL	7.953				
1767					Mean	3.706	95% KM (Percentile Bootstrap) UCL	7.701				
1768					Median	1.698	95% KM (Chebyshev) UCL	13.22				
1769					SD	6.549	97.5% KM (Chebyshev) UCL	17.34				
1770					k star	0.498	99% KM (Chebyshev) UCL	25.43				
1771					Theta star	7.438						
1772					Nu star	8.969	Potential UCLs to Use					
1773					AppChi2	3.308	95% KM (Chebyshev) UCL	13.22				
1774					95% Gamma Approximate UCL	10.05						
1775					95% Adjusted Gamma UCL	12.66						
1776	Note: DL/2 is not a recommended method.											
1777												
1778												
1779	Dibutyltin ion											
1780												
1781	General Statistics											
1782					Number of Valid Data	9	Number of Detected Data	9				
1783					Number of Distinct Detected Data	9	Number of Non-Detect Data	0				
1784					Number of Missing Values	6	Percent Non-Detects	0.00%				
1785												
1786	Raw Statistics						Log-transformed Statistics					
1787					Minimum Detected	0.729	Minimum Detected	-0.316				
1788					Maximum Detected	5.074	Maximum Detected	1.624				
1789					Mean of Detected	1.934	Mean of Detected	0.467				
1790					SD of Detected	1.415	SD of Detected	0.629				
1791					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
1792					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
1793												
1794												
1795	Warning: There are only 9 Detected Values in this data											
1796	Note: It should be noted that even though bootstrap may be performed on this data set											
1797	the resulting calculations may not be reliable enough tp draw conclusions											
1798												
1799	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
1800												
1801												
1802	UCL Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
1803	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1804					Shapiro Wilk Test Statistic	0.792					Shapiro Wilk Test Statistic	0.936
1805					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
1806	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1807												
1808	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1809					DL/2 Substitution Method						DL/2 Substitution Method	
1810					Mean	1.934					Mean	0.467
1811					SD	1.415					SD	0.629
1812					95% DL/2 (t) UCL	2.811					95% H-Stat (DL/2) UCL	3.389
1813												
1814					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1815	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1816											SD in Log Scale	N/A
1817											Mean in Original Scale	N/A
1818											SD in Original Scale	N/A
1819											95% Percentile Bootstrap UCL	N/A
1820											95% BCA Bootstrap UCL	N/A
1821												
1822	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1823					k star (bias corrected)	1.913	**Data appear Gamma Distributed at 5% Significance Level**					
1824					Theta Star	1.011						
1825					nu star	34.44						
1826												
1827					A-D Test Statistic	0.467	**Nonparametric Statistics**					
1828					5% A-D Critical Value	0.728					Kaplan-Meier (KM) Method	
1829					K-S Test Statistic	0.728					Mean	1.934
1830					5% K-S Critical Value	0.282					SD	1.334
1831	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.472
1832											95% KM (t) UCL	2.811
1833	**Assuming Gamma Distribution**										95% KM (z) UCL	2.71
1834					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.811
1835					Minimum	0.729					95% KM (bootstrap t) UCL	4.17
1836					Maximum	5.074					95% KM (BCA) UCL	2.702
1837					Mean	1.934					95% KM (Percentile Bootstrap) UCL	2.706
1838					Median	1.452					95% KM (Chebyshev) UCL	3.989
1839					SD	1.415					97.5% KM (Chebyshev) UCL	4.879
1840					k star	1.913					99% KM (Chebyshev) UCL	6.626
1841					Theta star	1.011						
1842					Nu star	34.44	**Potential UCLs to Use**					
1843					AppChi2	22.01					95% KM (Chebyshev) UCL	3.989
1844					95% Gamma Approximate UCL	3.025						
1845					95% Adjusted Gamma UCL	3.339						
1846	**Note: DL/2 is not a recommended method.**											
1847												
1848												
1849	**Dieldrin**											
1850												
1851	**General Statistics**											
1852					Number of Valid Data	10					Number of Detected Data	9
1853					Number of Distinct Detected Data	9					Number of Non-Detect Data	1
1854					Number of Missing Values	5					Percent Non-Detects	10.00%
1855												

	A	B	C	D	E	F	G	H	I	J	K	L
1856	**Raw Statistics**						**Log-transformed Statistics**					
1857					Minimum Detected	1.896					Minimum Detected	0.64
1858					Maximum Detected	2.96					Maximum Detected	1.085
1859					Mean of Detected	2.314					Mean of Detected	0.83
1860					SD of Detected	0.341					SD of Detected	0.142
1861					Minimum Non-Detect	1					Minimum Non-Detect	0
1862					Maximum Non-Detect	1					Maximum Non-Detect	0
1863												
1864												
1865	**Warning: There are only 9 Detected Values in this data**											
1866	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1867	**the resulting calculations may not be reliable enough tp draw conclusions**											
1868												
1869	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1870												
1871												
1872	**UCL Statistics**											
1873	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1874					Shapiro Wilk Test Statistic	0.931					Shapiro Wilk Test Statistic	0.955
1875					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
1876	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1877												
1878	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1879					DL/2 Substitution Method						DL/2 Substitution Method	
1880					Mean	2.132					Mean	0.677
1881					SD	0.658					SD	0.5
1882					95% DL/2 (t) UCL	2.514					95% H-Stat (DL/2) UCL	2.779
1883												
1884					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1885					Mean	2.163					Mean in Log Scale	0.795
1886					SD	0.549					SD in Log Scale	0.174
1887					95% MLE (t) UCL	2.481					Mean in Original Scale	2.244
1888					95% MLE (Tiku) UCL	2.496					SD in Original Scale	0.39
1889											95% Percentile Bootstrap UCL	2.438
1890											95% BCA Bootstrap UCL	2.437
1891												
1892	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1893					k star (bias corrected)	36.47	**Data appear Normal at 5% Significance Level**					
1894					Theta Star	0.0634						
1895					nu star	656.5						
1896												
1897					A-D Test Statistic	0.282	**Nonparametric Statistics**					
1898					5% A-D Critical Value	0.72	Kaplan-Meier (KM) Method					
1899					K-S Test Statistic	0.72					Mean	2.272
1900					5% K-S Critical Value	0.279					SD	0.33
1901	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.111
1902											95% KM (t) UCL	2.475
1903	**Assuming Gamma Distribution**										95% KM (z) UCL	2.454
1904					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.471
1905					Minimum	1.701					95% KM (bootstrap t) UCL	2.55
1906					Maximum	2.96					95% KM (BCA) UCL	2.478
1907					Mean	2.253					95% KM (Percentile Bootstrap) UCL	2.455
1908					Median	2.185					95% KM (Chebyshev) UCL	2.754

1909					SD	0.375				97.5% KM (Chebyshev) UCL		2.963
1910					k star	28.89				99% KM (Chebyshev) UCL		3.372
1911					Theta star	0.078						
1912					Nu star	577.8				**Potential UCLs to Use**		
1913					AppChi2	523				95% KM (t) UCL		2.475
1914					95% Gamma Approximate UCL	2.488				95% KM (Percentile Bootstrap) UCL		2.455
1915					95% Adjusted Gamma UCL	2.532						
1916	**Note: DL/2 is not a recommended method.**											
1917												
1918												
1919	**Endrin**											
1920												
1921					**General Statistics**							
1922					Number of Valid Data	9				Number of Detected Data		9
1923					Number of Distinct Detected Data	9				Number of Non-Detect Data		0
1924					Number of Missing Values	6				Percent Non-Detects		0.00%
1925												
1926					**Raw Statistics**					**Log-transformed Statistics**		
1927					Minimum Detected	0.0155				Minimum Detected		-4.164
1928					Maximum Detected	0.0294				Maximum Detected		-3.528
1929					Mean of Detected	0.0231				Mean of Detected		-3.794
1930					SD of Detected	0.00547				SD of Detected		0.255
1931					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
1932					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
1933												
1934												
1935					**Warning: There are only 9 Detected Values in this data**							
1936					**Note: It should be noted that even though bootstrap may be performed on this data set**							
1937					**the resulting calculations may not be reliable enough tp draw conclusions**							
1938												
1939					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
1940												
1941												
1942					**UCL Statistics**							
1943					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1944					Shapiro Wilk Test Statistic	0.866				Shapiro Wilk Test Statistic		0.841
1945					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
1946					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1947												
1948					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1949					DL/2 Substitution Method					DL/2 Substitution Method		
1950					Mean	0.0231				Mean		-3.794
1951					SD	0.00547				SD		0.255
1952					95% DL/2 (t) UCL	0.0265				95% H-Stat (DL/2) UCL		0.0278
1953												
1954					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1955					**MLE method failed to converge properly**					Mean in Log Scale		N/A
1956										SD in Log Scale		N/A
1957										Mean in Original Scale		N/A
1958										SD in Original Scale		N/A
1959										95% Percentile Bootstrap UCL		N/A
1960										95% BCA Bootstrap UCL		N/A
1961												

1962	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1963					k star (bias corrected)	12.28	**Data appear Normal at 5% Significance Level**					
1964					Theta Star	0.00188						
1965					nu star	221.1						
1966												
1967					A-D Test Statistic	0.663	**Nonparametric Statistics**					
1968					5% A-D Critical Value	0.721				Kaplan-Meier (KM) Method		
1969					K-S Test Statistic	0.721				Mean		0.0231
1970					5% K-S Critical Value	0.279				SD		0.00516
1971	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.00182
1972										95% KM (t) UCL		0.0265
1973	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0261
1974					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0265
1975					Minimum	0.0155				95% KM (bootstrap t) UCL		0.0261
1976					Maximum	0.0294				95% KM (BCA) UCL		0.0259
1977					Mean	0.0231				95% KM (Percentile Bootstrap) UCL		0.0258
1978					Median	0.0242				95% KM (Chebyshev) UCL		0.0311
1979					SD	0.00547				97.5% KM (Chebyshev) UCL		0.0345
1980					k star	12.28				99% KM (Chebyshev) UCL		0.0413
1981					Theta star	0.00188						
1982					Nu star	221.1	**Potential UCLs to Use**					
1983					AppChi2	187.7				95% KM (t) UCL		0.0265
1984					95% Gamma Approximate UCL	0.0273				95% KM (Percentile Bootstrap) UCL		0.0258
1985					95% Adjusted Gamma UCL	0.0282						
1986	**Note: DL/2 is not a recommended method.**											
1987												
1988												
1989	**Endrin aldehyde**											
1990												
1991							**General Statistics**					
1992					Number of Valid Data	6				Number of Detected Data		2
1993					Number of Distinct Detected Data	2				Number of Non-Detect Data		4
1994					Number of Missing Values	8				Percent Non-Detects		66.67%
1995												
1996					**Raw Statistics**					**Log-transformed Statistics**		
1997					Minimum Detected	0.00224				Minimum Detected		-6.101
1998					Maximum Detected	0.00743				Maximum Detected		-4.902
1999					Mean of Detected	0.00484				Mean of Detected		-5.501
2000					SD of Detected	0.00367				SD of Detected		0.848
2001					Minimum Non-Detect	0.00325				Minimum Non-Detect		-5.73
2002					Maximum Non-Detect	0.00734				Maximum Non-Detect		-4.914
2003												
2004	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		5
2005	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
2006	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		83.33%
2007												
2008	**Warning: Data set has only 2 Distinct Detected Values.**											
2009	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
2010	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
2011												
2012	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
2013												
2014	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											

	A	B	C	D	E	F	G	H	I	J	K	L
2015	**Those methods will return a 'N/A' value on your output display!**											
2016												
2017	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
2018	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
2019												
2020												
2021	**UCL Statistics**											
2022	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2023					Shapiro Wilk Test Statistic	1				Shapiro Wilk Test Statistic		1
2024					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
2025	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2026												
2027	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2028					DL/2 Substitution Method					DL/2 Substitution Method		
2029					Mean	0.00355				Mean		-5.758
2030					SD	0.00205				SD		0.517
2031					95% DL/2 (t) UCL	0.00524				95% H-Stat (DL/2) UCL		0.0114
2032												
2033					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
2034	**MLE method failed to converge properly**									Mean in Log Scale		N/A
2035										SD in Log Scale		N/A
2036										Mean in Original Scale		N/A
2037										SD in Original Scale		N/A
2038										95% Percentile Bootstrap UCL		N/A
2039										95% BCA Bootstrap UCL		N/A
2040												
2041	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2042					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
2043					Theta Star	N/A						
2044					nu star	N/A						
2045												
2046					A-D Test Statistic	0.359	**Nonparametric Statistics**					
2047					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
2048					K-S Test Statistic	N/A				Mean		0.00311
2049					5% K-S Critical Value	N/A				SD		0.00193
2050	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.00112
2051										95% KM (t) UCL		0.00536
2052	**Assuming Gamma Distribution**									95% KM (z) UCL		0.00494
2053					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00716
2054					Minimum	N/A				95% KM (bootstrap t) UCL		1.8E+308
2055					Maximum	N/A				95% KM (BCA) UCL		0.00743
2056					Mean	N/A				95% KM (Percentile Bootstrap) UCL		0.00743
2057					Median	N/A				95% KM (Chebyshev) UCL		0.00797
2058					SD	N/A				97.5% KM (Chebyshev) UCL		0.0101
2059					k star	N/A				99% KM (Chebyshev) UCL		0.0142
2060					Theta star	N/A						
2061					Nu star	N/A				**Potential UCLs to Use**		
2062					AppChi2	N/A				95% KM (t) UCL		0.00536
2063					95% Gamma Approximate UCL	N/A				95% KM (% Bootstrap) UCL		0.00743
2064					95% Adjusted Gamma UCL	N/A						
2065	**Note: DL/2 is not a recommended method.**											
2066												
2067												

	A	B	C	D	E	F	G	H	I	J	K	L
2068	**Endrin ketone**											
2069												
2070	**General Statistics**											
2071	Number of Valid Data					6	Number of Detected Data					3
2072	Number of Distinct Detected Data					3	Number of Non-Detect Data					3
2073	Number of Missing Values					9	Percent Non-Detects					50.00%
2074												
2075	**Raw Statistics**						**Log-transformed Statistics**					
2076	Minimum Detected					0.0008685	Minimum Detected					-7.049
2077	Maximum Detected					0.0148	Maximum Detected					-4.211
2078	Mean of Detected					0.00771	Mean of Detected					-5.388
2079	SD of Detected					0.00699	SD of Detected					1.48
2080	Minimum Non-Detect					0.0005538	Minimum Non-Detect					-7.499
2081	Maximum Non-Detect					0.00207	Maximum Non-Detect					-6.178
2082												
2083	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					4
2084	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					2
2085	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					66.67%
2086												
2087	**Warning: There are only 3 Distinct Detected Values in this data set**											
2088	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
2089	**Those methods will return a 'N/A' value on your output display!**											
2090												
2091	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
2092	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
2093												
2094												
2095	**UCL Statistics**											
2096	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2097	Shapiro Wilk Test Statistic					0.999	Shapiro Wilk Test Statistic					0.92
2098	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
2099	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2100												
2101	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2102	DL/2 Substitution Method						DL/2 Substitution Method					
2103	Mean					0.00418	Mean					-6.425
2104	SD					0.00587	SD					1.532
2105	95% DL/2 (t) UCL					0.00902	95% H-Stat (DL/2) UCL					0.0437
2106												
2107	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2108	**MLE method failed to converge properly**						Mean in Log Scale					-6.898
2109							SD in Log Scale					1.956
2110							Mean in Original Scale					0.00398
2111							SD in Original Scale					0.00602
2112							95% Percentile Bootstrap UCL					0.00768
2113							95% BCA Bootstrap UCL					0.00886
2114												
2115	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2116	k star (bias corrected)					N/A	**Data appear Normal at 5% Significance Level**					
2117	Theta Star					N/A						
2118	nu star					N/A						
2119												
2120	A-D Test Statistic					0.301	**Nonparametric Statistics**					

2121				5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method		
2122				K-S Test Statistic	N/A					Mean	0.00429	
2123				5% K-S Critical Value	N/A					SD	0.00529	
2124				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.00264	
2125										95% KM (t) UCL	0.00962	
2126				**Assuming Gamma Distribution**						95% KM (z) UCL	0.00864	
2127				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0102	
2128				Minimum	N/A					95% KM (bootstrap t) UCL	0.00661	
2129				Maximum	N/A					95% KM (BCA) UCL	0.0148	
2130				Mean	N/A					95% KM (Percentile Bootstrap) UCL	N/A	
2131				Median	N/A					95% KM (Chebyshev) UCL	0.0158	
2132				SD	N/A					97.5% KM (Chebyshev) UCL	0.0208	
2133				k star	N/A					99% KM (Chebyshev) UCL	0.0306	
2134				Theta star	N/A							
2135				Nu star	N/A					**Potential UCLs to Use**		
2136				AppChi2	N/A					95% KM (t) UCL	0.00962	
2137				95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	N/A	
2138				95% Adjusted Gamma UCL	N/A							
2139	**Note: DL/2 is not a recommended method.**											
2140												
2141												
2142	**Fluoranthene**											
2143												
2144						**General Statistics**							
2145				Number of Valid Data	9					Number of Detected Data	6	
2146				Number of Distinct Detected Data	6					Number of Non-Detect Data	3	
2147				Number of Missing Values	6					Percent Non-Detects	33.33%	
2148												
2149				**Raw Statistics**						**Log-transformed Statistics**		
2150				Minimum Detected	1.074					Minimum Detected	0.0712	
2151				Maximum Detected	24.26					Maximum Detected	3.189	
2152				Mean of Detected	8.216					Mean of Detected	1.69	
2153				SD of Detected	8.363					SD of Detected	1.041	
2154				Minimum Non-Detect	0.532					Minimum Non-Detect	-0.632	
2155				Maximum Non-Detect	2.931					Maximum Non-Detect	1.075	
2156												
2157	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	4	
2158	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	5	
2159	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	44.44%	
2160												
2161	**Warning: There are only 6 Detected Values in this data**											
2162	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2163	**the resulting calculations may not be reliable enough tp draw conclusions**											
2164												
2165	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2166												
2167												
2168						**UCL Statistics**							
2169				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
2170				Shapiro Wilk Test Statistic	0.802					Shapiro Wilk Test Statistic	0.982	
2171				5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788	
2172				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
2173												

	A	B	C	D	E	F	G	H	I	J	K	L
2174	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2175	DL/2 Substitution Method						DL/2 Substitution Method					
2176	Mean					5.701	Mean					0.879
2177	SD					7.62	SD					1.547
2178	95% DL/2 (t) UCL					10.42	95% H-Stat (DL/2) UCL					42.24
2179												
2180	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
2181	Mean					3.118	Mean in Log Scale					0.856
2182	SD					10.08	SD in Log Scale					1.504
2183	95% MLE (t) UCL					9.363	Mean in Original Scale					5.63
2184	95% MLE (Tiku) UCL					10.41	SD in Original Scale					7.666
2185							95% Percentile Bootstrap UCL					9.866
2186							95% BCA Bootstrap UCL					11.98
2187												
2188	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2189	k star (bias corrected)					0.783	**Data appear Normal at 5% Significance Level**					
2190	Theta Star					10.49						
2191	nu star					9.4						
2192												
2193	A-D Test Statistic					0.242	**Nonparametric Statistics**					
2194	5% A-D Critical Value					0.71	Kaplan-Meier (KM) Method					
2195	K-S Test Statistic					0.71	Mean					5.835
2196	5% K-S Critical Value					0.339	SD					7.085
2197	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					2.587
2198							95% KM (t) UCL					10.65
2199	**Assuming Gamma Distribution**						95% KM (z) UCL					10.09
2200	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.25
2201	Minimum					1.074	95% KM (bootstrap t) UCL					17.58
2202	Maximum					24.26	95% KM (BCA) UCL					12.4
2203	Mean					6.228	95% KM (Percentile Bootstrap) UCL					10.82
2204	Median					3.699	95% KM (Chebyshev) UCL					17.11
2205	SD					7.28	97.5% KM (Chebyshev) UCL					21.99
2206	k star					0.888	99% KM (Chebyshev) UCL					31.57
2207	Theta star					7.016						
2208	Nu star					15.98	**Potential UCLs to Use**					
2209	AppChi2					7.947	95% KM (t) UCL					10.65
2210	95% Gamma Approximate UCL					12.52	95% KM (Percentile Bootstrap) UCL					10.82
2211	95% Adjusted Gamma UCL					14.66						
2212	**Note: DL/2 is not a recommended method.**											
2213												
2214												
2215	**Fluorene**											
2216												
2217	**General Statistics**											
2218	Number of Valid Data					15	Number of Detected Data					10
2219	Number of Distinct Detected Data					10	Number of Non-Detect Data					5
2220							Percent Non-Detects					33.33%
2221												
2222	**Raw Statistics**						**Log-transformed Statistics**					
2223	Minimum Detected					1.6	Minimum Detected					0.47
2224	Maximum Detected					53	Maximum Detected					3.97
2225	Mean of Detected					13.65	Mean of Detected					2.122
2226	SD of Detected					15.5	SD of Detected					1.053

	A	B	C	D	E	F	G	H	I	J	K	L
2227					Minimum Non-Detect	32					Minimum Non-Detect	3.466
2228					Maximum Non-Detect	33					Maximum Non-Detect	3.497
2229												
2230	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
2231	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
2232	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.33%
2233												
2234	**UCL Statistics**											
2235	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2236					Shapiro Wilk Test Statistic	0.748					Shapiro Wilk Test Statistic	0.991
2237					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
2238	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2239												
2240	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2241					DL/2 Substitution Method						DL/2 Substitution Method	
2242					Mean	14.5					Mean	2.343
2243					SD	12.49					SD	0.904
2244					95% DL/2 (t) UCL	20.18					95% H-Stat (DL/2) UCL	67.45
2245												
2246					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2247	**MLE method failed to converge properly**										Mean in Log Scale	2.056
2248											SD in Log Scale	0.906
2249											Mean in Original Scale	11.71
2250											SD in Original Scale	12.96
2251											95% Percentile Bootstrap UCL	17.5
2252											95% BCA Bootstrap UCL	19.66
2253												
2254	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2255					k star (bias corrected)	0.875	**Data appear Gamma Distributed at 5% Significance Level**					
2256					Theta Star	15.59						
2257					nu star	17.51						
2258												
2259					A-D Test Statistic	0.255	**Nonparametric Statistics**					
2260					5% A-D Critical Value	0.745					Kaplan-Meier (KM) Method	
2261					K-S Test Statistic	0.745					Mean	12.19
2262					5% K-S Critical Value	0.273					SD	12.83
2263	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	3.752
2264											95% KM (t) UCL	18.8
2265	**Assuming Gamma Distribution**										95% KM (z) UCL	18.37
2266					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	18.79
2267					Minimum	1.6					95% KM (bootstrap t) UCL	25.18
2268					Maximum	53					95% KM (BCA) UCL	19.23
2269					Mean	13.71					95% KM (Percentile Bootstrap) UCL	18.44
2270					Median	12.2					95% KM (Chebyshev) UCL	28.55
2271					SD	12.46					97.5% KM (Chebyshev) UCL	35.63
2272					k star	1.374					99% KM (Chebyshev) UCL	49.53
2273					Theta star	9.973						
2274					Nu star	41.23	**Potential UCLs to Use**					
2275					AppChi2	27.51					95% KM (BCA) UCL	19.23
2276					95% Gamma Approximate UCL	20.54						
2277					95% Adjusted Gamma UCL	21.62						
2278	**Note: DL/2 is not a recommended method.**											
2279												

2280												
2281	gamma-Hexachlorocyclohexane											
2282												
2283	General Statistics											
2284					Number of Valid Data	9			Number of Detected Data	9		
2285					Number of Distinct Detected Data	9			Number of Non-Detect Data	0		
2286					Number of Missing Values	6			Percent Non-Detects	0.00%		
2287												
2288	Raw Statistics						Log-transformed Statistics					
2289					Minimum Detected	0.0169			Minimum Detected	-4.078		
2290					Maximum Detected	0.0459			Maximum Detected	-3.082		
2291					Mean of Detected	0.0312			Mean of Detected	-3.508		
2292					SD of Detected	0.00899			SD of Detected	0.315		
2293					Minimum Non-Detect	N/A			Minimum Non-Detect	N/A		
2294					Maximum Non-Detect	N/A			Maximum Non-Detect	N/A		
2295												
2296												
2297	Warning: There are only 9 Detected Values in this data											
2298	Note: It should be noted that even though bootstrap may be performed on this data set											
2299	the resulting calculations may not be reliable enough tp draw conclusions											
2300												
2301	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
2302												
2303												
2304	UCL Statistics											
2305	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
2306					Shapiro Wilk Test Statistic	0.957			Shapiro Wilk Test Statistic	0.929		
2307					5% Shapiro Wilk Critical Value	0.829			5% Shapiro Wilk Critical Value	0.829		
2308	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
2309												
2310	Assuming Normal Distribution						Assuming Lognormal Distribution					
2311					DL/2 Substitution Method				DL/2 Substitution Method			
2312					Mean	0.0312			Mean	-3.508		
2313					SD	0.00899			SD	0.315		
2314					95% DL/2 (t) UCL	0.0368			95% H-Stat (DL/2) UCL	0.0394		
2315												
2316					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
2317	MLE method failed to converge properly								Mean in Log Scale	N/A		
2318									SD in Log Scale	N/A		
2319									Mean in Original Scale	N/A		
2320									SD in Original Scale	N/A		
2321									95% Percentile Bootstrap UCL	N/A		
2322									95% BCA Bootstrap UCL	N/A		
2323												
2324	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
2325					k star (bias corrected)	8.261	Data appear Normal at 5% Significance Level					
2326					Theta Star	0.00378						
2327					nu star	148.7						
2328												
2329					A-D Test Statistic	0.369	Nonparametric Statistics					
2330					5% A-D Critical Value	0.722			Kaplan-Meier (KM) Method			
2331					K-S Test Statistic	0.722			Mean	0.0312		
2332					5% K-S Critical Value	0.279			SD	0.00848		

2333	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.003
2334											95% KM (t) UCL	0.0368
2335	Assuming Gamma Distribution										95% KM (z) UCL	0.0361
2336	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.0368
2337	Minimum	0.0169									95% KM (bootstrap t) UCL	0.0365
2338	Maximum	0.0459									95% KM (BCA) UCL	0.0358
2339	Mean	0.0312									95% KM (Percentile Bootstrap) UCL	0.0359
2340	Median	0.0343									95% KM (Chebyshev) UCL	0.0443
2341	SD	0.00899									97.5% KM (Chebyshev) UCL	0.0499
2342	k star	8.261									99% KM (Chebyshev) UCL	0.061
2343	Theta star	0.00378										
2344	Nu star	148.7									Potential UCLs to Use	
2345	AppChi2	121.5									95% KM (t) UCL	0.0368
2346	95% Gamma Approximate UCL	0.0382									95% KM (Percentile Bootstrap) UCL	0.0359
2347	95% Adjusted Gamma UCL	0.0399										
2348	Note: DL/2 is not a recommended method.											
2349												
2350												
2351	Heptachlor											
2352												
2353	General Statistics											
2354	Number of Valid Data	7									Number of Detected Data	5
2355	Number of Distinct Detected Data	5									Number of Non-Detect Data	2
2356	Number of Missing Values	8									Percent Non-Detects	28.57%
2357												
2358	Raw Statistics										Log-transformed Statistics	
2359	Minimum Detected	0.00346									Minimum Detected	-5.666
2360	Maximum Detected	0.00709									Maximum Detected	-4.95
2361	Mean of Detected	0.00506									Mean of Detected	-5.338
2362	SD of Detected	0.00182									SD of Detected	0.356
2363	Minimum Non-Detect	0.00185									Minimum Non-Detect	-6.293
2364	Maximum Non-Detect	0.00335									Maximum Non-Detect	-5.699
2365												
2366	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	2
2367	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
2368	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	28.57%
2369												
2370	Warning: There are only 5 Detected Values in this data											
2371	Note: It should be noted that even though bootstrap may be performed on this data set											
2372	the resulting calculations may not be reliable enough tp draw conclusions											
2373												
2374	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
2375												
2376												
2377	UCL Statistics											
2378	Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only	
2379	Shapiro Wilk Test Statistic	0.796									Shapiro Wilk Test Statistic	0.812
2380	5% Shapiro Wilk Critical Value	0.762									5% Shapiro Wilk Critical Value	0.762
2381	Data appear Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level	
2382												
2383	Assuming Normal Distribution										Assuming Lognormal Distribution	
2384	DL/2 Substitution Method										DL/2 Substitution Method	
2385	Mean	0.00398									Mean	-5.724

2386					SD	0.00237					SD	0.741
2387					95% DL/2 (t) UCL	0.00572					95% H-Stat (DL/2) UCL	0.0107
2388												
2389					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
2390					Mean	0.00418					Mean in Log Scale	-5.593
2391					SD	0.00203					SD in Log Scale	0.523
2392					95% MLE (t) UCL	0.00568					Mean in Original Scale	0.00418
2393					95% MLE (Tiku) UCL	0.00574					SD in Original Scale	0.00211
2394											95% Percentile Bootstrap UCL	0.00549
2395											95% BCA Bootstrap UCL	0.00548
2396												
2397					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2398					k star (bias corrected)	4.106					**Data appear Normal at 5% Significance Level**	
2399					Theta Star	0.00123						
2400					nu star	41.06						
2401												
2402					A-D Test Statistic	0.583					**Nonparametric Statistics**	
2403					5% A-D Critical Value	0.679					Kaplan-Meier (KM) Method	
2404					K-S Test Statistic	0.679					Mean	0.0046
2405					5% K-S Critical Value	0.358					SD	0.00155
2406					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0006551
2407											95% KM (t) UCL	0.00588
2408					**Assuming Gamma Distribution**						95% KM (z) UCL	0.00568
2409					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00583
2410					Minimum	0.0033					95% KM (bootstrap t) UCL	0.00815
2411					Maximum	0.00709					95% KM (BCA) UCL	0.00564
2412					Mean	0.00456					95% KM (Percentile Bootstrap) UCL	0.00584
2413					Median	0.00348					95% KM (Chebyshev) UCL	0.00746
2414					SD	0.00171					97.5% KM (Chebyshev) UCL	0.00869
2415					k star	5.491					99% KM (Chebyshev) UCL	0.0111
2416					Theta star	0.00083						
2417					Nu star	76.87					**Potential UCLs to Use**	
2418					AppChi2	57.67					95% KM (t) UCL	0.00588
2419					95% Gamma Approximate UCL	0.00607					95% KM (Percentile Bootstrap) UCL	0.00584
2420					95% Adjusted Gamma UCL	0.00665						
2421	**Note: DL/2 is not a recommended method.**											
2422												
2423												
2424	**Heptachlor epoxide**											
2425												
2426						**General Statistics**							
2427					Number of Valid Data	9					Number of Detected Data	9
2428					Number of Distinct Detected Data	9					Number of Non-Detect Data	0
2429					Number of Missing Values	6					Percent Non-Detects	0.00%
2430												
2431					**Raw Statistics**						**Log-transformed Statistics**	
2432					Minimum Detected	0.111					Minimum Detected	-2.196
2433					Maximum Detected	0.209					Maximum Detected	-1.564
2434					Mean of Detected	0.147					Mean of Detected	-1.938
2435					SD of Detected	0.0338					SD of Detected	0.223
2436					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2437					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2438												

	A	B	C	D	E	F	G	H	I	J	K	L
2439												
2440	**Warning: There are only 9 Detected Values in this data**											
2441	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2442	**the resulting calculations may not be reliable enough tp draw conclusions**											
2443												
2444	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2445												
2446												
2447	**UCL Statistics**											
2448	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2449	Shapiro Wilk Test Statistic					0.89	Shapiro Wilk Test Statistic					0.905
2450	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
2451	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2452												
2453	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2454	DL/2 Substitution Method						DL/2 Substitution Method					
2455	Mean					0.147	Mean					-1.938
2456	SD					0.0338	SD					0.223
2457	95% DL/2 (t) UCL					0.168	95% H-Stat (DL/2) UCL					0.172
2458												
2459	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2460	**MLE method failed to converge properly**						Mean in Log Scale					N/A
2461							SD in Log Scale					N/A
2462							Mean in Original Scale					N/A
2463							SD in Original Scale					N/A
2464							95% Percentile Bootstrap UCL					N/A
2465							95% BCA Bootstrap UCL					N/A
2466												
2467	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2468	k star (bias corrected)					15.02	**Data appear Normal at 5% Significance Level**					
2469	Theta Star					0.00981						
2470	nu star					270.3						
2471												
2472	A-D Test Statistic					0.498	**Nonparametric Statistics**					
2473	5% A-D Critical Value					0.721	Kaplan-Meier (KM) Method					
2474	K-S Test Statistic					0.721	Mean					0.147
2475	5% K-S Critical Value					0.279	SD					0.0319
2476	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.0113
2477							95% KM (t) UCL					0.168
2478	**Assuming Gamma Distribution**						95% KM (z) UCL					0.166
2479	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.168
2480	Minimum					0.111	95% KM (bootstrap t) UCL					0.172
2481	Maximum					0.209	95% KM (BCA) UCL					0.165
2482	Mean					0.147	95% KM (Percentile Bootstrap) UCL					0.165
2483	Median					0.129	95% KM (Chebyshev) UCL					0.196
2484	SD					0.0338	97.5% KM (Chebyshev) UCL					0.218
2485	k star					15.02	99% KM (Chebyshev) UCL					0.26
2486	Theta star					0.00981						
2487	Nu star					270.3	**Potential UCLs to Use**					
2488	AppChi2					233.2	95% KM (t) UCL					0.168
2489	95% Gamma Approximate UCL					0.171	95% KM (Percentile Bootstrap) UCL					0.165
2490	95% Adjusted Gamma UCL					0.176						
2491	**Note: DL/2 is not a recommended method.**											

	A	B	C	D	E	F	G	H	I	J	K	L
2492												
2493												
2494	**Hexachlorobenzene**											
2495												
2496						**General Statistics**						
2497					Number of Valid Data	10			Number of Detected Data			9
2498					Number of Distinct Detected Data	9			Number of Non-Detect Data			1
2499					Number of Missing Values	5			Percent Non-Detects			10.00%
2500												
2501					**Raw Statistics**				**Log-transformed Statistics**			
2502					Minimum Detected	2.008			Minimum Detected			0.697
2503					Maximum Detected	4.46			Maximum Detected			1.495
2504					Mean of Detected	3			Mean of Detected			1.074
2505					SD of Detected	0.714			SD of Detected			0.233
2506					Minimum Non-Detect	4			Minimum Non-Detect			1.386
2507					Maximum Non-Detect	4			Maximum Non-Detect			1.386
2508												
2509												
2510					**Warning: There are only 9 Detected Values in this data**							
2511					**Note: It should be noted that even though bootstrap may be performed on this data set**							
2512					**the resulting calculations may not be reliable enough tp draw conclusions**							
2513												
2514					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
2515												
2516												
2517					**UCL Statistics**							
2518					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
2519					Shapiro Wilk Test Statistic	0.937			Shapiro Wilk Test Statistic			0.967
2520					5% Shapiro Wilk Critical Value	0.829			5% Shapiro Wilk Critical Value			0.829
2521					**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
2522												
2523					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
2524					DL/2 Substitution Method				DL/2 Substitution Method			
2525					Mean	2.9			Mean			1.036
2526					SD	0.744			SD			0.251
2527					95% DL/2 (t) UCL	3.332			95% H-Stat (DL/2) UCL			3.781
2528												
2529					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
2530					**MLE method failed to converge properly**				Mean in Log Scale			1.07
2531									SD in Log Scale			0.22
2532									Mean in Original Scale			2.981
2533									SD in Original Scale			0.676
2534									95% Percentile Bootstrap UCL			3.335
2535									95% BCA Bootstrap UCL			3.376
2536												
2537					**Gamma Distribution Test with Detected Values Only**				**Data Distribution Test with Detected Values Only**			
2538					k star (bias corrected)	13.86			**Data appear Normal at 5% Significance Level**			
2539					Theta Star	0.217						
2540					nu star	249.5						
2541												
2542					A-D Test Statistic	0.26			**Nonparametric Statistics**			
2543					5% A-D Critical Value	0.721			Kaplan-Meier (KM) Method			
2544					K-S Test Statistic	0.721			Mean			2.982

2545				5% K-S Critical Value	0.279					SD	0.657
2546	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean	0.226
2547										95% KM (t) UCL	3.397
2548	**Assuming Gamma Distribution**									95% KM (z) UCL	3.355
2549				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.398
2550				Minimum	2.008					95% KM (bootstrap t) UCL	3.429
2551				Maximum	4.46					95% KM (BCA) UCL	3.356
2552				Mean	3.009					95% KM (Percentile Bootstrap) UCL	3.356
2553				Median	3.09					95% KM (Chebyshev) UCL	3.969
2554				SD	0.674					97.5% KM (Chebyshev) UCL	4.397
2555				k star	16.11					99% KM (Chebyshev) UCL	5.236
2556				Theta star	0.187						
2557				Nu star	322.2					**Potential UCLs to Use**	
2558				AppChi2	281.6					95% KM (t) UCL	3.397
2559				95% Gamma Approximate UCL	3.443					95% KM (Percentile Bootstrap) UCL	3.356
2560				95% Adjusted Gamma UCL	3.525						
2561	**Note: DL/2 is not a recommended method.**										
2562											
2563											
2564	**Hexachlorobutadiene**										
2565											
2566					**General Statistics**						
2567				Number of Valid Data	9					Number of Detected Data	9
2568				Number of Distinct Detected Data	9					Number of Non-Detect Data	0
2569				Number of Missing Values	6					Percent Non-Detects	0.00%
2570											
2571				**Raw Statistics**						**Log-transformed Statistics**	
2572				Minimum Detected	0.00475					Minimum Detected	-5.349
2573				Maximum Detected	0.263					Maximum Detected	-1.334
2574				Mean of Detected	0.0789					Mean of Detected	-3.229
2575				SD of Detected	0.0924					SD of Detected	1.306
2576				Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2577				Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2578											
2579											
2580	**Warning: There are only 9 Detected Values in this data**										
2581	**Note: It should be noted that even though bootstrap may be performed on this data set**										
2582	**the resulting calculations may not be reliable enough tp draw conclusions**										
2583											
2584	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**										
2585											
2586											
2587					**UCL Statistics**						
2588	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**	
2589				Shapiro Wilk Test Statistic	0.78					Shapiro Wilk Test Statistic	0.94
2590				5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
2591	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**	
2592											
2593	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**	
2594				DL/2 Substitution Method						DL/2 Substitution Method	
2595				Mean	0.0789					Mean	-3.229
2596				SD	0.0924					SD	1.306
2597				95% DL/2 (t) UCL	0.136					95% H-Stat (DL/2) UCL	0.578

2598												
2599					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2600					**MLE method failed to converge properly**						Mean in Log Scale	N/A
2601											SD in Log Scale	N/A
2602											Mean in Original Scale	N/A
2603											SD in Original Scale	N/A
2604											95% Percentile Bootstrap UCL	N/A
2605											95% BCA Bootstrap UCL	N/A
2606												
2607					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2608					k star (bias corrected)	0.643					**Data appear Gamma Distributed at 5% Significance Level**	
2609					Theta Star	0.123						
2610					nu star	11.58						
2611												
2612					A-D Test Statistic	0.5					**Nonparametric Statistics**	
2613					5% A-D Critical Value	0.748					Kaplan-Meier (KM) Method	
2614					K-S Test Statistic	0.748					Mean	0.0789
2615					5% K-S Critical Value	0.288					SD	0.0871
2616					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0308
2617											95% KM (t) UCL	0.136
2618					**Assuming Gamma Distribution**						95% KM (z) UCL	0.13
2619					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.136
2620					Minimum	0.00475					95% KM (bootstrap t) UCL	0.189
2621					Maximum	0.263					95% KM (BCA) UCL	0.131
2622					Mean	0.0789					95% KM (Percentile Bootstrap) UCL	0.129
2623					Median	0.0267					95% KM (Chebyshev) UCL	0.213
2624					SD	0.0924					97.5% KM (Chebyshev) UCL	0.271
2625					k star	0.643					99% KM (Chebyshev) UCL	0.385
2626					Theta star	0.123						
2627					Nu star	11.58					**Potential UCLs to Use**	
2628					AppChi2	4.949					95% KM (Chebyshev) UCL	0.213
2629					95% Gamma Approximate UCL	0.185						
2630					95% Adjusted Gamma UCL	0.224						
2631	**Note: DL/2 is not a recommended method.**											
2632												
2633												
2634	**Indeno(1,2,3-cd)pyrene**											
2635												
2636							**General Statistics**					
2637					Number of Valid Data	7					Number of Detected Data	2
2638					Number of Distinct Detected Data	2					Number of Non-Detect Data	5
2639					Number of Missing Values	8					Percent Non-Detects	71.43%
2640												
2641					**Raw Statistics**						**Log-transformed Statistics**	
2642					Minimum Detected	0.271					Minimum Detected	-1.305
2643					Maximum Detected	0.596					Maximum Detected	-0.517
2644					Mean of Detected	0.434					Mean of Detected	-0.911
2645					SD of Detected	0.23					SD of Detected	0.557
2646					Minimum Non-Detect	0.064					Minimum Non-Detect	-2.749
2647					Maximum Non-Detect	0.488					Maximum Non-Detect	-0.717
2648												
2649	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
2650	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1

2651	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	85.71%
2652												
2653	**Warning: Data set has only 2 Distinct Detected Values.**											
2654	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
2655	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
2656												
2657	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
2658												
2659	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
2660	**Those methods will return a 'N/A' value on your output display!**											
2661												
2662	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
2663	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
2664												
2665												
2666	**UCL Statistics**											
2667	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2668	Shapiro Wilk Test Statistic				1		Shapiro Wilk Test Statistic					1
2669	5% Shapiro Wilk Critical Value				N/A		5% Shapiro Wilk Critical Value					N/A
2670	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2671												
2672	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2673	DL/2 Substitution Method						DL/2 Substitution Method					
2674	Mean				0.233		Mean					-1.753
2675	SD				0.182		SD					0.917
2676	95% DL/2 (t) UCL				0.367		95% H-Stat (DL/2) UCL					0.94
2677												
2678	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
2679	**MLE method failed to converge properly**						Mean in Log Scale					N/A
2680							SD in Log Scale					N/A
2681							Mean in Original Scale					N/A
2682							SD in Original Scale					N/A
2683							95% Percentile Bootstrap UCL					N/A
2684							95% BCA Bootstrap UCL					N/A
2685												
2686	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2687	k star (bias corrected)				N/A		**Data do not follow a Discernable Distribution (0.05)**					
2688	Theta Star				N/A							
2689	nu star				N/A							
2690												
2691	A-D Test Statistic				0.359		**Nonparametric Statistics**					
2692	5% A-D Critical Value				N/A		Kaplan-Meier (KM) Method					
2693	K-S Test Statistic				N/A		Mean					0.318
2694	5% K-S Critical Value				N/A		SD					0.114
2695	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0608
2696							95% KM (t) UCL					0.436
2697	**Assuming Gamma Distribution**						95% KM (z) UCL					0.418
2698	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.56
2699	Minimum				N/A		95% KM (bootstrap t) UCL					1.8E+308
2700	Maximum				N/A		95% KM (BCA) UCL					N/A
2701	Mean				N/A		95% KM (Percentile Bootstrap) UCL					0.596
2702	Median				N/A		95% KM (Chebyshev) UCL					0.583
2703	SD				N/A		97.5% KM (Chebyshev) UCL					0.697

2704					k star	N/A					99% KM (Chebyshev) UCL	0.923
2705					Theta star	N/A						
2706					Nu star	N/A					**Potential UCLs to Use**	
2707					AppChi2	N/A					95% KM (t) UCL	0.436
2708					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	0.596
2709					95% Adjusted Gamma UCL	N/A						
2710	**Note: DL/2 is not a recommended method.**											
2711												
2712												
2713	**Isophorone**											
2714												
2715	**General Statistics**											
2716					Number of Valid Data	3					Number of Detected Data	3
2717					Number of Distinct Detected Data	3					Number of Non-Detect Data	0
2718					Number of Missing Values	11					Percent Non-Detects	0.00%
2719												
2720	**Warning: This data set only has 3 observations!**											
2721	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
2722	**The data set for variable Isophorone was not processed!**											
2723												
2724	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
2725	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
2726												
2727												
2728												
2729	**Lead**											
2730												
2731	**General Statistics**											
2732					Number of Valid Observations	15					Number of Distinct Observations	15
2733												
2734	**Raw Statistics**						**Log-transformed Statistics**					
2735					Minimum	0.0822					Minimum of Log Data	-2.499
2736					Maximum	1.086					Maximum of Log Data	0.0826
2737					Mean	0.203					Mean of log Data	-1.863
2738					Median	0.133					SD of log Data	0.596
2739					SD	0.247						
2740					Coefficient of Variation	1.219						
2741					Skewness	3.738						
2742												
2743	**Relevant UCL Statistics**											
2744	**Normal Distribution Test**						**Lognormal Distribution Test**					
2745					Shapiro Wilk Test Statistic	0.415					Shapiro Wilk Test Statistic	0.706
2746					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
2747	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2748												
2749	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2750					95% Student's-t UCL	0.315					95% H-UCL	0.262
2751	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.31
2752					95% Adjusted-CLT UCL	0.373					97.5% Chebyshev (MVUE) UCL	0.366
2753					95% Modified-t UCL	0.325					99% Chebyshev (MVUE) UCL	0.474
2754												
2755	**Gamma Distribution Test**						**Data Distribution**					
2756					k star (bias corrected)	1.666	**Data do not follow a Discernable Distribution (0.05)**					

2757					Theta Star	0.122						
2758					nu star	49.99						
2759					Approximate Chi Square Value (.05)	34.76				**Nonparametric Statistics**		
2760					Adjusted Level of Significance	0.0324					95% CLT UCL	0.307
2761					Adjusted Chi Square Value	33.2					95% Jackknife UCL	0.315
2762											95% Standard Bootstrap UCL	0.304
2763					Anderson-Darling Test Statistic	2.346					95% Bootstrap-t UCL	0.799
2764					Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	0.765
2765					Kolmogorov-Smirnov Test Statistic	0.329					95% Percentile Bootstrap UCL	0.326
2766					Kolmogorov-Smirnov 5% Critical Value	0.224					95% BCA Bootstrap UCL	0.392
2767					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.481
2768											97.5% Chebyshev(Mean, Sd) UCL	0.601
2769					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.837
2770					95% Approximate Gamma UCL	0.291						
2771					95% Adjusted Gamma UCL	0.305						
2772												
2773					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	0.481
2774												
2775												
2776	**Manganese**											
2777												
2778					**General Statistics**							
2779					Number of Valid Observations	15					Number of Distinct Observations	15
2780												
2781					**Raw Statistics**						**Log-transformed Statistics**	
2782					Minimum	4.65					Minimum of Log Data	1.537
2783					Maximum	8.53					Maximum of Log Data	2.144
2784					Mean	6.355					Mean of log Data	1.836
2785					Median	6.217					SD of log Data	0.166
2786					SD	1.053						
2787					Coefficient of Variation	0.166						
2788					Skewness	0.365						
2789												
2790					**Relevant UCL Statistics**							
2791					**Normal Distribution Test**						**Lognormal Distribution Test**	
2792					Shapiro Wilk Test Statistic	0.971					Shapiro Wilk Test Statistic	0.976
2793					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
2794					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2795												
2796					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2797					95% Student's-t UCL	6.834					95% H-UCL	6.886
2798					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	7.546
2799					95% Adjusted-CLT UCL	6.83					97.5% Chebyshev (MVUE) UCL	8.061
2800					95% Modified-t UCL	6.838					99% Chebyshev (MVUE) UCL	9.074
2801												
2802					**Gamma Distribution Test**						**Data Distribution**	
2803					k star (bias corrected)	31.44					**Data appear Normal at 5% Significance Level**	
2804					Theta Star	0.202						
2805					nu star	943.3						
2806					Approximate Chi Square Value (.05)	873				**Nonparametric Statistics**		
2807					Adjusted Level of Significance	0.0324					95% CLT UCL	6.802
2808					Adjusted Chi Square Value	864.7					95% Jackknife UCL	6.834
2809											95% Standard Bootstrap UCL	6.791

2810				Anderson-Darling Test Statistic	0.209					95% Bootstrap-t UCL	6.852	
2811				Anderson-Darling 5% Critical Value	0.735					95% Hall's Bootstrap UCL	6.878	
2812				Kolmogorov-Smirnov Test Statistic	0.129					95% Percentile Bootstrap UCL	6.797	
2813				Kolmogorov-Smirnov 5% Critical Value	0.221					95% BCA Bootstrap UCL	6.794	
2814				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	7.54	
2815										97.5% Chebyshev(Mean, Sd) UCL	8.053	
2816				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	9.06	
2817				95% Approximate Gamma UCL	6.867							
2818				95% Adjusted Gamma UCL	6.933							
2819												
2820				**Potential UCL to Use**						Use 95% Student's-t UCL	6.834	
2821												
2822												
2823	**Mercury**											
2824												
2825				**General Statistics**								
2826				Number of Valid Observations	15					Number of Distinct Observations	14	
2827												
2828				**Raw Statistics**						**Log-transformed Statistics**		
2829				Minimum	0.029					Minimum of Log Data	-3.54	
2830				Maximum	0.0571					Maximum of Log Data	-2.863	
2831				Mean	0.0447					Mean of log Data	-3.127	
2832				Median	0.0466					SD of log Data	0.211	
2833				SD	0.00878							
2834				Coefficient of Variation	0.196							
2835				Skewness	-0.456							
2836												
2837				**Relevant UCL Statistics**								
2838				**Normal Distribution Test**						**Lognormal Distribution Test**		
2839				Shapiro Wilk Test Statistic	0.946					Shapiro Wilk Test Statistic	0.915	
2840				Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881	
2841				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
2842												
2843				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
2844				95% Student's-t UCL	0.0487					95% H-UCL	0.0497	
2845				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.0555	
2846				95% Adjusted-CLT UCL	0.0482					97.5% Chebyshev (MVUE) UCL	0.0601	
2847				95% Modified-t UCL	0.0487					99% Chebyshev (MVUE) UCL	0.0692	
2848												
2849				**Gamma Distribution Test**						**Data Distribution**		
2850				k star (bias corrected)	20.41					**Data appear Normal at 5% Significance Level**		
2851				Theta Star	0.00219							
2852				nu star	612.4							
2853				Approximate Chi Square Value (.05)	556					**Nonparametric Statistics**		
2854				Adjusted Level of Significance	0.0324					95% CLT UCL	0.0484	
2855				Adjusted Chi Square Value	549.3					95% Jackknife UCL	0.0487	
2856										95% Standard Bootstrap UCL	0.0483	
2857				Anderson-Darling Test Statistic	0.398					95% Bootstrap-t UCL	0.0485	
2858				Anderson-Darling 5% Critical Value	0.735					95% Hall's Bootstrap UCL	0.0481	
2859				Kolmogorov-Smirnov Test Statistic	0.143					95% Percentile Bootstrap UCL	0.0482	
2860				Kolmogorov-Smirnov 5% Critical Value	0.221					95% BCA Bootstrap UCL	0.0481	
2861				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.0546	
2862										97.5% Chebyshev(Mean, Sd) UCL	0.0589	

2863	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.0673
2864					95% Approximate Gamma UCL	0.0492						
2865					95% Adjusted Gamma UCL	0.0498						
2866												
2867	**Potential UCL to Use**										Use 95% Student's-t UCL	0.0487
2868												
2869												
2870	**Methoxychlor**											
2871												
2872	**General Statistics**											
2873					Number of Valid Data	11					Number of Detected Data	2
2874					Number of Distinct Detected Data	2					Number of Non-Detect Data	9
2875					Number of Missing Values	4					Percent Non-Detects	81.82%
2876												
2877	**Raw Statistics**										**Log-transformed Statistics**	
2878					Minimum Detected	0.00618					Minimum Detected	-5.086
2879					Maximum Detected	4.2					Maximum Detected	1.435
2880					Mean of Detected	2.103					Mean of Detected	-1.826
2881					SD of Detected	2.965					SD of Detected	4.611
2882					Minimum Non-Detect	0.00216					Minimum Non-Detect	-6.137
2883					Maximum Non-Detect	4					Maximum Non-Detect	1.386
2884												
2885	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
2886	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
2887	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	90.91%
2888												
2889	**Warning: Data set has only 2 Distinct Detected Values.**											
2890	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
2891	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
2892												
2893	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
2894												
2895	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
2896	**Those methods will return a 'N/A' value on your output display!**											
2897												
2898	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
2899	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
2900												
2901												
2902	**UCL Statistics**											
2903	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
2904					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
2905					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
2906	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	
2907												
2908	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
2909					DL/2 Substitution Method						DL/2 Substitution Method	
2910					Mean	0.572					Mean	-3.831
2911					SD	1.343					SD	2.583
2912					95% DL/2 (t) UCL	1.306					95% H-Stat (DL/2) UCL	49.32
2913												
2914					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2915	**MLE method failed to converge properly**										Mean in Log Scale	N/A

2916											SD in Log Scale	N/A
2917											Mean in Original Scale	N/A
2918											SD in Original Scale	N/A
2919											95% Percentile Bootstrap UCL	N/A
2920											95% BCA Bootstrap UCL	N/A
2921												
2922	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2923					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
2924					Theta Star	N/A						
2925					nu star	N/A						
2926												
2927					A-D Test Statistic	0.364	**Nonparametric Statistics**					
2928					5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method					
2929					K-S Test Statistic	N/A	Mean	0.387				
2930					5% K-S Critical Value	N/A	SD	1.206				
2931	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.514				
2932							95% KM (t) UCL	1.319				
2933	**Assuming Gamma Distribution**						95% KM (z) UCL	1.233				
2934	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.282				
2935					Minimum	N/A	95% KM (bootstrap t) UCL	0.387				
2936					Maximum	N/A	95% KM (BCA) UCL	4.2				
2937					Mean	N/A	95% KM (Percentile Bootstrap) UCL	4.2				
2938					Median	N/A	95% KM (Chebyshev) UCL	2.628				
2939					SD	N/A	97.5% KM (Chebyshev) UCL	3.598				
2940					k star	N/A	99% KM (Chebyshev) UCL	5.503				
2941					Theta star	N/A						
2942					Nu star	N/A	**Potential UCLs to Use**					
2943					AppChi2	N/A	99% KM (Chebyshev) UCL	5.503				
2944					95% Gamma Approximate UCL	N/A						
2945					95% Adjusted Gamma UCL	N/A						
2946	**Warning: Recommended UCL exceeds the maximum observation**											
2947	**Note: DL/2 is not a recommended method.**											
2948												
2949												
2950	**Naphthalene**											
2951												
2952	**General Statistics**											
2953					Number of Valid Data	15	Number of Detected Data	7				
2954					Number of Distinct Detected Data	7	Number of Non-Detect Data	8				
2955							Percent Non-Detects	53.33%				
2956												
2957	**Raw Statistics**						**Log-transformed Statistics**					
2958					Minimum Detected	2.525	Minimum Detected	0.926				
2959					Maximum Detected	56	Maximum Detected	4.025				
2960					Mean of Detected	19.78	Mean of Detected	2.392				
2961					SD of Detected	21.96	SD of Detected	1.206				
2962					Minimum Non-Detect	2	Minimum Non-Detect	0.693				
2963					Maximum Non-Detect	33	Maximum Non-Detect	3.497				
2964												
2965	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	13				
2966	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	2				
2967	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	86.67%				
2968												

	A	B	C	D	E	F	G	H	I	J	K	L
2969	**Warning: There are only 7 Detected Values in this data**											
2970	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2971	**the resulting calculations may not be reliable enough tp draw conclusions**											
2972												
2973	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2974												
2975												
2976	**UCL Statistics**											
2977	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2978	Shapiro Wilk Test Statistic					0.78	Shapiro Wilk Test Statistic					0.923
2979	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
2980	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2981												
2982	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2983	DL/2 Substitution Method						DL/2 Substitution Method					
2984	Mean					13.89	Mean					1.931
2985	SD					16.44	SD					1.317
2986	95% DL/2 (t) UCL					21.37	95% H-Stat (DL/2) UCL					40.72
2987												
2988	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2989	**MLE method failed to converge properly**						Mean in Log Scale					1.333
2990							SD in Log Scale					1.422
2991							Mean in Original Scale					10.35
2992							SD in Original Scale					17.09
2993							95% Percentile Bootstrap UCL					18.03
2994							95% BCA Bootstrap UCL					20.19
2995												
2996	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2997	k star (bias corrected)					0.653	**Data appear Gamma Distributed at 5% Significance Level**					
2998	Theta Star					30.3						
2999	nu star					9.142						
3000												
3001	A-D Test Statistic					0.443	**Nonparametric Statistics**					
3002	5% A-D Critical Value					0.728	Kaplan-Meier (KM) Method					
3003	K-S Test Statistic					0.728	Mean					11.3
3004	5% K-S Critical Value					0.32	SD					16.17
3005	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					4.571
3006							95% KM (t) UCL					19.35
3007	**Assuming Gamma Distribution**						95% KM (z) UCL					18.82
3008	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					18.83
3009	Minimum					2.525	95% KM (bootstrap t) UCL					30.66
3010	Maximum					56	95% KM (BCA) UCL					21.07
3011	Mean					18.89	95% KM (Percentile Bootstrap) UCL					19.82
3012	Median					10.93	95% KM (Chebyshev) UCL					31.22
3013	SD					17.16	97.5% KM (Chebyshev) UCL					39.85
3014	k star					1.186	99% KM (Chebyshev) UCL					56.78
3015	Theta star					15.93						
3016	Nu star					35.58	**Potential UCLs to Use**					
3017	AppChi2					22.93	95% KM (t) UCL					19.35
3018	95% Gamma Approximate UCL					29.32						
3019	95% Adjusted Gamma UCL					31						
3020	**Note: DL/2 is not a recommended method.**											
3021												

3022												
3023	**Nickel**											
3024												
3025						**General Statistics**						
3026					Number of Valid Observations	15				Number of Distinct Observations	15	
3027												
3028				**Raw Statistics**					**Log-transformed Statistics**			
3029					Minimum	0.279				Minimum of Log Data	-1.275	
3030					Maximum	1.37				Maximum of Log Data	0.315	
3031					Mean	0.562				Mean of log Data	-0.664	
3032					Median	0.513				SD of log Data	0.416	
3033					SD	0.272						
3034					Coefficient of Variation	0.485						
3035					Skewness	2.002						
3036												
3037						**Relevant UCL Statistics**						
3038				**Normal Distribution Test**					**Lognormal Distribution Test**			
3039					Shapiro Wilk Test Statistic	0.81				Shapiro Wilk Test Statistic	0.949	
3040					Shapiro Wilk Critical Value	0.881				Shapiro Wilk Critical Value	0.881	
3041				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
3042												
3043				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
3044					95% Student's-t UCL	0.686				95% H-UCL	0.7	
3045				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.825	
3046					95% Adjusted-CLT UCL	0.716				97.5% Chebyshev (MVUE) UCL	0.94	
3047					95% Modified-t UCL	0.692				99% Chebyshev (MVUE) UCL	1.167	
3048												
3049				**Gamma Distribution Test**					**Data Distribution**			
3050					k star (bias corrected)	4.768			**Data appear Gamma Distributed at 5% Significance Level**			
3051					Theta Star	0.118						
3052					nu star	143						
3053					Approximate Chi Square Value (.05)	116.4			**Nonparametric Statistics**			
3054					Adjusted Level of Significance	0.0324				95% CLT UCL	0.678	
3055					Adjusted Chi Square Value	113.5				95% Jackknife UCL	0.686	
3056										95% Standard Bootstrap UCL	0.671	
3057					Anderson-Darling Test Statistic	0.436				95% Bootstrap-t UCL	0.772	
3058					Anderson-Darling 5% Critical Value	0.738				95% Hall's Bootstrap UCL	1.261	
3059					Kolmogorov-Smirnov Test Statistic	0.167				95% Percentile Bootstrap UCL	0.691	
3060					Kolmogorov-Smirnov 5% Critical Value	0.222				95% BCA Bootstrap UCL	0.725	
3061				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.868	
3062										97.5% Chebyshev(Mean, Sd) UCL	1.001	
3063				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1.261	
3064					95% Approximate Gamma UCL	0.69						
3065					95% Adjusted Gamma UCL	0.708						
3066												
3067				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	0.69	
3068												
3069												
3070	**Phenanthrene**											
3071												
3072						**General Statistics**						
3073					Number of Valid Data	9				Number of Detected Data	5	
3074					Number of Distinct Detected Data	5				Number of Non-Detect Data	4	

3075					Number of Missing Values	6					Percent Non-Detects	44.44%
3076												
3077				**Raw Statistics**						**Log-transformed Statistics**		
3078					Minimum Detected	2.672					Minimum Detected	0.983
3079					Maximum Detected	15.58					Maximum Detected	2.746
3080					Mean of Detected	9.958					Mean of Detected	2.141
3081					SD of Detected	5.093					SD of Detected	0.702
3082					Minimum Non-Detect	2.342					Minimum Non-Detect	0.851
3083					Maximum Non-Detect	8.473					Maximum Non-Detect	2.137
3084												
3085	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
3086	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
3087	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	66.67%
3088												
3089	**Warning: There are only 5 Detected Values in this data**											
3090	**Note: It should be noted that even though bootstrap may be performed on this data set**											
3091	**the resulting calculations may not be reliable enough tp draw conclusions**											
3092												
3093	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
3094												
3095												
3096	**UCL Statistics**											
3097	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
3098					Shapiro Wilk Test Statistic	0.965					Shapiro Wilk Test Statistic	0.868
3099					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
3100	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
3101												
3102	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
3103					DL/2 Substitution Method						DL/2 Substitution Method	
3104					Mean	6.583					Mean	1.521
3105					SD	5.446					SD	0.949
3106					95% DL/2 (t) UCL	9.959					95% H-Stat (DL/2) UCL	14.48
3107												
3108					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
3109					Mean	13.25					Mean in Log Scale	1.535
3110					SD	2.383					SD in Log Scale	0.893
3111					95% MLE (t) UCL	14.73					Mean in Original Scale	6.531
3112					95% MLE (Tiku) UCL	15.79					SD in Original Scale	5.442
3113											95% Percentile Bootstrap UCL	9.46
3114											95% BCA Bootstrap UCL	9.952
3115												
3116	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
3117					k star (bias corrected)	1.469				**Data appear Normal at 5% Significance Level**		
3118					Theta Star	6.779						
3119					nu star	14.69						
3120												
3121					A-D Test Statistic	0.338				**Nonparametric Statistics**		
3122					5% A-D Critical Value	0.682					Kaplan-Meier (KM) Method	
3123					K-S Test Statistic	0.682					Mean	6.835
3124					5% K-S Critical Value	0.359					SD	4.928
3125	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.858
3126											95% KM (t) UCL	10.29
3127	**Assuming Gamma Distribution**										95% KM (z) UCL	9.892

3128	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		10.62
3129					Minimum	2.672				95% KM (bootstrap t) UCL		9.717
3130					Maximum	15.58				95% KM (BCA) UCL		13.99
3131					Mean	9.201				95% KM (Percentile Bootstrap) UCL		11.77
3132					Median	8.702				95% KM (Chebyshev) UCL		14.94
3133					SD	3.904				97.5% KM (Chebyshev) UCL		18.44
3134					k star	3.427				99% KM (Chebyshev) UCL		25.32
3135					Theta star	2.685						
3136					Nu star	61.68				**Potential UCLs to Use**		
3137					AppChi2	44.62				95% KM (t) UCL		10.29
3138				95% Gamma Approximate UCL		12.72				95% KM (Percentile Bootstrap) UCL		11.77
3139				95% Adjusted Gamma UCL		13.65						
3140	**Note: DL/2 is not a recommended method.**											
3141												
3142												
3143	**Phenol**											
3144												
3145	**General Statistics**											
3146				Number of Valid Data		1				Number of Detected Data		1
3147				Number of Distinct Detected Data		1				Number of Non-Detect Data		0
3148				Number of Missing Values		6				Percent Non-Detects		0.00%
3149												
3150	**Warning: This data set only has 1 observations!**											
3151	**Data set is too small to compute reliable and meaningful statistics and estimates!**											
3152	**The data set for variable Phenol was not processed!**											
3153												
3154	**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**											
3155	**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
3156												
3157												
3158												
3159	**Pyrene**											
3160												
3161	**General Statistics**											
3162				Number of Valid Data		9				Number of Detected Data		9
3163				Number of Distinct Detected Data		9				Number of Non-Detect Data		0
3164				Number of Missing Values		6				Percent Non-Detects		0.00%
3165												
3166	**Raw Statistics**									**Log-transformed Statistics**		
3167				Minimum Detected		0.337				Minimum Detected		-1.087
3168				Maximum Detected		7.262				Maximum Detected		1.983
3169				Mean of Detected		2.008				Mean of Detected		0.269
3170				SD of Detected		2.139				SD of Detected		0.992
3171				Minimum Non-Detect		N/A				Minimum Non-Detect		N/A
3172				Maximum Non-Detect		N/A				Maximum Non-Detect		N/A
3173												
3174												
3175	**Warning: There are only 9 Detected Values in this data**											
3176	**Note: It should be noted that even though bootstrap may be performed on this data set**											
3177	**the resulting calculations may not be reliable enough tp draw conclusions**											
3178												
3179	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
3180												

	A	B	C	D	E	F	G	H	I	J	K	L
3181												
3182	**UCL Statistics**											
3183	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3184	Shapiro Wilk Test Statistic					0.744	Shapiro Wilk Test Statistic					0.958
3185	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
3186	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3187												
3188	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3189	DL/2 Substitution Method						DL/2 Substitution Method					
3190	Mean					2.008	Mean					0.269
3191	SD					2.139	SD					0.992
3192	95% DL/2 (t) UCL					3.334	95% H-Stat (DL/2) UCL					6.624
3193												
3194	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
3195	**MLE method failed to converge properly**						Mean in Log Scale					N/A
3196							SD in Log Scale					N/A
3197							Mean in Original Scale					N/A
3198							SD in Original Scale					N/A
3199							95% Percentile Bootstrap UCL					N/A
3200							95% BCA Bootstrap UCL					N/A
3201												
3202	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3203	k star (bias corrected)					0.946	**Data appear Gamma Distributed at 5% Significance Level**					
3204	Theta Star					2.122						
3205	nu star					17.03						
3206												
3207	A-D Test Statistic					0.289	**Nonparametric Statistics**					
3208	5% A-D Critical Value					0.738	Kaplan-Meier (KM) Method					
3209	K-S Test Statistic					0.738	Mean					2.008
3210	5% K-S Critical Value					0.285	SD					2.017
3211	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.713
3212							95% KM (t) UCL					3.334
3213	**Assuming Gamma Distribution**						95% KM (z) UCL					3.181
3214	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3.334
3215	Minimum					0.337	95% KM (bootstrap t) UCL					4.755
3216	Maximum					7.262	95% KM (BCA) UCL					3.363
3217	Mean					2.008	95% KM (Percentile Bootstrap) UCL					3.235
3218	Median					1.404	95% KM (Chebyshev) UCL					5.116
3219	SD					2.139	97.5% KM (Chebyshev) UCL					6.46
3220	k star					0.946	99% KM (Chebyshev) UCL					9.102
3221	Theta star					2.122						
3222	Nu star					17.03	**Potential UCLs to Use**					
3223	AppChi2					8.696	95% KM (Chebyshev) UCL					5.116
3224	95% Gamma Approximate UCL					3.933						
3225	95% Adjusted Gamma UCL					4.576						
3226	**Note: DL/2 is not a recommended method.**											
3227												
3228												
3229	**Selenium**											
3230												
3231	**General Statistics**											
3232	Number of Valid Observations					15	Number of Distinct Observations					11
3233												

	A	B	C	D	E	F	G	H	I	J	K	L
3234	**Raw Statistics**						**Log-transformed Statistics**					
3235					Minimum	0.275					Minimum of Log Data	-1.292
3236					Maximum	0.4					Maximum of Log Data	-0.916
3237					Mean	0.319					Mean of log Data	-1.148
3238					Median	0.3					SD of log Data	0.108
3239					SD	0.0362						
3240					Coefficient of Variation	0.113						
3241					Skewness	1.218						
3242												
3243	**Relevant UCL Statistics**											
3244	**Normal Distribution Test**						**Lognormal Distribution Test**					
3245					Shapiro Wilk Test Statistic	0.819					Shapiro Wilk Test Statistic	0.84
3246					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
3247	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3248												
3249	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3250					95% Student's-t UCL	0.336					95% H-UCL	0.336
3251	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.358
3252					95% Adjusted-CLT UCL	0.338					97.5% Chebyshev (MVUE) UCL	0.375
3253					95% Modified-t UCL	0.336					99% Chebyshev (MVUE) UCL	0.408
3254												
3255	**Gamma Distribution Test**						**Data Distribution**					
3256					k star (bias corrected)	71.4	**Data do not follow a Discernable Distribution (0.05)**					
3257					Theta Star	0.00447						
3258					nu star	2142						
3259					Approximate Chi Square Value (.05)	2036	**Nonparametric Statistics**					
3260					Adjusted Level of Significance	0.0324					95% CLT UCL	0.334
3261					Adjusted Chi Square Value	2023					95% Jackknife UCL	0.336
3262											95% Standard Bootstrap UCL	0.334
3263					Anderson-Darling Test Statistic	1.286					95% Bootstrap-t UCL	0.342
3264					Anderson-Darling 5% Critical Value	0.734					95% Hall's Bootstrap UCL	0.336
3265					Kolmogorov-Smirnov Test Statistic	0.282					95% Percentile Bootstrap UCL	0.335
3266					Kolmogorov-Smirnov 5% Critical Value	0.221					95% BCA Bootstrap UCL	0.338
3267	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.36
3268											97.5% Chebyshev(Mean, Sd) UCL	0.377
3269	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.412
3270					95% Approximate Gamma UCL	0.336						
3271					95% Adjusted Gamma UCL	0.338						
3272												
3273	**Potential UCL to Use**										Use 95% Student's-t UCL	0.336
3274											or 95% Modified-t UCL	0.336
3275												
3276												
3277	**Silver**											
3278												
3279	**General Statistics**											
3280					Number of Valid Data	15					Number of Detected Data	13
3281					Number of Distinct Detected Data	13					Number of Non-Detect Data	2
3282											Percent Non-Detects	13.33%
3283												
3284	**Raw Statistics**						**Log-transformed Statistics**					
3285					Minimum Detected	0.00272					Minimum Detected	-5.908
3286					Maximum Detected	0.0165					Maximum Detected	-4.104

	A	B	C	D	E	F	G	H	I	J	K	L
3287					Mean of Detected	0.00744					Mean of Detected	-5.075
3288					SD of Detected	0.00468					SD of Detected	0.612
3289					Minimum Non-Detect	0.0052					Minimum Non-Detect	-5.259
3290					Maximum Non-Detect	0.0053					Maximum Non-Detect	-5.24
3291												
3292	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	7
3293	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	8
3294	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	46.67%
3295												
3296	**UCL Statistics**											
3297	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3298					Shapiro Wilk Test Statistic	0.865					Shapiro Wilk Test Statistic	0.939
3299					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
3300	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3301												
3302	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3303					DL/2 Substitution Method						DL/2 Substitution Method	
3304					Mean	0.0068					Mean	-5.191
3305					SD	0.00465					SD	0.644
3306					95% DL/2 (t) UCL	0.00892					95% H-Stat (DL/2) UCL	0.0109
3307												
3308					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
3309					Mean	0.00551					Mean in Log Scale	-5.152
3310					SD	0.00608					SD in Log Scale	0.602
3311					95% MLE (t) UCL	0.00828					Mean in Original Scale	0.00692
3312					95% MLE (Tiku) UCL	0.00881					SD in Original Scale	0.00455
3313											95% Percentile Bootstrap UCL	0.00899
3314											95% BCA Bootstrap UCL	0.00915
3315												
3316	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3317					k star (bias corrected)	2.37	**Data appear Gamma Distributed at 5% Significance Level**					
3318					Theta Star	0.00314						
3319					nu star	61.62						
3320												
3321					A-D Test Statistic	0.423	**Nonparametric Statistics**					
3322					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
3323					K-S Test Statistic	0.739					Mean	0.00692
3324					5% K-S Critical Value	0.238					SD	0.0044
3325	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.00119
3326											95% KM (t) UCL	0.00901
3327	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00887
3328					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.009
3329					Minimum	0.00272					95% KM (bootstrap t) UCL	0.00945
3330					Maximum	0.0165					95% KM (BCA) UCL	0.00895
3331					Mean	0.00703					95% KM (Percentile Bootstrap) UCL	0.00885
3332					Median	0.00538					95% KM (Chebyshev) UCL	0.0121
3333					SD	0.00447					97.5% KM (Chebyshev) UCL	0.0143
3334					k star	2.578					99% KM (Chebyshev) UCL	0.0187
3335					Theta star	0.00273						
3336					Nu star	77.33	**Potential UCLs to Use**					
3337					AppChi2	58.07					95% KM (BCA) UCL	0.00895
3338					95% Gamma Approximate UCL	0.00936						
3339					95% Adjusted Gamma UCL	0.00971						

	A	B	C	D	E	F	G	H	I	J	K	L
3340	**Note: DL/2 is not a recommended method.**											
3341												
3342												
3343	**Thallium**											
3344												
3345	**General Statistics**											
3346	Number of Valid Observations					15	Number of Distinct Observations					15
3347												
3348	**Raw Statistics**						**Log-transformed Statistics**					
3349	Minimum					0.0006139	Minimum of Log Data					-7.396
3350	Maximum					0.00544	Maximum of Log Data					-5.213
3351	Mean					0.00248	Mean of log Data					-6.282
3352	Median					0.0016	SD of log Data					0.799
3353	SD					0.00182						
3354	Coefficient of Variation					0.733						
3355	Skewness					0.549						
3356												
3357	**Relevant UCL Statistics**											
3358	**Normal Distribution Test**						**Lognormal Distribution Test**					
3359	Shapiro Wilk Test Statistic					0.839	Shapiro Wilk Test Statistic					0.891
3360	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881
3361	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3362												
3363	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3364	95% Student's-t UCL					0.00331	95% H-UCL					0.00434
3365	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.00491
3366	95% Adjusted-CLT UCL					0.00333	97.5% Chebyshev (MVUE) UCL					0.00595
3367	95% Modified-t UCL					0.00332	99% Chebyshev (MVUE) UCL					0.008
3368												
3369	**Gamma Distribution Test**						**Data Distribution**					
3370	k star (bias corrected)					1.577	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
3371	Theta Star					0.00157						
3372	nu star					47.32						
3373	Approximate Chi Square Value (.05)					32.54	**Nonparametric Statistics**					
3374	Adjusted Level of Significance					0.0324	95% CLT UCL					0.00325
3375	Adjusted Chi Square Value					31.03	95% Jackknife UCL					0.00331
3376							95% Standard Bootstrap UCL					0.00322
3377	Anderson-Darling Test Statistic					0.781	95% Bootstrap-t UCL					0.00342
3378	Anderson-Darling 5% Critical Value					0.748	95% Hall's Bootstrap UCL					0.00319
3379	Kolmogorov-Smirnov Test Statistic					0.196	95% Percentile Bootstrap UCL					0.00325
3380	Kolmogorov-Smirnov 5% Critical Value					0.225	95% BCA Bootstrap UCL					0.00332
3381	**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.00453
3382							97.5% Chebyshev(Mean, Sd) UCL					0.00541
3383	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.00715
3384	95% Approximate Gamma UCL					0.00361						
3385	95% Adjusted Gamma UCL					0.00379						
3386												
3387	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					0.00361
3388												
3389												
3390	**Total Aroclors**											
3391												
3392	**General Statistics**											

3393					Number of Valid Data	6					Number of Detected Data	6
3394					Number of Distinct Detected Data	6					Number of Non-Detect Data	0
3395					Number of Missing Values	4					Percent Non-Detects	0.00%
3396												
3397					**Raw Statistics**						**Log-transformed Statistics**	
3398					Minimum Detected	230					Minimum Detected	5.438
3399					Maximum Detected	6865					Maximum Detected	8.834
3400					Mean of Detected	1728					Mean of Detected	6.77
3401					SD of Detected	2545					SD of Detected	1.209
3402					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
3403					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
3404												
3405												
3406					**Warning: There are only 6 Detected Values in this data**							
3407					**Note: It should be noted that even though bootstrap may be performed on this data set**							
3408					**the resulting calculations may not be reliable enough tp draw conclusions**							
3409												
3410					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
3411												
3412												
3413					**UCL Statistics**							
3414					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
3415					Shapiro Wilk Test Statistic	0.636					Shapiro Wilk Test Statistic	0.921
3416					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
3417					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
3418												
3419					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3420					DL/2 Substitution Method						DL/2 Substitution Method	
3421					Mean	1728					Mean	6.77
3422					SD	2545					SD	1.209
3423					95% DL/2 (t) UCL	3821					95% H-Stat (DL/2) UCL	24916
3424												
3425					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3426					**MLE method failed to converge properly**						Mean in Log Scale	N/A
3427											SD in Log Scale	N/A
3428											Mean in Original Scale	N/A
3429											SD in Original Scale	N/A
3430											95% Percentile Bootstrap UCL	N/A
3431											95% BCA Bootstrap UCL	N/A
3432												
3433					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
3434					k star (bias corrected)	0.541					**Data appear Gamma Distributed at 5% Significance Level**	
3435					Theta Star	3194						
3436					nu star	6.49						
3437												
3438					A-D Test Statistic	0.553					**Nonparametric Statistics**	
3439					5% A-D Critical Value	0.718					Kaplan-Meier (KM) Method	
3440					K-S Test Statistic	0.718					Mean	1728
3441					5% K-S Critical Value	0.342					SD	2324
3442					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	1039
3443											95% KM (t) UCL	3821
3444					**Assuming Gamma Distribution**						95% KM (z) UCL	3437
3445					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3821

3446					Minimum	230				95% KM (bootstrap t) UCL		11040
3447					Maximum	6865				95% KM (BCA) UCL		3808
3448					Mean	1728				95% KM (Percentile Bootstrap) UCL		3708
3449					Median	890				95% KM (Chebyshev) UCL		6257
3450					SD	2545				97.5% KM (Chebyshev) UCL		8217
3451					k star	0.541				99% KM (Chebyshev) UCL		12067
3452					Theta star	3194						
3453					Nu star	6.49				**Potential UCLs to Use**		
3454					AppChi2	1.895				95% KM (Chebyshev) UCL		6257
3455					95% Gamma Approximate UCL	5916						
3456					95% Adjusted Gamma UCL	9908						
3457	**Note: DL/2 is not a recommended method.**											
3458												
3459												
3460	**Total Chlordanes**											
3461												
3462						**General Statistics**						
3463					Number of Valid Data	15				Number of Detected Data		12
3464					Number of Distinct Detected Data	12				Number of Non-Detect Data		3
3465										Percent Non-Detects		20.00%
3466												
3467					**Raw Statistics**					**Log-transformed Statistics**		
3468					Minimum Detected	10.13				Minimum Detected		2.315
3469					Maximum Detected	23.55				Maximum Detected		3.159
3470					Mean of Detected	14.83				Mean of Detected		2.665
3471					SD of Detected	4.192				SD of Detected		0.252
3472					Minimum Non-Detect	7.1				Minimum Non-Detect		1.96
3473					Maximum Non-Detect	20				Maximum Non-Detect		2.996
3474												
3475	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		13
3476	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
3477	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		86.67%
3478												
3479						**UCL Statistics**						
3480					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
3481					Shapiro Wilk Test Statistic	0.795				Shapiro Wilk Test Statistic		0.873
3482					5% Shapiro Wilk Critical Value	0.859				5% Shapiro Wilk Critical Value		0.859
3483					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
3484												
3485					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
3486					DL/2 Substitution Method					DL/2 Substitution Method		
3487					Mean	13.1				Mean		2.477
3488					SD	5.322				SD		0.492
3489					95% DL/2 (t) UCL	15.52				95% H-Stat (DL/2) UCL		17.37
3490												
3491					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
3492					**MLE method failed to converge properly**					Mean in Log Scale		2.583
3493										SD in Log Scale		0.295
3494										Mean in Original Scale		13.81
3495										SD in Original Scale		4.376
3496										95% Percentile Bootstrap UCL		15.77
3497										95% BCA Bootstrap UCL		16.02
3498												

3499	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3500					k star (bias corrected)	12.13	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
3501					Theta Star	1.223						
3502					nu star	291.1						
3503												
3504					A-D Test Statistic	0.845	**Nonparametric Statistics**					
3505					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
3506					K-S Test Statistic	0.731					Mean	14.06
3507					5% K-S Critical Value	0.245					SD	3.972
3508	**Data follow Appr. Gamma Distribution at 5% Significance Level**										SE of Mean	1.079
3509											95% KM (t) UCL	15.96
3510	**Assuming Gamma Distribution**										95% KM (z) UCL	15.83
3511					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	15.86
3512					Minimum	9.158					95% KM (bootstrap t) UCL	17.39
3513					Maximum	23.55					95% KM (BCA) UCL	16.23
3514					Mean	14.12					95% KM (Percentile Bootstrap) UCL	15.95
3515					Median	13.33					95% KM (Chebyshev) UCL	18.76
3516					SD	4.231					97.5% KM (Chebyshev) UCL	20.8
3517					k star	10.91					99% KM (Chebyshev) UCL	24.8
3518					Theta star	1.295						
3519					Nu star	327.3	**Potential UCLs to Use**					
3520					AppChi2	286.4					95% KM (BCA) UCL	16.23
3521					95% Gamma Approximate UCL	16.14						
3522					95% Adjusted Gamma UCL	16.41						
3523	**Note: DL/2 is not a recommended method.**											
3524												
3525												
3526	**Total DDD**											
3527												
3528	**General Statistics**											
3529					Number of Valid Observations	15					Number of Distinct Observations	15
3530												
3531	**Raw Statistics**						**Log-transformed Statistics**					
3532					Minimum	16.68					Minimum of Log Data	2.814
3533					Maximum	285					Maximum of Log Data	5.652
3534					Mean	74.91					Mean of log Data	3.912
3535					Median	42.3					SD of log Data	0.893
3536					SD	77.1						
3537					Coefficient of Variation	1.029						
3538					Skewness	1.774						
3539												
3540	**Relevant UCL Statistics**											
3541	**Normal Distribution Test**						**Lognormal Distribution Test**					
3542					Shapiro Wilk Test Statistic	0.753					Shapiro Wilk Test Statistic	0.919
3543					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
3544	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3545												
3546	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3547					95% Student's-t UCL	110					95% H-UCL	137.9
3548	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	150
3549					95% Adjusted-CLT UCL	117.4					97.5% Chebyshev (MVUE) UCL	183.7
3550					95% Modified-t UCL	111.5					99% Chebyshev (MVUE) UCL	250.1
3551												

3552	**Gamma Distribution Test**						**Data Distribution**					
3553					k star (bias corrected)	1.149	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
3554					Theta Star	65.22						
3555					nu star	34.46						
3556					Approximate Chi Square Value (.05)	22.03	**Nonparametric Statistics**					
3557					Adjusted Level of Significance	0.0324					95% CLT UCL	107.7
3558					Adjusted Chi Square Value	20.81					95% Jackknife UCL	110
3559											95% Standard Bootstrap UCL	106.5
3560					Anderson-Darling Test Statistic	0.78					95% Bootstrap-t UCL	130.2
3561					Anderson-Darling 5% Critical Value	0.756					95% Hall's Bootstrap UCL	115.9
3562					Kolmogorov-Smirnov Test Statistic	0.192					95% Percentile Bootstrap UCL	109.6
3563					Kolmogorov-Smirnov 5% Critical Value	0.226					95% BCA Bootstrap UCL	118.2
3564	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	161.7
3565											97.5% Chebyshev(Mean, Sd) UCL	199.2
3566	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	273
3567					95% Approximate Gamma UCL	117.2						
3568					95% Adjusted Gamma UCL	124						
3569												
3570	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	117.2
3571												
3572												
3573	**Total DDE**											
3574												
3575	**General Statistics**											
3576					Number of Valid Observations	15					Number of Distinct Observations	15
3577												
3578	**Raw Statistics**						**Log-transformed Statistics**					
3579					Minimum	56.23					Minimum of Log Data	4.029
3580					Maximum	317.6					Maximum of Log Data	5.761
3581					Mean	129.6					Mean of log Data	4.729
3582					Median	105.5					SD of log Data	0.518
3583					SD	76.4						
3584					Coefficient of Variation	0.59						
3585					Skewness	1.472						
3586												
3587	**Relevant UCL Statistics**											
3588	**Normal Distribution Test**						**Lognormal Distribution Test**					
3589					Shapiro Wilk Test Statistic	0.832					Shapiro Wilk Test Statistic	0.944
3590					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
3591	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3592												
3593	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3594					95% Student's-t UCL	164.3					95% H-UCL	172.8
3595	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	205.3
3596					95% Adjusted-CLT UCL	170					97.5% Chebyshev (MVUE) UCL	238.6
3597					95% Modified-t UCL	165.6					99% Chebyshev (MVUE) UCL	304.1
3598												
3599	**Gamma Distribution Test**						**Data Distribution**					
3600					k star (bias corrected)	3.134	**Data appear Gamma Distributed at 5% Significance Level**					
3601					Theta Star	41.34						
3602					nu star	94.01						
3603					Approximate Chi Square Value (.05)	72.65	**Nonparametric Statistics**					
3604					Adjusted Level of Significance	0.0324					95% CLT UCL	162

3605					Adjusted Chi Square Value	70.34					95% Jackknife UCL	164.3
3606											95% Standard Bootstrap UCL	160.9
3607					Anderson-Darling Test Statistic	0.506					95% Bootstrap-t UCL	184.3
3608					Anderson-Darling 5% Critical Value	0.741					95% Hall's Bootstrap UCL	188.7
3609					Kolmogorov-Smirnov Test Statistic	0.183					95% Percentile Bootstrap UCL	161.1
3610					Kolmogorov-Smirnov 5% Critical Value	0.223					95% BCA Bootstrap UCL	170.7
3611					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	215.5
3612											97.5% Chebyshev(Mean, Sd) UCL	252.7
3613					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	325.8
3614					95% Approximate Gamma UCL	167.7						
3615					95% Adjusted Gamma UCL	173.2						
3616												
3617					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	167.7
3618												
3619												
3620	**Total DDT**											
3621												
3622						**General Statistics**						
3623					Number of Valid Data	15					Number of Detected Data	10
3624					Number of Distinct Detected Data	10					Number of Non-Detect Data	5
3625											Percent Non-Detects	33.33%
3626												
3627					**Raw Statistics**						**Log-transformed Statistics**	
3628					Minimum Detected	0.105					Minimum Detected	-2.251
3629					Maximum Detected	47					Maximum Detected	3.85
3630					Mean of Detected	7.286					Mean of Detected	0.162
3631					SD of Detected	14.54					SD of Detected	2.11
3632					Minimum Non-Detect	6.9					Minimum Non-Detect	1.932
3633					Maximum Non-Detect	6.9					Maximum Non-Detect	1.932
3634												
3635												
3636						**UCL Statistics**						
3637					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
3638					Shapiro Wilk Test Statistic	0.568					Shapiro Wilk Test Statistic	0.879
3639					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
3640					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
3641												
3642					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3643					DL/2 Substitution Method						DL/2 Substitution Method	
3644					Mean	6.007					Mean	0.521
3645					SD	11.81					SD	1.771
3646					95% DL/2 (t) UCL	11.38					95% H-Stat (DL/2) UCL	161.5
3647												
3648					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3649					**MLE method failed to converge properly**						Mean in Log Scale	-0.0755
3650											SD in Log Scale	1.873
3651											Mean in Original Scale	5.216
3652											SD in Original Scale	12.06
3653											95% Percentile Bootstrap UCL	11.07
3654											95% BCA Bootstrap UCL	14.5
3655												
3656					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
3657					k star (bias corrected)	0.323					**Data appear Lognormal at 5% Significance Level**	

3658					Theta Star	22.57						
3659					nu star	6.457						
3660												
3661					A-D Test Statistic	0.846	**Nonparametric Statistics**					
3662					5% A-D Critical Value	0.802					Kaplan-Meier (KM) Method	
3663					K-S Test Statistic	0.802					Mean	5.418
3664					5% K-S Critical Value	0.286					SD	11.66
3665					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	3.211
3666											95% KM (t) UCL	11.07
3667					**Assuming Gamma Distribution**						95% KM (z) UCL	10.7
3668					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	10.99
3669					Minimum	0.105					95% KM (bootstrap t) UCL	22.36
3670					Maximum	47					95% KM (BCA) UCL	12.23
3671					Mean	7.218					95% KM (Percentile Bootstrap) UCL	11.2
3672					Median	5.098					95% KM (Chebyshev) UCL	19.41
3673					SD	11.7					97.5% KM (Chebyshev) UCL	25.47
3674					k star	0.456					99% KM (Chebyshev) UCL	37.36
3675					Theta star	15.81						
3676					Nu star	13.69	**Potential UCLs to Use**					
3677					AppChi2	6.362					99% KM (Chebyshev) UCL	37.36
3678					95% Gamma Approximate UCL	15.54						
3679					95% Adjusted Gamma UCL	17.17						
3680	**Note: DL/2 is not a recommended method.**											
3681												
3682												
3683	**Total Dioxin/Furan TEQ**											
3684												
3685					**General Statistics**							
3686					Number of Valid Observations	15					Number of Distinct Observations	15
3687												
3688					**Raw Statistics**		**Log-transformed Statistics**					
3689					Minimum	1.984					Minimum of Log Data	0.685
3690					Maximum	8.526					Maximum of Log Data	2.143
3691					Mean	4.106					Mean of log Data	1.329
3692					Median	3.338					SD of log Data	0.414
3693					SD	1.838						
3694					Coefficient of Variation	0.448						
3695					Skewness	1.145						
3696												
3697					**Relevant UCL Statistics**							
3698					**Normal Distribution Test**		**Lognormal Distribution Test**					
3699					Shapiro Wilk Test Statistic	0.871					Shapiro Wilk Test Statistic	0.943
3700					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
3701					**Data not Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**					
3702												
3703					**Assuming Normal Distribution**		**Assuming Lognormal Distribution**					
3704					95% Student's-t UCL	4.942					95% H-UCL	5.123
3705					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	6.036
3706					95% Adjusted-CLT UCL	5.037					97.5% Chebyshev (MVUE) UCL	6.878
3707					95% Modified-t UCL	4.965					99% Chebyshev (MVUE) UCL	8.532
3708												
3709					**Gamma Distribution Test**		**Data Distribution**					
3710					k star (bias corrected)	4.956	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					

3711					Theta Star	0.828						
3712					nu star	148.7						
3713					Approximate Chi Square Value (.05)	121.5				**Nonparametric Statistics**		
3714					Adjusted Level of Significance	0.0324					95% CLT UCL	4.887
3715					Adjusted Chi Square Value	118.5					95% Jackknife UCL	4.942
3716											95% Standard Bootstrap UCL	4.878
3717					Anderson-Darling Test Statistic	0.599					95% Bootstrap-t UCL	5.245
3718					Anderson-Darling 5% Critical Value	0.738					95% Hall's Bootstrap UCL	5.041
3719					Kolmogorov-Smirnov Test Statistic	0.238					95% Percentile Bootstrap UCL	4.929
3720					Kolmogorov-Smirnov 5% Critical Value	0.222					95% BCA Bootstrap UCL	4.992
3721					**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	6.175
3722											97.5% Chebyshev(Mean, Sd) UCL	7.07
3723					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	8.828
3724					95% Approximate Gamma UCL	5.025						
3725					95% Adjusted Gamma UCL	5.153						
3726												
3727					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	5.025
3728												
3729												
3730	**Total Dioxin-like PCBs**											
3731												
3732					**General Statistics**							
3733					Number of Valid Observations	15					Number of Distinct Observations	15
3734												
3735					**Raw Statistics**					**Log-transformed Statistics**		
3736					Minimum	18300					Minimum of Log Data	9.815
3737					Maximum	385762					Maximum of Log Data	12.86
3738					Mean	57997					Mean of log Data	10.42
3739					Median	24337					SD of log Data	0.854
3740					SD	96454						
3741					Coefficient of Variation	1.663						
3742					Skewness	3.261						
3743												
3744					**Relevant UCL Statistics**							
3745					**Normal Distribution Test**					**Lognormal Distribution Test**		
3746					Shapiro Wilk Test Statistic	0.455					Shapiro Wilk Test Statistic	0.676
3747					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
3748					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
3749												
3750					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
3751					95% Student's-t UCL	101862					95% H-UCL	86038
3752					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	95328
3753					95% Adjusted-CLT UCL	121365					97.5% Chebyshev (MVUE) UCL	116280
3754					95% Modified-t UCL	105356					99% Chebyshev (MVUE) UCL	157437
3755												
3756					**Gamma Distribution Test**					**Data Distribution**		
3757					k star (bias corrected)	0.886				**Data do not follow a Discernable Distribution (0.05)**		
3758					Theta Star	65489						
3759					nu star	26.57						
3760					Approximate Chi Square Value (.05)	15.82				**Nonparametric Statistics**		
3761					Adjusted Level of Significance	0.0324					95% CLT UCL	98962
3762					Adjusted Chi Square Value	14.8					95% Jackknife UCL	101862
3763											95% Standard Bootstrap UCL	96637

3764					Anderson-Darling Test Statistic	2.741					95% Bootstrap-t UCL	514539
3765					Anderson-Darling 5% Critical Value	0.762					95% Hall's Bootstrap UCL	308812
3766					Kolmogorov-Smirnov Test Statistic	0.367					95% Percentile Bootstrap UCL	104236
3767					Kolmogorov-Smirnov 5% Critical Value	0.228					95% BCA Bootstrap UCL	123957
3768					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	166553
3769											97.5% Chebyshev(Mean, Sd) UCL	213526
3770					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	305793
3771					95% Approximate Gamma UCL	97416						
3772					95% Adjusted Gamma UCL	104096						
3773												
3774					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	166553
3775												
3776												
3777	**Total Endosulfan**											
3778												
3779					**General Statistics**							
3780					Number of Valid Data	13					Number of Detected Data	10
3781					Number of Distinct Detected Data	10					Number of Non-Detect Data	3
3782					Number of Missing Values	2					Percent Non-Detects	23.08%
3783												
3784					**Raw Statistics**						**Log-transformed Statistics**	
3785					Minimum Detected	0.529					Minimum Detected	-0.637
3786					Maximum Detected	13.5					Maximum Detected	2.603
3787					Mean of Detected	2.01					Mean of Detected	-0.0335
3788					SD of Detected	4.039					SD of Detected	0.944
3789					Minimum Non-Detect	1.2					Minimum Non-Detect	0.182
3790					Maximum Non-Detect	11					Maximum Non-Detect	2.398
3791												
3792	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	12
3793	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
3794	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.31%
3795												
3796					**UCL Statistics**							
3797					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
3798					Shapiro Wilk Test Statistic	0.396					Shapiro Wilk Test Statistic	0.547
3799					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
3800					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
3801												
3802					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3803					DL/2 Substitution Method						DL/2 Substitution Method	
3804					Mean	2.389					Mean	0.188
3805					SD	3.733					SD	1.05
3806					95% DL/2 (t) UCL	4.234					95% H-Stat (DL/2) UCL	11.05
3807												
3808					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3809					**MLE method failed to converge properly**						Mean in Log Scale	-0.0629
3810											SD in Log Scale	0.819
3811											Mean in Original Scale	1.743
3812											SD in Original Scale	3.535
3813											95% Percentile Bootstrap UCL	3.696
3814											95% BCA Bootstrap UCL	4.703
3815												
3816					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	

3817				k star (bias corrected)	0.634	**Data do not follow a Discernable Distribution (0.05)**						
3818				Theta Star	3.173							
3819				nu star	12.67							
3820												
3821				A-D Test Statistic	2.611	**Nonparametric Statistics**						
3822				5% A-D Critical Value	0.755					Kaplan-Meier (KM) Method		
3823				K-S Test Statistic	0.755					Mean	1.716	
3824				5% K-S Critical Value	0.275					SD	3.404	
3825	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean	0.996	
3826										95% KM (t) UCL	3.49	
3827	**Assuming Gamma Distribution**									95% KM (z) UCL	3.353	
3828				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.468	
3829				Minimum	0.529					95% KM (bootstrap t) UCL	33.2	
3830				Maximum	13.5					95% KM (BCA) UCL	3.699	
3831				Mean	2.013					95% KM (Percentile Bootstrap) UCL	3.672	
3832				Median	0.852					95% KM (Chebyshev) UCL	6.055	
3833				SD	3.498					97.5% KM (Chebyshev) UCL	7.933	
3834				k star	0.838					99% KM (Chebyshev) UCL	11.62	
3835				Theta star	2.401							
3836				Nu star	21.79	**Potential UCLs to Use**						
3837				AppChi2	12.18					95% KM (BCA) UCL	3.699	
3838				95% Gamma Approximate UCL	3.6							
3839				95% Adjusted Gamma UCL	3.927							
3840	**Note: DL/2 is not a recommended method.**											
3841												
3842												
3843	**Total PCB TEQ**											
3844												
3845	**General Statistics**											
3846				Number of Valid Observations	15					Number of Distinct Observations	15	
3847												
3848	**Raw Statistics**					**Log-transformed Statistics**						
3849				Minimum	2.23					Minimum of Log Data	0.802	
3850				Maximum	61.29					Maximum of Log Data	4.116	
3851				Mean	8.548					Mean of log Data	1.588	
3852				Median	4.107					SD of log Data	0.865	
3853				SD	14.99							
3854				Coefficient of Variation	1.753							
3855				Skewness	3.564							
3856												
3857	**Relevant UCL Statistics**											
3858	**Normal Distribution Test**					**Lognormal Distribution Test**						
3859				Shapiro Wilk Test Statistic	0.437					Shapiro Wilk Test Statistic	0.779	
3860				Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881	
3861	**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**						
3862												
3863	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
3864				95% Student's-t UCL	15.36					95% H-UCL	12.79	
3865	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	14.1	
3866				95% Adjusted-CLT UCL	18.72					97.5% Chebyshev (MVUE) UCL	17.22	
3867				95% Modified-t UCL	15.96					99% Chebyshev (MVUE) UCL	23.35	
3868												
3869	**Gamma Distribution Test**					**Data Distribution**						

3870				k star (bias corrected)	0.869		**Data do not follow a Discernable Distribution (0.05)**					
3871				Theta Star	9.832							
3872				nu star	26.08							
3873				Approximate Chi Square Value (.05)	15.44		**Nonparametric Statistics**					
3874				Adjusted Level of Significance	0.0324					95% CLT UCL	14.91	
3875				Adjusted Chi Square Value	14.44					95% Jackknife UCL	15.36	
3876										95% Standard Bootstrap UCL	14.69	
3877				Anderson-Darling Test Statistic	2.1					95% Bootstrap-t UCL	62.33	
3878				Anderson-Darling 5% Critical Value	0.762					95% Hall's Bootstrap UCL	45.14	
3879				Kolmogorov-Smirnov Test Statistic	0.33					95% Percentile Bootstrap UCL	16.04	
3880				Kolmogorov-Smirnov 5% Critical Value	0.228					95% BCA Bootstrap UCL	19.8	
3881	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	25.41	
3882										97.5% Chebyshev(Mean, Sd) UCL	32.71	
3883	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	47.05	
3884				95% Approximate Gamma UCL	14.44							
3885				95% Adjusted Gamma UCL	15.44							
3886												
3887	**Potential UCL to Use**									Use 95% Chebyshev (Mean, Sd) UCL	25.41	
3888												
3889												
3890	**Total PCB_Congeners**											
3891												
3892	**General Statistics**											
3893				Number of Valid Observations	15					Number of Distinct Observations	15	
3894												
3895	**Raw Statistics**						**Log-transformed Statistics**					
3896				Minimum	294578					Minimum of Log Data	12.59	
3897				Maximum	25091151					Maximum of Log Data	17.04	
3898				Mean	2755976					Mean of log Data	13.64	
3899				Median	574344					SD of log Data	1.265	
3900				SD	6486951							
3901				Coefficient of Variation	2.354							
3902				Skewness	3.37							
3903												
3904	**Relevant UCL Statistics**											
3905	**Normal Distribution Test**						**Lognormal Distribution Test**					
3906				Shapiro Wilk Test Statistic	0.429					Shapiro Wilk Test Statistic	0.734	
3907				Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881	
3908	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3909												
3910	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3911				95% Student's-t UCL	5706035					95% H-UCL	5468693	
3912	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	4441871	
3913				95% Adjusted-CLT UCL	7068249					97.5% Chebyshev (MVUE) UCL	5623950	
3914				95% Modified-t UCL	5948938					99% Chebyshev (MVUE) UCL	7945914	
3915												
3916	**Gamma Distribution Test**						**Data Distribution**					
3917				k star (bias corrected)	0.467		**Data do not follow a Discernable Distribution (0.05)**					
3918				Theta Star	5900783							
3919				nu star	14.01							
3920				Approximate Chi Square Value (.05)	6.579		**Nonparametric Statistics**					
3921				Adjusted Level of Significance	0.0324					95% CLT UCL	5510980	
3922				Adjusted Chi Square Value	5.962					95% Jackknife UCL	5706035	

3923											95% Standard Bootstrap UCL	5433190
3924				Anderson-Darling Test Statistic	2.638						95% Bootstrap-t UCL	39804089
3925				Anderson-Darling 5% Critical Value	0.791						95% Hall's Bootstrap UCL	28086749
3926				Kolmogorov-Smirnov Test Statistic	0.383						95% Percentile Bootstrap UCL	5625327
3927				Kolmogorov-Smirnov 5% Critical Value	0.233						95% BCA Bootstrap UCL	7626395
3928				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	10056798
3929											97.5% Chebyshev(Mean, Sd) UCL	13215870
3930				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	19421254
3931				95% Approximate Gamma UCL	5869284							
3932				95% Adjusted Gamma UCL	6476921							
3933												
3934				**Potential UCL to Use**							Use 99% Chebyshev (Mean, Sd) UCL	19421254
3935												
3936												
3937	**Tributyltin ion**											
3938												
3939						**General Statistics**							
3940				Number of Valid Data	9						Number of Detected Data	9
3941				Number of Distinct Detected Data	9						Number of Non-Detect Data	0
3942				Number of Missing Values	6						Percent Non-Detects	0.00%
3943												
3944				**Raw Statistics**							**Log-transformed Statistics**	
3945				Minimum Detected	2.749						Minimum Detected	1.011
3946				Maximum Detected	8.576						Maximum Detected	2.149
3947				Mean of Detected	5.618						Mean of Detected	1.659
3948				SD of Detected	2.085						SD of Detected	0.398
3949				Minimum Non-Detect	N/A						Minimum Non-Detect	N/A
3950				Maximum Non-Detect	N/A						Maximum Non-Detect	N/A
3951												
3952												
3953						**Warning: There are only 9 Detected Values in this data**							
3954						**Note: It should be noted that even though bootstrap may be performed on this data set**							
3955						**the resulting calculations may not be reliable enough tp draw conclusions**							
3956												
3957						**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
3958												
3959												
3960						**UCL Statistics**							
3961				**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**	
3962				Shapiro Wilk Test Statistic	0.942						Shapiro Wilk Test Statistic	0.942
3963				5% Shapiro Wilk Critical Value	0.829						5% Shapiro Wilk Critical Value	0.829
3964				**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**	
3965												
3966				**Assuming Normal Distribution**							**Assuming Lognormal Distribution**	
3967				DL/2 Substitution Method							DL/2 Substitution Method	
3968				Mean	5.618						Mean	1.659
3969				SD	2.085						SD	0.398
3970				95% DL/2 (t) UCL	6.91						95% H-Stat (DL/2) UCL	7.678
3971												
3972				Maximum Likelihood Estimate(MLE) Method	N/A						Log ROS Method	
3973				**MLE method failed to converge properly**							Mean in Log Scale	N/A
3974											SD in Log Scale	N/A
3975											Mean in Original Scale	N/A

3976											SD in Original Scale	N/A
3977											95% Percentile Bootstrap UCL	N/A
3978											95% BCA Bootstrap UCL	N/A
3979												
3980	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3981					k star (bias corrected)	5.157	**Data appear Normal at 5% Significance Level**					
3982					Theta Star	1.089						
3983					nu star	92.83						
3984												
3985					A-D Test Statistic	0.278	**Nonparametric Statistics**					
3986					5% A-D Critical Value	0.722	Kaplan-Meier (KM) Method					
3987					K-S Test Statistic	0.722	Mean	5.618				
3988					5% K-S Critical Value	0.28	SD	1.966				
3989	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.695				
3990							95% KM (t) UCL	6.91				
3991	**Assuming Gamma Distribution**						95% KM (z) UCL	6.761				
3992					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.91				
3993					Minimum	2.749	95% KM (bootstrap t) UCL	6.944				
3994					Maximum	8.576	95% KM (BCA) UCL	6.673				
3995					Mean	5.618	95% KM (Percentile Bootstrap) UCL	6.685				
3996					Median	5.894	95% KM (Chebyshev) UCL	8.647				
3997					SD	2.085	97.5% KM (Chebyshev) UCL	9.958				
3998					k star	5.157	99% KM (Chebyshev) UCL	12.53				
3999					Theta star	1.089						
4000					Nu star	92.83	**Potential UCLs to Use**					
4001					AppChi2	71.61	95% KM (t) UCL	6.91				
4002					95% Gamma Approximate UCL	7.283	95% KM (Percentile Bootstrap) UCL	6.685				
4003					95% Adjusted Gamma UCL	7.705						
4004	**Note: DL/2 is not a recommended method.**											
4005												
4006												
4007	**Zinc**											
4008												
4009	**General Statistics**											
4010					Number of Valid Observations	15	Number of Distinct Observations	15				
4011												
4012	**Raw Statistics**						**Log-transformed Statistics**					
4013					Minimum	71.23	Minimum of Log Data	4.266				
4014					Maximum	112.8	Maximum of Log Data	4.725				
4015					Mean	91.78	Mean of log Data	4.509				
4016					Median	89.91	SD of log Data	0.151				
4017					SD	13.67						
4018					Coefficient of Variation	0.149						
4019					Skewness	0.0843						
4020												
4021	**Relevant UCL Statistics**											
4022	**Normal Distribution Test**						**Lognormal Distribution Test**					
4023					Shapiro Wilk Test Statistic	0.947	Shapiro Wilk Test Statistic	0.947				
4024					Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881				
4025	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
4026												
4027	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
4028					95% Student's-t UCL	97.99	95% H-UCL	98.66				

4029	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	107.4
4030	95% Adjusted-CLT UCL	97.66								97.5% Chebyshev (MVUE) UCL	114.1
4031	95% Modified-t UCL	98								99% Chebyshev (MVUE) UCL	127.4
4032											
4033	**Gamma Distribution Test**									**Data Distribution**	
4034	k star (bias corrected)	38.32								**Data appear Normal at 5% Significance Level**	
4035	Theta Star	2.395									
4036	nu star	1150									
4037	Approximate Chi Square Value (.05)	1072								**Nonparametric Statistics**	
4038	Adjusted Level of Significance	0.0324								95% CLT UCL	97.58
4039	Adjusted Chi Square Value	1063								95% Jackknife UCL	97.99
4040										95% Standard Bootstrap UCL	97.26
4041	Anderson-Darling Test Statistic	0.275								95% Bootstrap-t UCL	98.52
4042	Anderson-Darling 5% Critical Value	0.734								95% Hall's Bootstrap UCL	97.65
4043	Kolmogorov-Smirnov Test Statistic	0.112								95% Percentile Bootstrap UCL	97.23
4044	Kolmogorov-Smirnov 5% Critical Value	0.221								95% BCA Bootstrap UCL	97.59
4045	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	107.2
4046										97.5% Chebyshev(Mean, Sd) UCL	113.8
4047	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	126.9
4048	95% Approximate Gamma UCL	98.43									
4049	95% Adjusted Gamma UCL	99.29									
4050											
4051	**Potential UCL to Use**									Use 95% Student's-t UCL	97.99
4052											
4053											
4054	**Total PCBs, Adjusted**										
4055											
4056	**General Statistics**										
4057	Number of Valid Observations	15								Number of Distinct Observations	15
4058											
4059	**Raw Statistics**									**Log-transformed Statistics**	
4060	Minimum	274102								Minimum of Log Data	12.52
4061	Maximum	24705389								Maximum of Log Data	17.02
4062	Mean	2697978								Mean of log Data	13.59
4063	Median	552812								SD of log Data	1.28
4064	SD	6390618									
4065	Coefficient of Variation	2.369									
4066	Skewness	3.372									
4067											
4068	**Relevant UCL Statistics**										
4069	**Normal Distribution Test**									**Lognormal Distribution Test**	
4070	Shapiro Wilk Test Statistic	0.429								Shapiro Wilk Test Statistic	0.738
4071	Shapiro Wilk Critical Value	0.881								Shapiro Wilk Critical Value	0.881
4072	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**	
4073											
4074	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**	
4075	95% Student's-t UCL	5604229								95% H-UCL	5447488
4076	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	4351929
4077	95% Adjusted-CLT UCL	6946904								97.5% Chebyshev (MVUE) UCL	5515951
4078	95% Modified-t UCL	5843632								99% Chebyshev (MVUE) UCL	7802446
4079											
4080	**Gamma Distribution Test**									**Data Distribution**	
4081	k star (bias corrected)	0.46								**Data do not follow a Discernable Distribution (0.05)**	

4082					Theta Star	5867054						
4083					nu star	13.8						
4084					Approximate Chi Square Value (.05)	6.432				**Nonparametric Statistics**		
4085					Adjusted Level of Significance	0.0324					95% CLT UCL	5412070
4086					Adjusted Chi Square Value	5.822					95% Jackknife UCL	5604229
4087											95% Standard Bootstrap UCL	5350191
4088					Anderson-Darling Test Statistic	2.619					95% Bootstrap-t UCL	39017146
4089					Anderson-Darling 5% Critical Value	0.792					95% Hall's Bootstrap UCL	29163705
4090					Kolmogorov-Smirnov Test Statistic	0.384					95% Percentile Bootstrap UCL	5497139
4091					Kolmogorov-Smirnov 5% Critical Value	0.234					95% BCA Bootstrap UCL	7927550
4092					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	9890381
4093											97.5% Chebyshev(Mean, Sd) UCL	13002540
4094					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	19115773
4095					95% Approximate Gamma UCL	5787058						
4096					95% Adjusted Gamma UCL	6392498						
4097												
4098					**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	19115773
4099												
4100												
4101	**Total TEQ**											
4102												
4103					**General Statistics**							
4104					Number of Valid Observations	15					Number of Distinct Observations	15
4105												
4106					**Raw Statistics**					**Log-transformed Statistics**		
4107					Minimum	4.776					Minimum of Log Data	1.564
4108					Maximum	67.36					Maximum of Log Data	4.21
4109					Mean	12.65					Mean of log Data	2.212
4110					Median	7.709					SD of log Data	0.686
4111					SD	15.89						
4112					Coefficient of Variation	1.256						
4113					Skewness	3.345						
4114												
4115					**Relevant UCL Statistics**							
4116					**Normal Distribution Test**					**Lognormal Distribution Test**		
4117					Shapiro Wilk Test Statistic	0.491					Shapiro Wilk Test Statistic	0.766
4118					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
4119					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
4120												
4121					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
4122					95% Student's-t UCL	19.88					95% H-UCL	17.57
4123					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	20.55
4124					95% Adjusted-CLT UCL	23.19					97.5% Chebyshev (MVUE) UCL	24.54
4125					95% Modified-t UCL	20.47					99% Chebyshev (MVUE) UCL	32.37
4126												
4127					**Gamma Distribution Test**					**Data Distribution**		
4128					k star (bias corrected)	1.389				**Data do not follow a Discernable Distribution (0.05)**		
4129					Theta Star	9.11						
4130					nu star	41.67						
4131					Approximate Chi Square Value (.05)	27.88				**Nonparametric Statistics**		
4132					Adjusted Level of Significance	0.0324					95% CLT UCL	19.4
4133					Adjusted Chi Square Value	26.49					95% Jackknife UCL	19.88
4134											95% Standard Bootstrap UCL	19.33

	A	B	C	D	E	F	G	H	I	J	K	L
4135					Anderson-Darling Test Statistic	2.006					95% Bootstrap-t UCL	52.97
4136					Anderson-Darling 5% Critical Value	0.751					95% Hall's Bootstrap UCL	48.07
4137					Kolmogorov-Smirnov Test Statistic	0.327					95% Percentile Bootstrap UCL	19.91
4138					Kolmogorov-Smirnov 5% Critical Value	0.225					95% BCA Bootstrap UCL	25.28
4139					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	30.54
4140											97.5% Chebyshev(Mean, Sd) UCL	38.28
4141					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	53.49
4142					95% Approximate Gamma UCL	18.92						
4143					95% Adjusted Gamma UCL	19.91						
4144												
4145					**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	30.54
4146												

Tissue

Clam, Undepurated

clam_RM7W_UD	**General UCL Statistics for Data Sets with Non-Detects**	
User Selected Options		
From File	clam_RM7W_UD	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Fluoranthene

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	37	Minimum of Log Data	3.611
Maximum	140	Maximum of Log Data	4.942
Mean	74	Mean of log Data	4.199
Median	57	SD of log Data	0.499
SD	40.07		
Coefficient of Variation	0.542		
Skewness	1.459		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.869	Shapiro Wilk Test Statistic	0.959
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	112.2	95% H-UCL	157.4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	144.4
95% Adjusted-CLT UCL	116	97.5% Chebyshev (MVUE) UCL	175.1
95% Modified-t UCL	114.2	99% Chebyshev (MVUE) UCL	235.3
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.11	**Data appear Normal at 5% Significance Level**	
Theta Star	35.07		
nu star	21.1		
Approximate Chi Square Value (.05)	11.67	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	103.5

54					Adjusted Chi Square Value	8.761					95% Jackknife UCL	112.2
55											95% Standard Bootstrap UCL	100
56					Anderson-Darling Test Statistic	0.313					95% Bootstrap-t UCL	174.8
57					Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	295.7
58					Kolmogorov-Smirnov Test Statistic	0.256					95% Percentile Bootstrap UCL	102.4
59					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	107.6
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	152.1
61											97.5% Chebyshev(Mean, Sd) UCL	185.9
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	252.3
63					95% Approximate Gamma UCL	133.8						
64					95% Adjusted Gamma UCL	178.2						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	112.2
67												
68												
69	**Pyrene**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	33					Minimum of Log Data	3.497
76					Maximum	140					Maximum of Log Data	4.942
77					Mean	78					Mean of log Data	4.233
78					Median	84					SD of log Data	0.57
79					SD	41.86						
80					Coefficient of Variation	0.537						
81					Skewness	0.655						
82												
83												
84					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 5 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.936					Shapiro Wilk Test Statistic	0.954
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	117.9					95% H-UCL	200.9
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	164.3
105					95% Adjusted-CLT UCL	114.7					97.5% Chebyshev (MVUE) UCL	201.5
106					95% Modified-t UCL	118.8					99% Chebyshev (MVUE) UCL	274.5

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.81	**Data appear Normal at 5% Significance Level**
Theta Star	43.1	
nu star	18.1	
Approximate Chi Square Value (.05)	9.463	**Nonparametric Statistics**
Adjusted Level of Significance	0.0086	95% CLT UCL 108.8
Adjusted Chi Square Value	6.902	95% Jackknife UCL 117.9
		95% Standard Bootstrap UCL 106
Anderson-Darling Test Statistic	0.27	95% Bootstrap-t UCL 132.3
Anderson-Darling 5% Critical Value	0.681	95% Hall's Bootstrap UCL 114.1
Kolmogorov-Smirnov Test Statistic	0.224	95% Percentile Bootstrap UCL 107.6
Kolmogorov-Smirnov 5% Critical Value	0.358	95% BCA Bootstrap UCL 108.2
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 159.6
		97.5% Chebyshev(Mean, Sd) UCL 194.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 264.3
95% Approximate Gamma UCL	149.2	
95% Adjusted Gamma UCL	204.5	
Potential UCL to Use		Use 95% Student's-t UCL 117.9

Total Chlordanes

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	3.254	Minimum of Log Data	1.18
Maximum	8.6	Maximum of Log Data	2.152
Mean	5.522	Mean of log Data	1.634
Median	5.08	SD of log Data	0.435
SD	2.355		
Coefficient of Variation	0.426		
Skewness	0.426		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.903	Shapiro Wilk Test Statistic	0.904
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762

160	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
161												
162	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
163				95% Student's-t UCL	7.768						95% H-UCL	10.24
164	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	10.17
165				95% Adjusted-CLT UCL	7.469						97.5% Chebyshev (MVUE) UCL	12.18
166				95% Modified-t UCL	7.801						99% Chebyshev (MVUE) UCL	16.13
167												
168	**Gamma Distribution Test**						**Data Distribution**					
169				k star (bias corrected)	2.871		**Data appear Normal at 5% Significance Level**					
170				Theta Star	1.923							
171				nu star	28.71							
172				Approximate Chi Square Value (.05)	17.48		**Nonparametric Statistics**					
173				Adjusted Level of Significance	0.0086						95% CLT UCL	7.255
174				Adjusted Chi Square Value	13.8						95% Jackknife UCL	7.768
175											95% Standard Bootstrap UCL	7.066
176				Anderson-Darling Test Statistic	0.349						95% Bootstrap-t UCL	9.204
177				Anderson-Darling 5% Critical Value	0.68						95% Hall's Bootstrap UCL	8.756
178				Kolmogorov-Smirnov Test Statistic	0.247						95% Percentile Bootstrap UCL	7.026
179				Kolmogorov-Smirnov 5% Critical Value	0.358						95% BCA Bootstrap UCL	7.261
180	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	10.11
181											97.5% Chebyshev(Mean, Sd) UCL	12.1
182	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	16
183				95% Approximate Gamma UCL	9.069							
184				95% Adjusted Gamma UCL	11.49							
185												
186	**Potential UCL to Use**										Use 95% Student's-t UCL	7.768
187												
188												
189	**Total DDD**											
190												
191	**General Statistics**											
192				Number of Valid Observations	5						Number of Distinct Observations	5
193												
194	**Raw Statistics**						**Log-transformed Statistics**					
195				Minimum	14.51						Minimum of Log Data	2.675
196				Maximum	242						Maximum of Log Data	5.489
197				Mean	88.93						Mean of log Data	4.01
198				Median	44						SD of log Data	1.118
199				SD	94							
200				Coefficient of Variation	1.057							
201				Skewness	1.446							
202												
203												
204	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
205												
206	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
207	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
208												
209												
210	**Warning: There are only 5 Values in this data**											
211	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
212	**the resulting calculations may not be reliable enough to draw conclusions**											

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218				Shapiro Wilk Test Statistic	0.839					Shapiro Wilk Test Statistic	0.974	
219				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
220	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223				95% Student's-t UCL	178.6					95% H-UCL	2133	
224	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	268.8	
225				95% Adjusted-CLT UCL	187.1					97.5% Chebyshev (MVUE) UCL	347.2	
226				95% Modified-t UCL	183.1					99% Chebyshev (MVUE) UCL	501.2	
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229				k star (bias corrected)	0.607		**Data appear Normal at 5% Significance Level**					
230				Theta Star	146.4							
231				nu star	6.073							
232				Approximate Chi Square Value (.05)	1.677		**Nonparametric Statistics**					
233				Adjusted Level of Significance	0.0086					95% CLT UCL	158.1	
234				Adjusted Chi Square Value	0.86					95% Jackknife UCL	178.6	
235										95% Standard Bootstrap UCL	150.2	
236				Anderson-Darling Test Statistic	0.27					95% Bootstrap-t UCL	560.1	
237				Anderson-Darling 5% Critical Value	0.69					95% Hall's Bootstrap UCL	556.1	
238				Kolmogorov-Smirnov Test Statistic	0.242					95% Percentile Bootstrap UCL	159.7	
239				Kolmogorov-Smirnov 5% Critical Value	0.363					95% BCA Bootstrap UCL	171.2	
240	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	272.2	
241										97.5% Chebyshev(Mean, Sd) UCL	351.5	
242	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	507.2	
243				95% Approximate Gamma UCL	322							
244				95% Adjusted Gamma UCL	628.3							
245												
246	**Potential UCL to Use**									Use 95% Student's-t UCL	178.6	
247												
248												
249	**Total DDE**											
250												
251	**General Statistics**											
252				Number of Valid Observations	5					Number of Distinct Observations	5	
253												
254	**Raw Statistics**						**Log-transformed Statistics**					
255				Minimum	14.71					Minimum of Log Data	2.689	
256				Maximum	107					Maximum of Log Data	4.673	
257				Mean	42.83					Mean of log Data	3.511	
258				Median	28.5					SD of log Data	0.748	
259				SD	37.14							
260				Coefficient of Variation	0.867							
261				Skewness	1.881							
262												
263												
264	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
267	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
268												
269												
270	Warning: There are only 5 Values in this data											
271	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
272	the resulting calculations may not be reliable enough to draw conclusions											
273												
274	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
275												
276	Relevant UCL Statistics											
277	Normal Distribution Test						Lognormal Distribution Test					
278					Shapiro Wilk Test Statistic	0.783					Shapiro Wilk Test Statistic	0.952
279					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
280	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
281												
282	Assuming Normal Distribution						Assuming Lognormal Distribution					
283					95% Student's-t UCL	78.23					95% H-UCL	187.2
284	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	100.9
285					95% Adjusted-CLT UCL	85.07					97.5% Chebyshev (MVUE) UCL	126.5
286					95% Modified-t UCL	80.56					99% Chebyshev (MVUE) UCL	177
287												
288	Gamma Distribution Test						Data Distribution					
289					k star (bias corrected)	1.007	Data appear Normal at 5% Significance Level					
290					Theta Star	42.53						
291					nu star	10.07						
292					Approximate Chi Square Value (.05)	3.986	Nonparametric Statistics					
293					Adjusted Level of Significance	0.0086					95% CLT UCL	70.14
294					Adjusted Chi Square Value	2.501					95% Jackknife UCL	78.23
295											95% Standard Bootstrap UCL	67.31
296					Anderson-Darling Test Statistic	0.372					95% Bootstrap-t UCL	155.4
297					Anderson-Darling 5% Critical Value	0.684					95% Hall's Bootstrap UCL	204.7
298					Kolmogorov-Smirnov Test Statistic	0.234					95% Percentile Bootstrap UCL	72.84
299					Kolmogorov-Smirnov 5% Critical Value	0.36					95% BCA Bootstrap UCL	76.98
300	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	115.2
301											97.5% Chebyshev(Mean, Sd) UCL	146.5
302	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	208.1
303					95% Approximate Gamma UCL	108.2						
304					95% Adjusted Gamma UCL	172.5						
305												
306	Potential UCL to Use										Use 95% Student's-t UCL	78.23
307												
308												
309	Total DDT											
310												
311	General Statistics											
312					Number of Valid Observations	5					Number of Distinct Observations	5
313												
314	Raw Statistics						Log-transformed Statistics					
315					Minimum	3.83					Minimum of Log Data	1.343
316					Maximum	114					Maximum of Log Data	4.736
317					Mean	44.57					Mean of log Data	3.192
318					Median	24.4					SD of log Data	1.363

319					SD	46.28						
320					Coefficient of Variation	1.038						
321					Skewness	0.999						
322												
323												
324	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
325												
326	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
327	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
328												
329												
330	**Warning: There are only 5 Values in this data**											
331	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
332	**the resulting calculations may not be reliable enough to draw conclusions**											
333												
334	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
335												
336	**Relevant UCL Statistics**											
337	**Normal Distribution Test**						**Lognormal Distribution Test**					
338					Shapiro Wilk Test Statistic	0.885					Shapiro Wilk Test Statistic	0.97
339					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
340	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
341												
342	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
343					95% Student's-t UCL	88.7					95% H-UCL	5196
344	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	163.6
345					95% Adjusted-CLT UCL	88.5					97.5% Chebyshev (MVUE) UCL	213.8
346					95% Modified-t UCL	90.24					99% Chebyshev (MVUE) UCL	312.4
347												
348	**Gamma Distribution Test**						**Data Distribution**					
349					k star (bias corrected)	0.517	**Data appear Normal at 5% Significance Level**					
350					Theta Star	86.21						
351					nu star	5.17						
352					Approximate Chi Square Value (.05)	1.232	**Nonparametric Statistics**					
353					Adjusted Level of Significance	0.0086					95% CLT UCL	78.62
354					Adjusted Chi Square Value	0.582					95% Jackknife UCL	88.7
355											95% Standard Bootstrap UCL	74.21
356					Anderson-Darling Test Statistic	0.218					95% Bootstrap-t UCL	195.7
357					Anderson-Darling 5% Critical Value	0.692					95% Hall's Bootstrap UCL	338.1
358					Kolmogorov-Smirnov Test Statistic	0.187					95% Percentile Bootstrap UCL	78.08
359					Kolmogorov-Smirnov 5% Critical Value	0.365					95% BCA Bootstrap UCL	78.08
360	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	134.8
361											97.5% Chebyshev(Mean, Sd) UCL	173.8
362	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	250.5
363					95% Approximate Gamma UCL	187.1						
364					95% Adjusted Gamma UCL	396.1						
365												
366	**Potential UCL to Use**										Use 95% Student's-t UCL	88.7
367												

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	clam_study_area_UD	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

1-Methylnaphthalene

General Statistics

Number of Valid Data	7	Number of Detected Data	7
Number of Distinct Detected Data	5	Number of Non-Detect Data	0
Number of Missing Values	36	Percent Non-Detects	0.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.9	Minimum Detected	-0.105
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	1.304	Mean of Detected	0.236
SD of Detected	0.336	SD of Detected	0.265
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.885	Shapiro Wilk Test Statistic	0.888
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.304	Mean	0.236
SD	0.336	SD	0.265
95% DL/2 (t) UCL	1.551	95% H-Stat (DL/2) UCL	1.649
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	9.891	**Data appear Normal at 5% Significance Level**	

54					Theta Star	0.132						
55					nu star	138.5						
56												
57					A-D Test Statistic	0.413	**Nonparametric Statistics**					
58					5% A-D Critical Value	0.707					Kaplan-Meier (KM) Method	
59					K-S Test Statistic	0.707					Mean	1.304
60					5% K-S Critical Value	0.312					SD	0.311
61	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.127
62											95% KM (t) UCL	1.551
63	**Assuming Gamma Distribution**										95% KM (z) UCL	1.513
64					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.551
65					Minimum	0.9					95% KM (bootstrap t) UCL	1.543
66					Maximum	1.7					95% KM (BCA) UCL	1.486
67					Mean	1.304					95% KM (Percentile Bootstrap) UCL	1.5
68					Median	1.2					95% KM (Chebyshev) UCL	1.858
69					SD	0.336					97.5% KM (Chebyshev) UCL	2.097
70					k star	9.891					99% KM (Chebyshev) UCL	2.567
71					Theta star	0.132						
72					Nu star	138.5	**Potential UCLs to Use**					
73					AppChi2	112.3					95% KM (t) UCL	1.551
74					95% Gamma Approximate UCL	1.609					95% KM (Percentile Bootstrap) UCL	1.5
75					95% Adjusted Gamma UCL	1.717						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**2-Methylnaphthalene**											
80												
81	**General Statistics**											
82					Number of Valid Data	36					Number of Detected Data	36
83					Number of Distinct Detected Data	15					Number of Non-Detect Data	0
84					Number of Missing Values	7					Percent Non-Detects	0.00%
85												
86	**Raw Statistics**						**Log-transformed Statistics**					
87					Minimum Detected	1.3					Minimum Detected	0.262
88					Maximum Detected	22					Maximum Detected	3.091
89					Mean of Detected	2.906					Mean of Detected	0.718
90					SD of Detected	4.481					SD of Detected	0.617
91					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
92					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
93												
94												
95	**UCL Statistics**											
96	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
97					Shapiro Wilk Test Statistic	0.338					Shapiro Wilk Test Statistic	0.596
98					5% Shapiro Wilk Critical Value	0.935					5% Shapiro Wilk Critical Value	0.935
99	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
100												
101	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
102					DL/2 Substitution Method						DL/2 Substitution Method	
103					Mean	2.906					Mean	0.718
104					SD	4.481					SD	0.617
105					95% DL/2 (t) UCL	4.167					95% H-Stat (DL/2) UCL	3.059
106												

107	Maximum Likelihood Estimate(MLE) Method				N/A					Log ROS Method		
108	**MLE method failed to converge properly**									Mean in Log Scale		N/A
109										SD in Log Scale		N/A
110										Mean in Original Scale		N/A
111										SD in Original Scale		N/A
112										95% Percentile Bootstrap UCL		N/A
113										95% BCA Bootstrap UCL		N/A
114												
115	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
116	k star (bias corrected)				1.468					**Data do not follow a Discernable Distribution (0.05)**		
117	Theta Star				1.979							
118	nu star				105.7							
119												
120	A-D Test Statistic				7.103					**Nonparametric Statistics**		
121	5% A-D Critical Value				0.765					Kaplan-Meier (KM) Method		
122	K-S Test Statistic				0.765					Mean		2.906
123	5% K-S Critical Value				0.149					SD		4.418
124	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.747
125										95% KM (t) UCL		4.167
126	**Assuming Gamma Distribution**									95% KM (z) UCL		4.134
127	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		4.167
128	Minimum				1.3					95% KM (bootstrap t) UCL		13.68
129	Maximum				22					95% KM (BCA) UCL		4.503
130	Mean				2.906					95% KM (Percentile Bootstrap) UCL		4.072
131	Median				1.8					95% KM (Chebyshev) UCL		6.161
132	SD				4.481					97.5% KM (Chebyshev) UCL		7.569
133	k star				1.468					99% KM (Chebyshev) UCL		10.34
134	Theta star				1.979							
135	Nu star				105.7					**Potential UCLs to Use**		
136	AppChi2				82.98					95% KM (Chebyshev) UCL		6.161
137	95% Gamma Approximate UCL				3.701							
138	95% Adjusted Gamma UCL				3.743							
139	**Note: DL/2 is not a recommended method.**											
140												
141												
142	**Acenaphthene**											
143												
144	**General Statistics**											
145	Number of Valid Data				39					Number of Detected Data		35
146	Number of Distinct Detected Data				27					Number of Non-Detect Data		4
147	Number of Missing Values				4					Percent Non-Detects		10.26%
148												
149	**Raw Statistics**									**Log-transformed Statistics**		
150	Minimum Detected				0.22					Minimum Detected		-1.514
151	Maximum Detected				61					Maximum Detected		4.111
152	Mean of Detected				4.45					Mean of Detected		0.522
153	SD of Detected				10.9					SD of Detected		1.148
154	Minimum Non-Detect				0.091					Minimum Non-Detect		-2.397
155	Maximum Non-Detect				58					Maximum Non-Detect		4.06
156												
157	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		38
158	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
159	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		97.44%

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	**UCL Statistics**											
162	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
163	Shapiro Wilk Test Statistic					0.381	Shapiro Wilk Test Statistic					0.903
164	5% Shapiro Wilk Critical Value					0.934	5% Shapiro Wilk Critical Value					0.934
165	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
166												
167	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
168	DL/2 Substitution Method						DL/2 Substitution Method					
169	Mean					5.597	Mean					0.62
170	SD					11.38	SD					1.415
171	95% DL/2 (t) UCL					8.668	95% H-Stat (DL/2) UCL					11.85
172												
173	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
174	**MLE method failed to converge properly**						Mean in Log Scale					0.442
175							SD in Log Scale					1.173
176							Mean in Original Scale					4.111
177							SD in Original Scale					10.36
178							95% Percentile Bootstrap UCL					7.074
179							95% BCA Bootstrap UCL					8.69
180												
181	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
182	k star (bias corrected)					0.597	**Data do not follow a Discernable Distribution (0.05)**					
183	Theta Star					7.459						
184	nu star					41.76						
185												
186	A-D Test Statistic					3.835	**Nonparametric Statistics**					
187	5% A-D Critical Value					0.799	Kaplan-Meier (KM) Method					
188	K-S Test Statistic					0.799	Mean					4.208
189	5% K-S Critical Value					0.156	SD					10.29
190	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1.686
191							95% KM (t) UCL					7.051
192	**Assuming Gamma Distribution**						95% KM (z) UCL					6.981
193	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					7.046
194	Minimum					1E-09	95% KM (bootstrap t) UCL					22
195	Maximum					61	95% KM (BCA) UCL					7.544
196	Mean					4.241	95% KM (Percentile Bootstrap) UCL					7.297
197	Median					1.3	95% KM (Chebyshev) UCL					11.56
198	SD					10.34	97.5% KM (Chebyshev) UCL					14.74
199	k star					0.437	99% KM (Chebyshev) UCL					20.98
200	Theta star					9.709						
201	Nu star					34.07	**Potential UCLs to Use**					
202	AppChi2					21.72	97.5% KM (Chebyshev) UCL					14.74
203	95% Gamma Approximate UCL					6.653						
204	95% Adjusted Gamma UCL					6.774						
205	**Note: DL/2 is not a recommended method.**											
206												
207												
208	**Acenaphthylene**											
209												
210	**General Statistics**											
211	Number of Valid Data					36	Number of Detected Data					32
212	Number of Distinct Detected Data					22	Number of Non-Detect Data					4

213					Number of Missing Values	7					Percent Non-Detects	11.11%
214												
215					**Raw Statistics**						**Log-transformed Statistics**	
216					Minimum Detected	0.28					Minimum Detected	-1.273
217					Maximum Detected	14					Maximum Detected	2.639
218					Mean of Detected	2.322					Mean of Detected	0.417
219					SD of Detected	3.196					SD of Detected	0.823
220					Minimum Non-Detect	0.092					Minimum Non-Detect	-2.386
221					Maximum Non-Detect	0.19					Maximum Non-Detect	-1.661
222												
223	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	4
224	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	32
225	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	11.11%
226												
227					**UCL Statistics**							
228					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
229					Shapiro Wilk Test Statistic	0.501					Shapiro Wilk Test Statistic	0.913
230					5% Shapiro Wilk Critical Value	0.93					5% Shapiro Wilk Critical Value	0.93
231					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
232												
233					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
234					DL/2 Substitution Method						DL/2 Substitution Method	
235					Mean	2.072					Mean	0.0723
236					SD	3.092					SD	1.26
237					95% DL/2 (t) UCL	2.943					95% H-Stat (DL/2) UCL	2.545
238												
239					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
240					Mean	1.851					Mean in Log Scale	0.218
241					SD	3.302					SD in Log Scale	0.964
242					95% MLE (t) UCL	2.78					Mean in Original Scale	2.093
243					95% MLE (Tiku) UCL	2.729					SD in Original Scale	3.079
244											95% Percentile Bootstrap UCL	2.997
245											95% BCA Bootstrap UCL	3.382
246												
247					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
248					k star (bias corrected)	1.215					**Data do not follow a Discernable Distribution (0.05)**	
249					Theta Star	1.912						
250					nu star	77.74						
251												
252					A-D Test Statistic	2.438					**Nonparametric Statistics**	
253					5% A-D Critical Value	0.769					Kaplan-Meier (KM) Method	
254					K-S Test Statistic	0.769					Mean	2.095
255					5% K-S Critical Value	0.159					SD	3.034
256					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.514
257											95% KM (t) UCL	2.964
258					**Assuming Gamma Distribution**						95% KM (z) UCL	2.941
259					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.946
260					Minimum	1E-09					95% KM (bootstrap t) UCL	4.663
261					Maximum	14					95% KM (BCA) UCL	3.067
262					Mean	2.064					95% KM (Percentile Bootstrap) UCL	3.013
263					Median	1.25					95% KM (Chebyshev) UCL	4.335
264					SD	3.097					97.5% KM (Chebyshev) UCL	5.304
265					k star	0.261					99% KM (Chebyshev) UCL	7.208

266					Theta star	7.899						
267					Nu star	18.82	**Potential UCLs to Use**					
268					AppChi2	9.983					95% KM (Chebyshev) UCL	4.335
269					95% Gamma Approximate UCL	3.891						
270					95% Adjusted Gamma UCL	4.008						
271	**Note: DL/2 is not a recommended method.**											
272												
273												
274	**Aldrin**											
275												
276	**General Statistics**											
277					Number of Valid Data	41					Number of Detected Data	37
278					Number of Distinct Detected Data	33					Number of Non-Detect Data	4
279					Number of Missing Values	2					Percent Non-Detects	9.76%
280												
281	**Raw Statistics**						**Log-transformed Statistics**					
282					Minimum Detected	0.126					Minimum Detected	-2.071
283					Maximum Detected	5.07					Maximum Detected	1.623
284					Mean of Detected	0.378					Mean of Detected	-1.385
285					SD of Detected	0.799					SD of Detected	0.634
286					Minimum Non-Detect	0.0901					Minimum Non-Detect	-2.407
287					Maximum Non-Detect	1.1					Maximum Non-Detect	0.0953
288												
289	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	40
290	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
291	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	97.56%
292												
293	**UCL Statistics**											
294	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
295					Shapiro Wilk Test Statistic	0.26					Shapiro Wilk Test Statistic	0.741
296					5% Shapiro Wilk Critical Value	0.936					5% Shapiro Wilk Critical Value	0.936
297	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
298												
299	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
300					DL/2 Substitution Method						DL/2 Substitution Method	
301					Mean	0.38					Mean	-1.374
302					SD	0.76					SD	0.689
303					95% DL/2 (t) UCL	0.58					95% H-Stat (DL/2) UCL	0.403
304												
305					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
306	**MLE method failed to converge properly**										Mean in Log Scale	-1.423
307											SD in Log Scale	0.642
308											Mean in Original Scale	0.36
309											SD in Original Scale	0.76
310											95% Percentile Bootstrap UCL	0.595
311											95% BCA Bootstrap UCL	0.723
312												
313	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
314					k star (bias corrected)	1.266	**Data do not follow a Discernable Distribution (0.05)**					
315					Theta Star	0.299						
316					nu star	93.65						
317												
318					A-D Test Statistic	5.106	**Nonparametric Statistics**					

319				5% A-D Critical Value	0.769					Kaplan-Meier (KM) Method		
320				K-S Test Statistic	0.769					Mean		0.362
321				5% K-S Critical Value	0.148					SD		0.75
322				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		0.119
323										95% KM (t) UCL		0.562
324				**Assuming Gamma Distribution**						95% KM (z) UCL		0.557
325				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.562
326				Minimum	1E-09					95% KM (bootstrap t) UCL		1.501
327				Maximum	5.07					95% KM (BCA) UCL		0.615
328				Mean	0.37					95% KM (Percentile Bootstrap) UCL		0.591
329				Median	0.224					95% KM (Chebyshev) UCL		0.88
330				SD	0.761					97.5% KM (Chebyshev) UCL		1.104
331				k star	0.685					99% KM (Chebyshev) UCL		1.545
332				Theta star	0.539							
333				Nu star	56.21					**Potential UCLs to Use**		
334				AppChi2	39.98					95% KM (Chebyshev) UCL		0.88
335				95% Gamma Approximate UCL	0.52							
336				95% Adjusted Gamma UCL	0.526							
337	**Note: DL/2 is not a recommended method.**											
338												
339												
340	**alpha-Hexachlorocyclohexane**											
341												
342				**General Statistics**								
343				Number of Valid Data	34					Number of Detected Data		13
344				Number of Distinct Detected Data	13					Number of Non-Detect Data		21
345				Number of Missing Values	9					Percent Non-Detects		61.76%
346												
347				**Raw Statistics**						**Log-transformed Statistics**		
348				Minimum Detected	0.00569					Minimum Detected		-5.169
349				Maximum Detected	0.0205					Maximum Detected		-3.887
350				Mean of Detected	0.0124					Mean of Detected		-4.477
351				SD of Detected	0.005					SD of Detected		0.44
352				Minimum Non-Detect	0.00611					Minimum Non-Detect		-5.098
353				Maximum Non-Detect	0.0201					Maximum Non-Detect		-3.907
354												
355	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		33
356	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
357	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		97.06%
358												
359				**UCL Statistics**								
360				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
361				Shapiro Wilk Test Statistic	0.942					Shapiro Wilk Test Statistic		0.926
362				5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value		0.866
363				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
364												
365				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
366				DL/2 Substitution Method						DL/2 Substitution Method		
367				Mean	0.00806					Mean		-4.967
368				SD	0.00478					SD		0.532
369				95% DL/2 (t) UCL	0.00945					95% H-Stat (DL/2) UCL		0.01
370												
371				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		

372	MLE method failed to converge properly									Mean in Log Scale		-4.797
373										SD in Log Scale		0.374
374										Mean in Original Scale		0.00892
375										SD in Original Scale		0.0041
376										95% Percentile Bootstrap UCL		0.0101
377										95% BCA Bootstrap UCL		0.0104
378												
379	Gamma Distribution Test with Detected Values Only									Data Distribution Test with Detected Values Only		
380					k star (bias corrected)	4.746				Data appear Normal at 5% Significance Level		
381					Theta Star	0.0026						
382					nu star	123.4						
383												
384					A-D Test Statistic	0.346				Nonparametric Statistics		
385					5% A-D Critical Value	0.735				Kaplan-Meier (KM) Method		
386					K-S Test Statistic	0.735				Mean		0.00885
387					5% K-S Critical Value	0.237				SD		0.00428
388	Data appear Gamma Distributed at 5% Significance Level									SE of Mean		0.0008144
389										95% KM (t) UCL		0.0102
390	Assuming Gamma Distribution									95% KM (z) UCL		0.0102
391	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.0102
392					Minimum	0.00569				95% KM (bootstrap t) UCL		0.0104
393					Maximum	0.0205				95% KM (BCA) UCL		0.0105
394					Mean	0.0126				95% KM (Percentile Bootstrap) UCL		0.0104
395					Median	0.0125				95% KM (Chebyshev) UCL		0.0124
396					SD	0.00309				97.5% KM (Chebyshev) UCL		0.0139
397					k star	13.76				99% KM (Chebyshev) UCL		0.017
398					Theta star	0.0009166						
399					Nu star	935.9				Potential UCLs to Use		
400					AppChi2	865.9				95% KM (t) UCL		0.0102
401					95% Gamma Approximate UCL	0.0136				95% KM (Percentile Bootstrap) UCL		0.0104
402					95% Adjusted Gamma UCL	0.0137						
403	Note: DL/2 is not a recommended method.											
404												
405												
406	Aluminum											
407												
408	General Statistics											
409					Number of Valid Data	38				Number of Detected Data		38
410					Number of Distinct Detected Data	37				Number of Non-Detect Data		0
411					Number of Missing Values	5				Percent Non-Detects		0.00%
412												
413	Raw Statistics									Log-transformed Statistics		
414					Minimum Detected	20.5				Minimum Detected		3.02
415					Maximum Detected	202				Maximum Detected		5.308
416					Mean of Detected	89.99				Mean of Detected		4.326
417					SD of Detected	52.54				SD of Detected		0.616
418					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
419					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
420												
421												
422	UCL Statistics											
423	Normal Distribution Test with Detected Values Only									Lognormal Distribution Test with Detected Values Only		
424					Shapiro Wilk Test Statistic	0.901				Shapiro Wilk Test Statistic		0.963

	A	B	C	D	E	F	G	H	I	J	K	L
425					5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value	0.938
426	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
427												
428	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
429					DL/2 Substitution Method						DL/2 Substitution Method	
430					Mean	89.99					Mean	4.326
431					SD	52.54					SD	0.616
432					95% DL/2 (t) UCL	104.4					95% H-Stat (DL/2) UCL	111.9
433												
434					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
435	**MLE method failed to converge properly**										Mean in Log Scale	N/A
436											SD in Log Scale	N/A
437											Mean in Original Scale	N/A
438											SD in Original Scale	N/A
439											95% Percentile Bootstrap UCL	N/A
440											95% BCA Bootstrap UCL	N/A
441												
442	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
443					k star (bias corrected)	2.817	**Data appear Gamma Distributed at 5% Significance Level**					
444					Theta Star	31.94						
445					nu star	214.1						
446												
447					A-D Test Statistic	0.336	**Nonparametric Statistics**					
448					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
449					K-S Test Statistic	0.754					Mean	89.99
450					5% K-S Critical Value	0.144					SD	51.85
451	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	8.523
452											95% KM (t) UCL	104.4
453	**Assuming Gamma Distribution**										95% KM (z) UCL	104
454					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	104.4
455					Minimum	20.5					95% KM (bootstrap t) UCL	106.5
456					Maximum	202					95% KM (BCA) UCL	103.4
457					Mean	89.99					95% KM (Percentile Bootstrap) UCL	103.9
458					Median	74.9					95% KM (Chebyshev) UCL	127.1
459					SD	52.54					97.5% KM (Chebyshev) UCL	143.2
460					k star	2.817					99% KM (Chebyshev) UCL	174.8
461					Theta star	31.94						
462					Nu star	214.1	**Potential UCLs to Use**					
463					AppChi2	181.2					95% KM (BCA) UCL	103.4
464					95% Gamma Approximate UCL	106.3						
465					95% Adjusted Gamma UCL	107.1						
466	**Note: DL/2 is not a recommended method.**											
467												
468												
469	**Anthracene**											
470												
471	**General Statistics**											
472					Number of Valid Data	39					Number of Detected Data	36
473					Number of Distinct Detected Data	31					Number of Non-Detect Data	3
474					Number of Missing Values	4					Percent Non-Detects	7.69%
475												
476	**Raw Statistics**						**Log-transformed Statistics**					
477					Minimum Detected	1.1					Minimum Detected	0.0953

478					Maximum Detected	78					Maximum Detected	4.357
479					Mean of Detected	10.12					Mean of Detected	1.724
480					SD of Detected	16.29					SD of Detected	0.978
481					Minimum Non-Detect	31					Minimum Non-Detect	3.434
482					Maximum Non-Detect	33					Maximum Non-Detect	3.497
483												
484	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	37
485	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
486	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.87%
487												
488	**UCL Statistics**											
489	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
490					Shapiro Wilk Test Statistic	0.505					Shapiro Wilk Test Statistic	0.917
491					5% Shapiro Wilk Critical Value	0.935					5% Shapiro Wilk Critical Value	0.935
492	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
493												
494	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
495					DL/2 Substitution Method						DL/2 Substitution Method	
496					Mean	10.57					Mean	1.805
497					SD	15.72					SD	0.98
498					95% DL/2 (t) UCL	14.81					95% H-Stat (DL/2) UCL	16.42
499												
500					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
501	**MLE method failed to converge properly**										Mean in Log Scale	1.718
502											SD in Log Scale	0.938
503											Mean in Original Scale	9.74
504											SD in Original Scale	15.69
505											95% Percentile Bootstrap UCL	14.09
506											95% BCA Bootstrap UCL	16.24
507												
508	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
509					k star (bias corrected)	0.917	**Data do not follow a Discernable Distribution (0.05)**					
510					Theta Star	11.03						
511					nu star	66.04						
512												
513					A-D Test Statistic	2.693	**Nonparametric Statistics**					
514					5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method					
515					K-S Test Statistic	0.777					Mean	9.842
516					5% K-S Critical Value	0.151					SD	15.55
517	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	2.541
518											95% KM (t) UCL	14.13
519	**Assuming Gamma Distribution**										95% KM (z) UCL	14.02
520					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	14.12
521					Minimum	1.1					95% KM (bootstrap t) UCL	20.27
522					Maximum	78					95% KM (BCA) UCL	14.74
523					Mean	10.11					95% KM (Percentile Bootstrap) UCL	14.43
524					Median	5.6					95% KM (Chebyshev) UCL	20.92
525					SD	15.64					97.5% KM (Chebyshev) UCL	25.71
526					k star	0.989					99% KM (Chebyshev) UCL	35.13
527					Theta star	10.22						
528					Nu star	77.17	**Potential UCLs to Use**					
529					AppChi2	57.93					95% KM (Chebyshev) UCL	20.92
530					95% Gamma Approximate UCL	13.47						

531					95% Adjusted Gamma UCL	13.62						
532	**Note: DL/2 is not a recommended method.**											
533												
534												
535	**Antimony**											
536												
537	**General Statistics**											
538					Number of Valid Data	37				Number of Detected Data	16	
539					Number of Distinct Detected Data	5				Number of Non-Detect Data	21	
540					Number of Missing Values	6				Percent Non-Detects	56.76%	
541												
542	**Raw Statistics**						**Log-transformed Statistics**					
543					Minimum Detected	0.001				Minimum Detected	-6.908	
544					Maximum Detected	0.004				Maximum Detected	-5.521	
545					Mean of Detected	0.00192				Mean of Detected	-6.361	
546					SD of Detected	0.0009116				SD of Detected	0.48	
547					Minimum Non-Detect	0.001				Minimum Non-Detect	-6.908	
548					Maximum Non-Detect	0.003				Maximum Non-Detect	-5.809	
549												
550	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	34	
551	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	3	
552	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	91.89%	
553												
554	**UCL Statistics**											
555	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
556					Shapiro Wilk Test Statistic	0.854				Shapiro Wilk Test Statistic	0.842	
557					5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value	0.887	
558	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
559												
560	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
561					DL/2 Substitution Method					DL/2 Substitution Method		
562					Mean	0.00136				Mean	-6.782	
563					SD	0.0008427				SD	0.615	
564					95% DL/2 (t) UCL	0.00159				95% H-Stat (DL/2) UCL	0.00179	
565												
566					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
567					Mean	0.00178				Mean in Log Scale	-6.887	
568					SD	0.0008595				SD in Log Scale	0.654	
569					95% MLE (t) UCL	0.00202				Mean in Original Scale	0.00126	
570					95% MLE (Tiku) UCL	0.00298				SD in Original Scale	0.0008757	
571										95% Percentile Bootstrap UCL	0.0015	
572										95% BCA Bootstrap UCL	0.00154	
573												
574	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
575					k star (bias corrected)	3.998	**Data do not follow a Discernable Distribution (0.05)**					
576					Theta Star	0.0004807						
577					nu star	127.9						
578												
579					A-D Test Statistic	1.081	**Nonparametric Statistics**					
580					5% A-D Critical Value	0.741				Kaplan-Meier (KM) Method		
581					K-S Test Statistic	0.741				Mean	0.00145	
582					5% K-S Critical Value	0.216				SD	0.0007502	
583	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean	0.000134	

584											95% KM (t) UCL	0.00168
585	**Assuming Gamma Distribution**										95% KM (z) UCL	0.00167
586					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00168
587					Minimum	0.0002976					95% KM (bootstrap t) UCL	0.00172
588					Maximum	0.004					95% KM (BCA) UCL	0.00169
589					Mean	0.00188					95% KM (Percentile Bootstrap) UCL	0.00168
590					Median	0.002					95% KM (Chebyshev) UCL	0.00204
591					SD	0.0008162					97.5% KM (Chebyshev) UCL	0.00229
592					k star	4.347					99% KM (Chebyshev) UCL	0.00279
593					Theta star	0.0004326						
594					Nu star	321.7	**Potential UCLs to Use**					
595					AppChi2	281.1					95% KM (t) UCL	0.00168
596					95% Gamma Approximate UCL	0.00215					95% KM (% Bootstrap) UCL	0.00168
597					95% Adjusted Gamma UCL	0.00216						
598	**Note: DL/2 is not a recommended method.**											
599												
600												
601	**Arsenic**											
602												
603						**General Statistics**						
604					Number of Valid Data	38					Number of Detected Data	38
605					Number of Distinct Detected Data	36					Number of Non-Detect Data	0
606					Number of Missing Values	5					Percent Non-Detects	0.00%
607												
608					**Raw Statistics**		**Log-transformed Statistics**					
609					Minimum Detected	0.654					Minimum Detected	-0.425
610					Maximum Detected	1.25					Maximum Detected	0.223
611					Mean of Detected	0.908					Mean of Detected	-0.104
612					SD of Detected	0.113					SD of Detected	0.125
613					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
614					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
615												
616												
617						**UCL Statistics**						
618					**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**					
619					Shapiro Wilk Test Statistic	0.977					Shapiro Wilk Test Statistic	0.98
620					5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value	0.938
621					**Data appear Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**					
622												
623					**Assuming Normal Distribution**		**Assuming Lognormal Distribution**					
624					DL/2 Substitution Method						DL/2 Substitution Method	
625					Mean	0.908					Mean	-0.104
626					SD	0.113					SD	0.125
627					95% DL/2 (t) UCL	0.939					95% H-Stat (DL/2) UCL	0.94
628												
629					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
630					**MLE method failed to converge properly**						Mean in Log Scale	N/A
631											SD in Log Scale	N/A
632											Mean in Original Scale	N/A
633											SD in Original Scale	N/A
634											95% Percentile Bootstrap UCL	N/A
635											95% BCA Bootstrap UCL	N/A
636												

637	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
638					k star (bias corrected)	61.3	**Data appear Normal at 5% Significance Level**					
639					Theta Star	0.0148						
640					nu star	4659						
641												
642					A-D Test Statistic	0.328	**Nonparametric Statistics**					
643					5% A-D Critical Value	0.746				Kaplan-Meier (KM) Method		
644					K-S Test Statistic	0.746				Mean		0.908
645					5% K-S Critical Value	0.143				SD		0.111
646	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0183
647										95% KM (t) UCL		0.939
648	**Assuming Gamma Distribution**									95% KM (z) UCL		0.938
649					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.939
650					Minimum	0.654				95% KM (bootstrap t) UCL		0.941
651					Maximum	1.25				95% KM (BCA) UCL		0.938
652					Mean	0.908				95% KM (Percentile Bootstrap) UCL		0.938
653					Median	0.911				95% KM (Chebyshev) UCL		0.988
654					SD	0.113				97.5% KM (Chebyshev) UCL		1.022
655					k star	61.3				99% KM (Chebyshev) UCL		1.09
656					Theta star	0.0148						
657					Nu star	4659	**Potential UCLs to Use**					
658					AppChi2	4501				95% KM (t) UCL		0.939
659					95% Gamma Approximate UCL	0.94				95% KM (Percentile Bootstrap) UCL		0.938
660					95% Adjusted Gamma UCL	0.941						
661	**Note: DL/2 is not a recommended method.**											
662												
663												
664	**Benzo(a)anthracene**											
665												
666	**General Statistics**											
667					Number of Valid Data	39				Number of Detected Data		37
668					Number of Distinct Detected Data	33				Number of Non-Detect Data		2
669					Number of Missing Values	4				Percent Non-Detects		5.13%
670												
671	**Raw Statistics**						**Log-transformed Statistics**					
672					Minimum Detected	1.9				Minimum Detected		0.642
673					Maximum Detected	670				Maximum Detected		6.507
674					Mean of Detected	66.03				Mean of Detected		3.149
675					SD of Detected	146				SD of Detected		1.33
676					Minimum Non-Detect	32				Minimum Non-Detect		3.466
677					Maximum Non-Detect	33				Maximum Non-Detect		3.497
678												
679	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		24
680	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		15
681	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		61.54%
682												
683	**UCL Statistics**											
684	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
685					Shapiro Wilk Test Statistic	0.425				Shapiro Wilk Test Statistic		0.966
686					5% Shapiro Wilk Critical Value	0.936				5% Shapiro Wilk Critical Value		0.936
687	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
688												
689	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					

690				DL/2 Substitution Method						DL/2 Substitution Method		
691				Mean	63.47					Mean		3.131
692				SD	142.6					SD		1.297
693				95% DL/2 (t) UCL	102					95% H-Stat (DL/2) UCL		94.9
694												
695				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
696				**MLE yields a negative mean**						Mean in Log Scale		3.111
697										SD in Log Scale		1.305
698										Mean in Original Scale		63.21
699										SD in Original Scale		142.7
700										95% Percentile Bootstrap UCL		105.2
701										95% BCA Bootstrap UCL		121.7
702												
703				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
704				k star (bias corrected)	0.564					**Data appear Lognormal at 5% Significance Level**		
705				Theta Star	117							
706				nu star	41.75							
707												
708				A-D Test Statistic	2.316					**Nonparametric Statistics**		
709				5% A-D Critical Value	0.803					Kaplan-Meier (KM) Method		
710				K-S Test Statistic	0.803					Mean		63.28
711				5% K-S Critical Value	0.152					SD		140.8
712				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		22.86
713										95% KM (t) UCL		101.8
714				**Assuming Gamma Distribution**						95% KM (z) UCL		100.9
715				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		101.8
716				Minimum	1E-09					95% KM (bootstrap t) UCL		217.8
717				Maximum	670					95% KM (BCA) UCL		105.8
718				Mean	62.64					95% KM (Percentile Bootstrap) UCL		105.1
719				Median	18					95% KM (Chebyshev) UCL		162.9
720				SD	142.9					97.5% KM (Chebyshev) UCL		206
721				k star	0.303					99% KM (Chebyshev) UCL		290.7
722				Theta star	206.6							
723				Nu star	23.65					**Potential UCLs to Use**		
724				AppChi2	13.59					97.5% KM (Chebyshev) UCL		206
725				95% Gamma Approximate UCL	109.1							
726				95% Adjusted Gamma UCL	111.5							
727	**Note: DL/2 is not a recommended method.**											
728												
729												
730	**Benzo(a)pyrene**											
731												
732							**General Statistics**					
733				Number of Valid Data	39					Number of Detected Data		34
734				Number of Distinct Detected Data	31					Number of Non-Detect Data		5
735				Number of Missing Values	4					Percent Non-Detects		12.82%
736												
737				**Raw Statistics**						**Log-transformed Statistics**		
738				Minimum Detected	0.78					Minimum Detected		-0.248
739				Maximum Detected	490					Maximum Detected		6.194
740				Mean of Detected	35.81					Mean of Detected		1.817
741				SD of Detected	112.1					SD of Detected		1.487
742				Minimum Non-Detect	0.17					Minimum Non-Detect		-1.772

743				Maximum Non-Detect	34					Maximum Non-Detect	3.526	
744												
745	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect	35	
746	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected	4	
747	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	89.74%	
748												
749	**UCL Statistics**											
750	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
751	Shapiro Wilk Test Statistic				0.324		Shapiro Wilk Test Statistic				0.871	
752	5% Shapiro Wilk Critical Value				0.933		5% Shapiro Wilk Critical Value				0.933	
753	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
754												
755	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
756	DL/2 Substitution Method						DL/2 Substitution Method					
757	Mean				32.49		Mean				1.673	
758	SD				104.9		SD				1.715	
759	95% DL/2 (t) UCL				60.81		95% H-Stat (DL/2) UCL				42.27	
760												
761	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
762	**MLE yields a negative mean**						Mean in Log Scale				1.613	
763							SD in Log Scale				1.575	
764							Mean in Original Scale				31.54	
765							SD in Original Scale				105.1	
766							95% Percentile Bootstrap UCL				58.75	
767							95% BCA Bootstrap UCL				71.31	
768												
769	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
770	k star (bias corrected)				0.364		**Data do not follow a Discernable Distribution (0.05)**					
771	Theta Star				98.5							
772	nu star				24.72							
773												
774	A-D Test Statistic				5.026		**Nonparametric Statistics**					
775	5% A-D Critical Value				0.839		Kaplan-Meier (KM) Method					
776	K-S Test Statistic				0.839		Mean				31.66	
777	5% K-S Critical Value				0.162		SD				103.7	
778	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean				16.86	
779							95% KM (t) UCL				60.09	
780	**Assuming Gamma Distribution**						95% KM (z) UCL				59.39	
781	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				60.03	
782	Minimum				0.78		95% KM (bootstrap t) UCL				295.6	
783	Maximum				490		95% KM (BCA) UCL				59.29	
784	Mean				35.9		95% KM (Percentile Bootstrap) UCL				58.95	
785	Median				5.5		95% KM (Chebyshev) UCL				105.1	
786	SD				104.5		97.5% KM (Chebyshev) UCL				136.9	
787	k star				0.409		99% KM (Chebyshev) UCL				199.4	
788	Theta star				87.78							
789	Nu star				31.9		**Potential UCLs to Use**					
790	AppChi2				19.99		97.5% KM (Chebyshev) UCL				136.9	
791	95% Gamma Approximate UCL				57.28							
792	95% Adjusted Gamma UCL				58.37							
793	**Note: DL/2 is not a recommended method.**											
794												
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	**Benzo(b)fluoranthene**											
797												
798	**General Statistics**											
799	Number of Valid Data					39	Number of Detected Data					34
800	Number of Distinct Detected Data					28	Number of Non-Detect Data					5
801	Number of Missing Values					4	Percent Non-Detects					12.82%
802												
803	**Raw Statistics**						**Log-transformed Statistics**					
804	Minimum Detected					0.955	Minimum Detected					-0.046
805	Maximum Detected					460	Maximum Detected					6.131
806	Mean of Detected					37.34	Mean of Detected					2.131
807	SD of Detected					104.5	SD of Detected					1.459
808	Minimum Non-Detect					0.43	Minimum Non-Detect					-0.844
809	Maximum Non-Detect					33	Maximum Non-Detect					3.497
810												
811	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					34
812	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					5
813	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					87.18%
814												
815	**UCL Statistics**											
816	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
817	Shapiro Wilk Test Statistic					0.357	Shapiro Wilk Test Statistic					0.914
818	5% Shapiro Wilk Critical Value					0.933	5% Shapiro Wilk Critical Value					0.933
819	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
820												
821	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
822	DL/2 Substitution Method						DL/2 Substitution Method					
823	Mean					33.8	Mean					2
824	SD					97.87	SD					1.586
825	95% DL/2 (t) UCL					60.22	95% H-Stat (DL/2) UCL					43.82
826												
827	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
828	**MLE yields a negative mean**						Mean in Log Scale					1.924
829							SD in Log Scale					1.55
830							Mean in Original Scale					32.97
831							SD in Original Scale					98.07
832							95% Percentile Bootstrap UCL					64.58
833							95% BCA Bootstrap UCL					69.83
834												
835	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
836	k star (bias corrected)					0.417	**Data do not follow a Discernable Distribution (0.05)**					
837	Theta Star					89.54						
838	nu star					28.36						
839												
840	A-D Test Statistic					3.721	**Nonparametric Statistics**					
841	5% A-D Critical Value					0.826	Kaplan-Meier (KM) Method					
842	K-S Test Statistic					0.826	Mean					33.18
843	5% K-S Critical Value					0.161	SD					96.77
844	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					15.73
845							95% KM (t) UCL					59.7
846	**Assuming Gamma Distribution**						95% KM (z) UCL					59.06
847	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					59.63
848	Minimum					0.955	95% KM (bootstrap t) UCL					196.4

849					Maximum	460					95% KM (BCA) UCL	63.86
850					Mean	37.28					95% KM (Percentile Bootstrap) UCL	59.24
851					Median	8.8					95% KM (Chebyshev) UCL	101.8
852					SD	97.39					97.5% KM (Chebyshev) UCL	131.4
853					k star	0.47					99% KM (Chebyshev) UCL	189.7
854					Theta star	79.32						
855					Nu star	36.66					**Potential UCLs to Use**	
856					AppChi2	23.8					97.5% KM (Chebyshev) UCL	131.4
857					95% Gamma Approximate UCL	57.43						
858					95% Adjusted Gamma UCL	58.43						
859	**Note: DL/2 is not a recommended method.**											
860												
861												
862	**Benzo(e)pyrene**											
863												
864					**General Statistics**							
865					Number of Valid Data	7					Number of Detected Data	7
866					Number of Distinct Detected Data	7					Number of Non-Detect Data	0
867					Number of Missing Values	36					Percent Non-Detects	0.00%
868												
869					**Raw Statistics**						**Log-transformed Statistics**	
870					Minimum Detected	1.2					Minimum Detected	0.182
871					Maximum Detected	11					Maximum Detected	2.398
872					Mean of Detected	5.029					Mean of Detected	1.318
873					SD of Detected	3.825					SD of Detected	0.878
874					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
875					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
876												
877												
878					**Warning: There are only 7 Detected Values in this data**							
879					**Note: It should be noted that even though bootstrap may be performed on this data set**							
880					**the resulting calculations may not be reliable enough tp draw conclusions**							
881												
882					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
883												
884												
885					**UCL Statistics**							
886					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
887					Shapiro Wilk Test Statistic	0.898					Shapiro Wilk Test Statistic	0.92
888					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
889					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
890												
891					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
892					DL/2 Substitution Method						DL/2 Substitution Method	
893					Mean	5.029					Mean	1.318
894					SD	3.825					SD	0.878
895					95% DL/2 (t) UCL	7.838					95% H-Stat (DL/2) UCL	18.33
896												
897					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
898					**MLE method failed to converge properly**						Mean in Log Scale	N/A
899											SD in Log Scale	N/A
900											Mean in Original Scale	N/A
901											SD in Original Scale	N/A

902											95% Percentile Bootstrap UCL	N/A
903											95% BCA Bootstrap UCL	N/A
904												
905	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
906					k star (bias corrected)	1.142	**Data appear Normal at 5% Significance Level**					
907					Theta Star	4.402						
908					nu star	15.99						
909												
910					A-D Test Statistic	0.291	**Nonparametric Statistics**					
911					5% A-D Critical Value	0.717	Kaplan-Meier (KM) Method					
912					K-S Test Statistic	0.717	Mean	5.029				
913					5% K-S Critical Value	0.316	SD	3.541				
914	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	1.446				
915							95% KM (t) UCL	7.838				
916	**Assuming Gamma Distribution**						95% KM (z) UCL	7.407				
917					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.838				
918					Minimum	1.2	95% KM (bootstrap t) UCL	9.77				
919					Maximum	11	95% KM (BCA) UCL	7.214				
920					Mean	5.029	95% KM (Percentile Bootstrap) UCL	7.271				
921					Median	3.5	95% KM (Chebyshev) UCL	11.33				
922					SD	3.825	97.5% KM (Chebyshev) UCL	14.06				
923					k star	1.142	99% KM (Chebyshev) UCL	19.41				
924					Theta star	4.402						
925					Nu star	15.99	**Potential UCLs to Use**					
926					AppChi2	7.957	95% KM (t) UCL	7.838				
927					95% Gamma Approximate UCL	10.11	95% KM (Percentile Bootstrap) UCL	7.271				
928					95% Adjusted Gamma UCL	12.72						
929	**Note: DL/2 is not a recommended method.**											
930												
931												
932	**Benzo(g,h,i)perylene**											
933												
934	**General Statistics**											
935					Number of Valid Data	39	Number of Detected Data	34				
936					Number of Distinct Detected Data	31	Number of Non-Detect Data	5				
937					Number of Missing Values	4	Percent Non-Detects	12.82%				
938												
939	**Raw Statistics**						**Log-transformed Statistics**					
940					Minimum Detected	0.485	Minimum Detected	-0.724				
941					Maximum Detected	230	Maximum Detected	5.438				
942					Mean of Detected	17.22	Mean of Detected	1.164				
943					SD of Detected	54.19	SD of Detected	1.419				
944					Minimum Non-Detect	0.43	Minimum Non-Detect	-0.844				
945					Maximum Non-Detect	160	Maximum Non-Detect	5.075				
946												
947	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	37				
948	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	2				
949	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	94.87%				
950												
951	**UCL Statistics**											
952	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
953					Shapiro Wilk Test Statistic	0.314	Shapiro Wilk Test Statistic	0.852				
954					5% Shapiro Wilk Critical Value	0.933	5% Shapiro Wilk Critical Value	0.933				

	A	B	C	D	E	F	G	H	I	J	K	L
955	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
956												
957	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
958					DL/2 Substitution Method						DL/2 Substitution Method	
959					Mean	18.54					Mean	1.216
960					SD	51.78					SD	1.624
961					95% DL/2 (t) UCL	32.52					95% H-Stat (DL/2) UCL	26.34
962												
963					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
964	**MLE method failed to converge properly**										Mean in Log Scale	0.98
965											SD in Log Scale	1.498
966											Mean in Original Scale	15.2
967											SD in Original Scale	50.78
968											95% Percentile Bootstrap UCL	31.36
969											95% BCA Bootstrap UCL	38.26
970												
971	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
972					k star (bias corrected)	0.377	**Data do not follow a Discernable Distribution (0.05)**					
973					Theta Star	45.63						
974					nu star	25.66						
975												
976					A-D Test Statistic	5.265	**Nonparametric Statistics**					
977					5% A-D Critical Value	0.835					Kaplan-Meier (KM) Method	
978					K-S Test Statistic	0.835					Mean	15.32
979					5% K-S Critical Value	0.162					SD	50.11
980	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	8.148
981											95% KM (t) UCL	29.06
982	**Assuming Gamma Distribution**										95% KM (z) UCL	28.72
983					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	29.02
984					Minimum	1E-09					95% KM (bootstrap t) UCL	151.2
985					Maximum	230					95% KM (BCA) UCL	27.49
986					Mean	15.34					95% KM (Percentile Bootstrap) UCL	28.28
987					Median	3.1					95% KM (Chebyshev) UCL	50.84
988					SD	50.75					97.5% KM (Chebyshev) UCL	66.21
989					k star	0.261					99% KM (Chebyshev) UCL	96.39
990					Theta star	58.82						
991					Nu star	20.35	**Potential UCLs to Use**					
992					AppChi2	11.11					97.5% KM (Chebyshev) UCL	66.21
993					95% Gamma Approximate UCL	28.11						
994					95% Adjusted Gamma UCL	28.81						
995	**Note: DL/2 is not a recommended method.**											
996												
997												
998	**Benzo(k)fluoranthene**											
999												
1000	**General Statistics**											
1001					Number of Valid Data	39					Number of Detected Data	32
1002					Number of Distinct Detected Data	28					Number of Non-Detect Data	7
1003					Number of Missing Values	4					Percent Non-Detects	17.95%
1004												
1005	**Raw Statistics**						**Log-transformed Statistics**					
1006					Minimum Detected	0.47					Minimum Detected	-0.755
1007					Maximum Detected	310					Maximum Detected	5.737

	A	B	C	D	E	F	G	H	I	J	K	L
1008					Mean of Detected	25.05					Mean of Detected	1.609
1009					SD of Detected	71.49					SD of Detected	1.52
1010					Minimum Non-Detect	0.23					Minimum Non-Detect	-1.47
1011					Maximum Non-Detect	33					Maximum Non-Detect	3.497
1012												
1013	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	36
1014	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
1015	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.31%
1016												
1017	**UCL Statistics**											
1018	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1019					Shapiro Wilk Test Statistic	0.357					Shapiro Wilk Test Statistic	0.917
1020					5% Shapiro Wilk Critical Value	0.93					5% Shapiro Wilk Critical Value	0.93
1021	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1022												
1023	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1024					DL/2 Substitution Method						DL/2 Substitution Method	
1025					Mean	21.8					Mean	1.36
1026					SD	65.04					SD	1.759
1027					95% DL/2 (t) UCL	39.36					95% H-Stat (DL/2) UCL	36.63
1028												
1029					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1030	**MLE yields a negative mean**										Mean in Log Scale	1.231
1031											SD in Log Scale	1.698
1032											Mean in Original Scale	20.79
1033											SD in Original Scale	65.23
1034											95% Percentile Bootstrap UCL	38.09
1035											95% BCA Bootstrap UCL	45.6
1036												
1037	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1038					k star (bias corrected)	0.39	**Data do not follow a Discernable Distribution (0.05)**					
1039					Theta Star	64.26						
1040					nu star	24.94						
1041												
1042					A-D Test Statistic	3.708	**Nonparametric Statistics**					
1043					5% A-D Critical Value	0.831					Kaplan-Meier (KM) Method	
1044					K-S Test Statistic	0.831					Mean	21
1045					5% K-S Critical Value	0.166					SD	64.35
1046	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	10.47
1047											95% KM (t) UCL	38.65
1048	**Assuming Gamma Distribution**										95% KM (z) UCL	38.22
1049					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	38.58
1050					Minimum	1E-09					95% KM (bootstrap t) UCL	150.7
1051					Maximum	310					95% KM (BCA) UCL	38.25
1052					Mean	21.3					95% KM (Percentile Bootstrap) UCL	37.75
1053					Median	3.5					95% KM (Chebyshev) UCL	66.65
1054					SD	65.11					97.5% KM (Chebyshev) UCL	86.4
1055					k star	0.201					99% KM (Chebyshev) UCL	125.2
1056					Theta star	105.8						
1057					Nu star	15.7	**Potential UCLs to Use**					
1058					AppChi2	7.752					99% KM (Chebyshev) UCL	125.2
1059					95% Gamma Approximate UCL	43.14						
1060					95% Adjusted Gamma UCL	44.41						

	A	B	C	D	E	F	G	H	I	J	K	L
1061	**Note: DL/2 is not a recommended method.**											
1062												
1063												
1064	**Benzoic acid**											
1065												
1066	**General Statistics**											
1067	Number of Valid Data					7	Number of Detected Data					7
1068	Number of Distinct Detected Data					7	Number of Non-Detect Data					0
1069	Number of Missing Values					36	Percent Non-Detects					0.00%
1070												
1071	**Raw Statistics**						**Log-transformed Statistics**					
1072	Minimum Detected					1900	Minimum Detected					7.55
1073	Maximum Detected					5900	Maximum Detected					8.683
1074	Mean of Detected					3800	Mean of Detected					8.184
1075	SD of Detected					1328	SD of Detected					0.382
1076	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
1077	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
1078												
1079												
1080	**Warning: There are only 7 Detected Values in this data**											
1081	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1082	**the resulting calculations may not be reliable enough tp draw conclusions**											
1083												
1084	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1085												
1086												
1087	**UCL Statistics**											
1088	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1089	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Test Statistic					0.944
1090	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
1091	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1092												
1093	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1094	DL/2 Substitution Method						DL/2 Substitution Method					
1095	Mean					3800	Mean					8.184
1096	SD					1328	SD					0.382
1097	95% DL/2 (t) UCL					4775	95% H-Stat (DL/2) UCL					5502
1098												
1099	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1100	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1101							SD in Log Scale					N/A
1102							Mean in Original Scale					N/A
1103							SD in Original Scale					N/A
1104							95% Percentile Bootstrap UCL					N/A
1105							95% BCA Bootstrap UCL					N/A
1106												
1107	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1108	k star (bias corrected)					5.082	**Data appear Normal at 5% Significance Level**					
1109	Theta Star					747.8						
1110	nu star					71.14						
1111												
1112	A-D Test Statistic					0.277	**Nonparametric Statistics**					
1113	5% A-D Critical Value					0.709	Kaplan-Meier (KM) Method					

1114					K-S Test Statistic	0.709					Mean	3800
1115					5% K-S Critical Value	0.312					SD	1229
1116					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	501.9
1117											95% KM (t) UCL	4775
1118					**Assuming Gamma Distribution**						95% KM (z) UCL	4626
1119					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4775
1120					Minimum	1900					95% KM (bootstrap t) UCL	4800
1121					Maximum	5900					95% KM (BCA) UCL	4529
1122					Mean	3800					95% KM (Percentile Bootstrap) UCL	4600
1123					Median	3900					95% KM (Chebyshev) UCL	5988
1124					SD	1328					97.5% KM (Chebyshev) UCL	6934
1125					k star	5.082					99% KM (Chebyshev) UCL	8794
1126					Theta star	747.8						
1127					Nu star	71.14					**Potential UCLs to Use**	
1128					AppChi2	52.72					95% KM (t) UCL	4775
1129					95% Gamma Approximate UCL	5128					95% KM (Percentile Bootstrap) UCL	4600
1130					95% Adjusted Gamma UCL	5636						
1131	**Note: DL/2 is not a recommended method.**											
1132												
1133												
1134	**Benzyl alcohol**											
1135												
1136					**General Statistics**							
1137					Number of Valid Data	38					Number of Detected Data	29
1138					Number of Distinct Detected Data	21					Number of Non-Detect Data	9
1139					Number of Missing Values	5					Percent Non-Detects	23.68%
1140												
1141					**Raw Statistics**						**Log-transformed Statistics**	
1142					Minimum Detected	8.6					Minimum Detected	2.152
1143					Maximum Detected	1300					Maximum Detected	7.17
1144					Mean of Detected	72.37					Mean of Detected	3.134
1145					SD of Detected	238.1					SD of Detected	1.086
1146					Minimum Non-Detect	6.7					Minimum Non-Detect	1.902
1147					Maximum Non-Detect	330					Maximum Non-Detect	5.799
1148												
1149	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	37
1150	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
1151	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	97.37%
1152												
1153					**UCL Statistics**							
1154					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1155					Shapiro Wilk Test Statistic	0.27					Shapiro Wilk Test Statistic	0.774
1156					5% Shapiro Wilk Critical Value	0.926					5% Shapiro Wilk Critical Value	0.926
1157					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
1158												
1159					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1160					DL/2 Substitution Method						DL/2 Substitution Method	
1161					Mean	65.37					Mean	3.058
1162					SD	209.8					SD	1.141
1163					95% DL/2 (t) UCL	122.8					95% H-Stat (DL/2) UCL	74.67
1164												
1165					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1166					**MLE method failed to converge properly**						Mean in Log Scale	2.949

1167											SD in Log Scale	1.063
1168											Mean in Original Scale	58.25
1169											SD in Original Scale	208.7
1170											95% Percentile Bootstrap UCL	123.6
1171											95% BCA Bootstrap UCL	190
1172												
1173	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1174					k star (bias corrected)	0.513	**Data do not follow a Discernable Distribution (0.05)**					
1175					Theta Star	141.2						
1176					nu star	29.73						
1177												
1178					A-D Test Statistic	4.703	**Nonparametric Statistics**					
1179					5% A-D Critical Value	0.806	Kaplan-Meier (KM) Method					
1180					K-S Test Statistic	0.806	Mean	58.72				
1181					5% K-S Critical Value	0.172	SD	205.9				
1182	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	34.02				
1183							95% KM (t) UCL	116.1				
1184	**Assuming Gamma Distribution**						95% KM (z) UCL	114.7				
1185	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	115.9				
1186					Minimum	1E-09	95% KM (bootstrap t) UCL	442.5				
1187					Maximum	1300	95% KM (BCA) UCL	127.2				
1188					Mean	66.09	95% KM (Percentile Bootstrap) UCL	124.7				
1189					Median	17.34	95% KM (Chebyshev) UCL	207				
1190					SD	208.9	97.5% KM (Chebyshev) UCL	271.2				
1191					k star	0.214	99% KM (Chebyshev) UCL	397.2				
1192					Theta star	309.5						
1193					Nu star	16.23	**Potential UCLs to Use**					
1194					AppChi2	8.123	97.5% KM (Chebyshev) UCL	271.2				
1195					95% Gamma Approximate UCL	132						
1196					95% Adjusted Gamma UCL	136						
1197	**Note: DL/2 is not a recommended method.**											
1198												
1199												
1200	**Bis(2-ethylhexyl) phthalate**											
1201												
1202	**General Statistics**											
1203					Number of Valid Data	36	Number of Detected Data	6				
1204					Number of Distinct Detected Data	6	Number of Non-Detect Data	30				
1205					Number of Missing Values	7	Percent Non-Detects	83.33%				
1206												
1207	**Raw Statistics**						**Log-transformed Statistics**					
1208					Minimum Detected	77	Minimum Detected	4.344				
1209					Maximum Detected	150	Maximum Detected	5.011				
1210					Mean of Detected	111.8	Mean of Detected	4.687				
1211					SD of Detected	29.71	SD of Detected	0.27				
1212					Minimum Non-Detect	53	Minimum Non-Detect	3.97				
1213					Maximum Non-Detect	140	Maximum Non-Detect	4.942				
1214												
1215	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	34				
1216	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	2				
1217	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	94.44%				
1218												
1219	**Warning: There are only 6 Detected Values in this data**											

	A	B	C	D	E	F	G	H	I	J	K	L
1220	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1221	**the resulting calculations may not be reliable enough tp draw conclusions**											
1222												
1223	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1224												
1225												
1226	**UCL Statistics**											
1227	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1228	Shapiro Wilk Test Statistic					0.934	Shapiro Wilk Test Statistic					0.938
1229	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
1230	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1231												
1232	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1233	DL/2 Substitution Method						DL/2 Substitution Method					
1234	Mean					48.19	Mean					3.703
1235	SD					33.46	SD					0.553
1236	95% DL/2 (t) UCL					57.62	95% H-Stat (DL/2) UCL					51.36
1237												
1238	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1239	**MLE method failed to converge properly**						Mean in Log Scale					3.828
1240							SD in Log Scale					0.532
1241							Mean in Original Scale					53.14
1242							SD in Original Scale					31.91
1243							95% Percentile Bootstrap UCL					62
1244							95% BCA Bootstrap UCL					63.5
1245												
1246	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1247	k star (bias corrected)					8.494	**Data appear Normal at 5% Significance Level**					
1248	Theta Star					13.17						
1249	nu star					101.9						
1250												
1251	A-D Test Statistic					0.274	**Nonparametric Statistics**					
1252	5% A-D Critical Value					0.697	Kaplan-Meier (KM) Method					
1253	K-S Test Statistic					0.697	Mean					83.11
1254	5% K-S Critical Value					0.332	SD					17.15
1255	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					3.17
1256							95% KM (t) UCL					88.46
1257	**Assuming Gamma Distribution**						95% KM (z) UCL					88.32
1258	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					88.95
1259	Minimum					66.71	95% KM (bootstrap t) UCL					88.38
1260	Maximum					211.4	95% KM (BCA) UCL					121.9
1261	Mean					155.1	95% KM (Percentile Bootstrap) UCL					106.7
1262	Median					166.5	95% KM (Chebyshev) UCL					96.92
1263	SD					40.03	97.5% KM (Chebyshev) UCL					102.9
1264	k star					11.9	99% KM (Chebyshev) UCL					114.6
1265	Theta star					13.03						
1266	Nu star					856.6	**Potential UCLs to Use**					
1267	AppChi2					789.7	95% KM (t) UCL					88.46
1268	95% Gamma Approximate UCL					168.2	95% KM (Percentile Bootstrap) UCL					106.7
1269	95% Adjusted Gamma UCL					168.8						
1270	**Note: DL/2 is not a recommended method.**											
1271												
1272												

1273	**Butyltin ion**											
1274												
1275						**General Statistics**							
1276						Number of Valid Data	34				Number of Detected Data	23
1277						Number of Distinct Detected Data	20				Number of Non-Detect Data	11
1278						Number of Missing Values	9				Percent Non-Detects	32.35%
1279												
1280						**Raw Statistics**					**Log-transformed Statistics**	
1281						Minimum Detected	1				Minimum Detected	0
1282						Maximum Detected	97				Maximum Detected	4.575
1283						Mean of Detected	7.337				Mean of Detected	1.178
1284						SD of Detected	19.64				SD of Detected	0.928
1285						Minimum Non-Detect	0.061				Minimum Non-Detect	-2.797
1286						Maximum Non-Detect	1.3				Maximum Non-Detect	0.262
1287												
1288	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	12
1289	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	22
1290	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	35.29%
1291												
1292						**UCL Statistics**							
1293						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**	
1294						Shapiro Wilk Test Statistic	0.292				Shapiro Wilk Test Statistic	0.805
1295						5% Shapiro Wilk Critical Value	0.914				5% Shapiro Wilk Critical Value	0.914
1296						**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**	
1297												
1298						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
1299						DL/2 Substitution Method					DL/2 Substitution Method	
1300						Mean	5.092				Mean	0.371
1301						SD	16.37				SD	1.545
1302						95% DL/2 (t) UCL	9.844				95% H-Stat (DL/2) UCL	6.695
1303												
1304						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
1305						**MLE yields a negative mean**					Mean in Log Scale	0.532
1306											SD in Log Scale	1.221
1307											Mean in Original Scale	5.109
1308											SD in Original Scale	16.37
1309											95% Percentile Bootstrap UCL	10.59
1310											95% BCA Bootstrap UCL	13.54
1311												
1312						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**	
1313						k star (bias corrected)	0.67				**Data do not follow a Discernable Distribution (0.05)**	
1314						Theta Star	10.96					
1315						nu star	30.8					
1316												
1317						A-D Test Statistic	3.441				**Nonparametric Statistics**	
1318						5% A-D Critical Value	0.783				Kaplan-Meier (KM) Method	
1319						K-S Test Statistic	0.783				Mean	5.287
1320						5% K-S Critical Value	0.189				SD	16.07
1321						**Data not Gamma Distributed at 5% Significance Level**					SE of Mean	2.819
1322											95% KM (t) UCL	10.06
1323						**Assuming Gamma Distribution**					95% KM (z) UCL	9.923
1324						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	9.936
1325						Minimum	1E-09				95% KM (bootstrap t) UCL	37.76

1326					Maximum	97					95% KM (BCA) UCL	11.07
1327					Mean	5.04					95% KM (Percentile Bootstrap) UCL	10.82
1328					Median	2.05					95% KM (Chebyshev) UCL	17.57
1329					SD	16.39					97.5% KM (Chebyshev) UCL	22.89
1330					k star	0.125					99% KM (Chebyshev) UCL	33.33
1331					Theta star	40.29						
1332					Nu star	8.507					**Potential UCLs to Use**	
1333					AppChi2	3.032					95% KM (BCA) UCL	11.07
1334					95% Gamma Approximate UCL	14.14						
1335					95% Adjusted Gamma UCL	14.93						
1336	**Note: DL/2 is not a recommended method.**											
1337												
1338												
1339	**Cadmium**											
1340												
1341	**General Statistics**											
1342					Number of Valid Data	38					Number of Detected Data	38
1343					Number of Distinct Detected Data	36					Number of Non-Detect Data	0
1344					Number of Missing Values	5					Percent Non-Detects	0.00%
1345												
1346	**Raw Statistics**						**Log-transformed Statistics**					
1347					Minimum Detected	0.04					Minimum Detected	-3.219
1348					Maximum Detected	0.218					Maximum Detected	-1.523
1349					Mean of Detected	0.0877					Mean of Detected	-2.504
1350					SD of Detected	0.0369					SD of Detected	0.365
1351					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1352					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1353												
1354												
1355	**UCL Statistics**											
1356	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1357					Shapiro Wilk Test Statistic	0.845					Shapiro Wilk Test Statistic	0.958
1358					5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value	0.938
1359	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1360												
1361	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1362					DL/2 Substitution Method						DL/2 Substitution Method	
1363					Mean	0.0877					Mean	-2.504
1364					SD	0.0369					SD	0.365
1365					95% DL/2 (t) UCL	0.0978					95% H-Stat (DL/2) UCL	0.0975
1366												
1367					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1368	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1369											SD in Log Scale	N/A
1370											Mean in Original Scale	N/A
1371											SD in Original Scale	N/A
1372											95% Percentile Bootstrap UCL	N/A
1373											95% BCA Bootstrap UCL	N/A
1374												
1375	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1376					k star (bias corrected)	6.735	**Data appear Lognormal at 5% Significance Level**					
1377					Theta Star	0.013						
1378					nu star	511.8						

1379												
1380					A-D Test Statistic	1.044	**Nonparametric Statistics**					
1381					5% A-D Critical Value	0.75					Kaplan-Meier (KM) Method	
1382					K-S Test Statistic	0.75					Mean	0.0877
1383					5% K-S Critical Value	0.143					SD	0.0364
1384				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.00599
1385											95% KM (t) UCL	0.0978
1386				**Assuming Gamma Distribution**							95% KM (z) UCL	0.0976
1387					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0978
1388					Minimum	0.04					95% KM (bootstrap t) UCL	0.101
1389					Maximum	0.218					95% KM (BCA) UCL	0.0987
1390					Mean	0.0877					95% KM (Percentile Bootstrap) UCL	0.0978
1391					Median	0.0761					95% KM (Chebyshev) UCL	0.114
1392					SD	0.0369					97.5% KM (Chebyshev) UCL	0.125
1393					k star	6.735					99% KM (Chebyshev) UCL	0.147
1394					Theta star	0.013						
1395					Nu star	511.8	**Potential UCLs to Use**					
1396					AppChi2	460.4					95% KM (Chebyshev) UCL	0.114
1397					95% Gamma Approximate UCL	0.0975						
1398					95% Adjusted Gamma UCL	0.098						
1399	**Note: DL/2 is not a recommended method.**											
1400												
1401												
1402	**Chromium**											
1403												
1404					**General Statistics**							
1405					Number of Valid Data	38					Number of Detected Data	38
1406					Number of Distinct Detected Data	25					Number of Non-Detect Data	0
1407					Number of Missing Values	5					Percent Non-Detects	0.00%
1408												
1409				**Raw Statistics**			**Log-transformed Statistics**					
1410					Minimum Detected	0.4					Minimum Detected	-0.916
1411					Maximum Detected	1.05					Maximum Detected	0.0488
1412					Mean of Detected	0.619					Mean of Detected	-0.514
1413					SD of Detected	0.164					SD of Detected	0.263
1414					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1415					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1416												
1417												
1418					**UCL Statistics**							
1419				**Normal Distribution Test with Detected Values Only**			**Lognormal Distribution Test with Detected Values Only**					
1420					Shapiro Wilk Test Statistic	0.934					Shapiro Wilk Test Statistic	0.943
1421					5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value	0.938
1422				**Data not Normal at 5% Significance Level**			**Data appear Lognormal at 5% Significance Level**					
1423												
1424				**Assuming Normal Distribution**			**Assuming Lognormal Distribution**					
1425					DL/2 Substitution Method						DL/2 Substitution Method	
1426					Mean	0.619					Mean	-0.514
1427					SD	0.164					SD	0.263
1428					95% DL/2 (t) UCL	0.663					95% H-Stat (DL/2) UCL	0.668
1429												
1430					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1431				**MLE method failed to converge properly**							Mean in Log Scale	N/A

1432											SD in Log Scale	N/A
1433											Mean in Original Scale	N/A
1434											SD in Original Scale	N/A
1435											95% Percentile Bootstrap UCL	N/A
1436											95% BCA Bootstrap UCL	N/A
1437												
1438	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1439					k star (bias corrected)	13.9	**Data appear Gamma Distributed at 5% Significance Level**					
1440					Theta Star	0.0445						
1441					nu star	1057						
1442												
1443					A-D Test Statistic	0.571	**Nonparametric Statistics**					
1444					5% A-D Critical Value	0.747	Kaplan-Meier (KM) Method					
1445					K-S Test Statistic	0.747	Mean	0.619				
1446					5% K-S Critical Value	0.143	SD	0.162				
1447	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0266				
1448							95% KM (t) UCL	0.663				
1449	**Assuming Gamma Distribution**						95% KM (z) UCL	0.662				
1450	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.663				
1451					Minimum	0.4	95% KM (bootstrap t) UCL	0.667				
1452					Maximum	1.05	95% KM (BCA) UCL	0.66				
1453					Mean	0.619	95% KM (Percentile Bootstrap) UCL	0.664				
1454					Median	0.62	95% KM (Chebyshev) UCL	0.734				
1455					SD	0.164	97.5% KM (Chebyshev) UCL	0.785				
1456					k star	13.9	99% KM (Chebyshev) UCL	0.883				
1457					Theta star	0.0445						
1458					Nu star	1057	**Potential UCLs to Use**					
1459					AppChi2	982.3	95% KM (BCA) UCL	0.66				
1460					95% Gamma Approximate UCL	0.666						
1461					95% Adjusted Gamma UCL	0.668						
1462	**Note: DL/2 is not a recommended method.**											
1463												
1464												
1465	**Chrysene**											
1466												
1467	**General Statistics**											
1468					Number of Valid Data	39	Number of Detected Data	37				
1469					Number of Distinct Detected Data	31	Number of Non-Detect Data	2				
1470					Number of Missing Values	4	Percent Non-Detects	5.13%				
1471												
1472	**Raw Statistics**						**Log-transformed Statistics**					
1473					Minimum Detected	3.8	Minimum Detected	1.335				
1474					Maximum Detected	560	Maximum Detected	6.328				
1475					Mean of Detected	67.71	Mean of Detected	3.452				
1476					SD of Detected	124.6	SD of Detected	1.145				
1477					Minimum Non-Detect	32	Minimum Non-Detect	3.466				
1478					Maximum Non-Detect	33	Maximum Non-Detect	3.497				
1479												
1480	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	21				
1481	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	18				
1482	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	53.85%				
1483												
1484	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
1485	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1486					Shapiro Wilk Test Statistic	0.469					Shapiro Wilk Test Statistic	0.961
1487					5% Shapiro Wilk Critical Value	0.936					5% Shapiro Wilk Critical Value	0.936
1488	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1489												
1490	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1491					DL/2 Substitution Method						DL/2 Substitution Method	
1492					Mean	65.07					Mean	3.418
1493					SD	121.8					SD	1.124
1494					95% DL/2 (t) UCL	97.97					95% H-Stat (DL/2) UCL	89.84
1495												
1496					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1497	**MLE yields a negative mean**										Mean in Log Scale	3.412
1498											SD in Log Scale	1.128
1499											Mean in Original Scale	64.99
1500											SD in Original Scale	121.9
1501											95% Percentile Bootstrap UCL	99.56
1502											95% BCA Bootstrap UCL	116.3
1503												
1504	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1505					k star (bias corrected)	0.735	**Data appear Lognormal at 5% Significance Level**					
1506					Theta Star	92.13						
1507					nu star	54.39						
1508												
1509					A-D Test Statistic	1.988	**Nonparametric Statistics**					
1510					5% A-D Critical Value	0.787					Kaplan-Meier (KM) Method	
1511					K-S Test Statistic	0.787					Mean	65.05
1512					5% K-S Critical Value	0.151					SD	120.3
1513	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	19.53
1514											95% KM (t) UCL	97.97
1515	**Assuming Gamma Distribution**										95% KM (z) UCL	97.17
1516					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	97.95
1517					Minimum	3.39					95% KM (bootstrap t) UCL	169.6
1518					Maximum	560					95% KM (BCA) UCL	103.5
1519					Mean	64.41					95% KM (Percentile Bootstrap) UCL	102.2
1520					Median	25					95% KM (Chebyshev) UCL	150.2
1521					SD	122.1					97.5% KM (Chebyshev) UCL	187
1522					k star	0.688					99% KM (Chebyshev) UCL	259.4
1523					Theta star	93.67						
1524					Nu star	53.64	**Potential UCLs to Use**					
1525					AppChi2	37.81					97.5% KM (Chebyshev) UCL	187
1526					95% Gamma Approximate UCL	91.38						
1527					95% Adjusted Gamma UCL	92.66						
1528	**Note: DL/2 is not a recommended method.**											
1529												
1530												
1531	**Copper**											
1532												
1533	**General Statistics**											
1534					Number of Valid Data	38					Number of Detected Data	38
1535					Number of Distinct Detected Data	34					Number of Non-Detect Data	0
1536					Number of Missing Values	5					Percent Non-Detects	0.00%
1537												

	A	B	C	D	E	F	G	H	I	J	K	L
1538	**Raw Statistics**						**Log-transformed Statistics**					
1539					Minimum Detected	5.99					Minimum Detected	1.79
1540					Maximum Detected	13.5					Maximum Detected	2.603
1541					Mean of Detected	9.177					Mean of Detected	2.2
1542					SD of Detected	1.653					SD of Detected	0.185
1543					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1544					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1545												
1546												
1547	**UCL Statistics**											
1548	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1549					Shapiro Wilk Test Statistic	0.972					Shapiro Wilk Test Statistic	0.96
1550					5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value	0.938
1551	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1552												
1553	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1554					DL/2 Substitution Method						DL/2 Substitution Method	
1555					Mean	9.177					Mean	2.2
1556					SD	1.653					SD	0.185
1557					95% DL/2 (t) UCL	9.629					95% H-Stat (DL/2) UCL	9.681
1558												
1559					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1560	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1561											SD in Log Scale	N/A
1562											Mean in Original Scale	N/A
1563											SD in Original Scale	N/A
1564											95% Percentile Bootstrap UCL	N/A
1565											95% BCA Bootstrap UCL	N/A
1566												
1567	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1568					k star (bias corrected)	28.37	**Data appear Normal at 5% Significance Level**					
1569					Theta Star	0.323						
1570					nu star	2156						
1571												
1572					A-D Test Statistic	0.537	**Nonparametric Statistics**					
1573					5% A-D Critical Value	0.746					Kaplan-Meier (KM) Method	
1574					K-S Test Statistic	0.746					Mean	9.177
1575					5% K-S Critical Value	0.143					SD	1.631
1576	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.268
1577											95% KM (t) UCL	9.629
1578	**Assuming Gamma Distribution**										95% KM (z) UCL	9.618
1579					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	9.629
1580					Minimum	5.99					95% KM (bootstrap t) UCL	9.623
1581					Maximum	13.5					95% KM (BCA) UCL	9.638
1582					Mean	9.177					95% KM (Percentile Bootstrap) UCL	9.619
1583					Median	9.305					95% KM (Chebyshev) UCL	10.35
1584					SD	1.653					97.5% KM (Chebyshev) UCL	10.85
1585					k star	28.37					99% KM (Chebyshev) UCL	11.84
1586					Theta star	0.323						
1587					Nu star	2156	**Potential UCLs to Use**					
1588					AppChi2	2049					95% KM (t) UCL	9.629
1589					95% Gamma Approximate UCL	9.656					95% KM (Percentile Bootstrap) UCL	9.619
1590					95% Adjusted Gamma UCL	9.676						

	A	B	C	D	E	F	G	H	I	J	K	L
1591	**Note: DL/2 is not a recommended method.**											
1592												
1593												
1594	**delta-Hexachlorocyclohexane**											
1595												
1596	**General Statistics**											
1597	Number of Valid Data					29	Number of Detected Data					7
1598	Number of Distinct Detected Data					7	Number of Non-Detect Data					22
1599	Number of Missing Values					10	Percent Non-Detects					75.86%
1600												
1601	**Raw Statistics**						**Log-transformed Statistics**					
1602	Minimum Detected					0.00102	Minimum Detected					-6.888
1603	Maximum Detected					0.00425	Maximum Detected					-5.461
1604	Mean of Detected					0.00208	Mean of Detected					-6.35
1605	SD of Detected					0.00142	SD of Detected					0.615
1606	Minimum Non-Detect					0.000983	Minimum Non-Detect					-6.925
1607	Maximum Non-Detect					0.004	Maximum Non-Detect					-5.521
1608												
1609	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					27
1610	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					2
1611	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.10%
1612												
1613	**Warning: There are only 7 Detected Values in this data**											
1614	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1615	**the resulting calculations may not be reliable enough tp draw conclusions**											
1616												
1617	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1618												
1619												
1620	**UCL Statistics**											
1621	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1622	Shapiro Wilk Test Statistic					0.739	Shapiro Wilk Test Statistic					0.807
1623	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
1624	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1625												
1626	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1627	DL/2 Substitution Method						DL/2 Substitution Method					
1628	Mean					0.00123	Mean					-6.873
1629	SD					0.0009104	SD					0.545
1630	95% DL/2 (t) UCL					0.00152	95% H-Stat (DL/2) UCL					0.00163
1631												
1632	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1633	**MLE method failed to converge properly**						Mean in Log Scale					-6.883
1634							SD in Log Scale					0.449
1635							Mean in Original Scale					0.00117
1636							SD in Original Scale					0.0008509
1637							95% Percentile Bootstrap UCL					0.00144
1638							95% BCA Bootstrap UCL					0.00159
1639												
1640	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1641	k star (bias corrected)					1.809	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
1642	Theta Star					0.00115						
1643	nu star					25.33						

1644												
1645					A-D Test Statistic	0.786	**Nonparametric Statistics**					
1646					5% A-D Critical Value	0.712				Kaplan-Meier (KM) Method		
1647					K-S Test Statistic	0.712				Mean		0.00132
1648					5% K-S Critical Value	0.314				SD		0.0007833
1649	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		0.0001601
1650										95% KM (t) UCL		0.00159
1651	**Assuming Gamma Distribution**									95% KM (z) UCL		0.00159
1652					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00157
1653					Minimum	0.00102				95% KM (bootstrap t) UCL		0.00204
1654					Maximum	0.00425				95% KM (BCA) UCL		0.00173
1655					Mean	0.00211				95% KM (Percentile Bootstrap) UCL		0.00164
1656					Median	0.00215				95% KM (Chebyshev) UCL		0.00202
1657					SD	0.0006692				97.5% KM (Chebyshev) UCL		0.00232
1658					k star	10.3				99% KM (Chebyshev) UCL		0.00291
1659					Theta star	0.0002048						
1660					Nu star	597.6	**Potential UCLs to Use**					
1661					AppChi2	541.9				95% KM (t) UCL		0.00159
1662					95% Gamma Approximate UCL	0.00233						
1663					95% Adjusted Gamma UCL	0.00234						
1664	**Note: DL/2 is not a recommended method.**											
1665												
1666												
1667	**Dibenzo(a,h)anthracene**											
1668												
1669	**General Statistics**											
1670					Number of Valid Data	39				Number of Detected Data		10
1671					Number of Distinct Detected Data	10				Number of Non-Detect Data		29
1672					Number of Missing Values	4				Percent Non-Detects		74.36%
1673												
1674	**Raw Statistics**						**Log-transformed Statistics**					
1675					Minimum Detected	0.5				Minimum Detected		-0.693
1676					Maximum Detected	43				Maximum Detected		3.761
1677					Mean of Detected	9.74				Mean of Detected		1.082
1678					SD of Detected	16.11				SD of Detected		1.575
1679					Minimum Non-Detect	0.11				Minimum Non-Detect		-2.207
1680					Maximum Non-Detect	33				Maximum Non-Detect		3.497
1681												
1682	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		37
1683	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
1684	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		94.87%
1685												
1686	**UCL Statistics**											
1687	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1688					Shapiro Wilk Test Statistic	0.614				Shapiro Wilk Test Statistic		0.878
1689					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
1690	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1691												
1692	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1693					DL/2 Substitution Method					DL/2 Substitution Method		
1694					Mean	3.788				Mean		-1.208
1695					SD	9.588				SD		2.146
1696					95% DL/2 (t) UCL	6.377				95% H-Stat (DL/2) UCL		4.99

1697												
1698				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
1699				**MLE method failed to converge properly**						Mean in Log Scale		-2.769
1700										SD in Log Scale		2.81
1701										Mean in Original Scale		2.529
1702										SD in Original Scale		8.937
1703										95% Percentile Bootstrap UCL		5.006
1704										95% BCA Bootstrap UCL		6.356
1705												
1706				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
1707				k star (bias corrected)		0.436				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
1708				Theta Star		22.34						
1709				nu star		8.718						
1710												
1711				A-D Test Statistic		0.983				**Nonparametric Statistics**		
1712				5% A-D Critical Value		0.775				Kaplan-Meier (KM) Method		
1713				K-S Test Statistic		0.775				Mean		2.9
1714				5% K-S Critical Value		0.28				SD		8.726
1715				**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean		1.474
1716										95% KM (t) UCL		5.384
1717				**Assuming Gamma Distribution**						95% KM (z) UCL		5.324
1718				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		5.109
1719				Minimum		1E-09				95% KM (bootstrap t) UCL		19.53
1720				Maximum		84.9				95% KM (BCA) UCL		6.12
1721				Mean		21.11				95% KM (Percentile Bootstrap) UCL		5.661
1722				Median		16.45				95% KM (Chebyshev) UCL		9.324
1723				SD		22.6				97.5% KM (Chebyshev) UCL		12.1
1724				k star		0.231				99% KM (Chebyshev) UCL		17.56
1725				Theta star		91.41						
1726				Nu star		18.01				**Potential UCLs to Use**		
1727				AppChi2		9.397				95% KM (t) UCL		5.384
1728				95% Gamma Approximate UCL		40.45						
1729				95% Adjusted Gamma UCL		41.53						
1730	**Note: DL/2 is not a recommended method.**											
1731												
1732												
1733	**Dibenzofuran**											
1734												
1735							**General Statistics**					
1736				Number of Valid Data		36				Number of Detected Data		32
1737				Number of Distinct Detected Data		21				Number of Non-Detect Data		4
1738				Number of Missing Values		7				Percent Non-Detects		11.11%
1739												
1740				**Raw Statistics**						**Log-transformed Statistics**		
1741				Minimum Detected		0.46				Minimum Detected		-0.777
1742				Maximum Detected		17				Maximum Detected		2.833
1743				Mean of Detected		1.808				Mean of Detected		0.204
1744				SD of Detected		2.91				SD of Detected		0.721
1745				Minimum Non-Detect		0.071				Minimum Non-Detect		-2.645
1746				Maximum Non-Detect		0.071				Maximum Non-Detect		-2.645
1747												
1748												
1749							**UCL Statistics**					

	A	B	C	D	E	F	G	H	I	J	K	L
1750	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1751					Shapiro Wilk Test Statistic	0.39					Shapiro Wilk Test Statistic	0.867
1752					5% Shapiro Wilk Critical Value	0.93					5% Shapiro Wilk Critical Value	0.93
1753	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1754												
1755	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1756					DL/2 Substitution Method						DL/2 Substitution Method	
1757					Mean	1.611					Mean	-0.19
1758					SD	2.796					SD	1.317
1759					95% DL/2 (t) UCL	2.398					95% H-Stat (DL/2) UCL	3.021
1760												
1761					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1762					Mean	1.397					Mean in Log Scale	0.029
1763					SD	2.986					SD in Log Scale	0.847
1764					95% MLE (t) UCL	2.238					Mean in Original Scale	1.636
1765					95% MLE (Tiku) UCL	2.187					SD in Original Scale	2.783
1766											95% Percentile Bootstrap UCL	2.474
1767											95% BCA Bootstrap UCL	2.996
1768												
1769	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1770					k star (bias corrected)	1.318	**Data do not follow a Discernable Distribution (0.05)**					
1771					Theta Star	1.371						
1772					nu star	84.36						
1773												
1774					A-D Test Statistic	2.769	**Nonparametric Statistics**					
1775					5% A-D Critical Value	0.766					Kaplan-Meier (KM) Method	
1776					K-S Test Statistic	0.766					Mean	1.658
1777					5% K-S Critical Value	0.159					SD	2.733
1778	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.463
1779											95% KM (t) UCL	2.44
1780	**Assuming Gamma Distribution**										95% KM (z) UCL	2.419
1781					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.435
1782					Minimum	1E-09					95% KM (bootstrap t) UCL	4.741
1783					Maximum	17					95% KM (BCA) UCL	2.561
1784					Mean	1.607					95% KM (Percentile Bootstrap) UCL	2.52
1785					Median	1.1					95% KM (Chebyshev) UCL	3.676
1786					SD	2.799					97.5% KM (Chebyshev) UCL	4.549
1787					k star	0.266					99% KM (Chebyshev) UCL	6.263
1788					Theta star	6.036						
1789					Nu star	19.17	**Potential UCLs to Use**					
1790					AppChi2	10.24					95% KM (Chebyshev) UCL	3.676
1791					95% Gamma Approximate UCL	3.008						
1792					95% Adjusted Gamma UCL	3.098						
1793	**Note: DL/2 is not a recommended method.**											
1794												
1795												
1796	**Dibutyltin ion**											
1797												
1798	**General Statistics**											
1799					Number of Valid Data	34					Number of Detected Data	29
1800					Number of Distinct Detected Data	26					Number of Non-Detect Data	5
1801					Number of Missing Values	9					Percent Non-Detects	14.71%
1802												

	A	B	C	D	E	F	G	H	I	J	K	L
1803	**Raw Statistics**						**Log-transformed Statistics**					
1804					Minimum Detected	1.1					Minimum Detected	0.0953
1805					Maximum Detected	560					Maximum Detected	6.328
1806					Mean of Detected	25.19					Mean of Detected	1.54
1807					SD of Detected	103.3					SD of Detected	1.21
1808					Minimum Non-Detect	1.9					Minimum Non-Detect	0.642
1809					Maximum Non-Detect	2					Maximum Non-Detect	0.693
1810												
1811	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
1812	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	24
1813	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	29.41%
1814												
1815	**UCL Statistics**											
1816	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1817					Shapiro Wilk Test Statistic	0.233					Shapiro Wilk Test Statistic	0.767
1818					5% Shapiro Wilk Critical Value	0.926					5% Shapiro Wilk Critical Value	0.926
1819	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1820												
1821	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1822					DL/2 Substitution Method						DL/2 Substitution Method	
1823					Mean	21.63					Mean	1.307
1824					SD	95.56					SD	1.251
1825					95% DL/2 (t) UCL	49.36					95% H-Stat (DL/2) UCL	10.61
1826												
1827					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1828	**MLE yields a negative mean**										Mean in Log Scale	1.296
1829											SD in Log Scale	1.271
1830											Mean in Original Scale	21.62
1831											SD in Original Scale	95.56
1832											95% Percentile Bootstrap UCL	54.12
1833											95% BCA Bootstrap UCL	72.87
1834												
1835	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1836					k star (bias corrected)	0.374	**Data do not follow a Discernable Distribution (0.05)**					
1837					Theta Star	67.34						
1838					nu star	21.69						
1839												
1840					A-D Test Statistic	6.005	**Nonparametric Statistics**					
1841					5% A-D Critical Value	0.836					Kaplan-Meier (KM) Method	
1842					K-S Test Statistic	0.836					Mean	21.7
1843					5% K-S Critical Value	0.175					SD	94.13
1844	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	16.43
1845											95% KM (t) UCL	49.5
1846	**Assuming Gamma Distribution**										95% KM (z) UCL	48.72
1847					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	49.43
1848					Minimum	1E-09					95% KM (bootstrap t) UCL	680.2
1849					Maximum	560					95% KM (BCA) UCL	54.56
1850					Mean	21.48					95% KM (Percentile Bootstrap) UCL	54.22
1851					Median	3.3					95% KM (Chebyshev) UCL	93.31
1852					SD	95.59					97.5% KM (Chebyshev) UCL	124.3
1853					k star	0.164					99% KM (Chebyshev) UCL	185.2
1854					Theta star	130.7						
1855					Nu star	11.18	**Potential UCLs to Use**					

1856					AppChi2	4.689				97.5% KM (Chebyshev) UCL		124.3
1857				95% Gamma Approximate UCL		51.2						
1858				95% Adjusted Gamma UCL		53.57						
1859	**Note: DL/2 is not a recommended method.**											
1860												
1861												
1862	**Dieldrin**											
1863												
1864	**General Statistics**											
1865				Number of Valid Data		41				Number of Detected Data		38
1866				Number of Distinct Detected Data		38				Number of Non-Detect Data		3
1867				Number of Missing Values		2				Percent Non-Detects		7.32%
1868												
1869	**Raw Statistics**						**Log-transformed Statistics**					
1870				Minimum Detected		0.338				Minimum Detected		-1.085
1871				Maximum Detected		2.62				Maximum Detected		0.963
1872				Mean of Detected		0.844				Mean of Detected		-0.232
1873				SD of Detected		0.362				SD of Detected		0.338
1874				Minimum Non-Detect		1				Minimum Non-Detect		0
1875				Maximum Non-Detect		1				Maximum Non-Detect		0
1876												
1877												
1878	**UCL Statistics**											
1879	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1880				Shapiro Wilk Test Statistic		0.72				Shapiro Wilk Test Statistic		0.943
1881				5% Shapiro Wilk Critical Value		0.938				5% Shapiro Wilk Critical Value		0.938
1882	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1883												
1884	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1885				DL/2 Substitution Method						DL/2 Substitution Method		
1886				Mean		0.819				Mean		-0.266
1887				SD		0.359				SD		0.347
1888				95% DL/2 (t) UCL		0.913				95% H-Stat (DL/2) UCL		0.913
1889												
1890				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
1891				Mean		0.178				Mean in Log Scale		-0.238
1892				SD		0.832				SD in Log Scale		0.329
1893				95% MLE (t) UCL		0.397				Mean in Original Scale		0.836
1894				95% MLE (Tiku) UCL		0.787				SD in Original Scale		0.35
1895										95% Percentile Bootstrap UCL		0.928
1896										95% BCA Bootstrap UCL		0.96
1897												
1898	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1899				k star (bias corrected)		7.585	**Data appear Lognormal at 5% Significance Level**					
1900				Theta Star		0.111						
1901				nu star		576.5						
1902												
1903				A-D Test Statistic		0.945	**Nonparametric Statistics**					
1904				5% A-D Critical Value		0.749				Kaplan-Meier (KM) Method		
1905				K-S Test Statistic		0.749				Mean		0.835
1906				5% K-S Critical Value		0.143				SD		0.347
1907	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0554
1908										95% KM (t) UCL		0.929

1909	**Assuming Gamma Distribution**									95% KM (z) UCL		0.926
1910	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		0.929
1911					Minimum	0.338				95% KM (bootstrap t) UCL		0.979
1912					Maximum	2.62				95% KM (BCA) UCL		0.937
1913					Mean	0.844				95% KM (Percentile Bootstrap) UCL		0.936
1914					Median	0.801				95% KM (Chebyshev) UCL		1.077
1915					SD	0.35				97.5% KM (Chebyshev) UCL		1.181
1916					k star	8.082				99% KM (Chebyshev) UCL		1.386
1917					Theta star	0.104						
1918					Nu star	662.7				**Potential UCLs to Use**		
1919					AppChi2	604				95% KM (Chebyshev) UCL		1.077
1920				95% Gamma Approximate UCL		0.926						
1921				95% Adjusted Gamma UCL		0.929						
1922	**Note: DL/2 is not a recommended method.**											
1923												
1924												
1925	**Endrin**											
1926												
1927						**General Statistics**						
1928					Number of Valid Data	38				Number of Detected Data		19
1929					Number of Distinct Detected Data	18				Number of Non-Detect Data		19
1930					Number of Missing Values	5				Percent Non-Detects		50.00%
1931												
1932				**Raw Statistics**						**Log-transformed Statistics**		
1933					Minimum Detected	0.00549				Minimum Detected		-5.205
1934					Maximum Detected	0.0635				Maximum Detected		-2.757
1935					Mean of Detected	0.0186				Mean of Detected		-4.348
1936					SD of Detected	0.0187				SD of Detected		0.811
1937					Minimum Non-Detect	0.00315				Minimum Non-Detect		-5.76
1938					Maximum Non-Detect	0.0531				Maximum Non-Detect		-2.936
1939												
1940	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		36
1941	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
1942	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		94.74%
1943												
1944						**UCL Statistics**						
1945	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
1946					Shapiro Wilk Test Statistic	0.692				Shapiro Wilk Test Statistic		0.838
1947					5% Shapiro Wilk Critical Value	0.901				5% Shapiro Wilk Critical Value		0.901
1948	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
1949												
1950	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1951					DL/2 Substitution Method					DL/2 Substitution Method		
1952					Mean	0.0131				Mean		-4.749
1953					SD	0.0148				SD		0.875
1954					95% DL/2 (t) UCL	0.0172				95% H-Stat (DL/2) UCL		0.0181
1955												
1956					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1957	**MLE method failed to converge properly**									Mean in Log Scale		-4.887
1958										SD in Log Scale		0.844
1959										Mean in Original Scale		0.0117
1960										SD in Original Scale		0.0148
1961										95% Percentile Bootstrap UCL		0.0159

1962											95% BCA Bootstrap UCL	0.0165
1963												
1964	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1965					k star (bias corrected)	1.315	Data do not follow a Discernable Distribution (0.05)					
1966					Theta Star	0.0142						
1967					nu star	49.97						
1968												
1969					A-D Test Statistic	1.782	Nonparametric Statistics					
1970					5% A-D Critical Value	0.757					Kaplan-Meier (KM) Method	
1971					K-S Test Statistic	0.757					Mean	0.0128
1972					5% K-S Critical Value	0.202					SD	0.0143
1973	Data not Gamma Distributed at 5% Significance Level										SE of Mean	0.00242
1974											95% KM (t) UCL	0.0168
1975	Assuming Gamma Distribution										95% KM (z) UCL	0.0167
1976					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0168
1977					Minimum	0.00549					95% KM (bootstrap t) UCL	0.0188
1978					Maximum	0.0635					95% KM (BCA) UCL	0.0175
1979					Mean	0.0183					95% KM (Percentile Bootstrap) UCL	0.0169
1980					Median	0.0167					95% KM (Chebyshev) UCL	0.0233
1981					SD	0.0136					97.5% KM (Chebyshev) UCL	0.0279
1982					k star	2.328					99% KM (Chebyshev) UCL	0.0368
1983					Theta star	0.00786						
1984					Nu star	177	Potential UCLs to Use					
1985					AppChi2	147.2					95% KM (t) UCL	0.0168
1986					95% Gamma Approximate UCL	0.022					95% KM (% Bootstrap) UCL	0.0169
1987					95% Adjusted Gamma UCL	0.0222						
1988	Note: DL/2 is not a recommended method.											
1989												
1990												
1991	Endrin ketone											
1992												
1993	General Statistics											
1994					Number of Valid Data	27	Number of Detected Data	12				
1995					Number of Distinct Detected Data	12	Number of Non-Detect Data	15				
1996					Number of Missing Values	16	Percent Non-Detects	55.56%				
1997												
1998	Raw Statistics						Log-transformed Statistics					
1999					Minimum Detected	0.00183	Minimum Detected	-6.303				
2000					Maximum Detected	0.0136	Maximum Detected	-4.298				
2001					Mean of Detected	0.00457	Mean of Detected	-5.549				
2002					SD of Detected	0.0033	SD of Detected	0.54				
2003					Minimum Non-Detect	0.00127	Minimum Non-Detect	-6.669				
2004					Maximum Non-Detect	0.00686	Maximum Non-Detect	-4.982				
2005												
2006	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	25				
2007	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	2				
2008	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	92.59%				
2009												
2010	UCL Statistics											
2011	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
2012					Shapiro Wilk Test Statistic	0.684	Shapiro Wilk Test Statistic	0.874				
2013					5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859				
2014	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					

2015												
2016	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2017				DL/2 Substitution Method						DL/2 Substitution Method		
2018				Mean		0.00287				Mean		-6.132
2019				SD		0.00271				SD		0.721
2020				95% DL/2 (t) UCL		0.00376				95% H-Stat (DL/2) UCL		0.00362
2021												
2022				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
2023	**MLE method failed to converge properly**									Mean in Log Scale		-6.14
2024										SD in Log Scale		0.663
2025										Mean in Original Scale		0.00279
2026										SD in Original Scale		0.0027
2027										95% Percentile Bootstrap UCL		0.00371
2028										95% BCA Bootstrap UCL		0.00406
2029												
2030	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2031				k star (bias corrected)		2.513	**Data appear Lognormal at 5% Significance Level**					
2032				Theta Star		0.00182						
2033				nu star		60.32						
2034												
2035				A-D Test Statistic		1.055	**Nonparametric Statistics**					
2036				5% A-D Critical Value		0.738				Kaplan-Meier (KM) Method		
2037				K-S Test Statistic		0.738				Mean		0.00316
2038				5% K-S Critical Value		0.247				SD		0.00248
2039	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0005044
2040										95% KM (t) UCL		0.00402
2041	**Assuming Gamma Distribution**									95% KM (z) UCL		0.00399
2042				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.00389
2043				Minimum		0.00183				95% KM (bootstrap t) UCL		0.00483
2044				Maximum		0.0136				95% KM (BCA) UCL		0.00452
2045				Mean		0.00462				95% KM (Percentile Bootstrap) UCL		0.00422
2046				Median		0.00443				95% KM (Chebyshev) UCL		0.00536
2047				SD		0.00217				97.5% KM (Chebyshev) UCL		0.00631
2048				k star		6.225				99% KM (Chebyshev) UCL		0.00818
2049				Theta star		0.0007415						
2050				Nu star		336.2	**Potential UCLs to Use**					
2051				AppChi2		294.7				95% KM (t) UCL		0.00402
2052				95% Gamma Approximate UCL		0.00527				95% KM (% Bootstrap) UCL		0.00422
2053				95% Adjusted Gamma UCL		0.00531						
2054	**Note: DL/2 is not a recommended method.**											
2055												
2056												
2057	**Fluoranthene**											
2058												
2059	**General Statistics**											
2060				Number of Valid Data		39				Number of Detected Data		39
2061				Number of Distinct Detected Data		35				Number of Non-Detect Data		0
2062				Number of Missing Values		4				Percent Non-Detects		0.00%
2063												
2064	**Raw Statistics**						**Log-transformed Statistics**					
2065				Minimum Detected		5.5				Minimum Detected		1.705
2066				Maximum Detected		770				Maximum Detected		6.646
2067				Mean of Detected		102.2				Mean of Detected		4.007

	A	B	C	D	E	F	G	H	I	J	K	L
2068					SD of Detected	162.4					SD of Detected	1.063
2069					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2070					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2071												
2072												
2073	**UCL Statistics**											
2074	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2075					Shapiro Wilk Test Statistic	0.515					Shapiro Wilk Test Statistic	0.949
2076					5% Shapiro Wilk Critical Value	0.939					5% Shapiro Wilk Critical Value	0.939
2077	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2078												
2079	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2080					DL/2 Substitution Method						DL/2 Substitution Method	
2081					Mean	102.2					Mean	4.007
2082					SD	162.4					SD	1.063
2083					95% DL/2 (t) UCL	146.1					95% H-Stat (DL/2) UCL	147.1
2084												
2085					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2086	**MLE method failed to converge properly**										Mean in Log Scale	N/A
2087											SD in Log Scale	N/A
2088											Mean in Original Scale	N/A
2089											SD in Original Scale	N/A
2090											95% Percentile Bootstrap UCL	N/A
2091											95% BCA Bootstrap UCL	N/A
2092												
2093	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2094					k star (bias corrected)	0.883	**Data appear Lognormal at 5% Significance Level**					
2095					Theta Star	115.8						
2096					nu star	68.87						
2097												
2098					A-D Test Statistic	2.119	**Nonparametric Statistics**					
2099					5% A-D Critical Value	0.781					Kaplan-Meier (KM) Method	
2100					K-S Test Statistic	0.781					Mean	102.2
2101					5% K-S Critical Value	0.146					SD	160.3
2102	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	26.01
2103											95% KM (t) UCL	146.1
2104	**Assuming Gamma Distribution**										95% KM (z) UCL	145
2105					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	146.1
2106					Minimum	5.5					95% KM (bootstrap t) UCL	214.3
2107					Maximum	770					95% KM (BCA) UCL	150.7
2108					Mean	102.2					95% KM (Percentile Bootstrap) UCL	147.9
2109					Median	55					95% KM (Chebyshev) UCL	215.6
2110					SD	162.4					97.5% KM (Chebyshev) UCL	264.6
2111					k star	0.883					99% KM (Chebyshev) UCL	361
2112					Theta star	115.8						
2113					Nu star	68.87	**Potential UCLs to Use**					
2114					AppChi2	50.77					97.5% KM (Chebyshev) UCL	264.6
2115					95% Gamma Approximate UCL	138.7						
2116					95% Adjusted Gamma UCL	140.4						
2117	**Note: DL/2 is not a recommended method.**											
2118												
2119												
2120	**Fluorene**											

2121												
2122	**General Statistics**											
2123					Number of Valid Data	39				Number of Detected Data		36
2124					Number of Distinct Detected Data	30				Number of Non-Detect Data		3
2125					Number of Missing Values	4				Percent Non-Detects		7.69%
2126												
2127	**Raw Statistics**						**Log-transformed Statistics**					
2128					Minimum Detected	0.63				Minimum Detected		-0.462
2129					Maximum Detected	36				Maximum Detected		3.584
2130					Mean of Detected	4.774				Mean of Detected		1.138
2131					SD of Detected	6.604				SD of Detected		0.824
2132					Minimum Non-Detect	31				Minimum Non-Detect		3.434
2133					Maximum Non-Detect	33				Maximum Non-Detect		3.497
2134												
2135	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		38
2136	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
2137	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		97.44%
2138												
2139	**UCL Statistics**											
2140	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2141					Shapiro Wilk Test Statistic	0.526				Shapiro Wilk Test Statistic		0.933
2142					5% Shapiro Wilk Critical Value	0.935				5% Shapiro Wilk Critical Value		0.935
2143	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2144												
2145	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2146					DL/2 Substitution Method					DL/2 Substitution Method		
2147					Mean	5.637				Mean		1.263
2148					SD	7.026				SD		0.906
2149					95% DL/2 (t) UCL	7.534				95% H-Stat (DL/2) UCL		8.973
2150												
2151					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
2152	**MLE method failed to converge properly**									Mean in Log Scale		1.135
2153										SD in Log Scale		0.791
2154										Mean in Original Scale		4.638
2155										SD in Original Scale		6.356
2156										95% Percentile Bootstrap UCL		6.44
2157										95% BCA Bootstrap UCL		6.98
2158												
2159	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2160					k star (bias corrected)	1.226	**Data do not follow a Discernable Distribution (0.05)**					
2161					Theta Star	3.894						
2162					nu star	88.27						
2163												
2164					A-D Test Statistic	2.345	**Nonparametric Statistics**					
2165					5% A-D Critical Value	0.77				Kaplan-Meier (KM) Method		
2166					K-S Test Statistic	0.77				Mean		4.705
2167					5% K-S Critical Value	0.15				SD		6.352
2168	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		1.047
2169										95% KM (t) UCL		6.471
2170	**Assuming Gamma Distribution**									95% KM (z) UCL		6.428
2171					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		6.471
2172					Minimum	0.63				95% KM (bootstrap t) UCL		8.653
2173					Maximum	36				95% KM (BCA) UCL		6.744

2174					Mean	4.785				95% KM (Percentile Bootstrap) UCL		6.59
2175					Median	3.1				95% KM (Chebyshev) UCL		9.27
2176					SD	6.338				97.5% KM (Chebyshev) UCL		11.25
2177					k star	1.325				99% KM (Chebyshev) UCL		15.13
2178					Theta star	3.611						
2179					Nu star	103.3				**Potential UCLs to Use**		
2180					AppChi2	80.89				95% KM (Chebyshev) UCL		9.27
2181				95% Gamma Approximate UCL		6.113						
2182				95% Adjusted Gamma UCL		6.173						
2183	**Note: DL/2 is not a recommended method.**											
2184												
2185												
2186	**gamma-Hexachlorocyclohexane**											
2187												
2188	**General Statistics**											
2189					Number of Valid Data	37				Number of Detected Data		33
2190					Number of Distinct Detected Data	29				Number of Non-Detect Data		4
2191					Number of Missing Values	6				Percent Non-Detects		10.81%
2192												
2193	**Raw Statistics**						**Log-transformed Statistics**					
2194					Minimum Detected	0.0256				Minimum Detected		-3.665
2195					Maximum Detected	0.0837				Maximum Detected		-2.481
2196					Mean of Detected	0.0582				Mean of Detected		-2.892
2197					SD of Detected	0.017				SD of Detected		0.333
2198					Minimum Non-Detect	0.0234				Minimum Non-Detect		-3.755
2199					Maximum Non-Detect	0.0627				Maximum Non-Detect		-2.769
2200												
2201	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		18
2202	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		19
2203	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		48.65%
2204												
2205	**UCL Statistics**											
2206	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2207					Shapiro Wilk Test Statistic	0.928				Shapiro Wilk Test Statistic		0.891
2208					5% Shapiro Wilk Critical Value	0.931				5% Shapiro Wilk Critical Value		0.931
2209	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2210												
2211	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2212					DL/2 Substitution Method					DL/2 Substitution Method		
2213					Mean	0.0545				Mean		-2.994
2214					SD	0.0196				SD		0.453
2215					95% DL/2 (t) UCL	0.0599				95% H-Stat (DL/2) UCL		0.0623
2216												
2217					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
2218					Mean	0.0629				Mean in Log Scale		-2.944
2219					SD	0.0104				SD in Log Scale		0.355
2220					95% MLE (t) UCL	0.0658				Mean in Original Scale		0.0557
2221					95% MLE (Tiku) UCL	0.0664				SD in Original Scale		0.0177
2222										95% Percentile Bootstrap UCL		0.0603
2223										95% BCA Bootstrap UCL		0.0604
2224												
2225	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2226					k star (bias corrected)	9.441	**Data do not follow a Discernable Distribution (0.05)**					

2227					Theta Star	0.00617						
2228					nu star	623.1						
2229												
2230					A-D Test Statistic	1.138	**Nonparametric Statistics**					
2231					5% A-D Critical Value	0.747	Kaplan-Meier (KM) Method					
2232					K-S Test Statistic	0.747	Mean	0.0556				
2233					5% K-S Critical Value	0.153	SD	0.0178				
2234	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.003				
2235							95% KM (t) UCL	0.0607				
2236	**Assuming Gamma Distribution**						95% KM (z) UCL	0.0605				
2237	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0606				
2238					Minimum	0.0124	95% KM (bootstrap t) UCL	0.0603				
2239					Maximum	0.0837	95% KM (BCA) UCL	0.0604				
2240					Mean	0.056	95% KM (Percentile Bootstrap) UCL	0.0605				
2241					Median	0.063	95% KM (Chebyshev) UCL	0.0687				
2242					SD	0.018	97.5% KM (Chebyshev) UCL	0.0743				
2243					k star	7.106	99% KM (Chebyshev) UCL	0.0854				
2244					Theta star	0.00788						
2245					Nu star	525.8	**Potential UCLs to Use**					
2246					AppChi2	473.6	95% KM (Chebyshev) UCL	0.0687				
2247					95% Gamma Approximate UCL	0.0622						
2248					95% Adjusted Gamma UCL	0.0625						
2249	**Note: DL/2 is not a recommended method.**											
2250												
2251												
2252	**Heptachlor**											
2253												
2254	**General Statistics**											
2255					Number of Valid Data	38	Number of Detected Data	19				
2256					Number of Distinct Detected Data	19	Number of Non-Detect Data	19				
2257					Number of Missing Values	5	Percent Non-Detects	50.00%				
2258												
2259	**Raw Statistics**						**Log-transformed Statistics**					
2260					Minimum Detected	0.0073	Minimum Detected	-4.92				
2261					Maximum Detected	0.419	Maximum Detected	-0.87				
2262					Mean of Detected	0.0408	Mean of Detected	-3.952				
2263					SD of Detected	0.0927	SD of Detected	0.96				
2264					Minimum Non-Detect	0.00457	Minimum Non-Detect	-5.388				
2265					Maximum Non-Detect	0.059	Maximum Non-Detect	-2.83				
2266												
2267	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect	37				
2268	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected	1				
2269	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage	97.37%				
2270												
2271	**UCL Statistics**											
2272	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2273					Shapiro Wilk Test Statistic	0.359	Shapiro Wilk Test Statistic	0.814				
2274					5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901				
2275	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2276												
2277	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2278					DL/2 Substitution Method		DL/2 Substitution Method					
2279					Mean	0.0243	Mean	-4.523				

2280					SD	0.0669					SD	0.983
2281					95% DL/2 (t) UCL	0.0426					95% H-Stat (DL/2) UCL	0.0198
2282												
2283					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2284					**MLE method failed to converge properly**						Mean in Log Scale	-4.668
2285											SD in Log Scale	1.021
2286											Mean in Original Scale	0.0228
2287											SD in Original Scale	0.0671
2288											95% Percentile Bootstrap UCL	0.0436
2289											95% BCA Bootstrap UCL	0.0573
2290												
2291					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2292					k star (bias corrected)	0.7					**Data do not follow a Discernable Distribution (0.05)**	
2293					Theta Star	0.0583						
2294					nu star	26.6						
2295												
2296					A-D Test Statistic	2.486					**Nonparametric Statistics**	
2297					5% A-D Critical Value	0.777					Kaplan-Meier (KM) Method	
2298					K-S Test Statistic	0.777					Mean	0.0246
2299					5% K-S Critical Value	0.206					SD	0.0658
2300					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.011
2301											95% KM (t) UCL	0.0432
2302					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0427
2303					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0429
2304					Minimum	1E-09					95% KM (bootstrap t) UCL	0.121
2305					Maximum	0.419					95% KM (BCA) UCL	0.0486
2306					Mean	0.0357					95% KM (Percentile Bootstrap) UCL	0.0453
2307					Median	0.0193					95% KM (Chebyshev) UCL	0.0725
2308					SD	0.0676					97.5% KM (Chebyshev) UCL	0.0932
2309					k star	0.363					99% KM (Chebyshev) UCL	0.134
2310					Theta star	0.0983						
2311					Nu star	27.58					**Potential UCLs to Use**	
2312					AppChi2	16.6					95% KM (t) UCL	0.0432
2313					95% Gamma Approximate UCL	0.0592					95% KM (% Bootstrap) UCL	0.0453
2314					95% Adjusted Gamma UCL	0.0605						
2315	**Note: DL/2 is not a recommended method.**											
2316												
2317												
2318	**Heptachlor epoxide**											
2319												
2320					**General Statistics**							
2321					Number of Valid Data	40					Number of Detected Data	37
2322					Number of Distinct Detected Data	33					Number of Non-Detect Data	3
2323					Number of Missing Values	3					Percent Non-Detects	7.50%
2324												
2325					**Raw Statistics**						**Log-transformed Statistics**	
2326					Minimum Detected	0.033					Minimum Detected	-3.411
2327					Maximum Detected	2.1					Maximum Detected	0.742
2328					Mean of Detected	0.148					Mean of Detected	-2.677
2329					SD of Detected	0.388					SD of Detected	0.817
2330					Minimum Non-Detect	0.027					Minimum Non-Detect	-3.612
2331					Maximum Non-Detect	0.051					Maximum Non-Detect	-2.976
2332												

2333	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
2334	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	26
2335	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	35.00%
2336												
2337	**UCL Statistics**											
2338	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2339	Shapiro Wilk Test Statistic				0.289		Shapiro Wilk Test Statistic					0.56
2340	5% Shapiro Wilk Critical Value				0.936		5% Shapiro Wilk Critical Value					0.936
2341	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2342												
2343	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2344	DL/2 Substitution Method						DL/2 Substitution Method					
2345	Mean				0.139		Mean					-2.768
2346	SD				0.374		SD					0.852
2347	95% DL/2 (t) UCL				0.238		95% H-Stat (DL/2) UCL					0.11
2348												
2349	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
2350	Mean				0.00328		Mean in Log Scale					-2.751
2351	SD				0.478		SD in Log Scale					0.835
2352	95% MLE (t) UCL				0.131		Mean in Original Scale					0.139
2353	95% MLE (Tiku) UCL				0.142		SD in Original Scale					0.374
2354							95% Percentile Bootstrap UCL					0.245
2355							95% BCA Bootstrap UCL					0.301
2356												
2357	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2358	k star (bias corrected)				0.731		**Data do not follow a Discernable Distribution (0.05)**					
2359	Theta Star				0.203							
2360	nu star				54.1							
2361												
2362	A-D Test Statistic				9.094		**Nonparametric Statistics**					
2363	5% A-D Critical Value				0.787		Kaplan-Meier (KM) Method					
2364	K-S Test Statistic				0.787		Mean					0.14
2365	5% K-S Critical Value				0.151		SD					0.369
2366	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0592
2367							95% KM (t) UCL					0.24
2368	**Assuming Gamma Distribution**						95% KM (z) UCL					0.237
2369	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.239
2370	Minimum				1E-09		95% KM (bootstrap t) UCL					2.089
2371	Maximum				2.1		95% KM (BCA) UCL					0.25
2372	Mean				0.137		95% KM (Percentile Bootstrap) UCL					0.242
2373	Median				0.0545		95% KM (Chebyshev) UCL					0.398
2374	SD				0.375		97.5% KM (Chebyshev) UCL					0.51
2375	k star				0.324		99% KM (Chebyshev) UCL					0.729
2376	Theta star				0.423							
2377	Nu star				25.9		**Potential UCLs to Use**					
2378	AppChi2				15.3		95% KM (Chebyshev) UCL					0.398
2379	95% Gamma Approximate UCL				0.232							
2380	95% Adjusted Gamma UCL				0.237							
2381	**Note: DL/2 is not a recommended method.**											
2382												
2383												
2384	**Hexachlorobenzene**											
2385												

	A	B	C	D	E	F	G	H	I	J	K	L
2386	**General Statistics**											
2387					Number of Valid Data	39				Number of Detected Data		38
2388					Number of Distinct Detected Data	36				Number of Non-Detect Data		1
2389					Number of Missing Values	4				Percent Non-Detects		2.56%
2390												
2391	**Raw Statistics**						**Log-transformed Statistics**					
2392					Minimum Detected	0.373				Minimum Detected		-0.986
2393					Maximum Detected	1.07				Maximum Detected		0.0677
2394					Mean of Detected	0.606				Mean of Detected		-0.529
2395					SD of Detected	0.15				SD of Detected		0.243
2396					Minimum Non-Detect	1				Minimum Non-Detect		0
2397					Maximum Non-Detect	1				Maximum Non-Detect		0
2398												
2399												
2400	**UCL Statistics**											
2401	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2402					Shapiro Wilk Test Statistic	0.955				Shapiro Wilk Test Statistic		0.977
2403					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
2404	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2405												
2406	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2407					DL/2 Substitution Method					DL/2 Substitution Method		
2408					Mean	0.603				Mean		-0.534
2409					SD	0.149				SD		0.241
2410					95% DL/2 (t) UCL	0.644				95% H-Stat (DL/2) UCL		0.658
2411												
2412					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
2413	**MLE method failed to converge properly**									Mean in Log Scale		-0.53
2414										SD in Log Scale		0.24
2415										Mean in Original Scale		0.606
2416										SD in Original Scale		0.148
2417										95% Percentile Bootstrap UCL		0.645
2418										95% BCA Bootstrap UCL		0.646
2419												
2420	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2421					k star (bias corrected)	16.16	**Data appear Normal at 5% Significance Level**					
2422					Theta Star	0.0375						
2423					nu star	1228						
2424												
2425					A-D Test Statistic	0.277	**Nonparametric Statistics**					
2426					5% A-D Critical Value	0.747				Kaplan-Meier (KM) Method		
2427					K-S Test Statistic	0.747				Mean		0.606
2428					5% K-S Critical Value	0.143				SD		0.147
2429	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0241
2430										95% KM (t) UCL		0.647
2431	**Assuming Gamma Distribution**									95% KM (z) UCL		0.646
2432					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.647
2433					Minimum	0.373				95% KM (bootstrap t) UCL		0.65
2434					Maximum	1.07				95% KM (BCA) UCL		0.649
2435					Mean	0.607				95% KM (Percentile Bootstrap) UCL		0.644
2436					Median	0.624				95% KM (Chebyshev) UCL		0.711
2437					SD	0.148				97.5% KM (Chebyshev) UCL		0.756
2438					k star	16.6				99% KM (Chebyshev) UCL		0.846

2439					Theta star	0.0366						
2440					Nu star	1295	**Potential UCLs to Use**					
2441					AppChi2	1212					95% KM (t) UCL	0.647
2442				95% Gamma Approximate UCL		0.648					95% KM (Percentile Bootstrap) UCL	0.644
2443				95% Adjusted Gamma UCL		0.65						
2444	**Note: DL/2 is not a recommended method.**											
2445												
2446												
2447	**Indeno(1,2,3-cd)pyrene**											
2448												
2449	**General Statistics**											
2450					Number of Valid Data	39					Number of Detected Data	27
2451					Number of Distinct Detected Data	23					Number of Non-Detect Data	12
2452					Number of Missing Values	4					Percent Non-Detects	30.77%
2453												
2454	**Raw Statistics**						**Log-transformed Statistics**					
2455					Minimum Detected	0.19					Minimum Detected	-1.661
2456					Maximum Detected	170					Maximum Detected	5.136
2457					Mean of Detected	15.44					Mean of Detected	1.11
2458					SD of Detected	43.26					SD of Detected	1.527
2459					Minimum Non-Detect	0.13					Minimum Non-Detect	-2.04
2460					Maximum Non-Detect	33					Maximum Non-Detect	3.497
2461												
2462	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	37
2463	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
2464	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.87%
2465												
2466	**UCL Statistics**											
2467	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2468					Shapiro Wilk Test Statistic	0.356					Shapiro Wilk Test Statistic	0.912
2469					5% Shapiro Wilk Critical Value	0.923					5% Shapiro Wilk Critical Value	0.923
2470	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
2471												
2472	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2473					DL/2 Substitution Method						DL/2 Substitution Method	
2474					Mean	11.94					Mean	0.429
2475					SD	36.38					SD	2.066
2476					95% DL/2 (t) UCL	21.76					95% H-Stat (DL/2) UCL	18.92
2477												
2478					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2479	**MLE method failed to converge properly**										Mean in Log Scale	0.258
2480											SD in Log Scale	1.921
2481											Mean in Original Scale	10.8
2482											SD in Original Scale	36.47
2483											95% Percentile Bootstrap UCL	19.97
2484											95% BCA Bootstrap UCL	23.98
2485												
2486	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2487					k star (bias corrected)	0.384	**Data do not follow a Discernable Distribution (0.05)**					
2488					Theta Star	40.24						
2489					nu star	20.72						
2490												
2491					A-D Test Statistic	3.544	**Nonparametric Statistics**					

2492				5% A-D Critical Value	0.829					Kaplan-Meier (KM) Method		
2493				K-S Test Statistic	0.829					Mean		10.93
2494				5% K-S Critical Value	0.18					SD		35.98
2495				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		5.873
2496										95% KM (t) UCL		20.84
2497				**Assuming Gamma Distribution**						95% KM (z) UCL		20.59
2498				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		20.74
2499				Minimum	1E-09					95% KM (bootstrap t) UCL		112.2
2500				Maximum	170					95% KM (BCA) UCL		22.68
2501				Mean	12.04					95% KM (Percentile Bootstrap) UCL		22.68
2502				Median	2					95% KM (Chebyshev) UCL		36.53
2503				SD	36.41					97.5% KM (Chebyshev) UCL		47.61
2504				k star	0.133					99% KM (Chebyshev) UCL		69.37
2505				Theta star	90.55							
2506				Nu star	10.37					**Potential UCLs to Use**		
2507				AppChi2	4.173					99% KM (Chebyshev) UCL		69.37
2508				95% Gamma Approximate UCL	29.91							
2509				95% Adjusted Gamma UCL	31.06							
2510	**Note: DL/2 is not a recommended method.**											
2511												
2512												
2513	**Lead**											
2514												
2515										**General Statistics**		
2516				Number of Valid Data	38					Number of Detected Data		38
2517				Number of Distinct Detected Data	34					Number of Non-Detect Data		0
2518				Number of Missing Values	5					Percent Non-Detects		0.00%
2519												
2520				**Raw Statistics**						**Log-transformed Statistics**		
2521				Minimum Detected	0.024					Minimum Detected		-3.73
2522				Maximum Detected	0.316					Maximum Detected		-1.152
2523				Mean of Detected	0.0913					Mean of Detected		-2.552
2524				SD of Detected	0.0608					SD of Detected		0.546
2525				Minimum Non-Detect	N/A					Minimum Non-Detect		N/A
2526				Maximum Non-Detect	N/A					Maximum Non-Detect		N/A
2527												
2528												
2529										**UCL Statistics**		
2530				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
2531				Shapiro Wilk Test Statistic	0.775					Shapiro Wilk Test Statistic		0.967
2532				5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value		0.938
2533				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
2534												
2535				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
2536				DL/2 Substitution Method						DL/2 Substitution Method		
2537				Mean	0.0913					Mean		-2.552
2538				SD	0.0608					SD		0.546
2539				95% DL/2 (t) UCL	0.108					95% H-Stat (DL/2) UCL		0.108
2540												
2541				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
2542				**MLE method failed to converge properly**						Mean in Log Scale		N/A
2543										SD in Log Scale		N/A
2544										Mean in Original Scale		N/A

2545											SD in Original Scale	N/A
2546											95% Percentile Bootstrap UCL	N/A
2547											95% BCA Bootstrap UCL	N/A
2548												
2549	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
2550					k star (bias corrected)	3.055		**Data appear Lognormal at 5% Significance Level**				
2551					Theta Star	0.0299						
2552					nu star	232.2						
2553												
2554					A-D Test Statistic	1.046		**Nonparametric Statistics**				
2555					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
2556					K-S Test Statistic	0.754					Mean	0.0913
2557					5% K-S Critical Value	0.144					SD	0.06
2558	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.00986
2559											95% KM (t) UCL	0.108
2560	**Assuming Gamma Distribution**										95% KM (z) UCL	0.108
2561					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.108
2562					Minimum	0.024					95% KM (bootstrap t) UCL	0.115
2563					Maximum	0.316					95% KM (BCA) UCL	0.108
2564					Mean	0.0913					95% KM (Percentile Bootstrap) UCL	0.108
2565					Median	0.0715					95% KM (Chebyshev) UCL	0.134
2566					SD	0.0608					97.5% KM (Chebyshev) UCL	0.153
2567					k star	3.055					99% KM (Chebyshev) UCL	0.189
2568					Theta star	0.0299						
2569					Nu star	232.2		**Potential UCLs to Use**				
2570					AppChi2	197.9					95% KM (Chebyshev) UCL	0.134
2571					95% Gamma Approximate UCL	0.107						
2572					95% Adjusted Gamma UCL	0.108						
2573	**Note: DL/2 is not a recommended method.**											
2574												
2575												
2576	**Manganese**											
2577												
2578	**General Statistics**											
2579					Number of Valid Data	10					Number of Detected Data	10
2580					Number of Distinct Detected Data	10					Number of Non-Detect Data	0
2581					Number of Missing Values	33					Percent Non-Detects	0.00%
2582												
2583	**Raw Statistics**							**Log-transformed Statistics**				
2584					Minimum Detected	3.89					Minimum Detected	1.358
2585					Maximum Detected	7.82					Maximum Detected	2.057
2586					Mean of Detected	5.916					Mean of Detected	1.741
2587					SD of Detected	1.626					SD of Detected	0.288
2588					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2589					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2590												
2591												
2592	**UCL Statistics**											
2593	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
2594					Shapiro Wilk Test Statistic	0.853					Shapiro Wilk Test Statistic	0.851
2595					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
2596	**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
2597												

	A	B	C	D	E	F	G	H	I	J	K	L
2598	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2599	DL/2 Substitution Method						DL/2 Substitution Method					
2600	Mean					5.916	Mean					1.741
2601	SD					1.626	SD					0.288
2602	95% DL/2 (t) UCL					6.859	95% H-Stat (DL/2) UCL					7.183
2603												
2604	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2605	**MLE method failed to converge properly**						Mean in Log Scale					N/A
2606							SD in Log Scale					N/A
2607							Mean in Original Scale					N/A
2608							SD in Original Scale					N/A
2609							95% Percentile Bootstrap UCL					N/A
2610							95% BCA Bootstrap UCL					N/A
2611												
2612	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2613	k star (bias corrected)					9.828	**Data appear Normal at 5% Significance Level**					
2614	Theta Star					0.602						
2615	nu star					196.6						
2616												
2617	A-D Test Statistic					0.675	**Nonparametric Statistics**					
2618	5% A-D Critical Value					0.725	Kaplan-Meier (KM) Method					
2619	K-S Test Statistic					0.725	Mean					5.916
2620	5% K-S Critical Value					0.266	SD					1.543
2621	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.514
2622							95% KM (t) UCL					6.859
2623	**Assuming Gamma Distribution**						95% KM (z) UCL					6.762
2624	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.859
2625	Minimum					3.89	95% KM (bootstrap t) UCL					6.845
2626	Maximum					7.82	95% KM (BCA) UCL					6.733
2627	Mean					5.916	95% KM (Percentile Bootstrap) UCL					6.724
2628	Median					5.985	95% KM (Chebyshev) UCL					8.158
2629	SD					1.626	97.5% KM (Chebyshev) UCL					9.128
2630	k star					9.828	99% KM (Chebyshev) UCL					11.03
2631	Theta star					0.602						
2632	Nu star					196.6	**Potential UCLs to Use**					
2633	AppChi2					165.1	95% KM (t) UCL					6.859
2634	95% Gamma Approximate UCL					7.042	95% KM (Percentile Bootstrap) UCL					6.724
2635	95% Adjusted Gamma UCL					7.263						
2636	**Note: DL/2 is not a recommended method.**											
2637												
2638												
2639	**Mercury**											
2640												
2641	**General Statistics**											
2642	Number of Valid Data					35	Number of Detected Data					35
2643	Number of Distinct Detected Data					18	Number of Non-Detect Data					0
2644	Number of Missing Values					8	Percent Non-Detects					0.00%
2645												
2646	**Raw Statistics**						**Log-transformed Statistics**					
2647	Minimum Detected					0.005	Minimum Detected					-5.298
2648	Maximum Detected					0.0263	Maximum Detected					-3.638
2649	Mean of Detected					0.0113	Mean of Detected					-4.565
2650	SD of Detected					0.005	SD of Detected					0.384

2651					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2652					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2653												
2654												
2655	**UCL Statistics**											
2656	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2657					Shapiro Wilk Test Statistic	0.818					Shapiro Wilk Test Statistic	0.948
2658					5% Shapiro Wilk Critical Value	0.934					5% Shapiro Wilk Critical Value	0.934
2659	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2660												
2661	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2662					DL/2 Substitution Method						DL/2 Substitution Method	
2663					Mean	0.0113					Mean	-4.565
2664					SD	0.005					SD	0.384
2665					95% DL/2 (t) UCL	0.0127					95% H-Stat (DL/2) UCL	0.0126
2666												
2667					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2668	**MLE method failed to converge properly**										Mean in Log Scale	N/A
2669											SD in Log Scale	N/A
2670											Mean in Original Scale	N/A
2671											SD in Original Scale	N/A
2672											95% Percentile Bootstrap UCL	N/A
2673											95% BCA Bootstrap UCL	N/A
2674												
2675	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2676					k star (bias corrected)	6.072	**Data appear Lognormal at 5% Significance Level**					
2677					Theta Star	0.00185						
2678					nu star	425						
2679												
2680					A-D Test Statistic	1.055	**Nonparametric Statistics**					
2681					5% A-D Critical Value	0.749					Kaplan-Meier (KM) Method	
2682					K-S Test Statistic	0.749					Mean	0.0113
2683					5% K-S Critical Value	0.149					SD	0.00493
2684	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0008458
2685											95% KM (t) UCL	0.0127
2686	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0126
2687					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0127
2688					Minimum	0.005					95% KM (bootstrap t) UCL	0.0131
2689					Maximum	0.0263					95% KM (BCA) UCL	0.0127
2690					Mean	0.0113					95% KM (Percentile Bootstrap) UCL	0.0127
2691					Median	0.01					95% KM (Chebyshev) UCL	0.0149
2692					SD	0.005					97.5% KM (Chebyshev) UCL	0.0165
2693					k star	6.072					99% KM (Chebyshev) UCL	0.0197
2694					Theta star	0.00185						
2695					Nu star	425	**Potential UCLs to Use**					
2696					AppChi2	378.2					95% KM (Chebyshev) UCL	0.0149
2697					95% Gamma Approximate UCL	0.0126						
2698					95% Adjusted Gamma UCL	0.0127						
2699	**Note: DL/2 is not a recommended method.**											
2700												
2701												
2702	**Nickel**											
2703												

	A	B	C	D	E	F	G	H	I	J	K	L
2704	**General Statistics**											
2705					Number of Valid Data	38				Number of Detected Data		38
2706					Number of Distinct Detected Data	37				Number of Non-Detect Data		0
2707					Number of Missing Values	5				Percent Non-Detects		0.00%
2708												
2709	**Raw Statistics**						**Log-transformed Statistics**					
2710					Minimum Detected	0.151				Minimum Detected		-1.89
2711					Maximum Detected	0.485				Maximum Detected		-0.724
2712					Mean of Detected	0.299				Mean of Detected		-1.251
2713					SD of Detected	0.0867				SD of Detected		0.308
2714					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
2715					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
2716												
2717												
2718	**UCL Statistics**											
2719	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2720					Shapiro Wilk Test Statistic	0.958				Shapiro Wilk Test Statistic		0.943
2721					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
2722	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2723												
2724	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2725					DL/2 Substitution Method					DL/2 Substitution Method		
2726					Mean	0.299				Mean		-1.251
2727					SD	0.0867				SD		0.308
2728					95% DL/2 (t) UCL	0.323				95% H-Stat (DL/2) UCL		0.328
2729												
2730					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
2731	**MLE method failed to converge properly**									Mean in Log Scale		N/A
2732										SD in Log Scale		N/A
2733										Mean in Original Scale		N/A
2734										SD in Original Scale		N/A
2735										95% Percentile Bootstrap UCL		N/A
2736										95% BCA Bootstrap UCL		N/A
2737												
2738	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2739					k star (bias corrected)	10.68	**Data appear Normal at 5% Significance Level**					
2740					Theta Star	0.028						
2741					nu star	811.7						
2742												
2743					A-D Test Statistic	0.525	**Nonparametric Statistics**					
2744					5% A-D Critical Value	0.748				Kaplan-Meier (KM) Method		
2745					K-S Test Statistic	0.748				Mean		0.299
2746					5% K-S Critical Value	0.143				SD		0.0855
2747	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0141
2748										95% KM (t) UCL		0.323
2749	**Assuming Gamma Distribution**									95% KM (z) UCL		0.322
2750					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.323
2751					Minimum	0.151				95% KM (bootstrap t) UCL		0.324
2752					Maximum	0.485				95% KM (BCA) UCL		0.321
2753					Mean	0.299				95% KM (Percentile Bootstrap) UCL		0.323
2754					Median	0.303				95% KM (Chebyshev) UCL		0.36
2755					SD	0.0867				97.5% KM (Chebyshev) UCL		0.387
2756					k star	10.68				99% KM (Chebyshev) UCL		0.439

2757					Theta star	0.028						
2758					Nu star	811.7	**Potential UCLs to Use**					
2759					AppChi2	746.5					95% KM (t) UCL	0.323
2760				95% Gamma Approximate UCL		0.325					95% KM (Percentile Bootstrap) UCL	0.323
2761				95% Adjusted Gamma UCL		0.326						
2762	**Note: DL/2 is not a recommended method.**											
2763												
2764												
2765	**Nitrobenzene**											
2766												
2767	**General Statistics**											
2768					Number of Valid Data	10					Number of Detected Data	7
2769					Number of Distinct Detected Data	6					Number of Non-Detect Data	3
2770					Number of Missing Values	33					Percent Non-Detects	30.00%
2771												
2772	**Raw Statistics**						**Log-transformed Statistics**					
2773					Minimum Detected	78					Minimum Detected	4.357
2774					Maximum Detected	520					Maximum Detected	6.254
2775					Mean of Detected	250.1					Mean of Detected	5.311
2776					SD of Detected	165.4					SD of Detected	0.731
2777					Minimum Non-Detect	33					Minimum Non-Detect	3.497
2778					Maximum Non-Detect	36					Maximum Non-Detect	3.584
2779												
2780	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	3
2781	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	7
2782	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	30.00%
2783												
2784	**Warning: There are only 7 Detected Values in this data**											
2785	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2786	**the resulting calculations may not be reliable enough tp draw conclusions**											
2787												
2788	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2789												
2790												
2791	**UCL Statistics**											
2792	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2793					Shapiro Wilk Test Statistic	0.914					Shapiro Wilk Test Statistic	0.924
2794					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
2795	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2796												
2797	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2798					DL/2 Substitution Method						DL/2 Substitution Method	
2799					Mean	180.3					Mean	4.573
2800					SD	175.7					SD	1.329
2801					95% DL/2 (t) UCL	282.2					95% H-Stat (DL/2) UCL	403.4
2802												
2803					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
2804					Mean	144.8					Mean in Log Scale	4.764
2805					SD	214.5					SD in Log Scale	1.063
2806					95% MLE (t) UCL	269.1					Mean in Original Scale	184.9
2807					95% MLE (Tiku) UCL	277.2					SD in Original Scale	171
2808											95% Percentile Bootstrap UCL	275.4
2809											95% BCA Bootstrap UCL	290.4

2810												
2811	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2812					k star (bias corrected)	1.535	**Data appear Normal at 5% Significance Level**					
2813					Theta Star	163						
2814					nu star	21.49						
2815												
2816					A-D Test Statistic	0.286	**Nonparametric Statistics**					
2817					5% A-D Critical Value	0.713	Kaplan-Meier (KM) Method					
2818					K-S Test Statistic	0.713	Mean	198.5				
2819					5% K-S Critical Value	0.314	SD	150.4				
2820	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	51.38				
2821							95% KM (t) UCL	292.7				
2822	**Assuming Gamma Distribution**						95% KM (z) UCL	283				
2823					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	289.7				
2824					Minimum	78	95% KM (bootstrap t) UCL	340.8				
2825					Maximum	520	95% KM (BCA) UCL	306				
2826					Mean	204.3	95% KM (Percentile Bootstrap) UCL	288.6				
2827					Median	143.7	95% KM (Chebyshev) UCL	422.5				
2828					SD	153.8	97.5% KM (Chebyshev) UCL	519.4				
2829					k star	1.706	99% KM (Chebyshev) UCL	709.8				
2830					Theta star	119.8						
2831					Nu star	34.11	**Potential UCLs to Use**					
2832					AppChi2	21.76	95% KM (t) UCL	292.7				
2833					95% Gamma Approximate UCL	320.4	95% KM (Percentile Bootstrap) UCL	288.6				
2834					95% Adjusted Gamma UCL	347.6						
2835	**Note: DL/2 is not a recommended method.**											
2836												
2837												
2838	**Perylene**											
2839												
2840	**General Statistics**											
2841					Number of Valid Data	7	Number of Detected Data	5				
2842					Number of Distinct Detected Data	5	Number of Non-Detect Data	2				
2843					Number of Missing Values	36	Percent Non-Detects	28.57%				
2844												
2845	**Raw Statistics**						**Log-transformed Statistics**					
2846					Minimum Detected	0.26	Minimum Detected	-1.347				
2847					Maximum Detected	1.3	Maximum Detected	0.262				
2848					Mean of Detected	0.75	Mean of Detected	-0.425				
2849					SD of Detected	0.404	SD of Detected	0.617				
2850					Minimum Non-Detect	0.13	Minimum Non-Detect	-2.04				
2851					Maximum Non-Detect	0.13	Maximum Non-Detect	-2.04				
2852												
2853												
2854	**Warning: There are only 5 Detected Values in this data**											
2855	**Note: It should be noted that even though bootstrap may be performed on this data set**											
2856	**the resulting calculations may not be reliable enough tp draw conclusions**											
2857												
2858	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
2859												
2860												
2861	**UCL Statistics**											
2862	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

2863					Shapiro Wilk Test Statistic	0.956					Shapiro Wilk Test Statistic	0.942
2864					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
2865					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2866												
2867					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2868					DL/2 Substitution Method						DL/2 Substitution Method	
2869					Mean	0.554					Mean	-1.084
2870					SD	0.47					SD	1.234
2871					95% DL/2 (t) UCL	0.899					95% H-Stat (DL/2) UCL	1.045
2872												
2873					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
2874					Mean	0.478					Mean in Log Scale	-0.878
2875					SD	0.547					SD in Log Scale	0.933
2876					95% MLE (t) UCL	0.88					Mean in Original Scale	0.575
2877					95% MLE (Tiku) UCL	0.907					SD in Original Scale	0.446
2878											95% Percentile Bootstrap UCL	0.844
2879											95% BCA Bootstrap UCL	0.859
2880												
2881					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2882					k star (bias corrected)	1.657					**Data appear Normal at 5% Significance Level**	
2883					Theta Star	0.453						
2884					nu star	16.57						
2885												
2886					A-D Test Statistic	0.264					**Nonparametric Statistics**	
2887					5% A-D Critical Value	0.682					Kaplan-Meier (KM) Method	
2888					K-S Test Statistic	0.682					Mean	0.61
2889					5% K-S Critical Value	0.359					SD	0.377
2890					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.159
2891											95% KM (t) UCL	0.92
2892					**Assuming Gamma Distribution**						95% KM (z) UCL	0.872
2893					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.922
2894					Minimum	0.26					95% KM (bootstrap t) UCL	1.053
2895					Maximum	1.3					95% KM (BCA) UCL	0.969
2896					Mean	0.641					95% KM (Percentile Bootstrap) UCL	0.926
2897					Median	0.59					95% KM (Chebyshev) UCL	1.305
2898					SD	0.384					97.5% KM (Chebyshev) UCL	1.606
2899					k star	2.019					99% KM (Chebyshev) UCL	2.196
2900					Theta star	0.317						
2901					Nu star	28.27					**Potential UCLs to Use**	
2902					AppChi2	17.14					95% KM (t) UCL	0.92
2903					95% Gamma Approximate UCL	1.057					95% KM (Percentile Bootstrap) UCL	0.926
2904					95% Adjusted Gamma UCL	1.242						
2905	**Note: DL/2 is not a recommended method.**											
2906												
2907												
2908	**Phenanthrene**											
2909												
2910					**General Statistics**							
2911					Number of Valid Data	39					Number of Detected Data	36
2912					Number of Distinct Detected Data	28					Number of Non-Detect Data	3
2913					Number of Missing Values	4					Percent Non-Detects	7.69%
2914												
2915					**Raw Statistics**						**Log-transformed Statistics**	

	A	B	C	D	E	F	G	H	I	J	K	L
2916					Minimum Detected	2.7					Minimum Detected	0.993
2917					Maximum Detected	300					Maximum Detected	5.704
2918					Mean of Detected	37.61					Mean of Detected	2.995
2919					SD of Detected	60.05					SD of Detected	1.032
2920					Minimum Non-Detect	31					Minimum Non-Detect	3.434
2921					Maximum Non-Detect	33					Maximum Non-Detect	3.497
2922												
2923	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	32
2924	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	7
2925	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	82.05%
2926												
2927	**UCL Statistics**											
2928	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2929					Shapiro Wilk Test Statistic	0.538					Shapiro Wilk Test Statistic	0.937
2930					5% Shapiro Wilk Critical Value	0.935					5% Shapiro Wilk Critical Value	0.935
2931	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2932												
2933	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2934					DL/2 Substitution Method						DL/2 Substitution Method	
2935					Mean	35.95					Mean	2.978
2936					SD	57.93					SD	0.992
2937					95% DL/2 (t) UCL	51.59					95% H-Stat (DL/2) UCL	48.54
2938												
2939					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2940	**MLE yields a negative mean**										Mean in Log Scale	2.975
2941											SD in Log Scale	0.993
2942											Mean in Original Scale	35.89
2943											SD in Original Scale	57.95
2944											95% Percentile Bootstrap UCL	52.29
2945											95% BCA Bootstrap UCL	57.68
2946												
2947	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2948					k star (bias corrected)	0.864	**Data appear Lognormal at 5% Significance Level**					
2949					Theta Star	43.53						
2950					nu star	62.21						
2951												
2952					A-D Test Statistic	2.566	**Nonparametric Statistics**					
2953					5% A-D Critical Value	0.78					Kaplan-Meier (KM) Method	
2954					K-S Test Statistic	0.78					Mean	35.93
2955					5% K-S Critical Value	0.152					SD	57.22
2956	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	9.299
2957											95% KM (t) UCL	51.61
2958	**Assuming Gamma Distribution**										95% KM (z) UCL	51.22
2959					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	51.59
2960					Minimum	2.7					95% KM (bootstrap t) UCL	66.84
2961					Maximum	300					95% KM (BCA) UCL	54.17
2962					Mean	36.88					95% KM (Percentile Bootstrap) UCL	52.73
2963					Median	19					95% KM (Chebyshev) UCL	76.46
2964					SD	57.69					97.5% KM (Chebyshev) UCL	94
2965					k star	0.928					99% KM (Chebyshev) UCL	128.5
2966					Theta star	39.75						
2967					Nu star	72.37	**Potential UCLs to Use**					
2968					AppChi2	53.78					97.5% KM (Chebyshev) UCL	94

	A	B	C	D	E	F	G	H	I	J	K	L
2969					95% Gamma Approximate UCL	49.63						
2970					95% Adjusted Gamma UCL	50.22						
2971	**Note: DL/2 is not a recommended method.**											
2972												
2973												
2974	**Pyrene**											
2975												
2976					**General Statistics**							
2977					Number of Valid Data	39				Number of Detected Data		39
2978					Number of Distinct Detected Data	33				Number of Non-Detect Data		0
2979					Number of Missing Values	4				Percent Non-Detects		0.00%
2980												
2981					**Raw Statistics**					**Log-transformed Statistics**		
2982					Minimum Detected	5.5				Minimum Detected		1.705
2983					Maximum Detected	850				Maximum Detected		6.745
2984					Mean of Detected	108.6				Mean of Detected		4.01
2985					SD of Detected	181.2				SD of Detected		1.125
2986					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
2987					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
2988												
2989												
2990					**UCL Statistics**							
2991					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
2992					Shapiro Wilk Test Statistic	0.501				Shapiro Wilk Test Statistic		0.964
2993					5% Shapiro Wilk Critical Value	0.939				5% Shapiro Wilk Critical Value		0.939
2994					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
2995												
2996					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
2997					DL/2 Substitution Method					DL/2 Substitution Method		
2998					Mean	108.6				Mean		4.01
2999					SD	181.2				SD		1.125
3000					95% DL/2 (t) UCL	157.6				95% H-Stat (DL/2) UCL		164.1
3001												
3002					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
3003					**MLE method failed to converge properly**					Mean in Log Scale		N/A
3004										SD in Log Scale		N/A
3005										Mean in Original Scale		N/A
3006										SD in Original Scale		N/A
3007										95% Percentile Bootstrap UCL		N/A
3008										95% BCA Bootstrap UCL		N/A
3009												
3010					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
3011					k star (bias corrected)	0.817				**Data appear Lognormal at 5% Significance Level**		
3012					Theta Star	133						
3013					nu star	63.74						
3014												
3015					A-D Test Statistic	1.602				**Nonparametric Statistics**		
3016					5% A-D Critical Value	0.784				Kaplan-Meier (KM) Method		
3017					K-S Test Statistic	0.784				Mean		108.6
3018					5% K-S Critical Value	0.146				SD		178.8
3019					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		29.01
3020										95% KM (t) UCL		157.6
3021					**Assuming Gamma Distribution**					95% KM (z) UCL		156.4

3022	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		157.6
3023					Minimum	5.5				95% KM (bootstrap t) UCL		243.5
3024					Maximum	850				95% KM (BCA) UCL		159.7
3025					Mean	108.6				95% KM (Percentile Bootstrap) UCL		159.5
3026					Median	52				95% KM (Chebyshev) UCL		235.1
3027					SD	181.2				97.5% KM (Chebyshev) UCL		289.8
3028					k star	0.817				99% KM (Chebyshev) UCL		397.3
3029					Theta star	133						
3030					Nu star	63.74				**Potential UCLs to Use**		
3031					AppChi2	46.37				97.5% KM (Chebyshev) UCL		289.8
3032				95% Gamma Approximate UCL		149.3						
3033				95% Adjusted Gamma UCL		151.2						
3034	**Note: DL/2 is not a recommended method.**											
3035												
3036												
3037	**Selenium**											
3038												
3039	**General Statistics**											
3040				Number of Valid Data		38				Number of Detected Data		36
3041				Number of Distinct Detected Data		26				Number of Non-Detect Data		2
3042				Number of Missing Values		5				Percent Non-Detects		5.26%
3043												
3044	**Raw Statistics**						**Log-transformed Statistics**					
3045				Minimum Detected		0.069				Minimum Detected		-2.674
3046				Maximum Detected		0.22				Maximum Detected		-1.514
3047				Mean of Detected		0.127				Mean of Detected		-2.109
3048				SD of Detected		0.0414				SD of Detected		0.316
3049				Minimum Non-Detect		0.1				Minimum Non-Detect		-2.303
3050				Maximum Non-Detect		0.1				Maximum Non-Detect		-2.303
3051												
3052												
3053	**UCL Statistics**											
3054	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3055				Shapiro Wilk Test Statistic		0.91				Shapiro Wilk Test Statistic		0.943
3056				5% Shapiro Wilk Critical Value		0.935				5% Shapiro Wilk Critical Value		0.935
3057	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3058												
3059	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3060				DL/2 Substitution Method						DL/2 Substitution Method		
3061				Mean		0.123				Mean		-2.156
3062				SD		0.0439				SD		0.367
3063				95% DL/2 (t) UCL		0.135				95% H-Stat (DL/2) UCL		0.136
3064												
3065				Maximum Likelihood Estimate(MLE) Method						Log ROS Method		
3066				Mean		0.116				Mean in Log Scale		-2.126
3067				SD		0.0524				SD in Log Scale		0.316
3068				95% MLE (t) UCL		0.131				Mean in Original Scale		0.125
3069				95% MLE (Tiku) UCL		0.132				SD in Original Scale		0.0413
3070										95% Percentile Bootstrap UCL		0.137
3071										95% BCA Bootstrap UCL		0.137
3072												
3073	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3074				k star (bias corrected)		9.479	**Data appear Lognormal at 5% Significance Level**					

3075					Theta Star	0.0134						
3076					nu star	682.5						
3077												
3078					A-D Test Statistic	0.849	**Nonparametric Statistics**					
3079					5% A-D Critical Value	0.748	Kaplan-Meier (KM) Method					
3080					K-S Test Statistic	0.748	Mean	0.125				
3081					5% K-S Critical Value	0.147	SD	0.0408				
3082	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.00672				
3083							95% KM (t) UCL	0.137				
3084	**Assuming Gamma Distribution**						95% KM (z) UCL	0.136				
3085	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.137				
3086					Minimum	0.069	95% KM (bootstrap t) UCL	0.137				
3087					Maximum	0.22	95% KM (BCA) UCL	0.137				
3088					Mean	0.126	95% KM (Percentile Bootstrap) UCL	0.136				
3089					Median	0.112	95% KM (Chebyshev) UCL	0.155				
3090					SD	0.0412	97.5% KM (Chebyshev) UCL	0.167				
3091					k star	9.477	99% KM (Chebyshev) UCL	0.192				
3092					Theta star	0.0133						
3093					Nu star	720.2	**Potential UCLs to Use**					
3094					AppChi2	658.9	95% KM (Chebyshev) UCL	0.155				
3095					95% Gamma Approximate UCL	0.137						
3096					95% Adjusted Gamma UCL	0.138						
3097	**Note: DL/2 is not a recommended method.**											
3098												
3099												
3100	**Silver**											
3101												
3102	**General Statistics**											
3103					Number of Valid Data	38	Number of Detected Data	38				
3104					Number of Distinct Detected Data	33	Number of Non-Detect Data	0				
3105					Number of Missing Values	5	Percent Non-Detects	0.00%				
3106												
3107	**Raw Statistics**						**Log-transformed Statistics**					
3108					Minimum Detected	0.0201	Minimum Detected	-3.907				
3109					Maximum Detected	0.101	Maximum Detected	-2.293				
3110					Mean of Detected	0.0521	Mean of Detected	-3.008				
3111					SD of Detected	0.0171	SD of Detected	0.339				
3112					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
3113					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
3114												
3115												
3116	**UCL Statistics**											
3117	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3118					Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Test Statistic	0.984				
3119					5% Shapiro Wilk Critical Value	0.938	5% Shapiro Wilk Critical Value	0.938				
3120	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
3121												
3122	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3123					DL/2 Substitution Method		DL/2 Substitution Method					
3124					Mean	0.0521	Mean	-3.008				
3125					SD	0.0171	SD	0.339				
3126					95% DL/2 (t) UCL	0.0568	95% H-Stat (DL/2) UCL	0.0578				
3127												

3128	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
3129	**MLE method failed to converge properly**						Mean in Log Scale					N/A
3130							SD in Log Scale					N/A
3131							Mean in Original Scale					N/A
3132							SD in Original Scale					N/A
3133							95% Percentile Bootstrap UCL					N/A
3134							95% BCA Bootstrap UCL					N/A
3135												
3136	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3137	k star (bias corrected)					8.723	**Data appear Normal at 5% Significance Level**					
3138	Theta Star					0.00597						
3139	nu star					662.9						
3140												
3141	A-D Test Statistic					0.213	**Nonparametric Statistics**					
3142	5% A-D Critical Value					0.748	Kaplan-Meier (KM) Method					
3143	K-S Test Statistic					0.748	Mean					0.0521
3144	5% K-S Critical Value					0.143	SD					0.0169
3145	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.00278
3146							95% KM (t) UCL					0.0568
3147	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0567
3148	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0568
3149	Minimum					0.0201	95% KM (bootstrap t) UCL					0.0571
3150	Maximum					0.101	95% KM (BCA) UCL					0.0567
3151	Mean					0.0521	95% KM (Percentile Bootstrap) UCL					0.0568
3152	Median					0.05	95% KM (Chebyshev) UCL					0.0642
3153	SD					0.0171	97.5% KM (Chebyshev) UCL					0.0695
3154	k star					8.723	99% KM (Chebyshev) UCL					0.0798
3155	Theta star					0.00597						
3156	Nu star					662.9	**Potential UCLs to Use**					
3157	AppChi2					604.2	95% KM (t) UCL					0.0568
3158	95% Gamma Approximate UCL					0.0572	95% KM (Percentile Bootstrap) UCL					0.0568
3159	95% Adjusted Gamma UCL					0.0574						
3160	**Note: DL/2 is not a recommended method.**											
3161												
3162												
3163	**Thallium**											
3164												
3165	**General Statistics**											
3166	Number of Valid Data					10	Number of Detected Data					10
3167	Number of Distinct Detected Data					9	Number of Non-Detect Data					0
3168	Number of Missing Values					33	Percent Non-Detects					0.00%
3169												
3170	**Raw Statistics**						**Log-transformed Statistics**					
3171	Minimum Detected					0.00035	Minimum Detected					-7.958
3172	Maximum Detected					0.002	Maximum Detected					-6.215
3173	Mean of Detected					0.00106	Mean of Detected					-6.985
3174	SD of Detected					0.0005325	SD of Detected					0.567
3175	Minimum Non-Detect					N/A	Minimum Non-Detect					N/A
3176	Maximum Non-Detect					N/A	Maximum Non-Detect					N/A
3177												
3178												
3179	**UCL Statistics**											
3180	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					

3181					Shapiro Wilk Test Statistic	0.933					Shapiro Wilk Test Statistic	0.927
3182					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
3183					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
3184												
3185					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3186					DL/2 Substitution Method						DL/2 Substitution Method	
3187					Mean	0.00106					Mean	-6.985
3188					SD	0.0005325					SD	0.567
3189					95% DL/2 (t) UCL	0.00136					95% H-Stat (DL/2) UCL	0.00169
3190												
3191					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3192					**MLE method failed to converge properly**						Mean in Log Scale	N/A
3193											SD in Log Scale	N/A
3194											Mean in Original Scale	N/A
3195											SD in Original Scale	N/A
3196											95% Percentile Bootstrap UCL	N/A
3197											95% BCA Bootstrap UCL	N/A
3198												
3199					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
3200					k star (bias corrected)	2.85					**Data appear Normal at 5% Significance Level**	
3201					Theta Star	0.0003701						
3202					nu star	57.01						
3203												
3204					A-D Test Statistic	0.31					**Nonparametric Statistics**	
3205					5% A-D Critical Value	0.729					Kaplan-Meier (KM) Method	
3206					K-S Test Statistic	0.729					Mean	0.00106
3207					5% K-S Critical Value	0.268					SD	0.0005052
3208					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0001684
3209											95% KM (t) UCL	0.00136
3210					**Assuming Gamma Distribution**						95% KM (z) UCL	0.00133
3211					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00136
3212					Minimum	0.00035					95% KM (bootstrap t) UCL	0.00145
3213					Maximum	0.002					95% KM (BCA) UCL	0.00129
3214					Mean	0.00106					95% KM (Percentile Bootstrap) UCL	0.00131
3215					Median	0.00105					95% KM (Chebyshev) UCL	0.00179
3216					SD	0.0005325					97.5% KM (Chebyshev) UCL	0.00211
3217					k star	2.85					99% KM (Chebyshev) UCL	0.00273
3218					Theta star	0.0003701						
3219					Nu star	57.01					**Potential UCLs to Use**	
3220					AppChi2	40.65					95% KM (t) UCL	0.00136
3221					95% Gamma Approximate UCL	0.00148					95% KM (Percentile Bootstrap) UCL	0.00131
3222					95% Adjusted Gamma UCL	0.00157						
3223	**Note: DL/2 is not a recommended method.**											
3224												
3225												
3226	**Total Chlordanes**											
3227												
3228						**General Statistics**							
3229					Number of Valid Data	41					Number of Detected Data	41
3230					Number of Distinct Detected Data	41					Number of Non-Detect Data	0
3231					Number of Missing Values	2					Percent Non-Detects	0.00%
3232												
3233					**Raw Statistics**						**Log-transformed Statistics**	

3234					Minimum Detected	1.613					Minimum Detected	0.478
3235					Maximum Detected	16.02					Maximum Detected	2.774
3236					Mean of Detected	4.178					Mean of Detected	1.31
3237					SD of Detected	2.584					SD of Detected	0.455
3238					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
3239					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
3240												
3241												
3242	**UCL Statistics**											
3243	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3244					Shapiro Wilk Test Statistic	0.705					Shapiro Wilk Test Statistic	0.924
3245					5% Shapiro Wilk Critical Value	0.941					5% Shapiro Wilk Critical Value	0.941
3246	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3247												
3248	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3249					DL/2 Substitution Method						DL/2 Substitution Method	
3250					Mean	4.178					Mean	1.31
3251					SD	2.584					SD	0.455
3252					95% DL/2 (t) UCL	4.858					95% H-Stat (DL/2) UCL	4.702
3253												
3254					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3255	**MLE method failed to converge properly**										Mean in Log Scale	N/A
3256											SD in Log Scale	N/A
3257											Mean in Original Scale	N/A
3258											SD in Original Scale	N/A
3259											95% Percentile Bootstrap UCL	N/A
3260											95% BCA Bootstrap UCL	N/A
3261												
3262	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3263					k star (bias corrected)	4.046	**Data do not follow a Discernable Distribution (0.05)**					
3264					Theta Star	1.033						
3265					nu star	331.8						
3266												
3267					A-D Test Statistic	1.826	**Nonparametric Statistics**					
3268					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
3269					K-S Test Statistic	0.752					Mean	4.178
3270					5% K-S Critical Value	0.138					SD	2.553
3271	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.404
3272											95% KM (t) UCL	4.858
3273	**Assuming Gamma Distribution**										95% KM (z) UCL	4.842
3274					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.858
3275					Minimum	1.613					95% KM (bootstrap t) UCL	5.292
3276					Maximum	16.02					95% KM (BCA) UCL	4.914
3277					Mean	4.178					95% KM (Percentile Bootstrap) UCL	4.839
3278					Median	3.275					95% KM (Chebyshev) UCL	5.937
3279					SD	2.584					97.5% KM (Chebyshev) UCL	6.699
3280					k star	4.046					99% KM (Chebyshev) UCL	8.194
3281					Theta star	1.033						
3282					Nu star	331.8	**Potential UCLs to Use**					
3283					AppChi2	290.6					95% KM (Chebyshev) UCL	5.937
3284					95% Gamma Approximate UCL	4.77						
3285					95% Adjusted Gamma UCL	4.794						
3286	**Note: DL/2 is not a recommended method.**											

3287												
3288												
3289	**Total DDD**											
3290												
3291						**General Statistics**							
3292						Number of Valid Data	41				Number of Detected Data	41	
3293						Number of Distinct Detected Data	41				Number of Non-Detect Data	0	
3294						Number of Missing Values	2				Percent Non-Detects	0.00%	
3295												
3296						**Raw Statistics**					**Log-transformed Statistics**		
3297						Minimum Detected	1.709				Minimum Detected	0.536	
3298						Maximum Detected	242				Maximum Detected	5.489	
3299						Mean of Detected	24.73				Mean of Detected	2.426	
3300						SD of Detected	48.57				SD of Detected	1.093	
3301						Minimum Non-Detect	N/A				Minimum Non-Detect	N/A	
3302						Maximum Non-Detect	N/A				Maximum Non-Detect	N/A	
3303													
3304													
3305						**UCL Statistics**							
3306						**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
3307						Shapiro Wilk Test Statistic	0.453				Shapiro Wilk Test Statistic	0.93	
3308						5% Shapiro Wilk Critical Value	0.941				5% Shapiro Wilk Critical Value	0.941	
3309						**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
3310													
3311						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
3312						DL/2 Substitution Method					DL/2 Substitution Method		
3313						Mean	24.73				Mean	2.426	
3314						SD	48.57				SD	1.093	
3315						95% DL/2 (t) UCL	37.5				95% H-Stat (DL/2) UCL	31.45	
3316													
3317						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
3318						**MLE method failed to converge properly**					Mean in Log Scale	N/A	
3319											SD in Log Scale	N/A	
3320											Mean in Original Scale	N/A	
3321											SD in Original Scale	N/A	
3322											95% Percentile Bootstrap UCL	N/A	
3323											95% BCA Bootstrap UCL	N/A	
3324													
3325						**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
3326						k star (bias corrected)	0.724				**Data do not follow a Discernable Distribution (0.05)**		
3327						Theta Star	34.13						
3328						nu star	59.4						
3329													
3330						A-D Test Statistic	3.312				**Nonparametric Statistics**		
3331						5% A-D Critical Value	0.789				Kaplan-Meier (KM) Method		
3332						K-S Test Statistic	0.789				Mean	24.73	
3333						5% K-S Critical Value	0.143				SD	47.97	
3334						**Data not Gamma Distributed at 5% Significance Level**					SE of Mean	7.585	
3335											95% KM (t) UCL	37.5	
3336						**Assuming Gamma Distribution**					95% KM (z) UCL	37.2	
3337						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	37.5	
3338						Minimum	1.709				95% KM (bootstrap t) UCL	58.27	
3339						Maximum	242				95% KM (BCA) UCL	37.67	

3340					Mean	24.73				95% KM (Percentile Bootstrap) UCL		38.82
3341					Median	10.24				95% KM (Chebyshev) UCL		57.79
3342					SD	48.57				97.5% KM (Chebyshev) UCL		72.09
3343					k star	0.724				99% KM (Chebyshev) UCL		100.2
3344					Theta star	34.13						
3345					Nu star	59.4				**Potential UCLs to Use**		
3346					AppChi2	42.68				95% KM (Chebyshev) UCL		57.79
3347				95% Gamma Approximate UCL		34.41						
3348				95% Adjusted Gamma UCL		34.84						
3349	**Note: DL/2 is not a recommended method.**											
3350												
3351												
3352	**Total DDE**											
3353												
3354	**General Statistics**											
3355					Number of Valid Data	41				Number of Detected Data		41
3356					Number of Distinct Detected Data	41				Number of Non-Detect Data		0
3357					Number of Missing Values	2				Percent Non-Detects		0.00%
3358												
3359	**Raw Statistics**						**Log-transformed Statistics**					
3360					Minimum Detected	4.888				Minimum Detected		1.587
3361					Maximum Detected	107				Maximum Detected		4.673
3362					Mean of Detected	18.11				Mean of Detected		2.623
3363					SD of Detected	19.27				SD of Detected		0.651
3364					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
3365					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
3366												
3367												
3368	**UCL Statistics**											
3369	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3370					Shapiro Wilk Test Statistic	0.568				Shapiro Wilk Test Statistic		0.89
3371					5% Shapiro Wilk Critical Value	0.941				5% Shapiro Wilk Critical Value		0.941
3372	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3373												
3374	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3375					DL/2 Substitution Method					DL/2 Substitution Method		
3376					Mean	18.11				Mean		2.623
3377					SD	19.27				SD		0.651
3378					95% DL/2 (t) UCL	23.18				95% H-Stat (DL/2) UCL		20.97
3379												
3380					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
3381	**MLE method failed to converge properly**									Mean in Log Scale		N/A
3382										SD in Log Scale		N/A
3383										Mean in Original Scale		N/A
3384										SD in Original Scale		N/A
3385										95% Percentile Bootstrap UCL		N/A
3386										95% BCA Bootstrap UCL		N/A
3387												
3388	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3389					k star (bias corrected)	1.854	**Data do not follow a Discernable Distribution (0.05)**					
3390					Theta Star	9.767						
3391					nu star	152						
3392												

3393					A-D Test Statistic	3.035	**Nonparametric Statistics**					
3394					5% A-D Critical Value	0.76				Kaplan-Meier (KM) Method		
3395					K-S Test Statistic	0.76				Mean		18.11
3396					5% K-S Critical Value	0.14				SD		19.04
3397	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		3.01
3398										95% KM (t) UCL		23.18
3399	**Assuming Gamma Distribution**									95% KM (z) UCL		23.06
3400	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		23.18
3401					Minimum	4.888				95% KM (bootstrap t) UCL		27.35
3402					Maximum	107				95% KM (BCA) UCL		23.49
3403					Mean	18.11				95% KM (Percentile Bootstrap) UCL		23.59
3404					Median	12.82				95% KM (Chebyshev) UCL		31.23
3405					SD	19.27				97.5% KM (Chebyshev) UCL		36.9
3406					k star	1.854				99% KM (Chebyshev) UCL		48.06
3407					Theta star	9.767						
3408					Nu star	152	**Potential UCLs to Use**					
3409					AppChi2	124.5				95% KM (Chebyshev) UCL		31.23
3410					95% Gamma Approximate UCL	22.11						
3411					95% Adjusted Gamma UCL	22.27						
3412	**Note: DL/2 is not a recommended method.**											
3413												
3414												
3415	**Total DDT**											
3416												
3417	**General Statistics**											
3418					Number of Valid Data	41				Number of Detected Data		40
3419					Number of Distinct Detected Data	40				Number of Non-Detect Data		1
3420					Number of Missing Values	2				Percent Non-Detects		2.44%
3421												
3422	**Raw Statistics**						**Log-transformed Statistics**					
3423					Minimum Detected	0.464				Minimum Detected		-0.768
3424					Maximum Detected	114				Maximum Detected		4.736
3425					Mean of Detected	8.664				Mean of Detected		1.06
3426					SD of Detected	21.33				SD of Detected		1.185
3427					Minimum Non-Detect	8.3				Minimum Non-Detect		2.116
3428					Maximum Non-Detect	8.3				Maximum Non-Detect		2.116
3429												
3430												
3431	**UCL Statistics**											
3432	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3433					Shapiro Wilk Test Statistic	0.403				Shapiro Wilk Test Statistic		0.835
3434					5% Shapiro Wilk Critical Value	0.94				5% Shapiro Wilk Critical Value		0.94
3435	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3436												
3437	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3438					DL/2 Substitution Method					DL/2 Substitution Method		
3439					Mean	8.554				Mean		1.068
3440					SD	21.07				SD		1.171
3441					95% DL/2 (t) UCL	14.1				95% H-Stat (DL/2) UCL		9.609
3442												
3443					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
3444	**MLE yields a negative mean**									Mean in Log Scale		1.054
3445										SD in Log Scale		1.171

3446											Mean in Original Scale	8.509
3447											SD in Original Scale	21.09
3448											95% Percentile Bootstrap UCL	14.48
3449											95% BCA Bootstrap UCL	17.54
3450												
3451	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
3452					k star (bias corrected)	0.541					**Data do not follow a Discernable Distribution (0.05)**	
3453					Theta Star	16.02						
3454					nu star	43.27						
3455												
3456					A-D Test Statistic	5.725					**Nonparametric Statistics**	
3457					5% A-D Critical Value	0.807					Kaplan-Meier (KM) Method	
3458					K-S Test Statistic	0.807					Mean	8.506
3459					5% K-S Critical Value	0.147					SD	20.83
3460	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	3.294
3461											95% KM (t) UCL	14.05
3462	**Assuming Gamma Distribution**										95% KM (z) UCL	13.93
3463					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	14.05
3464					Minimum	0.464					95% KM (bootstrap t) UCL	23.31
3465					Maximum	114					95% KM (BCA) UCL	15.14
3466					Mean	8.522					95% KM (Percentile Bootstrap) UCL	14.32
3467					Median	2.197					95% KM (Chebyshev) UCL	22.87
3468					SD	21.08					97.5% KM (Chebyshev) UCL	29.08
3469					k star	0.548					99% KM (Chebyshev) UCL	41.29
3470					Theta star	15.54						
3471					Nu star	44.96					**Potential UCLs to Use**	
3472					AppChi2	30.58					95% KM (Chebyshev) UCL	22.87
3473					95% Gamma Approximate UCL	12.53						
3474					95% Adjusted Gamma UCL	12.71						
3475	**Note: DL/2 is not a recommended method.**											
3476												
3477												
3478	**Total Dioxin/Furan TEQ**											
3479												
3480	**General Statistics**											
3481					Number of Valid Data	36					Number of Detected Data	36
3482					Number of Distinct Detected Data	36					Number of Non-Detect Data	0
3483					Number of Missing Values	7					Percent Non-Detects	0.00%
3484												
3485	**Raw Statistics**										**Log-transformed Statistics**	
3486					Minimum Detected	0.387					Minimum Detected	-0.949
3487					Maximum Detected	5.624					Maximum Detected	1.727
3488					Mean of Detected	1.124					Mean of Detected	-0.173
3489					SD of Detected	1.134					SD of Detected	0.689
3490					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
3491					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
3492												
3493												
3494	**UCL Statistics**											
3495	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
3496					Shapiro Wilk Test Statistic	0.643					Shapiro Wilk Test Statistic	0.875
3497					5% Shapiro Wilk Critical Value	0.935					5% Shapiro Wilk Critical Value	0.935
3498	**Data not Normal at 5% Significance Level**										**Data not Lognormal at 5% Significance Level**	

3499												
3500	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3501				DL/2 Substitution Method						DL/2 Substitution Method		
3502				Mean		1.124				Mean		-0.173
3503				SD		1.134				SD		0.689
3504				95% DL/2 (t) UCL		1.443				95% H-Stat (DL/2) UCL		1.356
3505												
3506				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
3507	**MLE method failed to converge properly**									Mean in Log Scale		N/A
3508										SD in Log Scale		N/A
3509										Mean in Original Scale		N/A
3510										SD in Original Scale		N/A
3511										95% Percentile Bootstrap UCL		N/A
3512										95% BCA Bootstrap UCL		N/A
3513												
3514	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3515				k star (bias corrected)		1.736	**Data do not follow a Discernable Distribution (0.05)**					
3516				Theta Star		0.648						
3517				nu star		125						
3518												
3519				A-D Test Statistic		2.44	**Nonparametric Statistics**					
3520				5% A-D Critical Value		0.761				Kaplan-Meier (KM) Method		
3521				K-S Test Statistic		0.761				Mean		1.124
3522				5% K-S Critical Value		0.149				SD		1.118
3523	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.189
3524										95% KM (t) UCL		1.443
3525	**Assuming Gamma Distribution**									95% KM (z) UCL		1.435
3526				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		1.443
3527				Minimum		0.387				95% KM (bootstrap t) UCL		1.673
3528				Maximum		5.624				95% KM (BCA) UCL		1.445
3529				Mean		1.124				95% KM (Percentile Bootstrap) UCL		1.458
3530				Median		0.693				95% KM (Chebyshev) UCL		1.948
3531				SD		1.134				97.5% KM (Chebyshev) UCL		2.304
3532				k star		1.736				99% KM (Chebyshev) UCL		3.004
3533				Theta star		0.648						
3534				Nu star		125	**Potential UCLs to Use**					
3535				AppChi2		100.2				95% KM (Chebyshev) UCL		1.948
3536				95% Gamma Approximate UCL		1.403						
3537				95% Adjusted Gamma UCL		1.417						
3538	**Note: DL/2 is not a recommended method.**											
3539												
3540												
3541	**Total Dioxin-like PCBs**											
3542												
3543	**General Statistics**											
3544				Number of Valid Data		38				Number of Detected Data		38
3545				Number of Distinct Detected Data		38				Number of Non-Detect Data		0
3546				Number of Missing Values		5				Percent Non-Detects		0.00%
3547												
3548	**Raw Statistics**						**Log-transformed Statistics**					
3549				Minimum Detected		2922				Minimum Detected		7.98
3550				Maximum Detected		46107				Maximum Detected		10.74
3551				Mean of Detected		10815				Mean of Detected		9.031

3552					SD of Detected	9753					SD of Detected	0.668
3553					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
3554					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
3555												
3556												
3557					**UCL Statistics**							
3558					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
3559					Shapiro Wilk Test Statistic	0.694					Shapiro Wilk Test Statistic	0.913
3560					5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value	0.938
3561					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
3562												
3563					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3564					DL/2 Substitution Method						DL/2 Substitution Method	
3565					Mean	10815					Mean	9.031
3566					SD	9753					SD	0.668
3567					95% DL/2 (t) UCL	13485					95% H-Stat (DL/2) UCL	13067
3568												
3569					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3570					**MLE method failed to converge properly**						Mean in Log Scale	N/A
3571											SD in Log Scale	N/A
3572											Mean in Original Scale	N/A
3573											SD in Original Scale	N/A
3574											95% Percentile Bootstrap UCL	N/A
3575											95% BCA Bootstrap UCL	N/A
3576												
3577					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
3578					k star (bias corrected)	1.941					**Data do not follow a Discernable Distribution (0.05)**	
3579					Theta Star	5572						
3580					nu star	147.5						
3581												
3582					A-D Test Statistic	2.051					**Nonparametric Statistics**	
3583					5% A-D Critical Value	0.759					Kaplan-Meier (KM) Method	
3584					K-S Test Statistic	0.759					Mean	10815
3585					5% K-S Critical Value	0.145					SD	9624
3586					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	1582
3587											95% KM (t) UCL	13485
3588					**Assuming Gamma Distribution**						95% KM (z) UCL	13418
3589					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	13485
3590					Minimum	2922					95% KM (bootstrap t) UCL	14433
3591					Maximum	46107					95% KM (BCA) UCL	13723
3592					Mean	10815					95% KM (Percentile Bootstrap) UCL	13461
3593					Median	7020					95% KM (Chebyshev) UCL	17712
3594					SD	9753					97.5% KM (Chebyshev) UCL	20696
3595					k star	1.941					99% KM (Chebyshev) UCL	26558
3596					Theta star	5572						
3597					Nu star	147.5					**Potential UCLs to Use**	
3598					AppChi2	120.4					95% KM (Chebyshev) UCL	17712
3599					95% Gamma Approximate UCL	13246						
3600					95% Adjusted Gamma UCL	13358						
3601	**Note: DL/2 is not a recommended method.**											
3602												
3603												
3604	**Total Endosulfan**											

	A	B	C	D	E	F	G	H	I	J	K	L
3605												
3606	**General Statistics**											
3607					Number of Valid Data	40				Number of Detected Data		37
3608					Number of Distinct Detected Data	36				Number of Non-Detect Data		3
3609					Number of Missing Values	3				Percent Non-Detects		7.50%
3610												
3611	**Raw Statistics**						**Log-transformed Statistics**					
3612					Minimum Detected	0.369				Minimum Detected		-0.998
3613					Maximum Detected	1.472				Maximum Detected		0.387
3614					Mean of Detected	0.948				Mean of Detected		-0.105
3615					SD of Detected	0.287				SD of Detected		0.341
3616					Minimum Non-Detect	0.205				Minimum Non-Detect		-1.585
3617					Maximum Non-Detect	1				Maximum Non-Detect		0
3618												
3619	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		24
3620	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		16
3621	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		60.00%
3622												
3623	**UCL Statistics**											
3624	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3625					Shapiro Wilk Test Statistic	0.971				Shapiro Wilk Test Statistic		0.931
3626					5% Shapiro Wilk Critical Value	0.936				5% Shapiro Wilk Critical Value		0.936
3627	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
3628												
3629	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3630					DL/2 Substitution Method					DL/2 Substitution Method		
3631					Mean	0.905				Mean		-0.189
3632					SD	0.321				SD		0.489
3633					95% DL/2 (t) UCL	0.99				95% H-Stat (DL/2) UCL		1.019
3634												
3635					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
3636					Mean	0.935				Mean in Log Scale		-0.138
3637					SD	0.282				SD in Log Scale		0.358
3638					95% MLE (t) UCL	1.01				Mean in Original Scale		0.923
3639					95% MLE (Tiku) UCL	1.041				SD in Original Scale		0.294
3640										95% Percentile Bootstrap UCL		0.999
3641										95% BCA Bootstrap UCL		0.998
3642												
3643	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3644					k star (bias corrected)	9.058	**Data appear Normal at 5% Significance Level**					
3645					Theta Star	0.105						
3646					nu star	670.3						
3647												
3648					A-D Test Statistic	0.431	**Nonparametric Statistics**					
3649					5% A-D Critical Value	0.748				Kaplan-Meier (KM) Method		
3650					K-S Test Statistic	0.748				Mean		0.923
3651					5% K-S Critical Value	0.145				SD		0.294
3652	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0476
3653										95% KM (t) UCL		1.003
3654	**Assuming Gamma Distribution**									95% KM (z) UCL		1.001
3655					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1.002
3656					Minimum	0.143				95% KM (bootstrap t) UCL		1.003
3657					Maximum	1.472				95% KM (BCA) UCL		1.002

3658					Mean	0.923				95% KM (Percentile Bootstrap) UCL		1.001
3659					Median	0.944				95% KM (Chebyshev) UCL		1.13
3660					SD	0.305				97.5% KM (Chebyshev) UCL		1.22
3661					k star	6.396				99% KM (Chebyshev) UCL		1.396
3662					Theta star	0.144						
3663					Nu star	511.7				**Potential UCLs to Use**		
3664					AppChi2	460.2				95% KM (t) UCL		1.003
3665				95% Gamma Approximate UCL		1.026				95% KM (Percentile Bootstrap) UCL		1.001
3666				95% Adjusted Gamma UCL		1.03						
3667	**Note: DL/2 is not a recommended method.**											
3668												
3669												
3670	**Total PCB TEQ**											
3671												
3672						**General Statistics**						
3673					Number of Valid Data	38				Number of Detected Data		38
3674					Number of Distinct Detected Data	38				Number of Non-Detect Data		0
3675					Number of Missing Values	5				Percent Non-Detects		0.00%
3676												
3677					**Raw Statistics**					**Log-transformed Statistics**		
3678					Minimum Detected	0.534				Minimum Detected		-0.627
3679					Maximum Detected	8.563				Maximum Detected		2.147
3680					Mean of Detected	1.754				Mean of Detected		0.323
3681					SD of Detected	1.564				SD of Detected		0.64
3682					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
3683					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
3684												
3685												
3686						**UCL Statistics**						
3687					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
3688					Shapiro Wilk Test Statistic	0.683				Shapiro Wilk Test Statistic		0.925
3689					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
3690					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
3691												
3692					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
3693					DL/2 Substitution Method					DL/2 Substitution Method		
3694					Mean	1.754				Mean		0.323
3695					SD	1.564				SD		0.64
3696					95% DL/2 (t) UCL	2.182				95% H-Stat (DL/2) UCL		2.096
3697												
3698					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
3699					**MLE method failed to converge properly**					Mean in Log Scale		N/A
3700										SD in Log Scale		N/A
3701										Mean in Original Scale		N/A
3702										SD in Original Scale		N/A
3703										95% Percentile Bootstrap UCL		N/A
3704										95% BCA Bootstrap UCL		N/A
3705												
3706					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
3707					k star (bias corrected)	2.087				**Data do not follow a Discernable Distribution (0.05)**		
3708					Theta Star	0.84						
3709					nu star	158.6						
3710												

3711				A-D Test Statistic	1.715	**Nonparametric Statistics**						
3712				5% A-D Critical Value	0.758					Kaplan-Meier (KM) Method		
3713				K-S Test Statistic	0.758					Mean		1.754
3714				5% K-S Critical Value	0.145					SD		1.543
3715	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.254
3716										95% KM (t) UCL		2.182
3717	**Assuming Gamma Distribution**									95% KM (z) UCL		2.171
3718	Gamma ROS Statistics using Extrapolated Data									95% KM (jackknife) UCL		2.182
3719				Minimum	0.534					95% KM (bootstrap t) UCL		2.407
3720				Maximum	8.563					95% KM (BCA) UCL		2.223
3721				Mean	1.754					95% KM (Percentile Bootstrap) UCL		2.2
3722				Median	1.158					95% KM (Chebyshev) UCL		2.86
3723				SD	1.564					97.5% KM (Chebyshev) UCL		3.338
3724				k star	2.087					99% KM (Chebyshev) UCL		4.278
3725				Theta star	0.84							
3726				Nu star	158.6	**Potential UCLs to Use**						
3727				AppChi2	130.5					95% KM (Chebyshev) UCL		2.86
3728				95% Gamma Approximate UCL	2.132							
3729				95% Adjusted Gamma UCL	2.149							
3730	**Note: DL/2 is not a recommended method.**											
3731												
3732												
3733	**Total PCB_Congeners**											
3734												
3735	**General Statistics**											
3736				Number of Valid Data	38					Number of Detected Data		38
3737				Number of Distinct Detected Data	38					Number of Non-Detect Data		0
3738				Number of Missing Values	5					Percent Non-Detects		0.00%
3739												
3740	**Raw Statistics**					**Log-transformed Statistics**						
3741				Minimum Detected	50083					Minimum Detected		10.82
3742				Maximum Detected	2655118					Maximum Detected		14.79
3743				Mean of Detected	244681					Mean of Detected		11.9
3744				SD of Detected	433885					SD of Detected		0.831
3745				Minimum Non-Detect	N/A					Minimum Non-Detect		N/A
3746				Maximum Non-Detect	N/A					Maximum Non-Detect		N/A
3747												
3748												
3749	**UCL Statistics**											
3750	**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**						
3751				Shapiro Wilk Test Statistic	0.419					Shapiro Wilk Test Statistic		0.854
3752				5% Shapiro Wilk Critical Value	0.938					5% Shapiro Wilk Critical Value		0.938
3753	**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**						
3754												
3755	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
3756				DL/2 Substitution Method						DL/2 Substitution Method		
3757				Mean	244681					Mean		11.9
3758				SD	433885					SD		0.831
3759				95% DL/2 (t) UCL	363428					95% H-Stat (DL/2) UCL		281319
3760												
3761				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
3762	**MLE method failed to converge properly**									Mean in Log Scale		N/A
3763										SD in Log Scale		N/A

3764											Mean in Original Scale	N/A
3765											SD in Original Scale	N/A
3766											95% Percentile Bootstrap UCL	N/A
3767											95% BCA Bootstrap UCL	N/A
3768												
3769	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3770					k star (bias corrected)	1.056	**Data do not follow a Discernable Distribution (0.05)**					
3771					Theta Star	231789						
3772					nu star	80.23						
3773												
3774					A-D Test Statistic	3.48	**Nonparametric Statistics**					
3775					5% A-D Critical Value	0.775	Kaplan-Meier (KM) Method					
3776					K-S Test Statistic	0.775	Mean	244681				
3777					5% K-S Critical Value	0.147	SD	428138				
3778	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	70385				
3779							95% KM (t) UCL	363428				
3780	**Assuming Gamma Distribution**						95% KM (z) UCL	360455				
3781					Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	363428				
3782					Minimum	50083	95% KM (bootstrap t) UCL	563221				
3783					Maximum	2655118	95% KM (BCA) UCL	391827				
3784					Mean	244681	95% KM (Percentile Bootstrap) UCL	368593				
3785					Median	104922	95% KM (Chebyshev) UCL	551484				
3786					SD	433885	97.5% KM (Chebyshev) UCL	684238				
3787					k star	1.056	99% KM (Chebyshev) UCL	945007				
3788					Theta star	231789						
3789					Nu star	80.23	**Potential UCLs to Use**					
3790					AppChi2	60.59	95% KM (Chebyshev) UCL	551484				
3791					95% Gamma Approximate UCL	323987						
3792					95% Adjusted Gamma UCL	327812						
3793	**Note: DL/2 is not a recommended method.**											
3794												
3795												
3796	**Total PCBs, Adjusted**											
3797												
3798	**General Statistics**											
3799					Number of Valid Data	38	Number of Detected Data	38				
3800					Number of Distinct Detected Data	38	Number of Non-Detect Data	0				
3801					Number of Missing Values	5	Percent Non-Detects	0.00%				
3802												
3803	**Raw Statistics**						**Log-transformed Statistics**					
3804					Minimum Detected	47161	Minimum Detected	10.76				
3805					Maximum Detected	2614358	Maximum Detected	14.78				
3806					Mean of Detected	233866	Mean of Detected	11.84				
3807					SD of Detected	427063	SD of Detected	0.839				
3808					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
3809					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
3810												
3811												
3812	**UCL Statistics**											
3813	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
3814					Shapiro Wilk Test Statistic	0.41	Shapiro Wilk Test Statistic	0.85				
3815					5% Shapiro Wilk Critical Value	0.938	5% Shapiro Wilk Critical Value	0.938				
3816	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					

3817												
3818	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
3819	DL/2 Substitution Method						DL/2 Substitution Method					
3820	Mean				233866		Mean					11.84
3821	SD				427063		SD					0.839
3822	95% DL/2 (t) UCL				350746		95% H-Stat (DL/2) UCL					267392
3823												
3824	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
3825	**MLE method failed to converge properly**						Mean in Log Scale					N/A
3826							SD in Log Scale					N/A
3827							Mean in Original Scale					N/A
3828							SD in Original Scale					N/A
3829							95% Percentile Bootstrap UCL					N/A
3830							95% BCA Bootstrap UCL					N/A
3831												
3832	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
3833	k star (bias corrected)				1.026		**Data do not follow a Discernable Distribution (0.05)**					
3834	Theta Star				227960							
3835	nu star				77.97							
3836												
3837	A-D Test Statistic				3.58		**Nonparametric Statistics**					
3838	5% A-D Critical Value				0.775		Kaplan-Meier (KM) Method					
3839	K-S Test Statistic				0.775		Mean					233866
3840	5% K-S Critical Value				0.147		SD					421406
3841	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					69279
3842							95% KM (t) UCL					350746
3843	**Assuming Gamma Distribution**						95% KM (z) UCL					347819
3844	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					350746
3845	Minimum				47161		95% KM (bootstrap t) UCL					582502
3846	Maximum				2614358		95% KM (BCA) UCL					381796
3847	Mean				233866		95% KM (Percentile Bootstrap) UCL					358609
3848	Median				98906		95% KM (Chebyshev) UCL					535845
3849	SD				427063		97.5% KM (Chebyshev) UCL					666511
3850	k star				1.026		99% KM (Chebyshev) UCL					923180
3851	Theta star				227960							
3852	Nu star				77.97		**Potential UCLs to Use**					
3853	AppChi2				58.63		95% KM (Chebyshev) UCL					535845
3854	95% Gamma Approximate UCL				311022							
3855	95% Adjusted Gamma UCL				314752							
3856	**Note: DL/2 is not a recommended method.**											
3857												
3858												
3859	**Total TEQ**											
3860												
3861	**General Statistics**											
3862	Number of Valid Data				35		Number of Detected Data					35
3863	Number of Distinct Detected Data				35		Number of Non-Detect Data					0
3864	Number of Missing Values				8		Percent Non-Detects					0.00%
3865												
3866	**Raw Statistics**						**Log-transformed Statistics**					
3867	Minimum Detected				0.934		Minimum Detected					-0.0684
3868	Maximum Detected				9.268		Maximum Detected					2.227
3869	Mean of Detected				2.917		Mean of Detected					0.874

	A	B	C	D	E	F	G	H	I	J	K	L
3870					SD of Detected	2.013					SD of Detected	0.618
3871					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
3872					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
3873												
3874												
3875					**UCL Statistics**							
3876					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
3877					Shapiro Wilk Test Statistic	0.83					Shapiro Wilk Test Statistic	0.945
3878					5% Shapiro Wilk Critical Value	0.934					5% Shapiro Wilk Critical Value	0.934
3879					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
3880												
3881					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
3882					DL/2 Substitution Method						DL/2 Substitution Method	
3883					Mean	2.917					Mean	0.874
3884					SD	2.013					SD	0.618
3885					95% DL/2 (t) UCL	3.492					95% H-Stat (DL/2) UCL	3.588
3886												
3887					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
3888					**MLE method failed to converge properly**						Mean in Log Scale	N/A
3889											SD in Log Scale	N/A
3890											Mean in Original Scale	N/A
3891											SD in Original Scale	N/A
3892											95% Percentile Bootstrap UCL	N/A
3893											95% BCA Bootstrap UCL	N/A
3894												
3895					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
3896					k star (bias corrected)	2.492					**Data appear Lognormal at 5% Significance Level**	
3897					Theta Star	1.171						
3898					nu star	174.4						
3899												
3900					A-D Test Statistic	1.001					**Nonparametric Statistics**	
3901					5% A-D Critical Value	0.755					Kaplan-Meier (KM) Method	
3902					K-S Test Statistic	0.755					Mean	2.917
3903					5% K-S Critical Value	0.15					SD	1.984
3904					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.34
3905											95% KM (t) UCL	3.492
3906					**Assuming Gamma Distribution**						95% KM (z) UCL	3.476
3907					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.492
3908					Minimum	0.934					95% KM (bootstrap t) UCL	3.64
3909					Maximum	9.268					95% KM (BCA) UCL	3.545
3910					Mean	2.917					95% KM (Percentile Bootstrap) UCL	3.483
3911					Median	2.114					95% KM (Chebyshev) UCL	4.4
3912					SD	2.013					97.5% KM (Chebyshev) UCL	5.041
3913					k star	2.492					99% KM (Chebyshev) UCL	6.302
3914					Theta star	1.171						
3915					Nu star	174.4					**Potential UCLs to Use**	
3916					AppChi2	144.9					95% KM (Chebyshev) UCL	4.4
3917					95% Gamma Approximate UCL	3.511						
3918					95% Adjusted Gamma UCL	3.543						
3919	**Note: DL/2 is not a recommended method.**											
3920												
3921												
3922	**Tributyltin ion**											

3923												
3924	**General Statistics**											
3925					Number of Valid Data	34				Number of Detected Data		22
3926					Number of Distinct Detected Data	22				Number of Non-Detect Data		12
3927					Number of Missing Values	9				Percent Non-Detects		35.29%
3928												
3929	**Raw Statistics**							**Log-transformed Statistics**				
3930					Minimum Detected	2.5				Minimum Detected		0.916
3931					Maximum Detected	530				Maximum Detected		6.273
3932					Mean of Detected	33.9				Mean of Detected		2.136
3933					SD of Detected	111.6				SD of Detected		1.187
3934					Minimum Non-Detect	1.8				Minimum Non-Detect		0.588
3935					Maximum Non-Detect	4.2				Maximum Non-Detect		1.435
3936												
3937	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		17
3938	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		17
3939	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		50.00%
3940												
3941	**UCL Statistics**											
3942	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**				
3943					Shapiro Wilk Test Statistic	0.286				Shapiro Wilk Test Statistic		0.737
3944					5% Shapiro Wilk Critical Value	0.911				5% Shapiro Wilk Critical Value		0.911
3945	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**				
3946												
3947	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
3948					DL/2 Substitution Method					DL/2 Substitution Method		
3949					Mean	22.54				Mean		1.567
3950					SD	90.4				SD		1.237
3951					95% DL/2 (t) UCL	48.78				95% H-Stat (DL/2) UCL		11.31
3952												
3953					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
3954	**MLE yields a negative mean**									Mean in Log Scale		1.374
3955										SD in Log Scale		1.437
3956										Mean in Original Scale		22.31
3957										SD in Original Scale		90.45
3958										95% Percentile Bootstrap UCL		52.37
3959										95% BCA Bootstrap UCL		70.73
3960												
3961	**Gamma Distribution Test with Detected Values Only**							**Data Distribution Test with Detected Values Only**				
3962					k star (bias corrected)	0.43		**Data do not follow a Discernable Distribution (0.05)**				
3963					Theta Star	78.76						
3964					nu star	18.94						
3965												
3966					A-D Test Statistic	4.314		**Nonparametric Statistics**				
3967					5% A-D Critical Value	0.812				Kaplan-Meier (KM) Method		
3968					K-S Test Statistic	0.812				Mean		22.9
3969					5% K-S Critical Value	0.197				SD		88.97
3970	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		15.62
3971										95% KM (t) UCL		49.33
3972	**Assuming Gamma Distribution**									95% KM (z) UCL		48.59
3973					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		48.98
3974					Minimum	1E-09				95% KM (bootstrap t) UCL		321.6
3975					Maximum	530				95% KM (BCA) UCL		53.14

3976					Mean	22.98				95% KM (Percentile Bootstrap) UCL		53.57
3977					Median	4.9				95% KM (Chebyshev) UCL		90.98
3978					SD	90.39				97.5% KM (Chebyshev) UCL		120.4
3979					k star	0.115				99% KM (Chebyshev) UCL		178.3
3980					Theta star	199.2						
3981					Nu star	7.847				**Potential UCLs to Use**		
3982					AppChi2	2.647				97.5% KM (Chebyshev) UCL		120.4
3983				95% Gamma Approximate UCL		68.14						
3984				95% Adjusted Gamma UCL		72.16						
3985	**Note: DL/2 is not a recommended method.**											
3986												
3987												
3988	**Zinc**											
3989												
3990	**General Statistics**											
3991					Number of Valid Data	38				Number of Detected Data		38
3992					Number of Distinct Detected Data	34				Number of Non-Detect Data		0
3993					Number of Missing Values	5				Percent Non-Detects		0.00%
3994												
3995	**Raw Statistics**						**Log-transformed Statistics**					
3996					Minimum Detected	19.6				Minimum Detected		2.976
3997					Maximum Detected	54				Maximum Detected		3.989
3998					Mean of Detected	33.5				Mean of Detected		3.487
3999					SD of Detected	7.61				SD of Detected		0.228
4000					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
4001					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
4002												
4003												
4004	**UCL Statistics**											
4005	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
4006					Shapiro Wilk Test Statistic	0.976				Shapiro Wilk Test Statistic		0.986
4007					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
4008	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
4009												
4010	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
4011					DL/2 Substitution Method					DL/2 Substitution Method		
4012					Mean	33.5				Mean		3.487
4013					SD	7.61				SD		0.228
4014					95% DL/2 (t) UCL	35.59				95% H-Stat (DL/2) UCL		35.8
4015												
4016					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
4017	**MLE method failed to converge properly**									Mean in Log Scale		N/A
4018										SD in Log Scale		N/A
4019										Mean in Original Scale		N/A
4020										SD in Original Scale		N/A
4021										95% Percentile Bootstrap UCL		N/A
4022										95% BCA Bootstrap UCL		N/A
4023												
4024	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
4025					k star (bias corrected)	18.53	**Data appear Normal at 5% Significance Level**					
4026					Theta Star	1.808						
4027					nu star	1408						
4028												

	A	B	C	D	E	F	G	H	I	J	K	L
4029					A-D Test Statistic	0.167	**Nonparametric Statistics**					
4030					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
4031					K-S Test Statistic	0.747					Mean	33.5
4032					5% K-S Critical Value	0.143					SD	7.509
4033	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.235
4034											95% KM (t) UCL	35.59
4035	**Assuming Gamma Distribution**										95% KM (z) UCL	35.53
4036					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	35.59
4037					Minimum	19.6					95% KM (bootstrap t) UCL	35.68
4038					Maximum	54					95% KM (BCA) UCL	35.35
4039					Mean	33.5					95% KM (Percentile Bootstrap) UCL	35.54
4040					Median	32.45					95% KM (Chebyshev) UCL	38.88
4041					SD	7.61					97.5% KM (Chebyshev) UCL	41.21
4042					k star	18.53					99% KM (Chebyshev) UCL	45.79
4043					Theta star	1.808						
4044					Nu star	1408	**Potential UCLs to Use**					
4045					AppChi2	1322					95% KM (t) UCL	35.59
4046					95% Gamma Approximate UCL	35.69					95% KM (Percentile Bootstrap) UCL	35.54
4047					95% Adjusted Gamma UCL	35.78						
4048	**Note: DL/2 is not a recommended method.**											
4049												

3976					Mean	22.98				95% KM (Percentile Bootstrap) UCL		53.57
3977					Median	4.9				95% KM (Chebyshev) UCL		90.98
3978					SD	90.39				97.5% KM (Chebyshev) UCL		120.4
3979					k star	0.115				99% KM (Chebyshev) UCL		178.3
3980					Theta star	199.2						
3981					Nu star	7.847				**Potential UCLs to Use**		
3982					AppChi2	2.647				97.5% KM (Chebyshev) UCL		120.4
3983					95% Gamma Approximate UCL	68.14						
3984					95% Adjusted Gamma UCL	72.16						
3985	**Note: DL/2 is not a recommended method.**											
3986												
3987												
3988	**Zinc**											
3989												
3990	**General Statistics**											
3991					Number of Valid Data	38				Number of Detected Data		38
3992					Number of Distinct Detected Data	34				Number of Non-Detect Data		0
3993					Number of Missing Values	5				Percent Non-Detects		0.00%
3994												
3995	**Raw Statistics**									**Log-transformed Statistics**		
3996					Minimum Detected	19.6				Minimum Detected		2.976
3997					Maximum Detected	54				Maximum Detected		3.989
3998					Mean of Detected	33.5				Mean of Detected		3.487
3999					SD of Detected	7.61				SD of Detected		0.228
4000					Minimum Non-Detect	N/A				Minimum Non-Detect		N/A
4001					Maximum Non-Detect	N/A				Maximum Non-Detect		N/A
4002												
4003												
4004	**UCL Statistics**											
4005	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
4006					Shapiro Wilk Test Statistic	0.976				Shapiro Wilk Test Statistic		0.986
4007					5% Shapiro Wilk Critical Value	0.938				5% Shapiro Wilk Critical Value		0.938
4008	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
4009												
4010	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
4011					DL/2 Substitution Method					DL/2 Substitution Method		
4012					Mean	33.5				Mean		3.487
4013					SD	7.61				SD		0.228
4014					95% DL/2 (t) UCL	35.59				95% H-Stat (DL/2) UCL		35.8
4015												
4016					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
4017	**MLE method failed to converge properly**									Mean in Log Scale		N/A
4018										SD in Log Scale		N/A
4019										Mean in Original Scale		N/A
4020										SD in Original Scale		N/A
4021										95% Percentile Bootstrap UCL		N/A
4022										95% BCA Bootstrap UCL		N/A
4023												
4024	**Gamma Distribution Test with Detected Values Only**									**Data Distribution Test with Detected Values Only**		
4025					k star (bias corrected)	18.53				**Data appear Normal at 5% Significance Level**		
4026					Theta Star	1.808						
4027					nu star	1408						
4028												

	A	B	C	D	E	F	G	H	I	J	K	L
4029					A-D Test Statistic	0.167	**Nonparametric Statistics**					
4030					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
4031					K-S Test Statistic	0.747					Mean	33.5
4032					5% K-S Critical Value	0.143					SD	7.509
4033	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.235
4034											95% KM (t) UCL	35.59
4035	**Assuming Gamma Distribution**										95% KM (z) UCL	35.53
4036					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	35.59
4037					Minimum	19.6					95% KM (bootstrap t) UCL	35.68
4038					Maximum	54					95% KM (BCA) UCL	35.35
4039					Mean	33.5					95% KM (Percentile Bootstrap) UCL	35.54
4040					Median	32.45					95% KM (Chebyshev) UCL	38.88
4041					SD	7.61					97.5% KM (Chebyshev) UCL	41.21
4042					k star	18.53					99% KM (Chebyshev) UCL	45.79
4043					Theta star	1.808						
4044					Nu star	1408	**Potential UCLs to Use**					
4045					AppChi2	1322					95% KM (t) UCL	35.59
4046					95% Gamma Approximate UCL	35.69					95% KM (Percentile Bootstrap) UCL	35.54
4047					95% Adjusted Gamma UCL	35.78						
4048	**Note: DL/2 is not a recommended method.**											
4049												

Tissue

Crayfish

Crayfish_Study_area-WB	**General UCL Statistics for Data Sets with Non-Detects**	
User Selected Options		
From File	Crayfish_Study_area-WB	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Acenaphthene

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.15	Minimum of Log Data	-1.897
Maximum	4.2	Maximum of Log Data	1.435
Mean	1.202	Mean of log Data	-0.532
Median	0.35	SD of log Data	1.289
SD	1.706		
Coefficient of Variation	1.419		
Skewness	2.053		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.699	Shapiro Wilk Test Statistic	0.931
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.829	95% H-UCL	71.89
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.577
95% Adjusted-CLT UCL	3.205	97.5% Chebyshev (MVUE) UCL	4.66
95% Modified-t UCL	2.945	99% Chebyshev (MVUE) UCL	6.788
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.463	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	2.594		
nu star	4.634		
Approximate Chi Square Value (.05)	0.987	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	2.457

54				Adjusted Chi Square Value	0.44					95% Jackknife UCL	2.829
55										95% Standard Bootstrap UCL	2.319
56				Anderson-Darling Test Statistic	0.473					95% Bootstrap-t UCL	17.41
57				Anderson-Darling 5% Critical Value	0.696					95% Hall's Bootstrap UCL	14
58				Kolmogorov-Smirnov Test Statistic	0.305					95% Percentile Bootstrap UCL	2.62
59				Kolmogorov-Smirnov 5% Critical Value	0.366					95% BCA Bootstrap UCL	2.788
60				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	4.528
61										97.5% Chebyshev(Mean, Sd) UCL	5.967
62				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	8.794
63				95% Approximate Gamma UCL	5.643						
64				95% Adjusted Gamma UCL	12.67						
65											
66				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	5.643
67				**Recommended UCL exceeds the maximum observation**							
68											
69											
70	**Aluminum**										
71											
72				**General Statistics**							
73				Number of Valid Observations	31					Number of Distinct Observations	31
74											
75				**Raw Statistics**						**Log-transformed Statistics**	
76				Minimum	35					Minimum of Log Data	3.555
77				Maximum	203					Maximum of Log Data	5.313
78				Mean	94.37					Mean of log Data	4.477
79				Median	88.9					SD of log Data	0.385
80				SD	36.41						
81				Coefficient of Variation	0.386						
82				Skewness	0.957						
83											
84				**Relevant UCL Statistics**							
85				**Normal Distribution Test**						**Lognormal Distribution Test**	
86				Shapiro Wilk Test Statistic	0.938					Shapiro Wilk Test Statistic	0.98
87				Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
88				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
89											
90				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
91				95% Student's-t UCL	105.5					95% H-UCL	107.9
92				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	123.8
93				95% Adjusted-CLT UCL	106.3					97.5% Chebyshev (MVUE) UCL	136.5
94				95% Modified-t UCL	105.7					99% Chebyshev (MVUE) UCL	161.4
95											
96				**Gamma Distribution Test**						**Data Distribution**	
97				k star (bias corrected)	6.59					**Data appear Normal at 5% Significance Level**	
98				Theta Star	14.32						
99				nu star	408.6						
100				Approximate Chi Square Value (.05)	362.7					**Nonparametric Statistics**	
101				Adjusted Level of Significance	0.0413					95% CLT UCL	105.1
102				Adjusted Chi Square Value	360.3					95% Jackknife UCL	105.5
103										95% Standard Bootstrap UCL	105.3
104				Anderson-Darling Test Statistic	0.288					95% Bootstrap-t UCL	106.3
105				Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	107.8
106				Kolmogorov-Smirnov Test Statistic	0.0804					95% Percentile Bootstrap UCL	105.6

107				Kolmogorov-Smirnov 5% Critical Value	0.158					95% BCA Bootstrap UCL	105.5
108				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	122.9
109										97.5% Chebyshev(Mean, Sd) UCL	135.2
110				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	159.4
111				95% Approximate Gamma UCL	106.3						
112				95% Adjusted Gamma UCL	107						
113											
114				**Potential UCL to Use**						Use 95% Student's-t UCL	105.5
115											
116											
117	**Anthracene**										
118											
119				**General Statistics**							
120				Number of Valid Observations	5					Number of Distinct Observations	5
121											
122				**Raw Statistics**						**Log-transformed Statistics**	
123				Minimum	0.11					Minimum of Log Data	-2.207
124				Maximum	2.9					Maximum of Log Data	1.065
125				Mean	0.754					Mean of log Data	-1.12
126				Median	0.18					SD of log Data	1.322
127				SD	1.206						
128				Coefficient of Variation	1.6						
129				Skewness	2.178						
130											
131											
132				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
133											
134				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
135				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
136											
137											
138				**Warning: There are only 5 Values in this data**							
139				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
140				**the resulting calculations may not be reliable enough to draw conclusions**							
141											
142				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
143											
144				**Relevant UCL Statistics**							
145				**Normal Distribution Test**						**Lognormal Distribution Test**	
146				Shapiro Wilk Test Statistic	0.635					Shapiro Wilk Test Statistic	0.844
147				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
148				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
149											
150				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
151				95% Student's-t UCL	1.904					95% H-UCL	50.96
152				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	2.076
153				95% Adjusted-CLT UCL	2.203					97.5% Chebyshev (MVUE) UCL	2.709
154				95% Modified-t UCL	1.992					99% Chebyshev (MVUE) UCL	3.952
155											
156				**Gamma Distribution Test**						**Data Distribution**	
157				k star (bias corrected)	0.421					**Data appear Gamma Distributed at 5% Significance Level**	
158				Theta Star	1.791						
159				nu star	4.21						

160	Approximate Chi Square Value (.05)				0.806	**Nonparametric Statistics**						
161	Adjusted Level of Significance				0.0086	95% CLT UCL					1.641	
162	Adjusted Chi Square Value				0.341	95% Jackknife UCL					1.904	
163						95% Standard Bootstrap UCL					1.568	
164	Anderson-Darling Test Statistic				0.689	95% Bootstrap-t UCL					24	
165	Anderson-Darling 5% Critical Value				0.7	95% Hall's Bootstrap UCL					9.458	
166	Kolmogorov-Smirnov Test Statistic				0.312	95% Percentile Bootstrap UCL					1.798	
167	Kolmogorov-Smirnov 5% Critical Value				0.367	95% BCA Bootstrap UCL					1.862	
168	**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL					3.105	
169						97.5% Chebyshev(Mean, Sd) UCL					4.123	
170	**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL					6.121	
171	95% Approximate Gamma UCL				3.937							
172	95% Adjusted Gamma UCL				9.305							
173												
174	**Potential UCL to Use**					Use 95% Approximate Gamma UCL					3.937	
175	**Recommended UCL exceeds the maximum observation**											
176												
177												
178	**Antimony**											
179												
180	**General Statistics**											
181	Number of Valid Data				31	Number of Detected Data					25	
182	Number of Distinct Detected Data				10	Number of Non-Detect Data					6	
183						Percent Non-Detects					19.35%	
184												
185	**Raw Statistics**					**Log-transformed Statistics**						
186	Minimum Detected				0.004	Minimum Detected					-5.521	
187	Maximum Detected				0.02	Maximum Detected					-3.912	
188	Mean of Detected				0.008	Mean of Detected					-4.902	
189	SD of Detected				0.00362	SD of Detected					0.37	
190	Minimum Non-Detect				0.004	Minimum Non-Detect					-5.521	
191	Maximum Non-Detect				0.006	Maximum Non-Detect					-5.116	
192												
193	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					9	
194	For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected					22	
195	Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					29.03%	
196												
197	**UCL Statistics**											
198	**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**						
199	Shapiro Wilk Test Statistic				0.766	Shapiro Wilk Test Statistic					0.896	
200	5% Shapiro Wilk Critical Value				0.918	5% Shapiro Wilk Critical Value					0.918	
201	**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**						
202												
203	**Assuming Normal Distribution**					**Assuming Lognormal Distribution**						
204	DL/2 Substitution Method					DL/2 Substitution Method						
205	Mean				0.00694	Mean					-5.115	
206	SD				0.00392	SD					0.553	
207	95% DL/2 (t) UCL				0.00813	95% H-Stat (DL/2) UCL					0.0084	
208												
209	Maximum Likelihood Estimate(MLE) Method					Log ROS Method						
210	Mean				0.00689	Mean in Log Scale					-5.054	
211	SD				0.00404	SD in Log Scale					0.461	
212	95% MLE (t) UCL				0.00813	Mean in Original Scale					0.00711	

213					95% MLE (Tiku) UCL	0.00817					SD in Original Scale	0.00373
214											95% Percentile Bootstrap UCL	0.00824
215											95% BCA Bootstrap UCL	0.00849
216												
217					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
218					k star (bias corrected)	6.108					**Data do not follow a Discernable Distribution (0.05)**	
219					Theta Star	0.00131						
220					nu star	305.4						
221												
222					A-D Test Statistic	1.434					**Nonparametric Statistics**	
223					5% A-D Critical Value	0.746					Kaplan-Meier (KM) Method	
224					K-S Test Statistic	0.746					Mean	0.00723
225					5% K-S Critical Value	0.175					SD	0.00355
226					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0006504
227											95% KM (t) UCL	0.00834
228					**Assuming Gamma Distribution**						95% KM (z) UCL	0.0083
229					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00824
230					Minimum	0.00253					95% KM (bootstrap t) UCL	0.00872
231					Maximum	0.02					95% KM (BCA) UCL	0.00848
232					Mean	0.00729					95% KM (Percentile Bootstrap) UCL	0.00845
233					Median	0.006					95% KM (Chebyshev) UCL	0.0101
234					SD	0.0036					97.5% KM (Chebyshev) UCL	0.0113
235					k star	4.932					99% KM (Chebyshev) UCL	0.0137
236					Theta star	0.00148						
237					Nu star	305.8					**Potential UCLs to Use**	
238					AppChi2	266.3					95% KM (Chebyshev) UCL	0.0101
239					95% Gamma Approximate UCL	0.00837						
240					95% Adjusted Gamma UCL	0.00843						
241	**Note: DL/2 is not a recommended method.**											
242												
243												
244	**Arsenic**											
245												
246											**General Statistics**	
247					Number of Valid Data	31					Number of Detected Data	30
248					Number of Distinct Detected Data	15					Number of Non-Detect Data	1
249											Percent Non-Detects	3.23%
250												
251					**Raw Statistics**						**Log-transformed Statistics**	
252					Minimum Detected	0.235					Minimum Detected	-1.448
253					Maximum Detected	0.5					Maximum Detected	-0.693
254					Mean of Detected	0.349					Mean of Detected	-1.066
255					SD of Detected	0.0548					SD of Detected	0.159
256					Minimum Non-Detect	0.36					Minimum Non-Detect	-1.022
257					Maximum Non-Detect	0.36					Maximum Non-Detect	-1.022
258												
259												
260											**UCL Statistics**	
261					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
262					Shapiro Wilk Test Statistic	0.963					Shapiro Wilk Test Statistic	0.965
263					5% Shapiro Wilk Critical Value	0.927					5% Shapiro Wilk Critical Value	0.927
264					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
265												

266	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
267	DL/2 Substitution Method						DL/2 Substitution Method					
268	Mean				0.343		Mean					-1.087
269	SD				0.0618		SD					0.195
270	95% DL/2 (t) UCL				0.362		95% H-Stat (DL/2) UCL					0.371
271												
272	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
273	Mean				0.334		Mean in Log Scale					-1.069
274	SD				0.0647		SD in Log Scale					0.157
275	95% MLE (t) UCL				0.354		Mean in Original Scale					0.348
276	95% MLE (Tiku) UCL				0.364		SD in Original Scale					0.0541
277							95% Percentile Bootstrap UCL					0.363
278							95% BCA Bootstrap UCL					0.365
279												
280	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
281	k star (bias corrected)				37.57		**Data appear Normal at 5% Significance Level**					
282	Theta Star				0.00928							
283	nu star				2254							
284												
285	A-D Test Statistic				0.513		**Nonparametric Statistics**					
286	5% A-D Critical Value				0.744		Kaplan-Meier (KM) Method					
287	K-S Test Statistic				0.744		Mean					0.348
288	5% K-S Critical Value				0.16		SD					0.0536
289	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.00987
290							95% KM (t) UCL					0.364
291	**Assuming Gamma Distribution**						95% KM (z) UCL					0.364
292	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.364
293	Minimum				0.235		95% KM (bootstrap t) UCL					0.364
294	Maximum				0.5		95% KM (BCA) UCL					0.365
295	Mean				0.348		95% KM (Percentile Bootstrap) UCL					0.365
296	Median				0.35		95% KM (Chebyshev) UCL					0.391
297	SD				0.0539		97.5% KM (Chebyshev) UCL					0.409
298	k star				38.88		99% KM (Chebyshev) UCL					0.446
299	Theta star				0.00895							
300	Nu star				2411		**Potential UCLs to Use**					
301	AppChi2				2298		95% KM (t) UCL					0.364
302	95% Gamma Approximate UCL				0.365		95% KM (Percentile Bootstrap) UCL					0.365
303	95% Adjusted Gamma UCL				0.366							
304	**Note: DL/2 is not a recommended method.**											
305												
306												
307	**Benzo(a)pyrene**											
308												
309	**General Statistics**											
310	Number of Valid Observations				5		Number of Distinct Observations					5
311												
312	**Raw Statistics**						**Log-transformed Statistics**					
313	Minimum				0.22		Minimum of Log Data					-1.514
314	Maximum				7.5		Maximum of Log Data					2.015
315	Mean				1.758		Mean of log Data					-0.555
316	Median				0.28		SD of log Data					1.478
317	SD				3.212							
318	Coefficient of Variation				1.827							

319					Skewness	2.227						
320												
321												
322	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
323												
324	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
325	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
326												
327												
328	**Warning: There are only 5 Values in this data**											
329	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
330	**the resulting calculations may not be reliable enough to draw conclusions**											
331												
332	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
333												
334	**Relevant UCL Statistics**											
335	**Normal Distribution Test**						**Lognormal Distribution Test**					
336	Shapiro Wilk Test Statistic	0.584					Shapiro Wilk Test Statistic	0.734				
337	Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762				
338	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
339												
340	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
341	95% Student's-t UCL	4.821					95% H-UCL	305.9				
342	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	4.484				
343	95% Adjusted-CLT UCL	5.65					97.5% Chebyshev (MVUE) UCL	5.886				
344	95% Modified-t UCL	5.059					99% Chebyshev (MVUE) UCL	8.64				
345												
346	**Gamma Distribution Test**						**Data Distribution**					
347	k star (bias corrected)	0.357					**Data do not follow a Discernable Distribution (0.05)**					
348	Theta Star	4.93										
349	nu star	3.566										
350	Approximate Chi Square Value (.05)	0.558					**Nonparametric Statistics**					
351	Adjusted Level of Significance	0.0086					95% CLT UCL	4.121				
352	Adjusted Chi Square Value	0.218					95% Jackknife UCL	4.821				
353							95% Standard Bootstrap UCL	3.872				
354	Anderson-Darling Test Statistic	0.953					95% Bootstrap-t UCL	194				
355	Anderson-Darling 5% Critical Value	0.708					95% Hall's Bootstrap UCL	71.78				
356	Kolmogorov-Smirnov Test Statistic	0.404					95% Percentile Bootstrap UCL	4.594				
357	Kolmogorov-Smirnov 5% Critical Value	0.37					95% BCA Bootstrap UCL	4.658				
358	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	8.02				
359							97.5% Chebyshev(Mean, Sd) UCL	10.73				
360	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	16.05				
361	95% Approximate Gamma UCL	11.23										
362	95% Adjusted Gamma UCL	28.77										
363												
364	**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	16.05				
365	**Recommended UCL exceeds the maximum observation**											
366												
367												
368	**Butyltin ion**											
369												
370	**General Statistics**											
371	Number of Valid Observations	5					Number of Distinct Observations	5				

Raw Statistics		
Minimum	0.21	
Maximum	4.6	
Mean	1.134	
Median	0.28	
SD	1.938	
Coefficient of Variation	1.709	
Skewness	2.231	

Log-transformed Statistics	
Minimum of Log Data	-1.561
Maximum of Log Data	1.526
Mean of log Data	-0.769
SD of log Data	1.301

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

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If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.58	Shapiro Wilk Test Statistic	0.696
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.982	95% H-UCL	61.94
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.869
95% Adjusted-CLT UCL	3.484	97.5% Chebyshev (MVUE) UCL	3.74
95% Modified-t UCL	3.126	99% Chebyshev (MVUE) UCL	5.45
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.405	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	2.801		
nu star	4.048		
Approximate Chi Square Value (.05)	0.741	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	2.56
Adjusted Chi Square Value	0.307	95% Jackknife UCL	2.982
		95% Standard Bootstrap UCL	2.409
Anderson-Darling Test Statistic	1.033	95% Bootstrap-t UCL	50.64
Anderson-Darling 5% Critical Value	0.702	95% Hall's Bootstrap UCL	29.51
Kolmogorov-Smirnov Test Statistic	0.442	95% Percentile Bootstrap UCL	2.848
Kolmogorov-Smirnov 5% Critical Value	0.368	95% BCA Bootstrap UCL	2.888
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.913
		97.5% Chebyshev(Mean, Sd) UCL	6.548
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9.76
95% Approximate Gamma UCL	6.197		
95% Adjusted Gamma UCL	14.95		

425	**Potential UCL to Use**										Use 99% Chebyshev (Mean, Sd) UCL	9.76
426	**Recommended UCL exceeds the maximum observation**											
427												
428												
429	**Cadmium**											
430												
431	**General Statistics**											
432	Number of Valid Observations					31					Number of Distinct Observations	17
433												
434	**Raw Statistics**										**Log-transformed Statistics**	
435	Minimum					0.009					Minimum of Log Data	-4.711
436	Maximum					0.036					Maximum of Log Data	-3.324
437	Mean					0.0175					Mean of log Data	-4.112
438	Median					0.016					SD of log Data	0.376
439	SD					0.00683						
440	Coefficient of Variation					0.389						
441	Skewness					0.909						
442												
443	**Relevant UCL Statistics**											
444	**Normal Distribution Test**										**Lognormal Distribution Test**	
445	Shapiro Wilk Test Statistic					0.923					Shapiro Wilk Test Statistic	0.965
446	Shapiro Wilk Critical Value					0.929					Shapiro Wilk Critical Value	0.929
447	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
448												
449	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
450	95% Student's-t UCL					0.0196					95% H-UCL	0.0199
451	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.0228
452	95% Adjusted-CLT UCL					0.0198					97.5% Chebyshev (MVUE) UCL	0.0251
453	95% Modified-t UCL					0.0197					99% Chebyshev (MVUE) UCL	0.0296
454												
455	**Gamma Distribution Test**										**Data Distribution**	
456	k star (bias corrected)					6.698					**Data appear Gamma Distributed at 5% Significance Level**	
457	Theta Star					0.00262						
458	nu star					415.3						
459	Approximate Chi Square Value (.05)					369.1					**Nonparametric Statistics**	
460	Adjusted Level of Significance					0.0413					95% CLT UCL	0.0196
461	Adjusted Chi Square Value					366.6					95% Jackknife UCL	0.0196
462											95% Standard Bootstrap UCL	0.0195
463	Anderson-Darling Test Statistic					0.352					95% Bootstrap-t UCL	0.0199
464	Anderson-Darling 5% Critical Value					0.747					95% Hall's Bootstrap UCL	0.0198
465	Kolmogorov-Smirnov Test Statistic					0.13					95% Percentile Bootstrap UCL	0.0196
466	Kolmogorov-Smirnov 5% Critical Value					0.158					95% BCA Bootstrap UCL	0.0197
467	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0229
468											97.5% Chebyshev(Mean, Sd) UCL	0.0252
469	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.0297
470	95% Approximate Gamma UCL					0.0197						
471	95% Adjusted Gamma UCL					0.0199						
472												
473	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	0.0197
474												
475												
476	**Chromium**											
477												

478	**General Statistics**											
479	Number of Valid Observations				31		Number of Distinct Observations					16
480												
481	**Raw Statistics**						**Log-transformed Statistics**					
482	Minimum				0.09		Minimum of Log Data					-2.408
483	Maximum				0.9		Maximum of Log Data					-0.105
484	Mean				0.435		Mean of log Data					-0.993
485	Median				0.4		SD of log Data					0.593
486	SD				0.243							
487	Coefficient of Variation				0.56							
488	Skewness				0.779							
489												
490	**Relevant UCL Statistics**											
491	**Normal Distribution Test**						**Lognormal Distribution Test**					
492	Shapiro Wilk Test Statistic				0.889		Shapiro Wilk Test Statistic					0.953
493	Shapiro Wilk Critical Value				0.929		Shapiro Wilk Critical Value					0.929
494	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
495												
496	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
497	95% Student's-t UCL				0.509		95% H-UCL					0.549
498	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					0.655
499	95% Adjusted-CLT UCL				0.513		97.5% Chebyshev (MVUE) UCL					0.749
500	95% Modified-t UCL				0.51		99% Chebyshev (MVUE) UCL					0.933
501												
502	**Gamma Distribution Test**						**Data Distribution**					
503	k star (bias corrected)				2.999		**Data appear Gamma Distributed at 5% Significance Level**					
504	Theta Star				0.145							
505	nu star				185.9							
506	Approximate Chi Square Value (.05)				155.4		**Nonparametric Statistics**					
507	Adjusted Level of Significance				0.0413		95% CLT UCL					0.506
508	Adjusted Chi Square Value				153.8		95% Jackknife UCL					0.509
509							95% Standard Bootstrap UCL					0.505
510	Anderson-Darling Test Statistic				0.508		95% Bootstrap-t UCL					0.519
511	Anderson-Darling 5% Critical Value				0.752		95% Hall's Bootstrap UCL					0.51
512	Kolmogorov-Smirnov Test Statistic				0.113		95% Percentile Bootstrap UCL					0.506
513	Kolmogorov-Smirnov 5% Critical Value				0.159		95% BCA Bootstrap UCL					0.509
514	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					0.625
515							97.5% Chebyshev(Mean, Sd) UCL					0.707
516	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					0.869
517	95% Approximate Gamma UCL				0.52							
518	95% Adjusted Gamma UCL				0.525							
519												
520	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					0.52
521												
522												
523	**Copper**											
524												
525	**General Statistics**											
526	Number of Valid Observations				31		Number of Distinct Observations					25
527												
528	**Raw Statistics**						**Log-transformed Statistics**					
529	Minimum				10.4		Minimum of Log Data					2.342
530	Maximum				20.2		Maximum of Log Data					3.006

531					Mean	14.73					Mean of log Data	2.677
532					Median	14.9					SD of log Data	0.162
533					SD	2.36						
534					Coefficient of Variation	0.16						
535					Skewness	0.138						
536												
537	**Relevant UCL Statistics**											
538	**Normal Distribution Test**						**Lognormal Distribution Test**					
539					Shapiro Wilk Test Statistic	0.978					Shapiro Wilk Test Statistic	0.977
540					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
541	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
542												
543	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
544					95% Student's-t UCL	15.45					95% H-UCL	15.51
545	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	16.61
546					95% Adjusted-CLT UCL	15.44					97.5% Chebyshev (MVUE) UCL	17.43
547					95% Modified-t UCL	15.45					99% Chebyshev (MVUE) UCL	19.03
548												
549	**Gamma Distribution Test**						**Data Distribution**					
550					k star (bias corrected)	36.02	**Data appear Normal at 5% Significance Level**					
551					Theta Star	0.409						
552					nu star	2234						
553					Approximate Chi Square Value (.05)	2125	**Nonparametric Statistics**					
554					Adjusted Level of Significance	0.0413					95% CLT UCL	15.43
555					Adjusted Chi Square Value	2119					95% Jackknife UCL	15.45
556											95% Standard Bootstrap UCL	15.43
557					Anderson-Darling Test Statistic	0.265					95% Bootstrap-t UCL	15.47
558					Anderson-Darling 5% Critical Value	0.744					95% Hall's Bootstrap UCL	15.47
559					Kolmogorov-Smirnov Test Statistic	0.0842					95% Percentile Bootstrap UCL	15.43
560					Kolmogorov-Smirnov 5% Critical Value	0.157					95% BCA Bootstrap UCL	15.42
561	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	16.58
562											97.5% Chebyshev(Mean, Sd) UCL	17.38
563	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	18.95
564					95% Approximate Gamma UCL	15.49						
565					95% Adjusted Gamma UCL	15.53						
566												
567	**Potential UCL to Use**										Use 95% Student's-t UCL	15.45
568												
569												
570	**Dibenzofuran**											
571												
572	**General Statistics**											
573					Number of Valid Observations	5					Number of Distinct Observations	5
574												
575	**Raw Statistics**						**Log-transformed Statistics**					
576					Minimum	0.13					Minimum of Log Data	-2.04
577					Maximum	0.48					Maximum of Log Data	-0.734
578					Mean	0.274					Mean of log Data	-1.4
579					Median	0.22					SD of log Data	0.514
580					SD	0.14						
581					Coefficient of Variation	0.513						
582					Skewness	0.819						
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584												
585	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
586												
587	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
588	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
589												
590												
591	**Warning: There are only 5 Values in this data**											
592	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
593	**the resulting calculations may not be reliable enough to draw conclusions**											
594												
595	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
596												
597	**Relevant UCL Statistics**											
598	**Normal Distribution Test**						**Lognormal Distribution Test**					
599	Shapiro Wilk Test Statistic	0.932					Shapiro Wilk Test Statistic	0.976				
600	Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762				
601	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
602												
603	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
604	95% Student's-t UCL	0.408					95% H-UCL	0.607				
605	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.545				
606	95% Adjusted-CLT UCL	0.402					97.5% Chebyshev (MVUE) UCL	0.663				
607	95% Modified-t UCL	0.412					99% Chebyshev (MVUE) UCL	0.894				
608												
609	**Gamma Distribution Test**						**Data Distribution**					
610	k star (bias corrected)	2.1					**Data appear Normal at 5% Significance Level**					
611	Theta Star	0.13										
612	nu star	21										
613	Approximate Chi Square Value (.05)	11.59					**Nonparametric Statistics**					
614	Adjusted Level of Significance	0.0086					95% CLT UCL	0.377				
615	Adjusted Chi Square Value	8.696					95% Jackknife UCL	0.408				
616							95% Standard Bootstrap UCL	0.365				
617	Anderson-Darling Test Statistic	0.236					95% Bootstrap-t UCL	0.595				
618	Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	1.331				
619	Kolmogorov-Smirnov Test Statistic	0.224					95% Percentile Bootstrap UCL	0.37				
620	Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.376				
621	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.548				
622							97.5% Chebyshev(Mean, Sd) UCL	0.666				
623	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.899				
624	95% Approximate Gamma UCL	0.496										
625	95% Adjusted Gamma UCL	0.662										
626												
627	**Potential UCL to Use**						Use 95% Student's-t UCL	0.408				
628												
629												
630	**Dibutyltin ion**											
631												
632	**General Statistics**											
633	Number of Valid Data	5					Number of Detected Data	4				
634	Number of Distinct Detected Data	4					Number of Non-Detect Data	1				
635							Percent Non-Detects	20.00%				
636												

	A	B	C	D	E	F	G	H	I	J	K	L
637	**Raw Statistics**						**Log-transformed Statistics**					
638					Minimum Detected	0.33					Minimum Detected	-1.109
639					Maximum Detected	330					Maximum Detected	5.799
640					Mean of Detected	82.77					Mean of Detected	0.675
641					SD of Detected	164.8					SD of Detected	3.417
642					Minimum Non-Detect	0.17					Minimum Non-Detect	-1.772
643					Maximum Non-Detect	0.17					Maximum Non-Detect	-1.772
644												
645												
646	**Warning: There are only 4 Distinct Detected Values in this data**											
647	**Note: It should be noted that even though bootstrap may be performed on this data set**											
648	**the resulting calculations may not be reliable enough tp draw conclusions**											
649												
650	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
651												
652												
653	**UCL Statistics**											
654	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
655					Shapiro Wilk Test Statistic	0.63					Shapiro Wilk Test Statistic	0.648
656					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
657	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
658												
659	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
660					DL/2 Substitution Method						DL/2 Substitution Method	
661					Mean	66.23					Mean	0.0468
662					SD	147.5					SD	3.275
663					95% DL/2 (t) UCL	206.8					95% H-Stat (DL/2) UCL	6.847E+12
664												
665					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
666					Mean	44.75					Mean in Log Scale	-0.853
667					SD	153.3					SD in Log Scale	4.519
668					95% MLE (t) UCL	190.9					Mean in Original Scale	66.21
669					95% MLE (Tiku) UCL	187.9					SD in Original Scale	147.5
670											95% Percentile Bootstrap UCL	198.1
671											95% BCA Bootstrap UCL	198.1
672												
673	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
674					k star (bias corrected)	0.216	**Data do not follow a Discernable Distribution (0.05)**					
675					Theta Star	383.3						
676					nu star	1.728						
677												
678					A-D Test Statistic	0.892	**Nonparametric Statistics**					
679					5% A-D Critical Value	0.734					Kaplan-Meier (KM) Method	
680					K-S Test Statistic	0.734					Mean	66.28
681					5% K-S Critical Value	0.425					SD	131.9
682	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	68.09
683											95% KM (t) UCL	211.4
684	**Assuming Gamma Distribution**										95% KM (z) UCL	178.3
685					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	206.8
686					Minimum	1E-09					95% KM (bootstrap t) UCL	887454
687					Maximum	330					95% KM (BCA) UCL	198.1
688					Mean	66.21					95% KM (Percentile Bootstrap) UCL	198.1
689					Median	0.35					95% KM (Chebyshev) UCL	363.1

690					SD	147.5				97.5% KM (Chebyshev) UCL		491.5
691					k star	0.175				99% KM (Chebyshev) UCL		743.8
692					Theta star	378.8						
693					Nu star	1.748				**Potential UCLs to Use**		
694					AppChi2	0.125				99% KM (Chebyshev) UCL		743.8
695					95% Gamma Approximate UCL	924						
696					95% Adjusted Gamma UCL	N/A						
697	**Warning: Recommended UCL exceeds the maximum observation**											
698	**Note: DL/2 is not a recommended method.**											
699												
700												
701	**Dieldrin**											
702												
703	**General Statistics**											
704					Number of Valid Observations	5				Number of Distinct Observations		5
705												
706	**Raw Statistics**									**Log-transformed Statistics**		
707					Minimum	0.00943				Minimum of Log Data		-4.664
708					Maximum	0.0471				Maximum of Log Data		-3.055
709					Mean	0.0202				Mean of log Data		-4.072
710					Median	0.0149				SD of log Data		0.601
711					SD	0.0152						
712					Coefficient of Variation	0.754						
713					Skewness	2.098						
714												
715												
716	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
717												
718	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
719	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
720												
721												
722	**Warning: There are only 5 Values in this data**											
723	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
724	**the resulting calculations may not be reliable enough to draw conclusions**											
725												
726	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
727												
728	**Relevant UCL Statistics**											
729	**Normal Distribution Test**									**Lognormal Distribution Test**		
730					Shapiro Wilk Test Statistic	0.688				Shapiro Wilk Test Statistic		0.812
731					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value		0.762
732	**Data not Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
733												
734	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
735					95% Student's-t UCL	0.0347				95% H-UCL		0.0549
736	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		0.0423
737					95% Adjusted-CLT UCL	0.0382				97.5% Chebyshev (MVUE) UCL		0.0521
738					95% Modified-t UCL	0.0358				99% Chebyshev (MVUE) UCL		0.0714
739												
740	**Gamma Distribution Test**									**Data Distribution**		
741					k star (bias corrected)	1.378				**Data appear Lognormal at 5% Significance Level**		
742					Theta Star	0.0146						

743					nu star	13.78						
744					Approximate Chi Square Value (.05)	6.423		**Nonparametric Statistics**				
745					Adjusted Level of Significance	0.0086					95% CLT UCL	0.0314
746					Adjusted Chi Square Value	4.406					95% Jackknife UCL	0.0347
747											95% Standard Bootstrap UCL	0.0301
748					Anderson-Darling Test Statistic	0.751					95% Bootstrap-t UCL	0.224
749					Anderson-Darling 5% Critical Value	0.682					95% Hall's Bootstrap UCL	0.131
750					Kolmogorov-Smirnov Test Statistic	0.412					95% Percentile Bootstrap UCL	0.033
751					Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	0.0343
752					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.0499
753											97.5% Chebyshev(Mean, Sd) UCL	0.0627
754					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.0879
755					95% Approximate Gamma UCL	0.0433						
756					95% Adjusted Gamma UCL	0.0631						
757												
758					**Potential UCL to Use**						Use 95% H-UCL	0.0549
759					**Recommended UCL exceeds the maximum observation**							
760												
761												
762	**Endrin**											
763												
764					**General Statistics**							
765					Number of Valid Data	31					Number of Detected Data	6
766					Number of Distinct Detected Data	6					Number of Non-Detect Data	25
767											Percent Non-Detects	80.65%
768												
769					**Raw Statistics**			**Log-transformed Statistics**				
770					Minimum Detected	0.00121					Minimum Detected	-6.717
771					Maximum Detected	2.8					Maximum Detected	1.03
772					Mean of Detected	1.367					Mean of Detected	-0.76
773					SD of Detected	0.918					SD of Detected	2.938
774					Minimum Non-Detect	0.0485					Minimum Non-Detect	-3.026
775					Maximum Non-Detect	2					Maximum Non-Detect	0.693
776												
777	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	30
778	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
779	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.77%
780												
781	**Warning: There are only 6 Detected Values in this data**											
782	**Note: It should be noted that even though bootstrap may be performed on this data set**											
783	**the resulting calculations may not be reliable enough tp draw conclusions**											
784												
785	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
786												
787												
788					**UCL Statistics**							
789					**Normal Distribution Test with Detected Values Only**			**Lognormal Distribution Test with Detected Values Only**				
790					Shapiro Wilk Test Statistic	0.955					Shapiro Wilk Test Statistic	0.609
791					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
792					**Data appear Normal at 5% Significance Level**			**Data not Lognormal at 5% Significance Level**				
793												
794					**Assuming Normal Distribution**			**Assuming Lognormal Distribution**				
795					DL/2 Substitution Method						DL/2 Substitution Method	

796					Mean	0.627					Mean	-1.061
797					SD	0.559					SD	1.584
798					95% DL/2 (t) UCL	0.798					95% H-Stat (DL/2) UCL	3.244
799												
800					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
801					**MLE method failed to converge properly**						Mean in Log Scale	-4.778
802											SD in Log Scale	3.018
803											Mean in Original Scale	0.277
804											SD in Original Scale	0.66
805											95% Percentile Bootstrap UCL	0.497
806											95% BCA Bootstrap UCL	0.524
807												
808					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
809					k star (bias corrected)	0.401					**Data appear Normal at 5% Significance Level**	
810					Theta Star	3.411						
811					nu star	4.808						
812												
813					A-D Test Statistic	1.086					**Nonparametric Statistics**	
814					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
815					K-S Test Statistic	0.731					Mean	0.274
816					5% K-S Critical Value	0.347					SD	0.659
817					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.131
818											95% KM (t) UCL	0.497
819					**Assuming Gamma Distribution**						95% KM (z) UCL	0.49
820					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.917
821					Minimum	1E-09					95% KM (bootstrap t) UCL	0.47
822					Maximum	2.8					95% KM (BCA) UCL	1.383
823					Mean	1.175					95% KM (Percentile Bootstrap) UCL	1.329
824					Median	1.08					95% KM (Chebyshev) UCL	0.847
825					SD	1.013					97.5% KM (Chebyshev) UCL	1.094
826					k star	0.163					99% KM (Chebyshev) UCL	1.58
827					Theta star	7.215						
828					Nu star	10.1					**Potential UCLs to Use**	
829					AppChi2	4.003					95% KM (t) UCL	0.497
830					95% Gamma Approximate UCL	2.965					95% KM (Percentile Bootstrap) UCL	1.329
831					95% Adjusted Gamma UCL	3.13						
832	**Note: DL/2 is not a recommended method.**											
833												
834												
835	**Fluorene**											
836												
837						**General Statistics**							
838					Number of Valid Observations	5					Number of Distinct Observations	5
839												
840					**Raw Statistics**						**Log-transformed Statistics**	
841					Minimum	0.21					Minimum of Log Data	-1.561
842					Maximum	1.8					Maximum of Log Data	0.588
843					Mean	0.682					Mean of log Data	-0.735
844					Median	0.36					SD of log Data	0.912
845					SD	0.67						
846					Coefficient of Variation	0.983						
847					Skewness	1.617						
848												

849												
850	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
851												
852	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
853	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
854												
855												
856	**Warning: There are only 5 Values in this data**											
857	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
858	**the resulting calculations may not be reliable enough to draw conclusions**											
859												
860	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
861												
862	**Relevant UCL Statistics**											
863	**Normal Distribution Test**						**Lognormal Distribution Test**					
864	Shapiro Wilk Test Statistic	0.797					Shapiro Wilk Test Statistic	0.901				
865	Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762				
866	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
867												
868	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
869	95% Student's-t UCL	1.321					95% H-UCL	5.736				
870	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1.788				
871	95% Adjusted-CLT UCL	1.407					97.5% Chebyshev (MVUE) UCL	2.277				
872	95% Modified-t UCL	1.357					99% Chebyshev (MVUE) UCL	3.238				
873												
874	**Gamma Distribution Test**						**Data Distribution**					
875	k star (bias corrected)	0.759					**Data appear Normal at 5% Significance Level**					
876	Theta Star	0.898										
877	nu star	7.594										
878	Approximate Chi Square Value (.05)	2.502					**Nonparametric Statistics**					
879	Adjusted Level of Significance	0.0086					95% CLT UCL	1.175				
880	Adjusted Chi Square Value	1.417					95% Jackknife UCL	1.321				
881							95% Standard Bootstrap UCL	1.123				
882	Anderson-Darling Test Statistic	0.414					95% Bootstrap-t UCL	4.278				
883	Anderson-Darling 5% Critical Value	0.686					95% Hall's Bootstrap UCL	3.487				
884	Kolmogorov-Smirnov Test Statistic	0.271					95% Percentile Bootstrap UCL	1.194				
885	Kolmogorov-Smirnov 5% Critical Value	0.362					95% BCA Bootstrap UCL	1.314				
886	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1.989				
887							97.5% Chebyshev(Mean, Sd) UCL	2.554				
888	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	3.665				
889	95% Approximate Gamma UCL	2.07										
890	95% Adjusted Gamma UCL	3.656										
891												
892	**Potential UCL to Use**						Use 95% Student's-t UCL	1.321				
893												
894												
895	**Hexachlorobenzene**											
896												
897	**General Statistics**											
898	Number of Valid Observations	5					Number of Distinct Observations	5				
899												
900	**Raw Statistics**						**Log-transformed Statistics**					
901	Minimum	0.0357					Minimum of Log Data	-3.333				

Maximum	0.0657	Maximum of Log Data -2.723
Mean	0.0502	Mean of log Data -3.014
Median	0.0509	SD of log Data 0.24
SD	0.0118	
Coefficient of Variation	0.234	
Skewness	0.0966	

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.987	Shapiro Wilk Test Statistic	0.983
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0615	95% H-UCL	0.0664
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0737
95% Adjusted-CLT UCL	0.0591	97.5% Chebyshev (MVUE) UCL	0.0839
95% Modified-t UCL	0.0615	99% Chebyshev (MVUE) UCL	0.104
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	9.037	**Data appear Normal at 5% Significance Level**	
Theta Star	0.00556		
nu star	90.37		
Approximate Chi Square Value (.05)	69.45	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	0.0589
Adjusted Chi Square Value	61.48	95% Jackknife UCL	0.0615
		95% Standard Bootstrap UCL	0.0579
Anderson-Darling Test Statistic	0.184	95% Bootstrap-t UCL	0.062
Anderson-Darling 5% Critical Value	0.679	95% Hall's Bootstrap UCL	0.0611
Kolmogorov-Smirnov Test Statistic	0.163	95% Percentile Bootstrap UCL	0.058
Kolmogorov-Smirnov 5% Critical Value	0.357	95% BCA Bootstrap UCL	0.0574
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0732
		97.5% Chebyshev(Mean, Sd) UCL	0.0831
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.103
95% Approximate Gamma UCL	0.0654		
95% Adjusted Gamma UCL	0.0739		
Potential UCL to Use		Use 95% Student's-t UCL	0.0615

	A	B	C	D	E	F	G	H	I	J	K	L
955	**Lead**											
956												
957						**General Statistics**							
958						Number of Valid Observations	31				Number of Distinct Observations	28
959												
960						**Raw Statistics**					**Log-transformed Statistics**	
961						Minimum	0.041				Minimum of Log Data	-3.194
962						Maximum	1.3				Maximum of Log Data	0.262
963						Mean	0.147				Mean of log Data	-2.227
964						Median	0.098				SD of log Data	0.616
965						SD	0.219					
966						Coefficient of Variation	1.497					
967						Skewness	5.166					
968												
969						**Relevant UCL Statistics**							
970						**Normal Distribution Test**					**Lognormal Distribution Test**	
971						Shapiro Wilk Test Statistic	0.354				Shapiro Wilk Test Statistic	0.815
972						Shapiro Wilk Critical Value	0.929				Shapiro Wilk Critical Value	0.929
973						**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**	
974												
975						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
976						95% Student's-t UCL	0.213				95% H-UCL	0.164
977						**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	0.196
978						95% Adjusted-CLT UCL	0.25				97.5% Chebyshev (MVUE) UCL	0.225
979						95% Modified-t UCL	0.219				99% Chebyshev (MVUE) UCL	0.281
980												
981						**Gamma Distribution Test**					**Data Distribution**	
982						k star (bias corrected)	1.629				**Data do not follow a Discernable Distribution (0.05)**	
983						Theta Star	0.09					
984						nu star	101					
985						Approximate Chi Square Value (.05)	78.79				**Nonparametric Statistics**	
986						Adjusted Level of Significance	0.0413				95% CLT UCL	0.211
987						Adjusted Chi Square Value	77.7				95% Jackknife UCL	0.213
988											95% Standard Bootstrap UCL	0.21
989						Anderson-Darling Test Statistic	3.353				95% Bootstrap-t UCL	0.405
990						Anderson-Darling 5% Critical Value	0.761				95% Hall's Bootstrap UCL	0.444
991						Kolmogorov-Smirnov Test Statistic	0.272				95% Percentile Bootstrap UCL	0.222
992						Kolmogorov-Smirnov 5% Critical Value	0.16				95% BCA Bootstrap UCL	0.265
993						**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	0.318
994											97.5% Chebyshev(Mean, Sd) UCL	0.393
995						**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	0.538
996						95% Approximate Gamma UCL	0.188					
997						95% Adjusted Gamma UCL	0.19					
998												
999						**Potential UCL to Use**					Use 95% Chebyshev (Mean, Sd) UCL	0.318
1000												
1001												
1002	**Manganese**											
1003												
1004						**General Statistics**							
1005						Number of Valid Observations	31				Number of Distinct Observations	30
1006												
1007						**Raw Statistics**					**Log-transformed Statistics**	

1008					Minimum	38.5				Minimum of Log Data	3.651	
1009					Maximum	213				Maximum of Log Data	5.361	
1010					Mean	131.2				Mean of log Data	4.815	
1011					Median	132				SD of log Data	0.384	
1012					SD	41.84						
1013					Coefficient of Variation	0.319						
1014					Skewness	-0.277						
1015												
1016					**Relevant UCL Statistics**							
1017				**Normal Distribution Test**						**Lognormal Distribution Test**		
1018					Shapiro Wilk Test Statistic	0.983				Shapiro Wilk Test Statistic	0.907	
1019					Shapiro Wilk Critical Value	0.929				Shapiro Wilk Critical Value	0.929	
1020				**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1021												
1022				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1023					95% Student's-t UCL	143.9				95% H-UCL	151.1	
1024				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	173.3	
1025					95% Adjusted-CLT UCL	143.1				97.5% Chebyshev (MVUE) UCL	191	
1026					95% Modified-t UCL	143.9				99% Chebyshev (MVUE) UCL	225.8	
1027												
1028				**Gamma Distribution Test**						**Data Distribution**		
1029					k star (bias corrected)	7.467				**Data appear Normal at 5% Significance Level**		
1030					Theta Star	17.57						
1031					nu star	463						
1032					Approximate Chi Square Value (.05)	414.1				**Nonparametric Statistics**		
1033					Adjusted Level of Significance	0.0413				95% CLT UCL	143.5	
1034					Adjusted Chi Square Value	411.5				95% Jackknife UCL	143.9	
1035										95% Standard Bootstrap UCL	143.4	
1036					Anderson-Darling Test Statistic	0.567				95% Bootstrap-t UCL	142.9	
1037					Anderson-Darling 5% Critical Value	0.746				95% Hall's Bootstrap UCL	144	
1038					Kolmogorov-Smirnov Test Statistic	0.129				95% Percentile Bootstrap UCL	142.8	
1039					Kolmogorov-Smirnov 5% Critical Value	0.158				95% BCA Bootstrap UCL	143.6	
1040				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	163.9	
1041										97.5% Chebyshev(Mean, Sd) UCL	178.1	
1042				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	205.9	
1043					95% Approximate Gamma UCL	146.7						
1044					95% Adjusted Gamma UCL	147.6						
1045												
1046				**Potential UCL to Use**						Use 95% Student's-t UCL	143.9	
1047												
1048												
1049	**Mercury**											
1050												
1051					**General Statistics**							
1052					Number of Valid Observations	31				Number of Distinct Observations	21	
1053												
1054				**Raw Statistics**						**Log-transformed Statistics**		
1055					Minimum	0.02				Minimum of Log Data	-3.912	
1056					Maximum	0.041				Maximum of Log Data	-3.194	
1057					Mean	0.0287				Mean of log Data	-3.573	
1058					Median	0.028				SD of log Data	0.207	
1059					SD	0.00604						
1060					Coefficient of Variation	0.211						

1061					Skewness	0.489						
1062												
1063	**Relevant UCL Statistics**											
1064	**Normal Distribution Test**						**Lognormal Distribution Test**					
1065					Shapiro Wilk Test Statistic	0.921					Shapiro Wilk Test Statistic	0.934
1066					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
1067	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1068												
1069	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1070					95% Student's-t UCL	0.0305					95% H-UCL	0.0306
1071	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.0333
1072					95% Adjusted-CLT UCL	0.0305					97.5% Chebyshev (MVUE) UCL	0.0354
1073					95% Modified-t UCL	0.0305					99% Chebyshev (MVUE) UCL	0.0393
1074												
1075	**Gamma Distribution Test**						**Data Distribution**					
1076					k star (bias corrected)	21.79	**Data appear Lognormal at 5% Significance Level**					
1077					Theta Star	0.00132						
1078					nu star	1351						
1079					Approximate Chi Square Value (.05)	1266	**Nonparametric Statistics**					
1080					Adjusted Level of Significance	0.0413					95% CLT UCL	0.0304
1081					Adjusted Chi Square Value	1262					95% Jackknife UCL	0.0305
1082											95% Standard Bootstrap UCL	0.0304
1083					Anderson-Darling Test Statistic	0.775					95% Bootstrap-t UCL	0.0307
1084					Anderson-Darling 5% Critical Value	0.745					95% Hall's Bootstrap UCL	0.0306
1085					Kolmogorov-Smirnov Test Statistic	0.173					95% Percentile Bootstrap UCL	0.0304
1086					Kolmogorov-Smirnov 5% Critical Value	0.157					95% BCA Bootstrap UCL	0.0306
1087	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.0334
1088											97.5% Chebyshev(Mean, Sd) UCL	0.0354
1089	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	0.0395
1090					95% Approximate Gamma UCL	0.0306						
1091					95% Adjusted Gamma UCL	0.0307						
1092												
1093	**Potential UCL to Use**										Use 95% Student's-t UCL	0.0305
1094											or 95% Modified-t UCL	0.0305
1095											or 95% H-UCL	0.0306
1096												
1097												
1098	**Naphthalene**											
1099												
1100	**General Statistics**											
1101					Number of Valid Observations	5					Number of Distinct Observations	5
1102												
1103	**Raw Statistics**						**Log-transformed Statistics**					
1104					Minimum	0.47					Minimum of Log Data	-0.755
1105					Maximum	2.9					Maximum of Log Data	1.065
1106					Mean	1.016					Mean of log Data	-0.278
1107					Median	0.6					SD of log Data	0.759
1108					SD	1.055						
1109					Coefficient of Variation	1.038						
1110					Skewness	2.217						
1111												
1112												
1113	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											

1114												
1115	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1116	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1117												
1118												
1119	**Warning: There are only 5 Values in this data**											
1120	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1121	**the resulting calculations may not be reliable enough to draw conclusions**											
1122												
1123	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1124												
1125	**Relevant UCL Statistics**											
1126	**Normal Distribution Test**						**Lognormal Distribution Test**					
1127	Shapiro Wilk Test Statistic	0.605					Shapiro Wilk Test Statistic	0.686				
1128	Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762				
1129	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1130												
1131	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1132	95% Student's-t UCL	2.022					95% H-UCL	4.429				
1133	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	2.314				
1134	95% Adjusted-CLT UCL	2.292					97.5% Chebyshev (MVUE) UCL	2.906				
1135	95% Modified-t UCL	2.1					99% Chebyshev (MVUE) UCL	4.069				
1136												
1137	**Gamma Distribution Test**						**Data Distribution**					
1138	k star (bias corrected)	0.874					**Data do not follow a Discernable Distribution (0.05)**					
1139	Theta Star	1.162										
1140	nu star	8.743										
1141	Approximate Chi Square Value (.05)	3.172					**Nonparametric Statistics**					
1142	Adjusted Level of Significance	0.0086					95% CLT UCL	1.792				
1143	Adjusted Chi Square Value	1.896					95% Jackknife UCL	2.022				
1144							95% Standard Bootstrap UCL	1.702				
1145	Anderson-Darling Test Statistic	1.019					95% Bootstrap-t UCL	10.67				
1146	Anderson-Darling 5% Critical Value	0.685					95% Hall's Bootstrap UCL	11.64				
1147	Kolmogorov-Smirnov Test Statistic	0.45					95% Percentile Bootstrap UCL	1.94				
1148	Kolmogorov-Smirnov 5% Critical Value	0.361					95% BCA Bootstrap UCL	1.982				
1149	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	3.072				
1150							97.5% Chebyshev(Mean, Sd) UCL	3.962				
1151	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	5.71				
1152	95% Approximate Gamma UCL	2.8										
1153	95% Adjusted Gamma UCL	4.685										
1154												
1155	**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL	3.072				
1156	**Recommended UCL exceeds the maximum observation**											
1157												
1158												
1159	**Nickel**											
1160												
1161	**General Statistics**											
1162	Number of Valid Data	31					Number of Detected Data	30				
1163	Number of Distinct Detected Data	26					Number of Non-Detect Data	1				
1164							Percent Non-Detects	3.23%				
1165												
1166	**Raw Statistics**						**Log-transformed Statistics**					

1167					Minimum Detected	0.18					Minimum Detected	-1.715
1168					Maximum Detected	0.83					Maximum Detected	-0.186
1169					Mean of Detected	0.379					Mean of Detected	-1.026
1170					SD of Detected	0.137					SD of Detected	0.339
1171					Minimum Non-Detect	0.25					Minimum Non-Detect	-1.386
1172					Maximum Non-Detect	0.25					Maximum Non-Detect	-1.386
1173												
1174												
1175	**UCL Statistics**											
1176	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1177					Shapiro Wilk Test Statistic	0.912					Shapiro Wilk Test Statistic	0.984
1178					5% Shapiro Wilk Critical Value	0.927					5% Shapiro Wilk Critical Value	0.927
1179	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1180												
1181	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1182					DL/2 Substitution Method						DL/2 Substitution Method	
1183					Mean	0.371					Mean	-1.06
1184					SD	0.142					SD	0.383
1185					95% DL/2 (t) UCL	0.415					95% H-Stat (DL/2) UCL	0.419
1186												
1187					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1188					Mean	0.366					Mean in Log Scale	-1.043
1189					SD	0.148					SD in Log Scale	0.347
1190					95% MLE (t) UCL	0.411					Mean in Original Scale	0.374
1191					95% MLE (Tiku) UCL	0.411					SD in Original Scale	0.138
1192											95% Percentile Bootstrap UCL	0.414
1193											95% BCA Bootstrap UCL	0.42
1194												
1195	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1196					k star (bias corrected)	8.077	**Data appear Gamma Distributed at 5% Significance Level**					
1197					Theta Star	0.047						
1198					nu star	484.6						
1199												
1200					A-D Test Statistic	0.327	**Nonparametric Statistics**					
1201					5% A-D Critical Value	0.746					Kaplan-Meier (KM) Method	
1202					K-S Test Statistic	0.746					Mean	0.374
1203					5% K-S Critical Value	0.16					SD	0.136
1204	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0248
1205											95% KM (t) UCL	0.416
1206	**Assuming Gamma Distribution**										95% KM (z) UCL	0.415
1207					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.416
1208					Minimum	0.18					95% KM (bootstrap t) UCL	0.425
1209					Maximum	0.83					95% KM (BCA) UCL	0.417
1210					Mean	0.373					95% KM (Percentile Bootstrap) UCL	0.416
1211					Median	0.36					95% KM (Chebyshev) UCL	0.482
1212					SD	0.139					97.5% KM (Chebyshev) UCL	0.529
1213					k star	7.484					99% KM (Chebyshev) UCL	0.621
1214					Theta star	0.0499						
1215					Nu star	464	**Potential UCLs to Use**					
1216					AppChi2	415					95% KM (BCA) UCL	0.417
1217					95% Gamma Approximate UCL	0.417						
1218					95% Adjusted Gamma UCL	0.42						
1219	**Note: DL/2 is not a recommended method.**											

1220												
1221												
1222	**Phenol**											
1223												
1224	**General Statistics**											
1225					Number of Valid Data	31			Number of Detected Data			6
1226					Number of Distinct Detected Data	6			Number of Non-Detect Data			25
1227									Percent Non-Detects			80.65%
1228												
1229	**Raw Statistics**						**Log-transformed Statistics**					
1230					Minimum Detected	45			Minimum Detected			3.807
1231					Maximum Detected	520			Maximum Detected			6.254
1232					Mean of Detected	137.2			Mean of Detected			4.432
1233					SD of Detected	188.4			SD of Detected			0.931
1234					Minimum Non-Detect	330			Minimum Non-Detect			5.799
1235					Maximum Non-Detect	370			Maximum Non-Detect			5.914
1236												
1237	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			30
1238	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			1
1239	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			96.77%
1240												
1241	**Warning: There are only 6 Detected Values in this data**											
1242	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1243	**the resulting calculations may not be reliable enough tp draw conclusions**											
1244												
1245	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1246												
1247												
1248	**UCL Statistics**											
1249	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1250					Shapiro Wilk Test Statistic	0.574			Shapiro Wilk Test Statistic			0.728
1251					5% Shapiro Wilk Critical Value	0.788			5% Shapiro Wilk Critical Value			0.788
1252	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1253												
1254	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1255					DL/2 Substitution Method				DL/2 Substitution Method			
1256					Mean	160.3			Mean			4.979
1257					SD	77.84			SD			0.468
1258					95% DL/2 (t) UCL	184			95% H-Stat (DL/2) UCL			187.1
1259												
1260					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
1261	**MLE method failed to converge properly**								Mean in Log Scale			4.193
1262									SD in Log Scale			0.711
1263									Mean in Original Scale			88.02
1264									SD in Original Scale			91.93
1265									95% Percentile Bootstrap UCL			117.3
1266									95% BCA Bootstrap UCL			132.8
1267												
1268	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1269					k star (bias corrected)	0.691	**Data do not follow a Discernable Distribution (0.05)**					
1270					Theta Star	198.5						
1271					nu star	8.292						
1272												

1273					A-D Test Statistic	1.068	**Nonparametric Statistics**					
1274					5% A-D Critical Value	0.713				Kaplan-Meier (KM) Method		
1275					K-S Test Statistic	0.713					Mean	75.42
1276					5% K-S Critical Value	0.34					SD	83.01
1277	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	18.04
1278											95% KM (t) UCL	106
1279	**Assuming Gamma Distribution**										95% KM (z) UCL	105.1
1280					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	105.2
1281					Minimum	1E-09					95% KM (bootstrap t) UCL	219.9
1282					Maximum	520					95% KM (BCA) UCL	107.7
1283					Mean	122.3					95% KM (Percentile Bootstrap) UCL	108.1
1284					Median	107					95% KM (Chebyshev) UCL	154
1285					SD	105.1					97.5% KM (Chebyshev) UCL	188.1
1286					k star	0.261					99% KM (Chebyshev) UCL	254.9
1287					Theta star	469.3						
1288					Nu star	16.16	**Potential UCLs to Use**					
1289					AppChi2	8.072					95% KM (t) UCL	106
1290					95% Gamma Approximate UCL	244.7					95% KM (% Bootstrap) UCL	108.1
1291					95% Adjusted Gamma UCL	254.8						
1292	**Note: DL/2 is not a recommended method.**											
1293												
1294												
1295	**Silver**											
1296												
1297	**General Statistics**											
1298					Number of Valid Data	31					Number of Detected Data	24
1299					Number of Distinct Detected Data	23					Number of Non-Detect Data	7
1300											Percent Non-Detects	22.58%
1301												
1302	**Raw Statistics**						**Log-transformed Statistics**					
1303					Minimum Detected	0.0154					Minimum Detected	-4.173
1304					Maximum Detected	0.0472					Maximum Detected	-3.053
1305					Mean of Detected	0.0309					Mean of Detected	-3.512
1306					SD of Detected	0.00812					SD of Detected	0.271
1307					Minimum Non-Detect	0.0164					Minimum Non-Detect	-4.11
1308					Maximum Non-Detect	0.042					Maximum Non-Detect	-3.17
1309												
1310	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	27
1311	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	4
1312	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	87.10%
1313												
1314	**UCL Statistics**											
1315	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1316					Shapiro Wilk Test Statistic	0.964					Shapiro Wilk Test Statistic	0.97
1317					5% Shapiro Wilk Critical Value	0.916					5% Shapiro Wilk Critical Value	0.916
1318	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1319												
1320	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1321					DL/2 Substitution Method						DL/2 Substitution Method	
1322					Mean	0.0271					Mean	-3.697
1323					SD	0.0104					SD	0.457
1324					95% DL/2 (t) UCL	0.0302					95% H-Stat (DL/2) UCL	0.0339
1325												

1326	Maximum Likelihood Estimate(MLE) Method									Log ROS Method		
1327	Mean					0.0364	Mean in Log Scale					-3.584
1328	SD					0.00497	SD in Log Scale					0.288
1329	95% MLE (t) UCL					0.0379	Mean in Original Scale					0.0289
1330	95% MLE (Tiku) UCL					0.0416	SD in Original Scale					0.00827
1331							95% Percentile Bootstrap UCL					0.0312
1332							95% BCA Bootstrap UCL					0.0313
1333												
1334	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1335	k star (bias corrected)					12.96	**Data appear Normal at 5% Significance Level**					
1336	Theta Star					0.00238						
1337	nu star					622.2						
1338												
1339	A-D Test Statistic					0.269	**Nonparametric Statistics**					
1340	5% A-D Critical Value					0.743	Kaplan-Meier (KM) Method					
1341	K-S Test Statistic					0.743	Mean					0.0286
1342	5% K-S Critical Value					0.178	SD					0.00875
1343	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.00166
1344							95% KM (t) UCL					0.0315
1345	**Assuming Gamma Distribution**						95% KM (z) UCL					0.0314
1346	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0313
1347	Minimum					0.0154	95% KM (bootstrap t) UCL					0.0314
1348	Maximum					0.0472	95% KM (BCA) UCL					0.0319
1349	Mean					0.0298	95% KM (Percentile Bootstrap) UCL					0.0317
1350	Median					0.03	95% KM (Chebyshev) UCL					0.0359
1351	SD					0.00804	97.5% KM (Chebyshev) UCL					0.039
1352	k star					12.55	99% KM (Chebyshev) UCL					0.0452
1353	Theta star					0.00237						
1354	Nu star					778.3	**Potential UCLs to Use**					
1355	AppChi2					714.6	95% KM (t) UCL					0.0315
1356	95% Gamma Approximate UCL					0.0325	95% KM (Percentile Bootstrap) UCL					0.0317
1357	95% Adjusted Gamma UCL					0.0326						
1358	**Note: DL/2 is not a recommended method.**											
1359												
1360												
1361	**Thallium**											
1362												
1363	**General Statistics**											
1364	Number of Valid Data					31	Number of Detected Data					26
1365	Number of Distinct Detected Data					20	Number of Non-Detect Data					5
1366							Percent Non-Detects					16.13%
1367												
1368	**Raw Statistics**						**Log-transformed Statistics**					
1369	Minimum Detected					0.0015	Minimum Detected					-6.502
1370	Maximum Detected					0.0079	Maximum Detected					-4.841
1371	Mean of Detected					0.00327	Mean of Detected					-5.816
1372	SD of Detected					0.00159	SD of Detected					0.419
1373	Minimum Non-Detect					0.0021	Minimum Non-Detect					-6.166
1374	Maximum Non-Detect					0.0032	Maximum Non-Detect					-5.745
1375												
1376	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					21
1377	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					10
1378	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					67.74%

	A	B	C	D	E	F	G	H	I	J	K	L
1379												
1380	**UCL Statistics**											
1381	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1382	Shapiro Wilk Test Statistic					0.823	Shapiro Wilk Test Statistic					0.937
1383	5% Shapiro Wilk Critical Value					0.92	5% Shapiro Wilk Critical Value					0.92
1384	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1385												
1386	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1387	DL/2 Substitution Method						DL/2 Substitution Method					
1388	Mean					0.00297	Mean					-5.94
1389	SD					0.00161	SD					0.483
1390	95% DL/2 (t) UCL					0.00346	95% H-Stat (DL/2) UCL					0.00381
1391												
1392	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
1393	Mean					0.00194	Mean in Log Scale					-5.875
1394	SD					0.00261	SD in Log Scale					0.413
1395	95% MLE (t) UCL					0.00273	Mean in Original Scale					0.00308
1396	95% MLE (Tiku) UCL					0.00326	SD in Original Scale					0.00152
1397							95% Percentile Bootstrap UCL					0.00354
1398							95% BCA Bootstrap UCL					0.00361
1399												
1400	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1401	k star (bias corrected)					4.963	**Data appear Lognormal at 5% Significance Level**					
1402	Theta Star					0.0006583						
1403	nu star					258.1						
1404												
1405	A-D Test Statistic					0.991	**Nonparametric Statistics**					
1406	5% A-D Critical Value					0.746	Kaplan-Meier (KM) Method					
1407	K-S Test Statistic					0.746	Mean					0.00308
1408	5% K-S Critical Value					0.172	SD					0.0015
1409	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.0002761
1410							95% KM (t) UCL					0.00355
1411	**Assuming Gamma Distribution**						95% KM (z) UCL					0.00353
1412	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.00355
1413	Minimum					0.00126	95% KM (bootstrap t) UCL					0.00371
1414	Maximum					0.0079	95% KM (BCA) UCL					0.00356
1415	Mean					0.00316	95% KM (Percentile Bootstrap) UCL					0.00354
1416	Median					0.00265	95% KM (Chebyshev) UCL					0.00428
1417	SD					0.00151	97.5% KM (Chebyshev) UCL					0.0048
1418	k star					5.197	99% KM (Chebyshev) UCL					0.00583
1419	Theta star					0.0006081						
1420	Nu star					322.2	**Potential UCLs to Use**					
1421	AppChi2					281.6	95% KM (Chebyshev) UCL					0.00428
1422	95% Gamma Approximate UCL					0.00362						
1423	95% Adjusted Gamma UCL					0.00364						
1424	**Note: DL/2 is not a recommended method.**											
1425												
1426												
1427	**Total Aroclors**											
1428												
1429	**General Statistics**											
1430	Number of Valid Data					26	Number of Detected Data					12
1431	Number of Distinct Detected Data					12	Number of Non-Detect Data					14

1432					Number of Missing Values	5					Percent Non-Detects	53.85%
1433												
1434					**Raw Statistics**						**Log-transformed Statistics**	
1435					Minimum Detected	16					Minimum Detected	2.773
1436					Maximum Detected	280					Maximum Detected	5.635
1437					Mean of Detected	63.58					Mean of Detected	3.817
1438					SD of Detected	72.36					SD of Detected	0.762
1439					Minimum Non-Detect	1.4					Minimum Non-Detect	0.336
1440					Maximum Non-Detect	8.5					Maximum Non-Detect	2.14
1441												
1442	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
1443	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	12
1444	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	53.85%
1445												
1446					**UCL Statistics**							
1447					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1448					Shapiro Wilk Test Statistic	0.599					Shapiro Wilk Test Statistic	0.908
1449					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
1450					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1451												
1452					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1453					DL/2 Substitution Method						DL/2 Substitution Method	
1454					Mean	30.19					Mean	1.94
1455					SD	57.43					SD	1.878
1456					95% DL/2 (t) UCL	49.43					95% H-Stat (DL/2) UCL	109
1457												
1458					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1459					**MLE yields a negative mean**						Mean in Log Scale	2.684
1460											SD in Log Scale	1.184
1461											Mean in Original Scale	32.33
1462											SD in Original Scale	56.34
1463											95% Percentile Bootstrap UCL	51.18
1464											95% BCA Bootstrap UCL	61.92
1465												
1466					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1467					k star (bias corrected)	1.286					**Data appear Lognormal at 5% Significance Level**	
1468					Theta Star	49.46						
1469					nu star	30.85						
1470												
1471					A-D Test Statistic	0.937					**Nonparametric Statistics**	
1472					5% A-D Critical Value	0.744					Kaplan-Meier (KM) Method	
1473					K-S Test Statistic	0.744					Mean	37.96
1474					5% K-S Critical Value	0.249					SD	52.7
1475					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	10.8
1476											95% KM (t) UCL	56.4
1477					**Assuming Gamma Distribution**						95% KM (z) UCL	55.72
1478					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	54.22
1479					Minimum	16					95% KM (bootstrap t) UCL	93.21
1480					Maximum	280					95% KM (BCA) UCL	65.12
1481					Mean	63.58					95% KM (Percentile Bootstrap) UCL	58.62
1482					Median	63.58					95% KM (Chebyshev) UCL	85.02
1483					SD	48					97.5% KM (Chebyshev) UCL	105.4
1484					k star	3.027					99% KM (Chebyshev) UCL	145.4

1485					Theta star	21.01						
1486					Nu star	157.4	**Potential UCLs to Use**					
1487					AppChi2	129.4					95% KM (t) UCL	56.4
1488				95% Gamma Approximate UCL		77.34					95% KM (% Bootstrap) UCL	58.62
1489				95% Adjusted Gamma UCL		78.36						
1490	**Note: DL/2 is not a recommended method.**											
1491												
1492												
1493	**Total Chlordanes**											
1494												
1495	**General Statistics**											
1496					Number of Valid Data	31					Number of Detected Data	10
1497					Number of Distinct Detected Data	10					Number of Non-Detect Data	21
1498											Percent Non-Detects	67.74%
1499												
1500	**Raw Statistics**						**Log-transformed Statistics**					
1501					Minimum Detected	0.168					Minimum Detected	-1.782
1502					Maximum Detected	4.7					Maximum Detected	1.548
1503					Mean of Detected	1.949					Mean of Detected	-0.025
1504					SD of Detected	1.806					SD of Detected	1.408
1505					Minimum Non-Detect	1					Minimum Non-Detect	0
1506					Maximum Non-Detect	2.3					Maximum Non-Detect	0.833
1507												
1508	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	26
1509	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
1510	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.87%
1511												
1512	**UCL Statistics**											
1513	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1514					Shapiro Wilk Test Statistic	0.823					Shapiro Wilk Test Statistic	0.821
1515					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
1516	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1517												
1518	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1519					DL/2 Substitution Method						DL/2 Substitution Method	
1520					Mean	1.045					Mean	-0.368
1521					SD	1.187					SD	0.84
1522					95% DL/2 (t) UCL	1.407					95% H-Stat (DL/2) UCL	1.083
1523												
1524					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1525					Mean	0.164					Mean in Log Scale	-0.808
1526					SD	2.206					SD in Log Scale	1.158
1527					95% MLE (t) UCL	0.837					Mean in Original Scale	0.904
1528					95% MLE (Tiku) UCL	2.073					SD in Original Scale	1.257
1529											95% Percentile Bootstrap UCL	1.298
1530											95% BCA Bootstrap UCL	1.335
1531												
1532	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1533					k star (bias corrected)	0.662	**Data do not follow a Discernable Distribution (0.05)**					
1534					Theta Star	2.944						
1535					nu star	13.24						
1536												
1537					A-D Test Statistic	0.883	**Nonparametric Statistics**					

1538				5% A-D Critical Value	0.753					Kaplan-Meier (KM) Method		
1539				K-S Test Statistic	0.753					Mean		0.831
1540				5% K-S Critical Value	0.275					SD		1.248
1541				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		0.242
1542										95% KM (t) UCL		1.241
1543				**Assuming Gamma Distribution**						95% KM (z) UCL		1.228
1544				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		1.231
1545				Minimum	1E-09					95% KM (bootstrap t) UCL		1.385
1546				Maximum	4.7					95% KM (BCA) UCL		1.282
1547				Mean	1.593					95% KM (Percentile Bootstrap) UCL		1.236
1548				Median	1.496					95% KM (Chebyshev) UCL		1.884
1549				SD	1.251					97.5% KM (Chebyshev) UCL		2.34
1550				k star	0.371					99% KM (Chebyshev) UCL		3.236
1551				Theta star	4.297							
1552				Nu star	22.98					**Potential UCLs to Use**		
1553				AppChi2	13.08					95% KM (BCA) UCL		1.282
1554				95% Gamma Approximate UCL	2.799							
1555				95% Adjusted Gamma UCL	2.891							
1556	**Note: DL/2 is not a recommended method.**											
1557												
1558												
1559	**Total DDD**											
1560												
1561				**General Statistics**								
1562				Number of Valid Data	31					Number of Detected Data		10
1563				Number of Distinct Detected Data	10					Number of Non-Detect Data		21
1564										Percent Non-Detects		67.74%
1565												
1566				**Raw Statistics**						**Log-transformed Statistics**		
1567				Minimum Detected	0.0366					Minimum Detected		-3.307
1568				Maximum Detected	21.3					Maximum Detected		3.059
1569				Mean of Detected	4.201					Mean of Detected		-0.0343
1570				SD of Detected	6.76					SD of Detected		2.114
1571				Minimum Non-Detect	1					Minimum Non-Detect		0
1572				Maximum Non-Detect	1					Maximum Non-Detect		0
1573												
1574												
1575				**UCL Statistics**								
1576				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1577				Shapiro Wilk Test Statistic	0.682					Shapiro Wilk Test Statistic		0.965
1578				5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value		0.842
1579				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1580												
1581				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1582				DL/2 Substitution Method						DL/2 Substitution Method		
1583				Mean	1.694					Mean		-0.481
1584				SD	4.099					SD		1.199
1585				95% DL/2 (t) UCL	2.943					95% H-Stat (DL/2) UCL		1.645
1586												
1587				Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method		
1588				**MLE yields a negative mean**						Mean in Log Scale		-1.266
1589										SD in Log Scale		1.895
1590										Mean in Original Scale		1.599

1591											SD in Original Scale	4.143
1592											95% Percentile Bootstrap UCL	2.943
1593											95% BCA Bootstrap UCL	3.749
1594												
1595	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1596					k star (bias corrected)	0.375	**Data appear Gamma Distributed at 5% Significance Level**					
1597					Theta Star	11.19						
1598					nu star	7.506						
1599												
1600					A-D Test Statistic	0.26	**Nonparametric Statistics**					
1601					5% A-D Critical Value	0.788					Kaplan-Meier (KM) Method	
1602					K-S Test Statistic	0.788					Mean	1.545
1603					5% K-S Critical Value	0.283					SD	4.082
1604	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.778
1605											95% KM (t) UCL	2.866
1606	**Assuming Gamma Distribution**										95% KM (z) UCL	2.825
1607					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.824
1608					Minimum	1E-09					95% KM (bootstrap t) UCL	5.98
1609					Maximum	21.3					95% KM (BCA) UCL	2.917
1610					Mean	3.478					95% KM (Percentile Bootstrap) UCL	2.887
1611					Median	3.384					95% KM (Chebyshev) UCL	4.937
1612					SD	4.137					97.5% KM (Chebyshev) UCL	6.404
1613					k star	0.22					99% KM (Chebyshev) UCL	9.287
1614					Theta star	15.83						
1615					Nu star	13.63	**Potential UCLs to Use**					
1616					AppChi2	6.316					95% KM (t) UCL	2.866
1617					95% Gamma Approximate UCL	7.503						
1618					95% Adjusted Gamma UCL	7.846						
1619	**Note: DL/2 is not a recommended method.**											
1620												
1621												
1622	**Total DDE**											
1623												
1624	**General Statistics**											
1625					Number of Valid Observations	31					Number of Distinct Observations	29
1626												
1627	**Raw Statistics**						**Log-transformed Statistics**					
1628					Minimum	1.055					Minimum of Log Data	0.0537
1629					Maximum	51.5					Maximum of Log Data	3.942
1630					Mean	6.272					Mean of log Data	1.489
1631					Median	4.2					SD of log Data	0.719
1632					SD	8.872						
1633					Coefficient of Variation	1.415						
1634					Skewness	4.73						
1635												
1636	**Relevant UCL Statistics**											
1637	**Normal Distribution Test**						**Lognormal Distribution Test**					
1638					Shapiro Wilk Test Statistic	0.435					Shapiro Wilk Test Statistic	0.924
1639					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
1640	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1641												
1642	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1643					95% Student's-t UCL	8.977					95% H-UCL	7.587

1644	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		9.162
1645				95% Adjusted-CLT UCL		10.34				97.5% Chebyshev (MVUE) UCL		10.67
1646				95% Modified-t UCL		9.202				99% Chebyshev (MVUE) UCL		13.62
1647												
1648	**Gamma Distribution Test**									**Data Distribution**		
1649				k star (bias corrected)		1.455				**Data do not follow a Discernable Distribution (0.05)**		
1650				Theta Star		4.31						
1651				nu star		90.22						
1652				Approximate Chi Square Value (.05)		69.32				**Nonparametric Statistics**		
1653				Adjusted Level of Significance		0.0413				95% CLT UCL		8.893
1654				Adjusted Chi Square Value		68.3				95% Jackknife UCL		8.977
1655										95% Standard Bootstrap UCL		8.902
1656				Anderson-Darling Test Statistic		1.964				95% Bootstrap-t UCL		15.59
1657				Anderson-Darling 5% Critical Value		0.763				95% Hall's Bootstrap UCL		19.89
1658				Kolmogorov-Smirnov Test Statistic		0.187				95% Percentile Bootstrap UCL		9.204
1659				Kolmogorov-Smirnov 5% Critical Value		0.16				95% BCA Bootstrap UCL		10.91
1660	**Data not Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		13.22
1661										97.5% Chebyshev(Mean, Sd) UCL		16.22
1662	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		22.13
1663				95% Approximate Gamma UCL		8.163						
1664				95% Adjusted Gamma UCL		8.285						
1665												
1666	**Potential UCL to Use**									Use 95% Chebyshev (Mean, Sd) UCL		13.22
1667												
1668												
1669	**Total DDT**											
1670												
1671	**General Statistics**											
1672				Number of Valid Data		31				Number of Detected Data		20
1673				Number of Distinct Detected Data		19				Number of Non-Detect Data		11
1674										Percent Non-Detects		35.48%
1675												
1676	**Raw Statistics**									**Log-transformed Statistics**		
1677				Minimum Detected		0.115				Minimum Detected		-2.161
1678				Maximum Detected		17.5				Maximum Detected		2.862
1679				Mean of Detected		5.466				Mean of Detected		1.29
1680				SD of Detected		4.638				SD of Detected		1.093
1681				Minimum Non-Detect		0.0113				Minimum Non-Detect		-4.483
1682				Maximum Non-Detect		6.1				Maximum Non-Detect		1.808
1683												
1684	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		24
1685	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		7
1686	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		77.42%
1687												
1688	**UCL Statistics**											
1689	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
1690				Shapiro Wilk Test Statistic		0.85				Shapiro Wilk Test Statistic		0.865
1691				5% Shapiro Wilk Critical Value		0.905				5% Shapiro Wilk Critical Value		0.905
1692	**Data not Normal at 5% Significance Level**									**Data not Lognormal at 5% Significance Level**		
1693												
1694	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
1695				DL/2 Substitution Method						DL/2 Substitution Method		
1696				Mean		3.882				Mean		0.291

1697					SD	4.323					SD	2.214
1698					95% DL/2 (t) UCL	5.2					95% H-Stat (DL/2) UCL	60
1699												
1700					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1701					Mean	0.289					Mean in Log Scale	0.65
1702					SD	7.841					SD in Log Scale	1.274
1703					95% MLE (t) UCL	2.68					Mean in Original Scale	3.77
1704					95% MLE (Tiku) UCL	5.47					SD in Original Scale	4.368
1705											95% Percentile Bootstrap UCL	5.175
1706											95% BCA Bootstrap UCL	5.258
1707												
1708	**Gamma Distribution Test with Detected Values Only**										**Data Distribution Test with Detected Values Only**	
1709					k star (bias corrected)	1.196					**Data appear Gamma Distributed at 5% Significance Level**	
1710					Theta Star	4.571						
1711					nu star	47.83						
1712												
1713					A-D Test Statistic	0.539					**Nonparametric Statistics**	
1714					5% A-D Critical Value	0.76					Kaplan-Meier (KM) Method	
1715					K-S Test Statistic	0.76					Mean	3.772
1716					5% K-S Critical Value	0.198					SD	4.332
1717	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.804
1718											95% KM (t) UCL	5.137
1719	**Assuming Gamma Distribution**										95% KM (z) UCL	5.095
1720					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.989
1721					Minimum	0.115					95% KM (bootstrap t) UCL	5.274
1722					Maximum	17.5					95% KM (BCA) UCL	5.561
1723					Mean	4.651					95% KM (Percentile Bootstrap) UCL	5.343
1724					Median	3.058					95% KM (Chebyshev) UCL	7.278
1725					SD	4.056					97.5% KM (Chebyshev) UCL	8.795
1726					k star	1.359					99% KM (Chebyshev) UCL	11.78
1727					Theta star	3.421						
1728					Nu star	84.29					**Potential UCLs to Use**	
1729					AppChi2	64.13					95% KM (Percentile Bootstrap) UCL	5.343
1730					95% Gamma Approximate UCL	6.113						
1731					95% Adjusted Gamma UCL	6.208						
1732	**Note: DL/2 is not a recommended method.**											
1733												
1734												
1735	**Total Dioxin/Furan TEQ**											
1736												
1737						**General Statistics**						
1738					Number of Valid Data	14					Number of Detected Data	14
1739					Number of Distinct Detected Data	14					Number of Non-Detect Data	0
1740					Number of Missing Values	17					Percent Non-Detects	0.00%
1741												
1742	**Raw Statistics**										**Log-transformed Statistics**	
1743					Minimum Detected	0.207					Minimum Detected	-1.576
1744					Maximum Detected	18.23					Maximum Detected	2.903
1745					Mean of Detected	1.918					Mean of Detected	-0.295
1746					SD of Detected	4.706					SD of Detected	1.063
1747					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1748					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1749												

	A	B	C	D	E	F	G	H	I	J	K	L
1750												
1751	**UCL Statistics**											
1752	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1753	Shapiro Wilk Test Statistic					0.358	Shapiro Wilk Test Statistic					0.772
1754	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
1755	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1756												
1757	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1758	DL/2 Substitution Method						DL/2 Substitution Method					
1759	Mean					1.918	Mean					-0.295
1760	SD					4.706	SD					1.063
1761	95% DL/2 (t) UCL					4.145	95% H-Stat (DL/2) UCL					3.075
1762												
1763	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1764	**MLE method failed to converge properly**						Mean in Log Scale					N/A
1765							SD in Log Scale					N/A
1766							Mean in Original Scale					N/A
1767							SD in Original Scale					N/A
1768							95% Percentile Bootstrap UCL					N/A
1769							95% BCA Bootstrap UCL					N/A
1770												
1771	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1772	k star (bias corrected)					0.555	**Data do not follow a Discernable Distribution (0.05)**					
1773	Theta Star					3.455						
1774	nu star					15.54						
1775												
1776	A-D Test Statistic					2.516	**Nonparametric Statistics**					
1777	5% A-D Critical Value					0.78	Kaplan-Meier (KM) Method					
1778	K-S Test Statistic					0.78	Mean					1.918
1779	5% K-S Critical Value					0.239	SD					4.534
1780	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1.258
1781							95% KM (t) UCL					4.145
1782	**Assuming Gamma Distribution**						95% KM (z) UCL					3.987
1783	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.145
1784	Minimum					0.207	95% KM (bootstrap t) UCL					27.54
1785	Maximum					18.23	95% KM (BCA) UCL					4.394
1786	Mean					1.918	95% KM (Percentile Bootstrap) UCL					4.438
1787	Median					0.609	95% KM (Chebyshev) UCL					7.4
1788	SD					4.706	97.5% KM (Chebyshev) UCL					9.772
1789	k star					0.555	99% KM (Chebyshev) UCL					14.43
1790	Theta star					3.455						
1791	Nu star					15.54	**Potential UCLs to Use**					
1792	AppChi2					7.641	97.5% KM (Chebyshev) UCL					9.772
1793	95% Gamma Approximate UCL					3.902						
1794	95% Adjusted Gamma UCL					4.31						
1795	**Note: DL/2 is not a recommended method.**											
1796												
1797												
1798	**Total Dioxin-like PCBs**											
1799												
1800	**General Statistics**											
1801	Number of Valid Data					14	Number of Detected Data					14
1802	Number of Distinct Detected Data					14	Number of Non-Detect Data					0

	A	B	C	D	E	F	G	H	I	J	K	L
1803					Number of Missing Values	17					Percent Non-Detects	0.00%
1804												
1805					**Raw Statistics**						**Log-transformed Statistics**	
1806					Minimum Detected	1819					Minimum Detected	7.506
1807					Maximum Detected	53616					Maximum Detected	10.89
1808					Mean of Detected	8839					Mean of Detected	8.522
1809					SD of Detected	13569					SD of Detected	0.962
1810					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
1811					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
1812												
1813												
1814					**UCL Statistics**							
1815					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
1816					Shapiro Wilk Test Statistic	0.542					Shapiro Wilk Test Statistic	0.885
1817					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
1818					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1819												
1820					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1821					DL/2 Substitution Method						DL/2 Substitution Method	
1822					Mean	8839					Mean	8.522
1823					SD	13569					SD	0.962
1824					95% DL/2 (t) UCL	15261					95% H-Stat (DL/2) UCL	16544
1825												
1826					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1827					**MLE method failed to converge properly**						Mean in Log Scale	N/A
1828											SD in Log Scale	N/A
1829											Mean in Original Scale	N/A
1830											SD in Original Scale	N/A
1831											95% Percentile Bootstrap UCL	N/A
1832											95% BCA Bootstrap UCL	N/A
1833												
1834					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
1835					k star (bias corrected)	0.849					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
1836					Theta Star	10411						
1837					nu star	23.77						
1838												
1839					A-D Test Statistic	1.135					**Nonparametric Statistics**	
1840					5% A-D Critical Value	0.76					Kaplan-Meier (KM) Method	
1841					K-S Test Statistic	0.76					Mean	8839
1842					5% K-S Critical Value	0.235					SD	13075
1843					**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean	3626
1844											95% KM (t) UCL	15261
1845					**Assuming Gamma Distribution**						95% KM (z) UCL	14804
1846					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	15261
1847					Minimum	1819					95% KM (bootstrap t) UCL	28321
1848					Maximum	53616					95% KM (BCA) UCL	15865
1849					Mean	8839					95% KM (Percentile Bootstrap) UCL	15278
1850					Median	3907					95% KM (Chebyshev) UCL	24646
1851					SD	13569					97.5% KM (Chebyshev) UCL	31485
1852					k star	0.849					99% KM (Chebyshev) UCL	44921
1853					Theta star	10411						
1854					Nu star	23.77					**Potential UCLs to Use**	
1855					AppChi2	13.68					95% KM (Chebyshev) UCL	24646

	A	B	C	D	E	F	G	H	I	J	K	L
1856					95% Gamma Approximate UCL	15365						
1857					95% Adjusted Gamma UCL	16586						
1858	**Note: DL/2 is not a recommended method.**											
1859												
1860												
1861	**Total Endosulfan**											
1862												
1863					**General Statistics**							
1864					Number of Valid Data	31				Number of Detected Data		10
1865					Number of Distinct Detected Data	9				Number of Non-Detect Data		21
1866										Percent Non-Detects		67.74%
1867												
1868					**Raw Statistics**					**Log-transformed Statistics**		
1869					Minimum Detected	1				Minimum Detected		0
1870					Maximum Detected	3.1				Maximum Detected		1.131
1871					Mean of Detected	1.71				Mean of Detected		0.483
1872					SD of Detected	0.623				SD of Detected		0.339
1873					Minimum Non-Detect	0.0128				Minimum Non-Detect		-4.358
1874					Maximum Non-Detect	2				Maximum Non-Detect		0.693
1875												
1876	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		28
1877	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		3
1878	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		90.32%
1879												
1880					**UCL Statistics**							
1881					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
1882					Shapiro Wilk Test Statistic	0.903				Shapiro Wilk Test Statistic		0.972
1883					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
1884					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
1885												
1886					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
1887					DL/2 Substitution Method					DL/2 Substitution Method		
1888					Mean	0.842				Mean		-0.913
1889					SD	0.733				SD		1.771
1890					95% DL/2 (t) UCL	1.065				95% H-Stat (DL/2) UCL		5.035
1891												
1892					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
1893					Mean	2.657				Mean in Log Scale		-0.219
1894					SD	0.45				SD in Log Scale		0.59
1895					95% MLE (t) UCL	2.794				Mean in Original Scale		0.96
1896					95% MLE (Tiku) UCL	3.085				SD in Original Scale		0.643
1897										95% Percentile Bootstrap UCL		1.154
1898										95% BCA Bootstrap UCL		1.182
1899												
1900					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
1901					k star (bias corrected)	6.682				**Data appear Normal at 5% Significance Level**		
1902					Theta Star	0.256						
1903					nu star	133.6						
1904												
1905					A-D Test Statistic	0.242				**Nonparametric Statistics**		
1906					5% A-D Critical Value	0.726				Kaplan-Meier (KM) Method		
1907					K-S Test Statistic	0.726				Mean		1.236
1908					5% K-S Critical Value	0.267				SD		0.472

1909	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0901
1910											95% KM (t) UCL	1.389
1911	**Assuming Gamma Distribution**										95% KM (z) UCL	1.384
1912	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	1.363
1913	Minimum	1									95% KM (bootstrap t) UCL	1.452
1914	Maximum	3.1									95% KM (BCA) UCL	1.615
1915	Mean	1.647									95% KM (Percentile Bootstrap) UCL	1.508
1916	Median	1.6									95% KM (Chebyshev) UCL	1.628
1917	SD	0.362									97.5% KM (Chebyshev) UCL	1.798
1918	k star	22.82									99% KM (Chebyshev) UCL	2.132
1919	Theta star	0.0722										
1920	Nu star	1415									**Potential UCLs to Use**	
1921	AppChi2	1329									95% KM (t) UCL	1.389
1922	95% Gamma Approximate UCL	1.754									95% KM (Percentile Bootstrap) UCL	1.508
1923	95% Adjusted Gamma UCL	1.76										
1924	**Note: DL/2 is not a recommended method.**											
1925												
1926												
1927	**Total PCB TEQ**											
1928												
1929	**General Statistics**											
1930	Number of Valid Data	14									Number of Detected Data	14
1931	Number of Distinct Detected Data	14									Number of Non-Detect Data	0
1932	Number of Missing Values	17									Percent Non-Detects	0.00%
1933												
1934	**Raw Statistics**										**Log-transformed Statistics**	
1935	Minimum Detected	0.252									Minimum Detected	-1.376
1936	Maximum Detected	5.086									Maximum Detected	1.627
1937	Mean of Detected	1.283									Mean of Detected	-0.181
1938	SD of Detected	1.4									SD of Detected	0.919
1939	Minimum Non-Detect	N/A									Minimum Non-Detect	N/A
1940	Maximum Non-Detect	N/A									Maximum Non-Detect	N/A
1941												
1942												
1943	**UCL Statistics**											
1944	**Normal Distribution Test with Detected Values Only**										**Lognormal Distribution Test with Detected Values Only**	
1945	Shapiro Wilk Test Statistic	0.725									Shapiro Wilk Test Statistic	0.932
1946	5% Shapiro Wilk Critical Value	0.874									5% Shapiro Wilk Critical Value	0.874
1947	**Data not Normal at 5% Significance Level**										**Data appear Lognormal at 5% Significance Level**	
1948												
1949	**Assuming Normal Distribution**										**Assuming Lognormal Distribution**	
1950	DL/2 Substitution Method										DL/2 Substitution Method	
1951	Mean	1.283									Mean	-0.181
1952	SD	1.4									SD	0.919
1953	95% DL/2 (t) UCL	1.946									95% H-Stat (DL/2) UCL	2.508
1954												
1955	Maximum Likelihood Estimate(MLE) Method	N/A									Log ROS Method	
1956	**MLE method failed to converge properly**										Mean in Log Scale	N/A
1957											SD in Log Scale	N/A
1958											Mean in Original Scale	N/A
1959											SD in Original Scale	N/A
1960											95% Percentile Bootstrap UCL	N/A
1961											95% BCA Bootstrap UCL	N/A

1962												
1963	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1964					k star (bias corrected)	1.073	**Data appear Gamma Distributed at 5% Significance Level**					
1965					Theta Star	1.196						
1966					nu star	30.03						
1967												
1968					A-D Test Statistic	0.719	**Nonparametric Statistics**					
1969					5% A-D Critical Value	0.754	Kaplan-Meier (KM) Method					
1970					K-S Test Statistic	0.754	Mean	1.283				
1971					5% K-S Critical Value	0.234	SD	1.349				
1972	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.374				
1973							95% KM (t) UCL	1.946				
1974	**Assuming Gamma Distribution**						95% KM (z) UCL	1.898				
1975	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.946				
1976					Minimum	0.252	95% KM (bootstrap t) UCL	2.444				
1977					Maximum	5.086	95% KM (BCA) UCL	1.906				
1978					Mean	1.283	95% KM (Percentile Bootstrap) UCL	1.905				
1979					Median	0.73	95% KM (Chebyshev) UCL	2.914				
1980					SD	1.4	97.5% KM (Chebyshev) UCL	3.62				
1981					k star	1.073	99% KM (Chebyshev) UCL	5.006				
1982					Theta star	1.196						
1983					Nu star	30.03	**Potential UCLs to Use**					
1984					AppChi2	18.52	95% KM (Chebyshev) UCL	2.914				
1985					95% Gamma Approximate UCL	2.08						
1986					95% Adjusted Gamma UCL	2.224						
1987	**Note: DL/2 is not a recommended method.**											
1988												
1989												
1990	**Total PCB_Congeners**											
1991												
1992	**General Statistics**											
1993					Number of Valid Data	14	Number of Detected Data	14				
1994					Number of Distinct Detected Data	14	Number of Non-Detect Data	0				
1995					Number of Missing Values	17	Percent Non-Detects	0.00%				
1996												
1997	**Raw Statistics**						**Log-transformed Statistics**					
1998					Minimum Detected	10078	Minimum Detected	9.218				
1999					Maximum Detected	1188740	Maximum Detected	13.99				
2000					Mean of Detected	134333	Mean of Detected	10.81				
2001					SD of Detected	307476	SD of Detected	1.198				
2002					Minimum Non-Detect	N/A	Minimum Non-Detect	N/A				
2003					Maximum Non-Detect	N/A	Maximum Non-Detect	N/A				
2004												
2005												
2006	**UCL Statistics**											
2007	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2008					Shapiro Wilk Test Statistic	0.414	Shapiro Wilk Test Statistic	0.892				
2009					5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874				
2010	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2011												
2012	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2013					DL/2 Substitution Method		DL/2 Substitution Method					
2014					Mean	134333	Mean	10.81				

2015					SD	307476					SD	1.198
2016					95% DL/2 (t) UCL	279862					95% H-Stat (DL/2) UCL	287868
2017												
2018					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2019					**MLE method failed to converge properly**						Mean in Log Scale	N/A
2020											SD in Log Scale	N/A
2021											Mean in Original Scale	N/A
2022											SD in Original Scale	N/A
2023											95% Percentile Bootstrap UCL	N/A
2024											95% BCA Bootstrap UCL	N/A
2025												
2026					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2027					k star (bias corrected)	0.533					**Data appear Lognormal at 5% Significance Level**	
2028					Theta Star	252119						
2029					nu star	14.92						
2030												
2031					A-D Test Statistic	1.664					**Nonparametric Statistics**	
2032					5% A-D Critical Value	0.783					Kaplan-Meier (KM) Method	
2033					K-S Test Statistic	0.783					Mean	134333
2034					5% K-S Critical Value	0.24					SD	296292
2035					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	82177
2036											95% KM (t) UCL	279862
2037					**Assuming Gamma Distribution**						95% KM (z) UCL	269501
2038					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	279862
2039					Minimum	10078					95% KM (bootstrap t) UCL	1466866
2040					Maximum	1188740					95% KM (BCA) UCL	295301
2041					Mean	134333					95% KM (Percentile Bootstrap) UCL	289181
2042					Median	41480					95% KM (Chebyshev) UCL	492532
2043					SD	307476					97.5% KM (Chebyshev) UCL	647525
2044					k star	0.533					99% KM (Chebyshev) UCL	951979
2045					Theta star	252119						
2046					Nu star	14.92					**Potential UCLs to Use**	
2047					AppChi2	7.205					97.5% KM (Chebyshev) UCL	647525
2048					95% Gamma Approximate UCL	278147						
2049					95% Adjusted Gamma UCL	308061						
2050	**Note: DL/2 is not a recommended method.**											
2051												
2052												
2053	**Total PCBs, Adjusted**											
2054												
2055						**General Statistics**						
2056					Number of Valid Data	14					Number of Detected Data	14
2057					Number of Distinct Detected Data	14					Number of Non-Detect Data	0
2058					Number of Missing Values	17					Percent Non-Detects	0.00%
2059												
2060					**Raw Statistics**						**Log-transformed Statistics**	
2061					Minimum Detected	7408					Minimum Detected	8.91
2062					Maximum Detected	1135124					Maximum Detected	13.94
2063					Mean of Detected	125494					Mean of Detected	10.68
2064					SD of Detected	294300					SD of Detected	1.243
2065					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2066					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2067												

	A	B	C	D	E	F	G	H	I	J	K	L
2068												
2069	**UCL Statistics**											
2070	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
2071	Shapiro Wilk Test Statistic					0.41	Shapiro Wilk Test Statistic					0.899
2072	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
2073	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
2074												
2075	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
2076	DL/2 Substitution Method						DL/2 Substitution Method					
2077	Mean					125494	Mean					10.68
2078	SD					294300	SD					1.243
2079	95% DL/2 (t) UCL					264787	95% H-Stat (DL/2) UCL					285419
2080												
2081	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
2082	**MLE method failed to converge properly**						Mean in Log Scale					N/A
2083							SD in Log Scale					N/A
2084							Mean in Original Scale					N/A
2085							SD in Original Scale					N/A
2086							95% Percentile Bootstrap UCL					N/A
2087							95% BCA Bootstrap UCL					N/A
2088												
2089	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
2090	k star (bias corrected)					0.508	**Data appear Lognormal at 5% Significance Level**					
2091	Theta Star					247034						
2092	nu star					14.22						
2093												
2094	A-D Test Statistic					1.678	**Nonparametric Statistics**					
2095	5% A-D Critical Value					0.785	Kaplan-Meier (KM) Method					
2096	K-S Test Statistic					0.785	Mean					125494
2097	5% K-S Critical Value					0.24	SD					283595
2098	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					78655
2099							95% KM (t) UCL					264787
2100	**Assuming Gamma Distribution**						95% KM (z) UCL					254870
2101	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					264787
2102	Minimum					7408	95% KM (bootstrap t) UCL					1509264
2103	Maximum					1135124	95% KM (BCA) UCL					280360
2104	Mean					125494	95% KM (Percentile Bootstrap) UCL					275675
2105	Median					39018	95% KM (Chebyshev) UCL					468343
2106	SD					294300	97.5% KM (Chebyshev) UCL					616695
2107	k star					0.508	99% KM (Chebyshev) UCL					908102
2108	Theta star					247034						
2109	Nu star					14.22	**Potential UCLs to Use**					
2110	AppChi2					6.725	97.5% KM (Chebyshev) UCL					616695
2111	95% Gamma Approximate UCL					265431						
2112	95% Adjusted Gamma UCL					294909						
2113	**Note: DL/2 is not a recommended method.**											
2114												
2115												
2116	**Total TEQ**											
2117												
2118	**General Statistics**											
2119	Number of Valid Data					14	Number of Detected Data					14
2120	Number of Distinct Detected Data					14	Number of Non-Detect Data					0

2121					Number of Missing Values	17					Percent Non-Detects	0.00%
2122												
2123					**Raw Statistics**						**Log-transformed Statistics**	
2124					Minimum Detected	0.537					Minimum Detected	-0.622
2125					Maximum Detected	18.98					Maximum Detected	2.943
2126					Mean of Detected	3.201					Mean of Detected	0.666
2127					SD of Detected	4.741					SD of Detected	0.899
2128					Minimum Non-Detect	N/A					Minimum Non-Detect	N/A
2129					Maximum Non-Detect	N/A					Maximum Non-Detect	N/A
2130												
2131												
2132					**UCL Statistics**							
2133					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
2134					Shapiro Wilk Test Statistic	0.527					Shapiro Wilk Test Statistic	0.903
2135					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
2136					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2137												
2138					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2139					DL/2 Substitution Method						DL/2 Substitution Method	
2140					Mean	3.201					Mean	0.666
2141					SD	4.741					SD	0.899
2142					95% DL/2 (t) UCL	5.445					95% H-Stat (DL/2) UCL	5.612
2143												
2144					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
2145					**MLE method failed to converge properly**						Mean in Log Scale	N/A
2146											SD in Log Scale	N/A
2147											Mean in Original Scale	N/A
2148											SD in Original Scale	N/A
2149											95% Percentile Bootstrap UCL	N/A
2150											95% BCA Bootstrap UCL	N/A
2151												
2152					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
2153					k star (bias corrected)	0.945					**Data appear Lognormal at 5% Significance Level**	
2154					Theta Star	3.386						
2155					nu star	26.47						
2156												
2157					A-D Test Statistic	1.207					**Nonparametric Statistics**	
2158					5% A-D Critical Value	0.757					Kaplan-Meier (KM) Method	
2159					K-S Test Statistic	0.757					Mean	3.201
2160					5% K-S Critical Value	0.234					SD	4.568
2161					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	1.267
2162											95% KM (t) UCL	5.445
2163					**Assuming Gamma Distribution**						95% KM (z) UCL	5.285
2164					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5.445
2165					Minimum	0.537					95% KM (bootstrap t) UCL	11.64
2166					Maximum	18.98					95% KM (BCA) UCL	5.448
2167					Mean	3.201					95% KM (Percentile Bootstrap) UCL	5.45
2168					Median	1.672					95% KM (Chebyshev) UCL	8.724
2169					SD	4.741					97.5% KM (Chebyshev) UCL	11.11
2170					k star	0.945					99% KM (Chebyshev) UCL	15.81
2171					Theta star	3.386						
2172					Nu star	26.47					**Potential UCLs to Use**	
2173					AppChi2	15.74					95% KM (Chebyshev) UCL	8.724

2174				95% Gamma Approximate UCL		5.383						
2175				95% Adjusted Gamma UCL		5.783						
2176	**Note: DL/2 is not a recommended method.**											
2177												
2178												
2179	**Tributyltin ion**											
2180												
2181					**General Statistics**							
2182				Number of Valid Data		5			Number of Detected Data		3	
2183				Number of Distinct Detected Data		3			Number of Non-Detect Data		2	
2184									Percent Non-Detects		40.00%	
2185												
2186				**Raw Statistics**					**Log-transformed Statistics**			
2187				Minimum Detected		0.56			Minimum Detected		-0.58	
2188				Maximum Detected		2.3			Maximum Detected		0.833	
2189				Mean of Detected		1.187			Mean of Detected		-0.0345	
2190				SD of Detected		0.967			SD of Detected		0.759	
2191				Minimum Non-Detect		0.35			Minimum Non-Detect		-1.05	
2192				Maximum Non-Detect		0.35			Maximum Non-Detect		-1.05	
2193												
2194												
2195					**Warning: There are only 3 Distinct Detected Values in this data set**							
2196					**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**							
2197					**Those methods will return a 'N/A' value on your output display!**							
2198												
2199					**It is necessary to have 4 or more Distinct Values for bootstrap methods.**							
2200					**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**							
2201												
2202												
2203					**UCL Statistics**							
2204				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
2205				Shapiro Wilk Test Statistic		0.81			Shapiro Wilk Test Statistic		0.865	
2206				5% Shapiro Wilk Critical Value		0.767			5% Shapiro Wilk Critical Value		0.767	
2207				**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
2208												
2209				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
2210				DL/2 Substitution Method					DL/2 Substitution Method			
2211				Mean		0.782			Mean		-0.718	
2212				SD		0.88			SD		1.079	
2213				95% DL/2 (t) UCL		1.621			95% H-Stat (DL/2) UCL		1.225	
2214												
2215				Maximum Likelihood Estimate(MLE) Method					Log ROS Method			
2216				Mean		0.532			Mean in Log Scale		-0.942	
2217				SD		1.082			SD in Log Scale		1.381	
2218				95% MLE (t) UCL		1.563			Mean in Original Scale		0.755	
2219				95% MLE (Tiku) UCL		1.692			SD in Original Scale		0.904	
2220									95% Percentile Bootstrap UCL		1.423	
2221									95% BCA Bootstrap UCL		1.632	
2222												
2223				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
2224				k star (bias corrected)		N/A			**Data appear Normal at 5% Significance Level**			
2225				Theta Star		N/A						
2226				nu star		N/A						

2227												
2228					A-D Test Statistic	0.471	**Nonparametric Statistics**					
2229					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
2230					K-S Test Statistic	N/A					Mean	0.936
2231					5% K-S Critical Value	N/A					SD	0.684
2232			**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	0.375
2233											95% KM (t) UCL	1.735
2234			**Assuming Gamma Distribution**								95% KM (z) UCL	1.552
2235			Gamma ROS Statistics using Extrapolated Data								95% KM (jackknife) UCL	1.651
2236					Minimum	N/A					95% KM (bootstrap t) UCL	5.445
2237					Maximum	N/A					95% KM (BCA) UCL	2.3
2238					Mean	N/A					95% KM (Percentile Bootstrap) UCL	2.3
2239					Median	N/A					95% KM (Chebyshev) UCL	2.569
2240					SD	N/A					97.5% KM (Chebyshev) UCL	3.276
2241					k star	N/A					99% KM (Chebyshev) UCL	4.664
2242					Theta star	N/A						
2243					Nu star	N/A	**Potential UCLs to Use**					
2244					AppChi2	N/A					95% KM (t) UCL	1.735
2245					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	2.3
2246					95% Adjusted Gamma UCL	N/A						
2247	**Note: DL/2 is not a recommended method.**											
2248												
2249												
2250	**Zinc**											
2251												
2252					**General Statistics**							
2253					Number of Valid Observations	31					Number of Distinct Observations	24
2254												
2255					**Raw Statistics**						**Log-transformed Statistics**	
2256					Minimum	13.7					Minimum of Log Data	2.617
2257					Maximum	20.3					Maximum of Log Data	3.011
2258					Mean	17.03					Mean of log Data	2.829
2259					Median	17					SD of log Data	0.109
2260					SD	1.843						
2261					Coefficient of Variation	0.108						
2262					Skewness	0.0187						
2263												
2264					**Relevant UCL Statistics**							
2265					**Normal Distribution Test**						**Lognormal Distribution Test**	
2266					Shapiro Wilk Test Statistic	0.967					Shapiro Wilk Test Statistic	0.966
2267					Shapiro Wilk Critical Value	0.929					Shapiro Wilk Critical Value	0.929
2268					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
2269												
2270					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
2271					95% Student's-t UCL	17.59					95% H-UCL	17.62
2272					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	18.49
2273					95% Adjusted-CLT UCL	17.58					97.5% Chebyshev (MVUE) UCL	19.12
2274					95% Modified-t UCL	17.59					99% Chebyshev (MVUE) UCL	20.36
2275												
2276					**Gamma Distribution Test**						**Data Distribution**	
2277					k star (bias corrected)	79.03					**Data appear Normal at 5% Significance Level**	
2278					Theta Star	0.216						
2279					nu star	4900						

	A	B	C	D	E	F	G	H	I	J	K	L
2280	Approximate Chi Square Value (.05)					4738	**Nonparametric Statistics**					
2281	Adjusted Level of Significance					0.0413	95% CLT UCL					17.58
2282	Adjusted Chi Square Value					4729	95% Jackknife UCL					17.59
2283							95% Standard Bootstrap UCL					17.57
2284	Anderson-Darling Test Statistic					0.257	95% Bootstrap-t UCL					17.6
2285	Anderson-Darling 5% Critical Value					0.745	95% Hall's Bootstrap UCL					17.57
2286	Kolmogorov-Smirnov Test Statistic					0.0935	95% Percentile Bootstrap UCL					17.57
2287	Kolmogorov-Smirnov 5% Critical Value					0.157	95% BCA Bootstrap UCL					17.58
2288	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					18.48
2289							97.5% Chebyshev(Mean, Sd) UCL					19.1
2290	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					20.33
2291	95% Approximate Gamma UCL					17.61						
2292	95% Adjusted Gamma UCL					17.65						
2293												
2294	**Potential UCL to Use**						Use 95% Student's-t UCL					17.59
2295												

Tissue

Sturgeon

	General UCL Statistics for Data Sets with Non-Detects	
User Selected Options		
From File	Sturgeon_Study_area_FNS	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

Arsenic

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.157	Minimum of Log Data	-1.852
Maximum	0.538	Maximum of Log Data	-0.62
Mean	0.342	Mean of log Data	-1.155
Median	0.314	SD of log Data	0.467
SD	0.145		
Coefficient of Variation	0.424		
Skewness	0.202		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.988	Shapiro Wilk Test Statistic	0.968
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.48	95% H-UCL	0.683
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.654
95% Adjusted-CLT UCL	0.455	97.5% Chebyshev (MVUE) UCL	0.788
95% Modified-t UCL	0.481	99% Chebyshev (MVUE) UCL	1.052
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.667	**Data appear Normal at 5% Significance Level**	
Theta Star	0.128		
nu star	26.67		
Approximate Chi Square Value (.05)	15.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	0.448

54					Adjusted Chi Square Value	12.41					95% Jackknife UCL	0.48
55											95% Standard Bootstrap UCL	0.438
56					Anderson-Darling Test Statistic	0.195					95% Bootstrap-t UCL	0.517
57					Anderson-Darling 5% Critical Value	0.68					95% Hall's Bootstrap UCL	0.55
58					Kolmogorov-Smirnov Test Statistic	0.157					95% Percentile Bootstrap UCL	0.44
59					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.44
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.624
61											97.5% Chebyshev(Mean, Sd) UCL	0.746
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.986
63					95% Approximate Gamma UCL	0.573						
64					95% Adjusted Gamma UCL	0.735						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	0.48
67												
68												
69	**Calcium**											
70												
71					**General Statistics**							
72					Number of Valid Observations	5					Number of Distinct Observations	5
73												
74					**Raw Statistics**						**Log-transformed Statistics**	
75					Minimum	52.6					Minimum of Log Data	3.963
76					Maximum	63.9					Maximum of Log Data	4.157
77					Mean	56.52					Mean of log Data	4.032
78					Median	56.5					SD of log Data	0.078
79					SD	4.534						
80					Coefficient of Variation	0.0802						
81					Skewness	1.333						
82												
83												
84					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
85												
86					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
87					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
88												
89												
90					**Warning: There are only 5 Values in this data**							
91					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
92					**the resulting calculations may not be reliable enough to draw conclusions**							
93												
94					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
95												
96					**Relevant UCL Statistics**							
97					**Normal Distribution Test**						**Lognormal Distribution Test**	
98					Shapiro Wilk Test Statistic	0.854					Shapiro Wilk Test Statistic	0.866
99					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
100					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
101												
102					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
103					95% Student's-t UCL	60.84					95% H-UCL	N/A
104					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	65.11
105					95% Adjusted-CLT UCL	61.15					97.5% Chebyshev (MVUE) UCL	68.83
106					95% Modified-t UCL	61.04					99% Chebyshev (MVUE) UCL	76.13

107												
108	**Gamma Distribution Test**						**Data Distribution**					
109					k star (bias corrected)	80.87	**Data appear Normal at 5% Significance Level**					
110					Theta Star	0.699						
111					nu star	808.7						
112					Approximate Chi Square Value (.05)	743.7	**Nonparametric Statistics**					
113					Adjusted Level of Significance	0.0086					95% CLT UCL	59.86
114					Adjusted Chi Square Value	716					95% Jackknife UCL	60.84
115											95% Standard Bootstrap UCL	59.56
116					Anderson-Darling Test Statistic	0.453					95% Bootstrap-t UCL	64.37
117					Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	72.72
118					Kolmogorov-Smirnov Test Statistic	0.283					95% Percentile Bootstrap UCL	59.54
119					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	60.18
120	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	65.36
121											97.5% Chebyshev(Mean, Sd) UCL	69.18
122	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	76.69
123					95% Approximate Gamma UCL	61.46						
124					95% Adjusted Gamma UCL	63.84						
125												
126	**Potential UCL to Use**										Use 95% Student's-t UCL	60.84
127												
128												
129	**Chromium**											
130												
131	**General Statistics**											
132					Number of Valid Observations	5					Number of Distinct Observations	5
133												
134	**Raw Statistics**						**Log-transformed Statistics**					
135					Minimum	0.412					Minimum of Log Data	-0.887
136					Maximum	3.25					Maximum of Log Data	1.179
137					Mean	1.547					Mean of log Data	0.136
138					Median	1.17					SD of log Data	0.901
139					SD	1.229						
140					Coefficient of Variation	0.794						
141					Skewness	0.66						
142												
143												
144	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
145												
146	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
147	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
148												
149												
150	**Warning: There are only 5 Values in this data**											
151	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
152	**the resulting calculations may not be reliable enough to draw conclusions**											
153												
154	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
155												
156	**Relevant UCL Statistics**											
157	**Normal Distribution Test**						**Lognormal Distribution Test**					
158					Shapiro Wilk Test Statistic	0.899					Shapiro Wilk Test Statistic	0.924
159					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762

160	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
161												
162	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
163					95% Student's-t UCL	2.718					95% H-UCL	12.98
164	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	4.214
165					95% Adjusted-CLT UCL	2.624					97.5% Chebyshev (MVUE) UCL	5.362
166					95% Modified-t UCL	2.745					99% Chebyshev (MVUE) UCL	7.616
167												
168	**Gamma Distribution Test**						**Data Distribution**					
169					k star (bias corrected)	0.859	**Data appear Normal at 5% Significance Level**					
170					Theta Star	1.8						
171					nu star	8.594						
172					Approximate Chi Square Value (.05)	3.084	**Nonparametric Statistics**					
173					Adjusted Level of Significance	0.0086					95% CLT UCL	2.451
174					Adjusted Chi Square Value	1.832					95% Jackknife UCL	2.718
175											95% Standard Bootstrap UCL	2.362
176					Anderson-Darling Test Statistic	0.309					95% Bootstrap-t UCL	4.051
177					Anderson-Darling 5% Critical Value	0.685					95% Hall's Bootstrap UCL	4.224
178					Kolmogorov-Smirnov Test Statistic	0.231					95% Percentile Bootstrap UCL	2.33
179					Kolmogorov-Smirnov 5% Critical Value	0.361					95% BCA Bootstrap UCL	2.482
180	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	3.942
181											97.5% Chebyshev(Mean, Sd) UCL	4.978
182	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	7.014
183					95% Approximate Gamma UCL	4.311						
184					95% Adjusted Gamma UCL	7.258						
185												
186	**Potential UCL to Use**										Use 95% Student's-t UCL	2.718
187												
188												
189	**Cobalt**											
190												
191	**General Statistics**											
192					Number of Valid Observations	5					Number of Distinct Observations	5
193												
194	**Raw Statistics**						**Log-transformed Statistics**					
195					Minimum	0.134					Minimum of Log Data	-2.01
196					Maximum	0.403					Maximum of Log Data	-0.909
197					Mean	0.283					Mean of log Data	-1.371
198					Median	0.349					SD of log Data	0.544
199					SD	0.131						
200					Coefficient of Variation	0.464						
201					Skewness	-0.519						
202												
203												
204	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
205												
206	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
207	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
208												
209												
210	**Warning: There are only 5 Values in this data**											
211	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
212	**the resulting calculations may not be reliable enough to draw conclusions**											

213												
214	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
215												
216	**Relevant UCL Statistics**											
217	**Normal Distribution Test**						**Lognormal Distribution Test**					
218				Shapiro Wilk Test Statistic	0.802					Shapiro Wilk Test Statistic	0.78	
219				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
220	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
221												
222	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
223				95% Student's-t UCL	0.408					95% H-UCL	0.682	
224	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	0.584	
225				95% Adjusted-CLT UCL	0.365					97.5% Chebyshev (MVUE) UCL	0.714	
226				95% Modified-t UCL	0.405					99% Chebyshev (MVUE) UCL	0.968	
227												
228	**Gamma Distribution Test**						**Data Distribution**					
229				k star (bias corrected)	2.057		**Data appear Normal at 5% Significance Level**					
230				Theta Star	0.137							
231				nu star	20.57							
232				Approximate Chi Square Value (.05)	11.27		**Nonparametric Statistics**					
233				Adjusted Level of Significance	0.0086					95% CLT UCL	0.379	
234				Adjusted Chi Square Value	8.429					95% Jackknife UCL	0.408	
235										95% Standard Bootstrap UCL	0.369	
236				Anderson-Darling Test Statistic	0.67					95% Bootstrap-t UCL	0.396	
237				Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	0.327	
238				Kolmogorov-Smirnov Test Statistic	0.336					95% Percentile Bootstrap UCL	0.377	
239				Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.361	
240	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	0.538	
241										97.5% Chebyshev(Mean, Sd) UCL	0.649	
242	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	0.866	
243				95% Approximate Gamma UCL	0.516							
244				95% Adjusted Gamma UCL	0.69							
245												
246	**Potential UCL to Use**									Use 95% Student's-t UCL	0.408	
247	**Recommended UCL exceeds the maximum observation**											
248												
249												
250	**Copper**											
251												
252	**General Statistics**											
253				Number of Valid Observations	5					Number of Distinct Observations	5	
254												
255	**Raw Statistics**						**Log-transformed Statistics**					
256				Minimum	0.127					Minimum of Log Data	-2.064	
257				Maximum	0.253					Maximum of Log Data	-1.374	
258				Mean	0.189					Mean of log Data	-1.699	
259				Median	0.169					SD of log Data	0.285	
260				SD	0.0531							
261				Coefficient of Variation	0.281							
262				Skewness	0.265							
263												
264												
265	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											

266												
267	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
268	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
269												
270												
271	**Warning: There are only 5 Values in this data**											
272	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
273	**the resulting calculations may not be reliable enough to draw conclusions**											
274												
275	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
276												
277	**Relevant UCL Statistics**											
278	**Normal Distribution Test**						**Lognormal Distribution Test**					
279			Shapiro Wilk Test Statistic	0.918					Shapiro Wilk Test Statistic	0.933		
280			Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762		
281	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
282												
283	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
284			95% Student's-t UCL	0.239					95% H-UCL	0.267		
285	**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	0.293		
286			95% Adjusted-CLT UCL	0.231					97.5% Chebyshev (MVUE) UCL	0.339		
287			95% Modified-t UCL	0.24					99% Chebyshev (MVUE) UCL	0.428		
288												
289	**Gamma Distribution Test**						**Data Distribution**					
290			k star (bias corrected)	6.402			**Data appear Normal at 5% Significance Level**					
291			Theta Star	0.0295								
292			nu star	64.02								
293			Approximate Chi Square Value (.05)	46.62			**Nonparametric Statistics**					
294			Adjusted Level of Significance	0.0086					95% CLT UCL	0.228		
295			Adjusted Chi Square Value	40.2					95% Jackknife UCL	0.239		
296									95% Standard Bootstrap UCL	0.224		
297			Anderson-Darling Test Statistic	0.326					95% Bootstrap-t UCL	0.293		
298			Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.281		
299			Kolmogorov-Smirnov Test Statistic	0.237					95% Percentile Bootstrap UCL	0.224		
300			Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.225		
301	**Data appear Gamma Distributed at 5% Significance Level**								95% Chebyshev(Mean, Sd) UCL	0.292		
302									97.5% Chebyshev(Mean, Sd) UCL	0.337		
303	**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	0.425		
304			95% Approximate Gamma UCL	0.259								
305			95% Adjusted Gamma UCL	0.301								
306												
307	**Potential UCL to Use**								Use 95% Student's-t UCL	0.239		
308												
309												
310	**Iron**											
311												
312	**General Statistics**											
313			Number of Valid Observations	5					Number of Distinct Observations	5		
314												
315	**Raw Statistics**						**Log-transformed Statistics**					
316			Minimum	3.24					Minimum of Log Data	1.176		
317			Maximum	15.6					Maximum of Log Data	2.747		
318			Mean	8.204					Mean of log Data	1.941		

319					Median	6.89					SD of log Data	0.648
320					SD	5.104						
321					Coefficient of Variation	0.622						
322					Skewness	0.758						
323												
324												
325					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
326												
327					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
328					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
329												
330												
331					**Warning: There are only 5 Values in this data**							
332					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
333					**the resulting calculations may not be reliable enough to draw conclusions**							
334												
335					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
336												
337					**Relevant UCL Statistics**							
338					**Normal Distribution Test**					**Lognormal Distribution Test**		
339					Shapiro Wilk Test Statistic	0.928				Shapiro Wilk Test Statistic	0.963	
340					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	
341					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
342												
343					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
344					95% Student's-t UCL	13.07				95% H-UCL	26.4	
345					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	18.41	
346					95% Adjusted-CLT UCL	12.79				97.5% Chebyshev (MVUE) UCL	22.82	
347					95% Modified-t UCL	13.2				99% Chebyshev (MVUE) UCL	31.5	
348												
349					**Gamma Distribution Test**					**Data Distribution**		
350					k star (bias corrected)	1.422				**Data appear Normal at 5% Significance Level**		
351					Theta Star	5.771						
352					nu star	14.22						
353					Approximate Chi Square Value (.05)	6.72				**Nonparametric Statistics**		
354					Adjusted Level of Significance	0.0086				95% CLT UCL	11.96	
355					Adjusted Chi Square Value	4.646				95% Jackknife UCL	13.07	
356										95% Standard Bootstrap UCL	11.5	
357					Anderson-Darling Test Statistic	0.237				95% Bootstrap-t UCL	17.62	
358					Anderson-Darling 5% Critical Value	0.682				95% Hall's Bootstrap UCL	13.24	
359					Kolmogorov-Smirnov Test Statistic	0.204				95% Percentile Bootstrap UCL	11.6	
360					Kolmogorov-Smirnov 5% Critical Value	0.359				95% BCA Bootstrap UCL	11.6	
361					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	18.15	
362										97.5% Chebyshev(Mean, Sd) UCL	22.46	
363					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	30.92	
364					95% Approximate Gamma UCL	17.36						
365					95% Adjusted Gamma UCL	25.11						
366												
367					**Potential UCL to Use**					Use 95% Student's-t UCL	13.07	
368												
369												
370	**Magnesium**											
371												

372	**General Statistics**											
373	Number of Valid Observations				5		Number of Distinct Observations					5
374												
375	**Raw Statistics**						**Log-transformed Statistics**					
376	Minimum				225		Minimum of Log Data					5.416
377	Maximum				239		Maximum of Log Data					5.476
378	Mean				231.8		Mean of log Data					5.446
379	Median				231		SD of log Data					0.0246
380	SD				5.718							
381	Coefficient of Variation				0.0247							
382	Skewness				0.173							
383												
384												
385	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
386												
387	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
388	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
389												
390												
391	**Warning: There are only 5 Values in this data**											
392	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
393	**the resulting calculations may not be reliable enough to draw conclusions**											
394												
395	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
396												
397	**Relevant UCL Statistics**											
398	**Normal Distribution Test**						**Lognormal Distribution Test**					
399	Shapiro Wilk Test Statistic				0.965		Shapiro Wilk Test Statistic					0.966
400	Shapiro Wilk Critical Value				0.762		Shapiro Wilk Critical Value					0.762
401	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
402												
403	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
404	95% Student's-t UCL				237.3		95% H-UCL					N/A
405	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					242.9
406	95% Adjusted-CLT UCL				236.2		97.5% Chebyshev (MVUE) UCL					247.8
407	95% Modified-t UCL				237.3		99% Chebyshev (MVUE) UCL					257.2
408												
409	**Gamma Distribution Test**						**Data Distribution**					
410	k star (bias corrected)				822.9		**Data appear Normal at 5% Significance Level**					
411	Theta Star				0.282							
412	nu star				8229							
413	Approximate Chi Square Value (.05)				8019		**Nonparametric Statistics**					
414	Adjusted Level of Significance				0.0086		95% CLT UCL					236
415	Adjusted Chi Square Value				7926		95% Jackknife UCL					237.3
416							95% Standard Bootstrap UCL					235.5
417	Anderson-Darling Test Statistic				0.233		95% Bootstrap-t UCL					239.1
418	Anderson-Darling 5% Critical Value				0.678		95% Hall's Bootstrap UCL					239.7
419	Kolmogorov-Smirnov Test Statistic				0.195		95% Percentile Bootstrap UCL					235.6
420	Kolmogorov-Smirnov 5% Critical Value				0.357		95% BCA Bootstrap UCL					235.2
421	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					242.9
422							97.5% Chebyshev(Mean, Sd) UCL					247.8
423	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					257.2
424	95% Approximate Gamma UCL				237.9							

425					95% Adjusted Gamma UCL	240.6						
426												
427					**Potential UCL to Use**						Use 95% Student's-t UCL	237.3
428												
429												
430	**Manganese**											
431												
432					**General Statistics**							
433					Number of Valid Observations	5					Number of Distinct Observations	5
434												
435					**Raw Statistics**						**Log-transformed Statistics**	
436					Minimum	0.302					Minimum of Log Data	-1.197
437					Maximum	1.07					Maximum of Log Data	0.0677
438					Mean	0.521					Mean of log Data	-0.766
439					Median	0.396					SD of log Data	0.501
440					SD	0.315						
441					Coefficient of Variation	0.605						
442					Skewness	1.954						
443												
444												
445					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
446												
447					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
448					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
449												
450												
451					**Warning: There are only 5 Values in this data**							
452					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
453					**the resulting calculations may not be reliable enough to draw conclusions**							
454												
455					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
456												
457					**Relevant UCL Statistics**							
458					**Normal Distribution Test**						**Lognormal Distribution Test**	
459					Shapiro Wilk Test Statistic	0.754					Shapiro Wilk Test Statistic	0.861
460					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
461					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
462												
463					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
464					95% Student's-t UCL	0.822					95% H-UCL	1.104
465					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1.01
466					95% Adjusted-CLT UCL	0.885					97.5% Chebyshev (MVUE) UCL	1.225
467					95% Modified-t UCL	0.842					99% Chebyshev (MVUE) UCL	1.647
468												
469					**Gamma Distribution Test**						**Data Distribution**	
470					k star (bias corrected)	1.946					**Data appear Gamma Distributed at 5% Significance Level**	
471					Theta Star	0.268						
472					nu star	19.46						
473					Approximate Chi Square Value (.05)	10.45					**Nonparametric Statistics**	
474					Adjusted Level of Significance	0.0086					95% CLT UCL	0.753
475					Adjusted Chi Square Value	7.732					95% Jackknife UCL	0.822
476											95% Standard Bootstrap UCL	0.719
477					Anderson-Darling Test Statistic	0.538					95% Bootstrap-t UCL	1.988

478				Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	1.651	
479				Kolmogorov-Smirnov Test Statistic	0.279					95% Percentile Bootstrap UCL	0.771	
480				Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.81	
481				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1.136	
482										97.5% Chebyshev(Mean, Sd) UCL	1.402	
483				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1.924	
484				95% Approximate Gamma UCL	0.97							
485				95% Adjusted Gamma UCL	1.311							
486												
487				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	0.97	
488												
489												
490	**Mercury**											
491												
492				**General Statistics**								
493				Number of Valid Observations	5					Number of Distinct Observations	5	
494												
495				**Raw Statistics**						**Log-transformed Statistics**		
496				Minimum	0.0963					Minimum of Log Data	-2.34	
497				Maximum	0.322					Maximum of Log Data	-1.133	
498				Mean	0.242					Mean of log Data	-1.497	
499				Median	0.263					SD of log Data	0.491	
500				SD	0.0899							
501				Coefficient of Variation	0.371							
502				Skewness	-1.362							
503												
504												
505				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
506												
507				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
508				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
509												
510												
511				**Warning: There are only 5 Values in this data**								
512				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
513				**the resulting calculations may not be reliable enough to draw conclusions**								
514												
515				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
516												
517				**Relevant UCL Statistics**								
518				**Normal Distribution Test**						**Lognormal Distribution Test**		
519				Shapiro Wilk Test Statistic	0.885					Shapiro Wilk Test Statistic	0.792	
520				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
521				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
522												
523				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
524				95% Student's-t UCL	0.328					95% H-UCL	0.517	
525				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.48	
526				95% Adjusted-CLT UCL	0.282					97.5% Chebyshev (MVUE) UCL	0.581	
527				95% Modified-t UCL	0.324					99% Chebyshev (MVUE) UCL	0.78	
528												
529				**Gamma Distribution Test**						**Data Distribution**		
530				k star (bias corrected)	2.703					**Data appear Normal at 5% Significance Level**		

531					Theta Star	0.0897						
532					nu star	27.03						
533					Approximate Chi Square Value (.05)	16.18				**Nonparametric Statistics**		
534					Adjusted Level of Significance	0.0086				95% CLT UCL	0.309	
535					Adjusted Chi Square Value	12.66				95% Jackknife UCL	0.328	
536										95% Standard Bootstrap UCL	0.302	
537					Anderson-Darling Test Statistic	0.535				95% Bootstrap-t UCL	0.304	
538					Anderson-Darling 5% Critical Value	0.68				95% Hall's Bootstrap UCL	0.282	
539					Kolmogorov-Smirnov Test Statistic	0.283				95% Percentile Bootstrap UCL	0.298	
540					Kolmogorov-Smirnov 5% Critical Value	0.358				95% BCA Bootstrap UCL	0.288	
541					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	0.418	
542										97.5% Chebyshev(Mean, Sd) UCL	0.493	
543					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	0.642	
544					95% Approximate Gamma UCL	0.405						
545					95% Adjusted Gamma UCL	0.518						
546												
547					**Potential UCL to Use**					Use 95% Student's-t UCL	0.328	
548					**Recommended UCL exceeds the maximum observation**							
549												
550												
551	**Nickel**											
552												
553					**General Statistics**							
554					Number of Valid Observations	5				Number of Distinct Observations	5	
555												
556					**Raw Statistics**					**Log-transformed Statistics**		
557					Minimum	0.0351				Minimum of Log Data	-3.35	
558					Maximum	1.65				Maximum of Log Data	0.501	
559					Mean	0.727				Mean of log Data	-1.25	
560					Median	0.586				SD of log Data	1.865	
561					SD	0.737						
562					Coefficient of Variation	1.013						
563					Skewness	0.357						
564												
565												
566					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
567												
568					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
569					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
570												
571												
572					**Warning: There are only 5 Values in this data**							
573					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
574					**the resulting calculations may not be reliable enough to draw conclusions**							
575												
576					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
577												
578					**Relevant UCL Statistics**							
579					**Normal Distribution Test**					**Lognormal Distribution Test**		
580					Shapiro Wilk Test Statistic	0.879				Shapiro Wilk Test Statistic	0.824	
581					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	
582					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
583												

584	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
585					95% Student's-t UCL	1.429					95% H-UCL	5797
586	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	3.747
587					95% Adjusted-CLT UCL	1.325					97.5% Chebyshev (MVUE) UCL	4.97
588					95% Modified-t UCL	1.438					99% Chebyshev (MVUE) UCL	7.374
589												
590	**Gamma Distribution Test**						**Data Distribution**					
591					k star (bias corrected)	0.395	**Data appear Normal at 5% Significance Level**					
592					Theta Star	1.838						
593					nu star	3.954						
594					Approximate Chi Square Value (.05)	0.704	**Nonparametric Statistics**					
595					Adjusted Level of Significance	0.0086					95% CLT UCL	1.269
596					Adjusted Chi Square Value	0.288					95% Jackknife UCL	1.429
597											95% Standard Bootstrap UCL	1.221
598					Anderson-Darling Test Statistic	0.469					95% Bootstrap-t UCL	1.879
599					Anderson-Darling 5% Critical Value	0.703					95% Hall's Bootstrap UCL	1.687
600					Kolmogorov-Smirnov Test Statistic	0.27					95% Percentile Bootstrap UCL	1.224
601					Kolmogorov-Smirnov 5% Critical Value	0.369					95% BCA Bootstrap UCL	1.239
602	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	2.163
603											97.5% Chebyshev(Mean, Sd) UCL	2.784
604	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	4.004
605					95% Approximate Gamma UCL	4.084						
606					95% Adjusted Gamma UCL	9.97						
607												
608	**Potential UCL to Use**										Use 95% Student's-t UCL	1.429
609												
610												
611	**Potassium**											
612												
613	**General Statistics**											
614					Number of Valid Observations	5					Number of Distinct Observations	5
615												
616	**Raw Statistics**						**Log-transformed Statistics**					
617					Minimum	3530					Minimum of Log Data	8.169
618					Maximum	4180					Maximum of Log Data	8.338
619					Mean	3980					Mean of log Data	8.287
620					Median	4080					SD of log Data	0.0682
621					SD	260.9						
622					Coefficient of Variation	0.0655						
623					Skewness	-1.863						
624												
625												
626	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
627												
628	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
629	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
630												
631												
632	**Warning: There are only 5 Values in this data**											
633	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
634	**the resulting calculations may not be reliable enough to draw conclusions**											
635												
636	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

637												
638	**Relevant UCL Statistics**											
639	**Normal Distribution Test**						**Lognormal Distribution Test**					
640					Shapiro Wilk Test Statistic	0.789					Shapiro Wilk Test Statistic	0.775
641					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
642	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
643												
644	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
645					95% Student's-t UCL	4229					95% H-UCL	N/A
646	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	4509
647					95% Adjusted-CLT UCL	4068					97.5% Chebyshev (MVUE) UCL	4738
648					95% Modified-t UCL	4213					99% Chebyshev (MVUE) UCL	5188
649												
650	**Gamma Distribution Test**						**Data Distribution**					
651					k star (bias corrected)	110.6	**Data appear Normal at 5% Significance Level**					
652					Theta Star	35.99						
653					nu star	1106						
654					Approximate Chi Square Value (.05)	1030	**Nonparametric Statistics**					
655					Adjusted Level of Significance	0.0086					95% CLT UCL	4172
656					Adjusted Chi Square Value	997					95% Jackknife UCL	4229
657											95% Standard Bootstrap UCL	4146
658					Anderson-Darling Test Statistic	0.657					95% Bootstrap-t UCL	4135
659					Anderson-Darling 5% Critical Value	0.678					95% Hall's Bootstrap UCL	4087
660					Kolmogorov-Smirnov Test Statistic	0.325					95% Percentile Bootstrap UCL	4128
661					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	4106
662	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	4489
663											97.5% Chebyshev(Mean, Sd) UCL	4709
664	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	5141
665					95% Approximate Gamma UCL	4275						
666					95% Adjusted Gamma UCL	4415						
667												
668	**Potential UCL to Use**										Use 95% Student's-t UCL	4229
669	**Recommended UCL exceeds the maximum observation**											
670												
671												
672	**Selenium**											
673												
674	**General Statistics**											
675					Number of Valid Observations	5					Number of Distinct Observations	5
676												
677	**Raw Statistics**						**Log-transformed Statistics**					
678					Minimum	0.31					Minimum of Log Data	-1.171
679					Maximum	0.532					Maximum of Log Data	-0.631
680					Mean	0.422					Mean of log Data	-0.89
681					Median	0.464					SD of log Data	0.259
682					SD	0.104						
683					Coefficient of Variation	0.246						
684					Skewness	-0.359						
685												
686												
687	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
688												
689	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											

690	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
691												
692												
693	Warning: There are only 5 Values in this data											
694	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
695	the resulting calculations may not be reliable enough to draw conclusions											
696												
697	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
698												
699	Relevant UCL Statistics											
700	Normal Distribution Test						Lognormal Distribution Test					
701					Shapiro Wilk Test Statistic	0.841					Shapiro Wilk Test Statistic	0.818
702					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
703	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
704												
705	Assuming Normal Distribution						Assuming Lognormal Distribution					
706					95% Student's-t UCL	0.521					95% H-UCL	0.573
707	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	0.634
708					95% Adjusted-CLT UCL	0.49					97.5% Chebyshev (MVUE) UCL	0.726
709					95% Modified-t UCL	0.519					99% Chebyshev (MVUE) UCL	0.906
710												
711	Gamma Distribution Test						Data Distribution					
712					k star (bias corrected)	7.905	Data appear Normal at 5% Significance Level					
713					Theta Star	0.0533						
714					nu star	79.05						
715					Approximate Chi Square Value (.05)	59.57	Nonparametric Statistics					
716					Adjusted Level of Significance	0.0086					95% CLT UCL	0.498
717					Adjusted Chi Square Value	52.23					95% Jackknife UCL	0.521
718											95% Standard Bootstrap UCL	0.49
719					Anderson-Darling Test Statistic	0.567					95% Bootstrap-t UCL	0.519
720					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	0.461
721					Kolmogorov-Smirnov Test Statistic	0.293					95% Percentile Bootstrap UCL	0.491
722					Kolmogorov-Smirnov 5% Critical Value	0.357					95% BCA Bootstrap UCL	0.488
723	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	0.624
724											97.5% Chebyshev(Mean, Sd) UCL	0.712
725	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	0.884
726					95% Approximate Gamma UCL	0.56						
727					95% Adjusted Gamma UCL	0.638						
728												
729	Potential UCL to Use										Use 95% Student's-t UCL	0.521
730												
731												
732	Sodium											
733												
734	General Statistics											
735					Number of Valid Observations	5					Number of Distinct Observations	5
736												
737	Raw Statistics						Log-transformed Statistics					
738					Minimum	365					Minimum of Log Data	5.9
739					Maximum	475					Maximum of Log Data	6.163
740					Mean	399.6					Mean of log Data	5.986
741					Median	384					SD of log Data	0.106
742					SD	44.6						

743					Coefficient of Variation	0.112						
744					Skewness	1.692						
745												
746												
747	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
748												
749	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
750	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
751												
752												
753	**Warning: There are only 5 Values in this data**											
754	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
755	**the resulting calculations may not be reliable enough to draw conclusions**											
756												
757	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
758												
759	**Relevant UCL Statistics**											
760	**Normal Distribution Test**						**Lognormal Distribution Test**					
761	Shapiro Wilk Test Statistic					0.821	Shapiro Wilk Test Statistic					0.843
762	Shapiro Wilk Critical Value					0.762	Shapiro Wilk Critical Value					0.762
763	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
764												
765	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
766	95% Student's-t UCL					442.1	95% H-UCL					445.9
767	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					482.2
768	95% Adjusted-CLT UCL					448.5	97.5% Chebyshev (MVUE) UCL					518
769	95% Modified-t UCL					444.6	99% Chebyshev (MVUE) UCL					588.3
770												
771	**Gamma Distribution Test**						**Data Distribution**					
772	k star (bias corrected)					43.07	**Data appear Normal at 5% Significance Level**					
773	Theta Star					9.278						
774	nu star					430.7						
775	Approximate Chi Square Value (.05)					383.6	**Nonparametric Statistics**					
776	Adjusted Level of Significance					0.0086	95% CLT UCL					432.4
777	Adjusted Chi Square Value					363.9	95% Jackknife UCL					442.1
778							95% Standard Bootstrap UCL					428.9
779	Anderson-Darling Test Statistic					0.502	95% Bootstrap-t UCL					527.6
780	Anderson-Darling 5% Critical Value					0.678	95% Hall's Bootstrap UCL					573.8
781	Kolmogorov-Smirnov Test Statistic					0.252	95% Percentile Bootstrap UCL					432.2
782	Kolmogorov-Smirnov 5% Critical Value					0.357	95% BCA Bootstrap UCL					438.6
783	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					486.5
784							97.5% Chebyshev(Mean, Sd) UCL					524.1
785	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					598
786	95% Approximate Gamma UCL					448.7						
787	95% Adjusted Gamma UCL					472.9						
788												
789	**Potential UCL to Use**						Use 95% Student's-t UCL					442.1
790												
791												
792	**Total Aroclors**											
793												
794	**General Statistics**											
795	Number of Valid Observations					5	Number of Distinct Observations					5

Raw Statistics		
Minimum	43	
Maximum	430	
Mean	132.5	
Median	51.5	
SD	167.3	
Coefficient of Variation	1.263	
Skewness	2.169	

Log-transformed Statistics	
Minimum of Log Data	3.761
Maximum of Log Data	6.064
Mean of log Data	4.428
SD of log Data	0.958

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.638	Shapiro Wilk Test Statistic	0.77
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	292	95% H-UCL	1274
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	331.4
95% Adjusted-CLT UCL	333.2	97.5% Chebyshev (MVUE) UCL	423.6
95% Modified-t UCL	304.2	99% Chebyshev (MVUE) UCL	604.6
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.625	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	212		
nu star	6.25		
Approximate Chi Square Value (.05)	1.769	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	255.6
Adjusted Chi Square Value	0.919	95% Jackknife UCL	292
		95% Standard Bootstrap UCL	242
Anderson-Darling Test Statistic	0.811	95% Bootstrap-t UCL	3998
Anderson-Darling 5% Critical Value	0.689	95% Hall's Bootstrap UCL	2355
Kolmogorov-Smirnov Test Statistic	0.336	95% Percentile Bootstrap UCL	276.2
Kolmogorov-Smirnov 5% Critical Value	0.363	95% BCA Bootstrap UCL	285.6
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	458.7
		97.5% Chebyshev(Mean, Sd) UCL	599.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	877.2
95% Approximate Gamma UCL	468.2		
95% Adjusted Gamma UCL	901.1		

849	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		468.2
850	**Recommended UCL exceeds the maximum observation**											
851												
852												
853	**Total DDE**											
854												
855	**General Statistics**											
856	Number of Valid Observations					5				Number of Distinct Observations		4
857												
858	**Raw Statistics**									**Log-transformed Statistics**		
859	Minimum					27.5				Minimum of Log Data		3.314
860	Maximum					94				Maximum of Log Data		4.543
861	Mean					50.3				Mean of log Data		3.811
862	Median					51				SD of log Data		0.51
863	SD					27.05						
864	Coefficient of Variation					0.538						
865	Skewness					1.273						
866												
867												
868	**Warning: There are only 4 Distinct Values in this data**											
869	**There are insufficient Distinct Values to perform some GOF tests and bootstrap methods.**											
870	**Those methods will return a 'N/A' value on your output display!**											
871												
872	**It is necessary to have 4 or more Distinct Values to compute bootstrap methods.**											
873	**It is recommended to have 10-15 or more observations for accurate and meaningful bootstrap results.**											
874												
875												
876	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
877												
878	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
879	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
880												
881	**Relevant UCL Statistics**											
882	**Normal Distribution Test**									**Lognormal Distribution Test**		
883	Shapiro Wilk Test Statistic					0.845				Shapiro Wilk Test Statistic		0.888
884	Shapiro Wilk Critical Value					0.762				Shapiro Wilk Critical Value		0.762
885	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
886												
887	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
888	95% Student's-t UCL					76.09				95% H-UCL		110.1
889	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		99.37
890	95% Adjusted-CLT UCL					77.56				97.5% Chebyshev (MVUE) UCL		120.7
891	95% Modified-t UCL					77.24				99% Chebyshev (MVUE) UCL		162.6
892												
893	**Gamma Distribution Test**									**Data Distribution**		
894	k star (bias corrected)					2.061				**Data appear Normal at 5% Significance Level**		
895	Theta Star					24.41						
896	nu star					20.61						
897	Approximate Chi Square Value (.05)					11.3				**Nonparametric Statistics**		
898	Adjusted Level of Significance					0.0086				95% CLT UCL		70.2
899	Adjusted Chi Square Value					8.451				95% Jackknife UCL		76.09
900										95% Standard Bootstrap UCL		68
901	Anderson-Darling Test Statistic					0.42				95% Bootstrap-t UCL		96.86

902				Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	143	
903				Kolmogorov-Smirnov Test Statistic	0.244					95% Percentile Bootstrap UCL	68.2	
904				Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	72.1	
905				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	103	
906										97.5% Chebyshev(Mean, Sd) UCL	125.9	
907				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	170.7	
908				95% Approximate Gamma UCL	91.73							
909				95% Adjusted Gamma UCL	122.7							
910												
911				**Potential UCL to Use**						Use 95% Student's-t UCL	76.09	
912												
913												
914	**Total DDT**											
915												
916				**General Statistics**								
917				Number of Valid Observations	5					Number of Distinct Observations	5	
918												
919				**Raw Statistics**						**Log-transformed Statistics**		
920				Minimum	10					Minimum of Log Data	2.303	
921				Maximum	74					Maximum of Log Data	4.304	
922				Mean	27.4					Mean of log Data	2.998	
923				Median	13					SD of log Data	0.829	
924				SD	27.01							
925				Coefficient of Variation	0.986							
926				Skewness	1.887							
927												
928												
929				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
930												
931				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
932				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
933												
934												
935				**Warning: There are only 5 Values in this data**								
936				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
937				**the resulting calculations may not be reliable enough to draw conclusions**								
938												
939				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
940												
941				**Relevant UCL Statistics**								
942				**Normal Distribution Test**						**Lognormal Distribution Test**		
943				Shapiro Wilk Test Statistic	0.737					Shapiro Wilk Test Statistic	0.856	
944				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
945				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
946												
947				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
948				95% Student's-t UCL	53.16					95% H-UCL	160.2	
949				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	67.11	
950				95% Adjusted-CLT UCL	58.17					97.5% Chebyshev (MVUE) UCL	84.86	
951				95% Modified-t UCL	54.85					99% Chebyshev (MVUE) UCL	119.7	
952												
953				**Gamma Distribution Test**						**Data Distribution**		
954				k star (bias corrected)	0.832					**Data appear Gamma Distributed at 5% Significance Level**		

955					Theta Star	32.93						
956					nu star	8.32						
957					Approximate Chi Square Value (.05)	2.922				**Nonparametric Statistics**		
958					Adjusted Level of Significance	0.0086					95% CLT UCL	47.27
959					Adjusted Chi Square Value	1.714					95% Jackknife UCL	53.16
960											95% Standard Bootstrap UCL	45.58
961					Anderson-Darling Test Statistic	0.561					95% Bootstrap-t UCL	342.3
962					Anderson-Darling 5% Critical Value	0.685					95% Hall's Bootstrap UCL	226.6
963					Kolmogorov-Smirnov Test Statistic	0.329					95% Percentile Bootstrap UCL	48.8
964					Kolmogorov-Smirnov 5% Critical Value	0.361					95% BCA Bootstrap UCL	52.4
965					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	80.06
966											97.5% Chebyshev(Mean, Sd) UCL	102.8
967					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	147.6
968					95% Approximate Gamma UCL	78.03						
969					95% Adjusted Gamma UCL	133						
970												
971					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	78.03
972					**Recommended UCL exceeds the maximum observation**							
973												
974												
975	**Total Dioxin/Furan TEQ**											
976												
977					**General Statistics**							
978					Number of Valid Observations	5					Number of Distinct Observations	5
979												
980					**Raw Statistics**						**Log-transformed Statistics**	
981					Minimum	0.175					Minimum of Log Data	-1.74
982					Maximum	1.334					Maximum of Log Data	0.288
983					Mean	0.578					Mean of log Data	-0.778
984					Median	0.521					SD of log Data	0.759
985					SD	0.451						
986					Coefficient of Variation	0.781						
987					Skewness	1.562						
988												
989												
990					**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**							
991												
992					**It is suggested to collect at least 8 to 10 observations using these statistical methods!**							
993					**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
994												
995												
996					**Warning: There are only 5 Values in this data**							
997					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
998					**the resulting calculations may not be reliable enough to draw conclusions**							
999												
1000					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
1001												
1002					**Relevant UCL Statistics**							
1003					**Normal Distribution Test**						**Lognormal Distribution Test**	
1004					Shapiro Wilk Test Statistic	0.852					Shapiro Wilk Test Statistic	0.977
1005					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
1006					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1007												

1008	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1009					95% Student's-t UCL	1.008					95% H-UCL	2.684
1010	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	1.403
1011					95% Adjusted-CLT UCL	1.061					97.5% Chebyshev (MVUE) UCL	1.761
1012					95% Modified-t UCL	1.032					99% Chebyshev (MVUE) UCL	2.466
1013												
1014	**Gamma Distribution Test**						**Data Distribution**					
1015					k star (bias corrected)	1.064	**Data appear Normal at 5% Significance Level**					
1016					Theta Star	0.543						
1017					nu star	10.64						
1018					Approximate Chi Square Value (.05)	4.348	**Nonparametric Statistics**					
1019					Adjusted Level of Significance	0.0086					95% CLT UCL	0.91
1020					Adjusted Chi Square Value	2.776					95% Jackknife UCL	1.008
1021											95% Standard Bootstrap UCL	0.879
1022					Anderson-Darling Test Statistic	0.268					95% Bootstrap-t UCL	1.389
1023					Anderson-Darling 5% Critical Value	0.684					95% Hall's Bootstrap UCL	2.355
1024					Kolmogorov-Smirnov Test Statistic	0.23					95% Percentile Bootstrap UCL	0.92
1025					Kolmogorov-Smirnov 5% Critical Value	0.36					95% BCA Bootstrap UCL	0.972
1026	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	1.458
1027											97.5% Chebyshev(Mean, Sd) UCL	1.838
1028	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	2.586
1029					95% Approximate Gamma UCL	1.415						
1030					95% Adjusted Gamma UCL	2.216						
1031												
1032	**Potential UCL to Use**										Use 95% Student's-t UCL	1.008
1033												
1034												
1035	**Total Dioxin-like PCBs**											
1036												
1037	**General Statistics**											
1038					Number of Valid Observations	5					Number of Distinct Observations	5
1039												
1040	**Raw Statistics**						**Log-transformed Statistics**					
1041					Minimum	3114					Minimum of Log Data	8.044
1042					Maximum	14213					Maximum of Log Data	9.562
1043					Mean	6426					Mean of log Data	8.579
1044					Median	4034					SD of log Data	0.66
1045					SD	4736						
1046					Coefficient of Variation	0.737						
1047					Skewness	1.521						
1048												
1049												
1050	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1051												
1052	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1053	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1054												
1055												
1056	**Warning: There are only 5 Values in this data**											
1057	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1058	**the resulting calculations may not be reliable enough to draw conclusions**											
1059												
1060	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											

	A	B	C	D	E	F	G	H	I	J	K	L
1061												
1062	**Relevant UCL Statistics**											
1063	**Normal Distribution Test**						**Lognormal Distribution Test**					
1064					Shapiro Wilk Test Statistic	0.799				Shapiro Wilk Test Statistic	0.86	
1065					Shapiro Wilk Critical Value	0.762				Shapiro Wilk Critical Value	0.762	
1066	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1067												
1068	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1069					95% Student's-t UCL	10942				95% H-UCL	21082	
1070	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL	14287	
1071					95% Adjusted-CLT UCL	11450				97.5% Chebyshev (MVUE) UCL	17741	
1072					95% Modified-t UCL	11182				99% Chebyshev (MVUE) UCL	24525	
1073												
1074	**Gamma Distribution Test**						**Data Distribution**					
1075					k star (bias corrected)	1.255	**Data appear Normal at 5% Significance Level**					
1076					Theta Star	5121						
1077					nu star	12.55						
1078					Approximate Chi Square Value (.05)	5.591	**Nonparametric Statistics**					
1079					Adjusted Level of Significance	0.0086				95% CLT UCL	9910	
1080					Adjusted Chi Square Value	3.744				95% Jackknife UCL	10942	
1081										95% Standard Bootstrap UCL	9576	
1082					Anderson-Darling Test Statistic	0.487				95% Bootstrap-t UCL	34253	
1083					Anderson-Darling 5% Critical Value	0.683				95% Hall's Bootstrap UCL	41175	
1084					Kolmogorov-Smirnov Test Statistic	0.297				95% Percentile Bootstrap UCL	9775	
1085					Kolmogorov-Smirnov 5% Critical Value	0.36				95% BCA Bootstrap UCL	10682	
1086	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL	15659	
1087										97.5% Chebyshev(Mean, Sd) UCL	19654	
1088	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL	27501	
1089					95% Approximate Gamma UCL	14424						
1090					95% Adjusted Gamma UCL	21544						
1091												
1092	**Potential UCL to Use**									Use 95% Student's-t UCL	10942	
1093												
1094												
1095	**Total PCB TEQ**											
1096												
1097	**General Statistics**											
1098					Number of Valid Observations	5				Number of Distinct Observations	5	
1099												
1100	**Raw Statistics**						**Log-transformed Statistics**					
1101					Minimum	0.224				Minimum of Log Data	-1.495	
1102					Maximum	0.874				Maximum of Log Data	-0.135	
1103					Mean	0.522				Mean of log Data	-0.755	
1104					Median	0.559				SD of log Data	0.533	
1105					SD	0.252						
1106					Coefficient of Variation	0.483						
1107					Skewness	0.31						
1108												
1109												
1110	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1111												
1112	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1113	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											

1114												
1115												
1116	**Warning: There are only 5 Values in this data**											
1117	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1118	**the resulting calculations may not be reliable enough to draw conclusions**											
1119												
1120	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1121												
1122	**Relevant UCL Statistics**											
1123	**Normal Distribution Test**						**Lognormal Distribution Test**					
1124			Shapiro Wilk Test Statistic	0.971					Shapiro Wilk Test Statistic	0.963		
1125			Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762		
1126	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1127												
1128	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1129			95% Student's-t UCL	0.763					95% H-UCL	1.221		
1130	**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	1.065		
1131			95% Adjusted-CLT UCL	0.725					97.5% Chebyshev (MVUE) UCL	1.299		
1132			95% Modified-t UCL	0.765					99% Chebyshev (MVUE) UCL	1.758		
1133												
1134	**Gamma Distribution Test**						**Data Distribution**					
1135			k star (bias corrected)	2.091			**Data appear Normal at 5% Significance Level**					
1136			Theta Star	0.25								
1137			nu star	20.91								
1138			Approximate Chi Square Value (.05)	11.53			**Nonparametric Statistics**					
1139			Adjusted Level of Significance	0.0086					95% CLT UCL	0.708		
1140			Adjusted Chi Square Value	8.643					95% Jackknife UCL	0.763		
1141									95% Standard Bootstrap UCL	0.691		
1142			Anderson-Darling Test Statistic	0.227					95% Bootstrap-t UCL	0.798		
1143			Anderson-Darling 5% Critical Value	0.681					95% Hall's Bootstrap UCL	0.702		
1144			Kolmogorov-Smirnov Test Statistic	0.218					95% Percentile Bootstrap UCL	0.696		
1145			Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	0.704		
1146	**Data appear Gamma Distributed at 5% Significance Level**								95% Chebyshev(Mean, Sd) UCL	1.014		
1147									97.5% Chebyshev(Mean, Sd) UCL	1.227		
1148	**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	1.645		
1149			95% Approximate Gamma UCL	0.948								
1150			95% Adjusted Gamma UCL	1.264								
1151												
1152	**Potential UCL to Use**								Use 95% Student's-t UCL	0.763		
1153												
1154												
1155	**Total PCB_Congeners**											
1156												
1157	**General Statistics**											
1158			Number of Valid Observations	5					Number of Distinct Observations	5		
1159												
1160	**Raw Statistics**						**Log-transformed Statistics**					
1161			Minimum	84718					Minimum of Log Data	11.35		
1162			Maximum	963629					Maximum of Log Data	13.78		
1163			Mean	288619					Mean of log Data	12.05		
1164			Median	96334					SD of log Data	1.028		
1165			SD	380643								
1166			Coefficient of Variation	1.319								

	Skewness	2.144

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.645	Shapiro Wilk Test Statistic	0.775
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	651520	95% H-UCL	3861107
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	744758
95% Adjusted-CLT UCL	743055	97.5% Chebyshev (MVUE) UCL	956505
95% Modified-t UCL	678729	99% Chebyshev (MVUE) UCL	1372443
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.573	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	503324		
nu star	5.734		
Approximate Chi Square Value (.05)	1.506	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	568620
Adjusted Chi Square Value	0.75	95% Jackknife UCL	651520
		95% Standard Bootstrap UCL	534507
Anderson-Darling Test Statistic	0.784	95% Bootstrap-t UCL	14992291
Anderson-Darling 5% Critical Value	0.69	95% Hall's Bootstrap UCL	8109890
Kolmogorov-Smirnov Test Statistic	0.337	95% Percentile Bootstrap UCL	509172
Kolmogorov-Smirnov 5% Critical Value	0.364	95% BCA Bootstrap UCL	638684
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1030628
		97.5% Chebyshev(Mean, Sd) UCL	1351696
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1982372
95% Approximate Gamma UCL	1099239		
95% Adjusted Gamma UCL	2206098		
Potential UCL to Use		Use 95% Approximate Gamma UCL	1099239

Recommended UCL exceeds the maximum observation

Zinc

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		
Minimum	2.08	
Maximum	2.93	
Mean	2.558	
Median	2.55	
SD	0.314	
Coefficient of Variation	0.123	
Skewness	-0.718	

Log-transformed Statistics	
Minimum of Log Data	0.732
Maximum of Log Data	1.075
Mean of log Data	0.933
SD of log Data	0.128

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.937
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.858	95% H-UCL	2.926
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.195
95% Adjusted-CLT UCL	2.741	97.5% Chebyshev (MVUE) UCL	3.47
95% Modified-t UCL	2.85	99% Chebyshev (MVUE) UCL	4.011
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	31.7	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0807		
nu star	317		
Approximate Chi Square Value (.05)	276.7	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	2.789
Adjusted Chi Square Value	260.1	95% Jackknife UCL	2.858
		95% Standard Bootstrap UCL	2.765
Anderson-Darling Test Statistic	0.288	95% Bootstrap-t UCL	2.818
Anderson-Darling 5% Critical Value	0.678	95% Hall's Bootstrap UCL	2.791
Kolmogorov-Smirnov Test Statistic	0.248	95% Percentile Bootstrap UCL	2.762
Kolmogorov-Smirnov 5% Critical Value	0.357	95% BCA Bootstrap UCL	2.736
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.171
		97.5% Chebyshev(Mean, Sd) UCL	3.436
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3.957
95% Approximate Gamma UCL	2.93		
95% Adjusted Gamma UCL	3.117		

1273	**Potential UCL to Use**									Use 95% Student's-t UCL		2.858
1274												
1275												
1276	**Total PCBs, Adjusted**											
1277												
1278	**General Statistics**											
1279	Number of Valid Observations					5				Number of Distinct Observations		5
1280												
1281	**Raw Statistics**							**Log-transformed Statistics**				
1282	Minimum					81604		Minimum of Log Data				11.31
1283	Maximum					949416		Maximum of Log Data				13.76
1284	Mean					282193		Mean of log Data				12.02
1285	Median					93210		SD of log Data				1.038
1286	SD					376090						
1287	Coefficient of Variation					1.333						
1288	Skewness					2.149						
1289												
1290												
1291	**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**											
1292												
1293	**It is suggested to collect at least 8 to 10 observations using these statistical methods!**											
1294	**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**											
1295												
1296												
1297	**Warning: There are only 5 Values in this data**											
1298	**Note: It should be noted that even though bootstrap methods may be performed on this data set,**											
1299	**the resulting calculations may not be reliable enough to draw conclusions**											
1300												
1301	**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**											
1302												
1303	**Relevant UCL Statistics**											
1304	**Normal Distribution Test**							**Lognormal Distribution Test**				
1305	Shapiro Wilk Test Statistic					0.643		Shapiro Wilk Test Statistic				0.774
1306	Shapiro Wilk Critical Value					0.762		Shapiro Wilk Critical Value				0.762
1307	**Data not Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**				
1308												
1309	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**				
1310	95% Student's-t UCL					640753		95% H-UCL				3954927
1311	**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL				729551
1312	95% Adjusted-CLT UCL					731544		97.5% Chebyshev (MVUE) UCL				937588
1313	95% Modified-t UCL					667691		99% Chebyshev (MVUE) UCL				1346237
1314												
1315	**Gamma Distribution Test**							**Data Distribution**				
1316	k star (bias corrected)					0.565		**Data Follow Appr. Gamma Distribution at 5% Significance Level**				
1317	Theta Star					499307						
1318	nu star					5.652						
1319	Approximate Chi Square Value (.05)					1.465		**Nonparametric Statistics**				
1320	Adjusted Level of Significance					0.0086		95% CLT UCL				558845
1321	Adjusted Chi Square Value					0.724		95% Jackknife UCL				640753
1322								95% Standard Bootstrap UCL				523119
1323	Anderson-Darling Test Statistic					0.787		95% Bootstrap-t UCL				14290572
1324	Anderson-Darling 5% Critical Value					0.691		95% Hall's Bootstrap UCL				8831484
1325	Kolmogorov-Smirnov Test Statistic					0.335		95% Percentile Bootstrap UCL				604613

1326				Kolmogorov-Smirnov 5% Critical Value	0.364					95% BCA Bootstrap UCL	626996	
1327				**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1015326	
1328										97.5% Chebyshev(Mean, Sd) UCL	1332554	
1329				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1955686	
1330				95% Approximate Gamma UCL	1088994							
1331				95% Adjusted Gamma UCL	2201514							
1332												
1333				**Potential UCL to Use**						Use 95% Approximate Gamma UCL	1088994	
1334				**Recommended UCL exceeds the maximum observation**								
1335												
1336												
1337	**Total TEQ**											
1338												
1339				**General Statistics**								
1340				Number of Valid Observations	5					Number of Distinct Observations	5	
1341												
1342				**Raw Statistics**						**Log-transformed Statistics**		
1343				Minimum	0.64					Minimum of Log Data	-0.446	
1344				Maximum	1.558					Maximum of Log Data	0.443	
1345				Mean	1.1					Mean of log Data	0.0394	
1346				Median	1.079					SD of log Data	0.381	
1347				SD	0.397							
1348				Coefficient of Variation	0.361							
1349				Skewness	0.0391							
1350												
1351												
1352				**Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!**								
1353												
1354				**It is suggested to collect at least 8 to 10 observations using these statistical methods!**								
1355				**If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**								
1356												
1357												
1358				**Warning: There are only 5 Values in this data**								
1359				**Note: It should be noted that even though bootstrap methods may be performed on this data set,**								
1360				**the resulting calculations may not be reliable enough to draw conclusions**								
1361												
1362				**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**								
1363												
1364				**Relevant UCL Statistics**								
1365				**Normal Distribution Test**						**Lognormal Distribution Test**		
1366				Shapiro Wilk Test Statistic	0.93					Shapiro Wilk Test Statistic	0.932	
1367				Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762	
1368				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1369												
1370				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1371				95% Student's-t UCL	1.479					95% H-UCL	1.835	
1372				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	1.916	
1373				95% Adjusted-CLT UCL	1.396					97.5% Chebyshev (MVUE) UCL	2.268	
1374				95% Modified-t UCL	1.479					99% Chebyshev (MVUE) UCL	2.96	
1375												
1376				**Gamma Distribution Test**						**Data Distribution**		
1377				k star (bias corrected)	3.767					**Data appear Normal at 5% Significance Level**		
1378				Theta Star	0.292							

1379					nu star	37.67						
1380					Approximate Chi Square Value (.05)	24.62				**Nonparametric Statistics**		
1381					Adjusted Level of Significance	0.0086					95% CLT UCL	1.392
1382					Adjusted Chi Square Value	20.13					95% Jackknife UCL	1.479
1383											95% Standard Bootstrap UCL	1.359
1384					Anderson-Darling Test Statistic	0.29					95% Bootstrap-t UCL	1.57
1385					Anderson-Darling 5% Critical Value	0.679					95% Hall's Bootstrap UCL	1.463
1386					Kolmogorov-Smirnov Test Statistic	0.228					95% Percentile Bootstrap UCL	1.355
1387					Kolmogorov-Smirnov 5% Critical Value	0.358					95% BCA Bootstrap UCL	1.355
1388	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	1.874
1389											97.5% Chebyshev(Mean, Sd) UCL	2.209
1390	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	2.867
1391					95% Approximate Gamma UCL	1.684						
1392					95% Adjusted Gamma UCL	2.059						
1393												
1394	**Potential UCL to Use**										Use 95% Student's-t UCL	1.479
1395												

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PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

ATTACHMENT F5: SUPPORTING DOCUMENTATION FOR THE CALCULATION OF BLOOD LEAD CONCENTRATIONS FOR RELEVANT BHHRA SCENARIOS

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table F5-1.
Calculations of Blood Lead Concentrations (PbBs)
BHHRA In-Water Sediment Reasonable Maximum Exposure Scenarios
U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 05/19/05

		BHHRA Receptor:	In-Water Worker	Low Frequency Fisher	High Frequency Fisher	Tribal Fisher	Diver in Wet Suit	Diver in Dry Suit
			Region OR Ethnic GSDi and PbBo Data from NHANES III Analysis					
Exposure Variable	**Description of Exposure Variable**	**Units**	**West/All**	**West/All**	**West/All**	**West/All**	**West/All**	**West/All**
PbS	Soil lead concentration	ug/g or ppm	2200	2200	2200	2200	2200	2200
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.1	2.1	2.1	1.8	2.1	2.1
PbB_0	Baseline PbB	ug/dL	1.4	1.4	1.4	1.4	1.4	1.4
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.200	0.050	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	10	26	39	65	5	5
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**2.0**	**1.8**	**2.0**	**2.3**	**1.5**	**1.5**
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	6.1	5.5	6.0	5.5	4.5	4.5
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	10.0	10.0	10.0	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**1.0%**	**0.7%**	**1.0%**	**0.4%**	**0.3%**	**0.3%**

Notes:
Shaded cells indicate site-specific values.
Maximum soil lead concentration (2,200 mg/kg) is the maximum exposure point concentration for lead within the Study Area.

Source: U.S. EPA (2003c). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table F5-2.
Calculations of Blood Lead Concentrations (PbBs)
BHHRA In-Water Sediment Central Tendency Exposure Scenarios
U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 05/19/05

		BHHRA Receptor:	**In-Water Worker**	**Low Frequency Fisher**	**High Frequency Fisher**	**Tribal Fisher**	**Diver in Wet Suit**
Exposure Variable	**Description of Exposure Variable**	**Units**	**Region OR Ethnic GSDi and PbBo Data from NHANES III Analysis**				
			West/All	**West/All**	**West/All**	**West/All**	**West/All**
PbS	Soil lead concentration	ug/g or ppm	2200	2200	2200	2200	2200
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.1	2.1	2.1	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.4	1.4	1.4	1.4	1.4
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.025	0.025	0.025	0.025
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	10	6.5	13	26	2
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.5**	**1.4**	**1.5**	**1.6**	**1.4**
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	4.7	4.4	4.6	3.8	4.3
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	10.0	10.0	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.4%**	**0.3%**	**0.3%**	**0.0%**	**0.3%**

Notes:
Shaded cells indicate site-specific values.
Maximum soil lead concentration (2,200 mg/kg) is the maximum exposure point concentration for lead within the Study Area.

Source: U.S. EPA (2003c). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table F5-3. Calculation of Protective Lead Fish Tissue Concentrations for Fetuses of Adult Fishers Using ALM Approach

ALM Parameter	Description	Units	Adult Fisher	Tribal Fisher
GSD	Geometric standard deviation PbB	--	2.1	2.1
PbBa	Central tendency of adult blood lead level	ug/dL	3.29	3.29
PbBo	Adult baseline blood lead level	ug/dL	1.4	1.4
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
IR F	Tissue ingestion rate	g/day	7.5	39.2
AF F	Absolute gastrointestinal ingestion factor for ingested lead in tissue	--	0.12	0.12
EF F	Exposure frequency of fish ingestion	days/yr	365	365
AT	Averaging time	days/yr	365	365
PbBf	Fetal blood lead level	ug/dL	2.96	2.96
z	z-value	--	1.64	1.64
p'	probability of exceeding blood lead level of 10 ug/dl, based on z-value	%	5%	5%
PbF	**Protective Tissue Lead Concentration**	**mg/kg**	**5.25**	**1.01**

Equations:

$PbB_a = PbB_o + BKSF * (PbF * IR_F * AF_F * EF_F)/AT$

$PbBf = PbBa * 0.9$

Probability that fetal blood lead is less than 10 mg/dl using the z-value where:

$p' = \Phi z\ [(\ln(PbBf)-\ln(10)) /\ln(GSD)]$

Table F5-4. Input Parameters for IUEBK Model

Input Parameter	Value	Units	Basis
Soil lead concentration	200	mg/kg	Default concentration.
House dust lead concentration	140	mg/kg	Default concentration
Combined soil and dust ingestion rate by age			
0-11 months	85	mg/day	Default ingestion rate
12-23 months	135	mg/day	Default ingestion rate
24-35 months	135	mg/day	Default ingestion rate
36-47 months	135	mg/day	Default ingestion rate
48-59 months	100	mg/day	Default ingestion rate
60-71 months	90	mg/day	Default ingestion rate
Lead concentration in air	0.1	µg/m3	Default concentration
Lead concentration in drinking water	4	µg/L	Default concentration
Percent of meat in diet	3.12	unitless	Based on a fish consumption rate of 3.15 grams per day and the default meat consumption rate of 101 grams per day.

Table F5-5. Calculation of Lead Risks From Ingestion of Shellfish Tissue Using ALM Approach

ALM Parameter	Description	Units	Receptor: Adult Fisher
GSD	Geometric standard deviation PbB	--	2.1
PbBa	Central tendency of adult blood lead level	ug/dL	1.61
PbBo	Adult baseline blood lead level	ug/dL	1.4
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
PbF	**Maximum Shellfish Lead EPC**	**mg/kg**	**1.32**
IR F	Tissue consumption rate	g/day	3.3
AF F	Absolute gastrointestinal ingestion factor for ingested lead in tissue	--	0.12
EF F	Exposure frequency of fish consumption	days/yr	365
AT	Averaging time	days/yr	365
PbBf	Fetal blood lead level	ug/dL	1.45
z	z-value	--	2.60
p'	**probability of exceeding blood lead level of 10 ug/dl, based on z-value**	**%**	**0.47%**

Equations:

$PbB_a = PbB_o + BKSF * (PbF * IR_F * AF_F * EF_F)/AT$

$PbBf = PbBa * 0.9$

Probability that fetal blood lead is less than 10 mg/dl using the z-value where:

$p' = \Phi z\ [(\ln(PbBf)-\ln(10)) /\ln(GSD)]$

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

ATTACHMENT F6: SUPPORTING DOCUMENTATION FOR UNCERTAINTY ANALYSIS

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table F6-1.
Comparison of PCB and Mercury Concentrations in Fillet and Whole Body Tissue for Smallmouth Bass and Common Carp

Smallmouth Bass						
Parameter	Units	River Mile	Sample ID	Fillet	Whole Body	Ratio (WB/F)
Total PCB TEQ	pg/g	1.5 - 2.5	LW3-SB02E-C00	1.8E+00	2.1E+01	12
	pg/g	2.5 - 3.5	LW3-SB03E-C00	4.9E-01	2.1E+00	4
	pg/g	2.5 - 3.5	LW3-SB03W-C00	2.4E-01	1.5E+00	6
	pg/g	3.5 - 4.5	LW3-SB04E-C01	1.3E+00	8.8E+00	7
	pg/g	3.5 - 4.5	LW3-SB04W-C00	2.6E-01	2.2E+00	9
	pg/g	4.5 - 5.5	LW3-SB05W-C00	3.2E-01	3.2E+00	10
	pg/g	5.5 - 6.5	LW3-SB06E-C00	3.9E-01	3.4E+00	9
	pg/g	5.5 - 6.5	LW3-SB06W-C00	2.7E-01	3.8E+00	14
	pg/g	6.5 - 7.5	LW3-SB07E-C00	7.0E-01	7.9E+00	11
	pg/g	6.5 - 7.5	LW3-SB07W-C00	5.4E-01	5.2E+00	10
	pg/g	7.5 - 8.5	LW3-SB08E-C00	3.2E-01	3.5E+00	11
	pg/g	7.5 - 8.5	LW3-SB08W-C00	4.0E-01	4.8E+00	12
	pg/g	8.5 - 9.5	LW3-SB09E-C00	3.9E-01	4.0E+00	10
	pg/g	8.5 - 9.5	LW3-SB09W-C00	1.0E+00	9.4E+00	9
	pg/g	9.5 - 10.5	LW3-SB010E-C00	3.8E-01	4.6E+00	12
	pg/g	9.5 - 10.5	LW3-SB010W-C00	6.1E-01	7.9E+00	13
	pg/g	10.5 - 11.5	LW3-SB011E-C00	2.1E+00	3.6E+01	17
	pg/g	10.5 - 11.5	LW3-SB011W-C00	4.3E-01	3.8E+00	9
Ratio Summary						
Minimum	-					4
Maximum	-					17
Mean	-					10
Total PCB Congeners	pg/g	1.5 - 2.5	LW3-SB02E-C00	2.0E+05	1.4E+06	7
	pg/g	2.5 - 3.5	LW3-SB03E-C00	4.1E+04	2.8E+05	7
	pg/g	2.5 - 3.5	LW3-SB03W-C00	2.7E+04	2.1E+05	8
	pg/g	3.5 - 4.5	LW3-SB04E-C01	2.4E+05	1.5E+06	6
	pg/g	3.5 - 4.5	LW3-SB04W-C00	3.9E+04	2.9E+05	7
	pg/g	4.5 - 5.5	LW3-SB05W-C00	3.4E+04	2.7E+05	8
	pg/g	5.5 - 6.5	LW3-SB06E-C00	8.2E+04	6.8E+05	8
	pg/g	5.5 - 6.5	LW3-SB06W-C00	2.9E+04	2.7E+05	9
	pg/g	6.5 - 7.5	LW3-SB07E-C00	2.1E+05	2.0E+06	10
	pg/g	6.5 - 7.5	LW3-SB07W-C00	6.6E+04	5.4E+05	8
	pg/g	7.5 - 8.5	LW3-SB08E-C00	4.3E+04	2.9E+05	7
	pg/g	7.5 - 8.5	LW3-SB08W-C00	5.2E+04	4.5E+05	9
	pg/g	8.5 - 9.5	LW3-SB09E-C00	5.3E+04	3.5E+05	7
	pg/g	8.5 - 9.5	LW3-SB09W-C00	1.0E+05	9.7E+05	9
	pg/g	9.5 - 10.5	LW3-SB010E-C00	8.3E+04	6.2E+05	7
	pg/g	9.5 - 10.5	LW3-SB010W-C00	1.2E+05	8.1E+05	7
	pg/g	10.5 - 11.5	LW3-SB011E-C00	1.5E+06	6.6E+06	4
	pg/g	10.5 - 11.5	LW3-SB011W-C00	8.4E+04	5.3E+05	6
Ratio Summary						
Minimum	-					4
Maximum	-					10
Mean	-					7
Mercury	mg/kg	1.5 - 2.5	LW3-SB02E-C00	6.3E-02	5.1E-02	0.8
	mg/kg	2.5 - 3.5	LW3-SB03E-C00	1.6E-01	8.6E-02	0.5
	mg/kg	2.5 - 3.5	LW3-SB03W-C00	1.8E-01	1.0E-01	0.6
	mg/kg	3.5 - 4.5	LW3-SB04E-C01	2.4E-01	1.4E-01	0.6
	mg/kg	3.5 - 4.5	LW3-SB04W-C00	1.7E-01	1.1E-01	0.7
	mg/kg	4.5 - 5.5	LW3-SB05W-C00	2.1E-01	1.2E-01	0.5
	mg/kg	5.5 - 6.5	LW3-SB06E-C00	1.5E-01	8.8E-02	0.6
	mg/kg	5.5 - 6.5	LW3-SB06W-C00	9.6E-02	7.3E-02	0.8
	mg/kg	6.5 - 7.5	LW3-SB07E-C00	2.5E-01	1.5E-01	0.6
	mg/kg	6.5 - 7.5	LW3-SB07W-C00	1.9E-01	9.7E-02	0.5
	mg/kg	7.5 - 8.5	LW3-SB08E-C00	9.8E-02	7.7E-02	0.8
	mg/kg	7.5 - 8.5	LW3-SB08W-C00	5.9E-02	6.1E-02	1.0
	mg/kg	8.5 - 9.5	LW3-SB09E-C00	1.5E-01	1.0E-01	0.7
	mg/kg	8.5 - 9.5	LW3-SB09W-C00	3.5E-01	1.7E-01	0.5
	mg/kg	9.5 - 10.5	LW3-SB010E-C00	2.4E-01	1.3E-01	0.5
	mg/kg	9.5 - 10.5	LW3-SB010W-C00	1.1E-01	6.9E-02	0.6
	mg/kg	10.5 - 11.5	LW3-SB011E-C00	1.8E-01	8.5E-02	0.5
	mg/kg	10.5 - 11.5	LW3-SB011W-C00	1.9E-01	1.2E-01	0.6
Ratio Summary						
Minimum	-					0.5
Maximum	-					1.0
Mean	-					0.6

Table F6-1.
Comparison of PCB and Mercury Concentrations in Fillet and Whole Body Tissue for Smallmouth Bass and Common Carp

Carp						
Parameter	Units	River Mile	Sample ID	Fillet	Whole Body	Ratio (WB/F)
Total PCB TEQ	pg/g	0 - 4	LW3-CP0004-C10	1.4E+00	2.2E+00	2
	pg/g	0 - 4	LW3-CP0004-C20	1.9E+00	4.0E+00	2
	pg/g	0 - 4	LW3-CP0004-C30	1.3E+00	2.3E+00	2
	pg/g	4 - 8	LW3-CP0408-C10	1.6E+00	4.8E+00	3
	pg/g	4 - 8	LW3-CP0408-C20	2.0E+00	2.5E+00	1
	pg/g	4 - 8	LW3-CP0408-C30	1.6E+01	1.1E+02	7
	pg/g	8 - 12	LW3-CP0812-C11	2.5E+00	4.4E+00	2
	pg/g	8 - 12	LW3-CP0812-C20	1.9E+00	5.0E+00	3
	pg/g	8 - 12	LW3-CP0812-C30	9.7E-01	2.5E+00	3
Ratio Summary						
Minimum	-					1
Maximum	-					7
Mean	-					3
Total PCB Congeners	pg/g	0 - 4	LW3-CP0004-C10	2.1E+05	2.9E+05	1
	pg/g	0 - 4	LW3-CP0004-C20	2.5E+05	3.6E+05	1
	pg/g	0 - 4	LW3-CP0004-C30	2.6E+05	3.8E+05	1
	pg/g	4 - 8	LW3-CP0408-C10	2.7E+05	3.7E+05	1
	pg/g	4 - 8	LW3-CP0408-C20	4.6E+05	5.8E+05	1
	pg/g	4 - 8	LW3-CP0408-C30	2.0E+07	2.5E+07	1
	pg/g	8 - 12	LW3-CP0812-C11	4.3E+05	6.0E+05	1
	pg/g	8 - 12	LW3-CP0812-C20	7.8E+05	1.6E+06	2
	pg/g	8 - 12	LW3-CP0812-C30	3.1E+05	5.4E+05	2
Ratio Summary						
Minimum	-					1
Maximum	-					2
Mean	-					1
Mercury	mg/kg	0 - 4	LW3-CP0004-C10	6.2E-02	4.7E-02	0.8
	mg/kg	0 - 4	LW3-CP0004-C20	7.5E-02	5.7E-02	0.8
	mg/kg	0 - 4	LW3-CP0004-C30	6.2E-02	5.2E-02	0.8
	mg/kg	4 - 8	LW3-CP0408-C10	7.3E-02	5.2E-02	0.7
	mg/kg	4 - 8	LW3-CP0408-C20	5.4E-02	5.0E-02	0.9
	mg/kg	4 - 8	LW3-CP0408-C30	7.2E-02	5.5E-02	0.8
	mg/kg	8 - 12	LW3-CP0812-C11	4.9E-02	3.7E-02	0.8
	mg/kg	8 - 12	LW3-CP0812-C20	4.1E-02	2.9E-02	0.7
	mg/kg	8 - 12	LW3-CP0812-C30	5.9E-02	5.3E-02	0.9
Ratio Summary						
Minimum	-					0.7
Maximum	-					0.9
Mean	-					0.8

Table F6-2: Analysis of Contaminants Potentially Posing Unacceptable Risks Based on N-Qualified Data Only

Analyte	Relavent Diet	Location of risk exceedance for tissue	Corresponding Sediment Analysis
Heptachlor Epoxide	Clam - Undepurated	RM 6E	Detected 6 times between RM 6 and 7 East (range of detects = 0.00616 - 5.11 ug/kg). 5 of the 6 detects were also N-qualified.
Alpha-HCH	Black crappie - Whole body	RM 6-9	Detected 48 times between RM 6 and 9 (range of detects = 0.0046 - 10 ug/kg). 13 detects were also N-qualified.
Beta-HCH	Smallmouth bass - Fillet	RM 3	Detected 50 times between RM 3 and 4 (range of detects = 0.0014 - 7.99 ug/kg). 23 detects were also N-qualified.
Heptachlor	Black crappie - Whole body	RM 3-6	Detected 23 times between RM 3 and 6 (range of detects = 0.0043 - 0.57 ug/kg). 7 detects were also N-qualified.

Notes:

Species with exposure areas of one river mile or less are indicated in red font.

Table F6-3: Cancer Risk Estimates for Single Species and Multi-Species Diets, Study Area-wide basis

Diet	Cancer Risk Estimates	Ratio of Single Species to Multi-Species
Single Species		
Smallmouth bass	1.E-03	0.2
Common carp	4.E-02	4
Black crappie	8.E-05	0.01
Brown bullhead	2.E-03	0.3
Multi-Species	9.E-03	

Note:
Risks shown are based on the consumption rate of 142 grams per day and assume consumption of only fillet tissue.

Table F6-4: Comparison of Maximum Concentrations and Study Area-Wide Exposure Point Concentrations

Scenario	Analyte	Number of Samples	Maximum Detected Concentration (pg/g)	Study Area-wide EPC (pg/g)	Ratio of Maximum to EPC
Brown bullhead - whole body					
	PCB congeners	6	1950160	1557418	1
	PCB TEQ	6	6	4.8	1
	Dioxin TEQ	6	2.1	1.8	1
Common carp - fillet					
	PCB congeners	9	19722060	19722060	1
	PCB TEQ	9	16.5	10.5	2
	Dioxin TEQ	9	4.4	3.5	1

Notes:

Comparisons are for scenarios where the Study Area-wide EPC was calculated using fewer than 10 samples.
Study Area-wide EPCs are the 95 percent upper confidence limit on the mean (see Section 3 of the Baseline Human Health Risk Assessment for additional information on EPCs)
EPC: Exposure point concentration
pg/g: Picograms per gram

Table F6-5: Surface Water Exposure Point Concentration Uncertainty Analysis[a]
Surface Water, Direct Contact to Divers

Chemical of Concern		RM 6.0 W[b]	Transect, RM 2, W025	Cathedral Park, RM 5.7, W010	Transect, RM 6.3, W011	Willamette Cove, RM 6.9, W014	Swan Island Lagoon, RM 9.1, W020	Transect, RM 11, W023
Metals								
Arsenic, dissolved	Max:Mean Ratio[c]		2	1	1	1	1	2
	Cancer Risk[d]		**1E-05**	**8E-06**	**8E-06**	**8E-06**	**8E-06**	**8E-06**
	Non-cancer HQ[e]		0.2	0.1	0.1	0.1	0.1	0.1
Arsenic, total	Max:Mean Ratio		2	1		1	1	
	Cancer Risk		**1E-05**	**1E-05**		**9E-06**	**8E-06**	
	Non-cancer HQ		0.2	0.2		0.2	0.2	
PAHs								
Benzo(a)pyrene	Max:Mean Ratio	3						
	Cancer Risk	**9E-06**						
	Non-cancer HQ	**--**						

Notes:

a Uncertainty analysis for the use of the maximum concentration instead of the 95% UCL as the Reasonable Maximum Exposure (RME) concentration.
b Uncertainty analysis performed only for exposure points where exposure point concentration = maximum concentration and number of samples > 1.
c Largest ratio of maximum concentration to mean concentration for each exposure point.
d Largest calculated cancer risk for each exposure point.
e Largest calculated non-cancer hazard quotient for each exposure point.

Table F6-6: In-Water Sediment Exposure Point Concentration Uncertainty Analysis[a]

In-Water Sediment																																			
Chemical of Concern		**RM 1 East[b]**	**RM 1 West**	**RM 1.5 East**	**RM 1.5 West**	**RM 2 West**	**RM 2.5 East**	**RM 2.5 West**	**RM 3 East**	**RM 3 West**	**RM 3.5 West**	**RM 4 West**	**RM 4.5 East**	**RM 4.5 West**	**RM 5 West**	**RM 5.5 West**	**RM 6 East**	**RM 6 West**	**RM 7 East**	**RM 8 East**	**RM 8 West**	**RM 8.5 East**	**RM 8.5 West**	**RM 9 East**	**RM 9 West**	**RM 9.5 East**	**RM 9.5 West**	**RM 10 East**	**RM 10 West**	**RM 10.5 East**	**RM 11 East**	**RM 11.5 West**	**RM 12 East**
Metals																																			
Arsenic	Max:Mean Ratio[c]		1	1	1																										1	1
	Cancer Risk[d]		**1E-06**	**1E-06**	**1E-06**																										9E-07	7E-07
	Non-cancer HQ[e]		0.003	0.003	0.003																										0.002	0.002
PAHs																																			
Benzo(a)anthracene	Max:Mean Ratio		3	4	2																										2	
	Cancer Risk		4E-08	2E-07	8E-09																										4E-09	
	Non-cancer HQ		--	--	--																										--	
Benzo(a)pyrene	Max:Mean Ratio		3	4	2																									2	2	1
	Cancer Risk		6E-07	**3E-06**	1E-07																									3E-07	4E-08	4E-08
	Non-cancer HQ		--	--	--																									--	--	--
Benzo(b)fluoranthene	Max:Mean Ratio	2	3	4	2																										2	1
	Cancer Risk	2E-08	5E-08	2E-07	1E-08																										4E-09	6E-09
	Non-cancer HQ	--	--	--	--																										--	--
Dibenzo(a,h)anthracene	Max:Mean Ratio	2		4	2																										2	1
	Cancer Risk	2E-08		3E-07	1E-08																										7E-09	1E-08
	Non-cancer HQ	--		--	--																										--	--
Indeno(1,2,3-cd)pyrene	Max:Mean Ratio		3	4	2																										2	1
	Cancer Risk		5E-08	2E-07	9E-09																										3E-09	4E-09
	Non-cancer HQ		--	--	--																										--	--
Polychlorinated Biphenyls																																			
Total PCBs, Adjusted	Max:Mean Ratio	1				2			2	1	2	1	1		1	2	3	2		3	1	2		2		1		1	3	1	3		1	
	Cancer Risk	2E-09				8E-09			6E-09	1E-08	2E-08	2E-08	8E-09		6E-08	2E-08	7E-08	1E-07		5E-07	7E-08	3E-08		7E-08		8E-09		2E-08	2E-07	3E-08	4E-06		6E-07	
	Non-cancer HQ	0.0001				0.0002			0.0001	0.0003	0.0005	0.0004	0.0002		0.002	0.0005	0.002	0.003		0.01	0.002	0.001		0.002		0.0002		0.001	0.006	0.001	0.1		0.02	
Total PCB TEQ	Max:Mean Ratio	1				1			1	1	2	1	1		2	2	3	2		3	2	1		1		1		1	2	1	3		1	
	Cancer Risk	1E-08				2E-08			4E-09	2E-08	3E-08	3E-08	1E-08		9E-08	5E-08	1E-07	1E-07		8E-07	3E-07	3E-08		3E-08		1E-08		4E-08	1E-07	2E-08	1E-06		2E-07	
	Non-cancer HQ	0.0001				0.0001			0.00003	0.0002	0.0003	0.0002	0.0001		0.001	0.0004	0.001	0.001		0.006	0.002	0.0002		0.0002		0.0001		0.0003	0.001	0.0001	0.01		0.002	
Dioxin/Furan																																			
Total Dioxin/Furan TEQ	Max:Mean Ratio		4	3	1	3	2	2		3	2	2		3	2	2	1		2	2	2	1	4		2	1	2		2		1		1	
	Cancer Risk		7E-08	4E-08	2E-09	5E-08	2E-08	9E-09		4E-08	4E-08	7E-08		2E-07	1E-07	5E-08	9E-08		9E-07	5E-08	1E-08	2E-08	4E-07		1E-07	3E-08	4E-07		2E-07		7E-08		4E-08	
	Non-cancer HQ		0.001	0.0003	0.00002	0.0004	0.0002	0.0001		0.0003	0.0003	0.001		0.001	0.001	0.0004	0.001		0.007	0.0004	0.0001	0.0002	0.003		0.001	0.0002	0.003		0.002		0.001		0.0003	

Notes:

a Uncertainty analysis for the use of the maximum concentration instead of the 95% UCL as the Reasonable Maximum Exposure (RME) concentration.
b Uncertainty analysis performed only for exposure points and chemicals of concern with exposure point concentration = maximum concentration and number of samples > 1.
c Largest ratio of maximum concentration to mean concentration for each exposure point.
d Largest calculated cancer risk for each exposure point.
e Largest calculated non-cancer hazard quotient for each exposure point.

Table F6-7: Fish Tissue Exposure Point Concentration Uncertainty Analysis[a]

		Study Area-Wide Basis[b]					River Mile Basis[b]									
Chemical of Concern		Brown bullhead	Black crappie	Carp	Smallmouth Bass	Multi-Species Diet	RM 3	RM 4	RM 5	RM 6	RM 7	RM 8	an Island Lago	RM 9	RM 10	RM 11
Metals																
Antimony	Max:Mean Ratio[c]				2									2		
	Cancer Risk[d]					--								--		
	Non-cancer HQ[e]					0.01								0.02		
Arsenic, inorganic	Max:Mean Ratio		1				1	1	1	1	1	1	1	1	1	
	Cancer Risk					**2E-05**	**2E-05**	**1E-05**	**1E-05**	**1E-05**	**1E-05**	**1E-05**	**8E-06**	**1E-05**	**8E-06**	
	Non-cancer HQ					0.2	0.1	0.1	0.09	0.09	0.09	0.08	0.07	0.09	0.07	
Lead	Max:Mean Ratio						3	1	1	2	1	1	2	2	1	1
	Cancer Risk						--	--	--	--	--	--	--	--	--	--
	Non-cancer HQ						--	--	--	--	--	--	--	--	--	--
Mercury	Max:Mean Ratio		1				1	1	1	1	1	1	1	2	1	1
	Cancer Risk					--	--	--	--	--	--	--	--	--	--	--
	Non-cancer HQ					**5**	**2**	**3**	**3**	**2**	**3**	**2**	**2**	**5**	**3**	**3**
PAHs																
Benzo(a)anthracene	Max:Mean Ratio			5			2	1		2	2	2		2		
	Cancer Risk					6E-07	7E-07	3E-07		2E-07	1E-07	**2E-06**		6E-07		
	Non-cancer HQ					--	--	--		--	--	--		--		
Benzo(a)pyrene	Max:Mean Ratio							2		1		2		2		
	Cancer Risk							**2E-06**		7E-07		**2E-05**		**4E-06**		
	Non-cancer HQ							--		--		--		--		
Dibenzo(a,h)anthracene	Max:Mean Ratio			2	4			2				2				
	Cancer Risk					**2E-06**		**1E-06**				**2E-06**				
	Non-cancer HQ					--		--				--				
Phthalates																
Bis(2-ethylhexyl) phthalate	Max:Mean Ratio	2			3					1				2	1	
	Cancer Risk					8E-07				5E-07				6E-07	3E-07	
	Non-cancer HQ					0.01				0.006				0.009	0.005	
SVOCs																
Hexachlorobenzene	Max:Mean Ratio						1	1		1	1	1		1	1	1
	Cancer Risk						2E-07	3E-07		2E-07	5E-07	2E-07		3E-07	2E-07	2E-07
	Non-cancer HQ						0.0007	0.0008		0.0006	0.001	0.0006		0.0009	0.0006	0.0006
Polychlorinated Biphenyls																
Total PCBs, Adjusted	Max:Mean Ratio						1	2		2	2	1	1	1	1	2
	Cancer Risk						**3E-05**	**2E-04**		**6E-05**	**1E-04**	**3E-05**	**5E-04**	**7E-05**	**8E-05**	**1E-03**
	Non-cancer HQ						**3**	**10**		**5**	**10**	**3**	**50**	**7**	**8**	**100**
Total PCB TEQ	Max:Mean Ratio						1	2		1	1	1	1	1	1	2
	Cancer Risk						**2E-05**	**6E-05**		**2E-05**	**3E-05**	**2E-05**	**5E-05**	**5E-05**	**3E-05**	**1E-04**
	Non-cancer HQ						0.7	**2**		**5**	1	0.6	**2**	**1**	0.8	**3**
Dioxin/Furan																
Total Dioxin/Furan TEQ	Max:Mean Ratio						1	1		1	2	1	1	1	1	1
	Cancer Risk						**1E-05**	**2E-05**		**2E-05**	**4E-04**	**3E-05**	**3E-05**	**2E-05**	**2E-05**	**2E-05**
	Non-cancer HQ						0.4	0.5		0.5	**10**	0.8	**1**	0.6	0.6	0.6
Pesticides																
Dieldrin	Max:Mean Ratio	2					2			1	1	2		2	1	1
	Cancer Risk					**2E-05**	**2E-05**			**2E-06**	**2E-06**	**8E-06**		**6E-06**	**2E-06**	**2E-06**
	Non-cancer HQ					0.1	0.09			0.01	0.009	0.04		0.03	0.008	0.009
Total Chlordanes	Max:Mean Ratio	1	2				2	1		2	1	2		2	1	1
	Cancer Risk					**2E-06**	1E-06	3E-07		6E-07	2E-07	7E-07		3E-07	2E-07	2E-07
	Non-cancer HQ					0.03	0.02	0.006		0.01	0.004	0.01		0.007	0.004	0.004
Total DDD	Max:Mean Ratio	1	1				1	1	1	1	2	2	1	1	2	1
	Cancer Risk					**8E-06**	4E-07	4E-07	4E-07	7E-07	**5E-06**	**1E-06**	3E-07	3E-07	3E-07	6E-08
	Non-cancer HQ					0.3	0.01	0.01	0.01	0.02	0.2	0.03	0.01	0.009	0.008	0.002

Table F6-7: Fish Tissue Exposure Point Concentration Uncertainty Analysis[a]

		Study Area-Wide Basis[b]					River Mile Basis[b]									
Chemical of Concern		Brown bullhead	Black crappie	Carp	Smallmouth Bass	Multi-Species Diet	RM 3	RM 4	RM 5	RM 6	RM 7	RM 8	an Island Lago	RM 9	RM 10	RM 11
Total DDE	Max:Mean Ratio		1				2	1	1	1	2	1	1	1	1	1
	Cancer Risk					**1E-05**	**3E-06**	**2E-06**	**2E-06**	**2E-06**	**7E-06**	**3E-06**	**1E-06**	**2E-06**	**1E-06**	7E-07
	Non-cancer HQ					0.3	0.07	0.03	0.04	0.03	0.2	0.06	0.03	0.04	0.02	0.02
Total DDT	Max:Mean Ratio	2	1				3	1	2	2	2	1	2	2	2	1
	Cancer Risk					**6E-06**	**2E-06**	2E-07	**1E-06**	9E-07	**7E-06**	**2E-06**	2E-07	**1E-06**	5E-07	1E-07
	Non-cancer HQ					0.1	0.04	0.005	0.03	0.02	0.2	0.04	0.005	0.03	0.01	0.002

Notes:

a Uncertainty analysis for the use of the maximum concentration instead of the 95% UCL as the Reasonable Maximum Exposure (RME) concentration.

b Uncertainty analysis performed only for exposure points and chemicals of concern with exposure point concentration = maximum concentration and number of samples > 1.

c Largest ratio of maximum concentration to mean concentration for each exposure point.

d Cancer risks are for combined adult/child subsistence fish consumption on a Study Area-wide basis and for combined adult/child recreational fish consumption on a river mile basis.

e Noncancer HQs are for child subsistence fish consumption on a Study Area-wide basis and for child recreational fish consumption on a river mile basis.

Table F6-8: Shellfish Tissue Exposure Point Concentration Uncertainty Analysis[a]

Shellfish Tissue-Clam																	Shellfish-Crayfish			
Chemical of Concern		RM 2 East[b] UD	RM 2 West UD	RM 3 East UD	RM 4 East UD	RM 4 West UD	RM 5 East UD	RM 5 West UD	RM 6 East UD	RM 6 West UD	RM 7 West UD	RM 8 East UD	RM 8 SIL UD	RM 8 West UD	RM 9 East UD	RM 9 West UD	Study Area Wide D	RM: 4, Station: 04R004 WB	RM: 6, Station: 06R004 WB	RM: 9, Station: 09R001 WB	Study Area Wide WB
Metals																					
Arsenic, inorganic	Max:Mean Ratio[c]	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	
	Cancer Risk[d]	**2E-05**	**2E-05**	**2E-05**	**2E-05**	**2E-05**	**1E-05**	**2E-05**	**2E-05**	**2E-05**	**2E-05**	**1E-05**	**2E-05**	**2E-05**			**2E-05**	**6E-06**	**6E-06**	**6E-06**	
	Non-cancer HQ[e]	0.1	0.09	0.08	0.08	0.09	0.07	--	0.08	0.09	0.08	0.07	0.08	0.08			0.1	0.03	0.03	0.03	
PAHs																					
Benzo(a)anthracene	Max:Mean Ratio	1	2	1	1	2	2	2		2	2		1	1	1		2		2		5
	Cancer Risk	**4E-06**	**5E-06**	**5E-06**	**4E-06**	**1E-05**	**2E-06**	**5E-05**		**5E-05**	**7E-06**		**2E-06**	**1E-06**	5E-07		7E-07		**6E-06**		**6E-06**
	Non-cancer HQ	--	--	--	--	--	--	--		--	--		--	--	--		--		--		--
Benzo(a)pyrene	Max:Mean Ratio	1	2	1	1	2	2	2		2	2		1	2			2				4
	Cancer Risk	**6E-06**	**1E-05**	**1E-05**	**8E-06**	**3E-05**	**4E-06**	**4E-04**		**4E-04**	**2E-05**		**3E-06**	**4E-06**			3E-07				**6E-06**
	Non-cancer HQ	--	--	--	--	--	--	--		--	--		--	--			--				--
Benzo(b)fluoranthene	Max:Mean Ratio	1	2	1	2	2	2	2		2	2		1	2	1		2				4
	Cancer Risk	9E-07	**1E-06**	**3E-06**	**2E-06**	**3E-06**	4E-07	**3E-05**		**4E-05**	**2E-06**		7E-07	**1E-06**	2E-07		1E-07				4E-07
	Non-cancer HQ	--	--	--	--	--	--	--		--	--		--	--	--		--				--
Benzo(k)fluoranthene	Max:Mean Ratio	1	2	1	1	2	2	2		2	3		1	2	1						5
	Cancer Risk	4E-08	6E-08	1E-07	7E-08	2E-07	3E-08	**2E-06**		**2E-06**	2E-07		3E-08	1E-07	1E-08						4E-08
	Non-cancer HQ	--	--	--	--	--	--	--		--	--		--	--	--						--
Dibenzo(a,h)anthracene	Max:Mean Ratio			3	2	2	2	2		2											4
	Cancer Risk			**2E-06**	**1E-06**	**3E-06**	4E-07	**3E-05**		**3E-05**											6E-07
	Non-cancer HQ			--	--	--	--	--		--											--
Indeno(1,2,3-cd)pyrene	Max:Mean Ratio	1	2	1	1	1	1	2		2	2		2	3			2				5
	Cancer Risk	2E-07	3E-07	5E-07	3E-07	8E-07	8E-08	**1E-05**		**1E-05**	5E-07		2E-07	5E-07			2E-08				4E-07
	Non-cancer HQ	--	--	--	--	--	--	--		--	--		--	--			--				--
Phenols																					
Pentachlorophenol	Max:Mean Ratio																				4
	Cancer Risk																				**2E-06**
	Non-cancer HQ																				0.001
Polychlorinated Byphenyls																					
Total PCBs, Adjusted	Max:Mean Ratio	1	1	2	1	1	1	1		1	1		1	2	1	1	2		1		
	Cancer Risk	**7E-05**	**2E-05**	**1E-04**	**2E-05**	**3E-05**	**3E-05**	**2E-05**		**2E-05**	**2E-05**		**8E-05**	**9E-05**	**1E-05**	**1E-04**	**1E-04**		**3E-06**		
	Non-cancer HQ	**4**	**1**	**6**	**1**	**2**	**2**	1		**1**	**1**		**5**	**5**	0.7	**6**	**6**		0.2		
Total PCB TEQ	Max:Mean Ratio	1	1	2	1	1	1	1		1	1		1	2	1	1	1		1		
	Cancer Risk	**5E-05**	**1E-05**	**8E-05**	**2E-05**	**2E-05**	**2E-05**	**1E-05**		**2E-05**	**2E-05**		**5E-05**	**5E-05**	**1E-05**	**6E-05**	**1E-05**		**5E-06**		
	Non-cancer HQ	0.8	0.2	**1**	0.4	0.4	0.4	0.2		0.4	0.3		0.9	0.9	0.2	1	0.2		0.09		
Dioxin/Furan																					
Total Dioxin/Furan TEQ	Max:Mean Ratio	1	1	1	3	1	1	1		1	2		1	1	1	2	1		1		
	Cancer Risk	**9E-06**	**8E-06**	**1E-05**	**5E-05**	**1E-05**	**9E-06**	**2E-05**		**6E-05**	**8E-05**		**2E-05**	**2E-05**	**8E-06**	**4E-05**	**5E-06**		**2E-05**		
	Non-cancer HQ	0.2	0.1	0.2	0.9	0.2	0.2	0.4		**1**	**1**		0.3	0.4	0.1	0.7	0.1		0.4		
Pesticides																					
Aldrin	Max:Mean Ratio	1	1	1	1	1	1	1		1	1		1	3	1	1	2				4
	Cancer Risk	4E-07	5E-07	2E-08	3E-07	5E-07	7E-07	5E-07		7E-07	7E-07		7E-07	**9E-06**	3E-07	7E-07	5E-07				7E-08
	Non-cancer HQ	0.002	0.002	0.002	0.001	0.002	0.003	0.002		0.003	0.003		0.003	0.04	0.001	0.003	0.002				0.0003
Dieldrin	Max:Mean Ratio	1	1	1	1	1	1	1		1	2		1	2	1	1	1				--
	Cancer Risk	**2E-06**	**1E-06**	1E-07	**1E-06**	**2E-06**	**1E-06**	**2E-06**		**2E-06**	**2E-06**		**2E-06**	**5E-06**	**2E-06**	**2E-06**	**1E-06**				**--**
	Non-cancer HQ	0.005	0.003	0.005	0.004	0.005	0.004	0.004		0.007	0.006		0.006	0.01	0.005	0.006	0.003				**--**
Heptachlor epoxide	Max:Mean Ratio	1	1	1	1	1	1	1	2	1	3		1	1	1	1	1				2
	Cancer Risk	7E-08	5E-08	7E-09	5E-08	7E-08	5E-08	6E-08	**2E-06**	1E-07	**1E-06**		8E-08	9E-08	6E-08	9E-08	5E-08				2E-09
	Non-cancer HQ	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.04	0.002	0.03		0.002	0.002	0.001	0.002	0.001				0.00003
Total DDD	Max:Mean Ratio	1	1	1	1	1	1	1	1	2			1	2	1	1	2		1		
	Cancer Risk	3E-07	3E-07	**1E-06**	2E-07	5E-07	3E-07	6E-07	2E-07	**5E-06**			2E-07	8E-07	8E-08	2E-07	3E-07		3E-07		
	Non-cancer HQ	0.006	0.006	0.006	0.004	0.009	0.006	0.01	0.003	0.1			0.004	0.02	0.002	0.003	0.006		0.005		
Total DDE	Max:Mean Ratio	1	1	1	1	1	1	1	1	2			1	2	1	1	2	1	1	1	
	Cancer Risk	5E-07	6E-07	**1E-06**	4E-07	6E-07	6E-07	7E-07	4E-07	**2E-06**			5E-07	**3E-06**	3E-07	5E-07	6E-07	3E-07	3E-07	9E-08	
	Non-cancer HQ	0.007	0.008	0.006	0.005	0.008	0.008	0.009	0.005	0.03			0.007	0.03	0.004	0.007	0.008	0.004	0.005	0.001	
Total DDT	Max:Mean Ratio	1	1	1	1	1	1	1		2			1	1	1	1	2	2	1		
	Cancer Risk	8E-08	7E-08	4E-07	8E-08	2E-07	9E-08	3E-07		**2E-06**			9E-08	8E-08	5E-08	8E-08	6E-08	1E-07	1E-07		
	Non-cancer HQ	0.001	0.001	0.002	0.001	0.002	0.001	0.004		0.02			0.001	0.001	0.001	0.001	0.001	0.001	0.002		

Notes:

a Uncertainty analysis for the use of the maximum concentration instead of the 95% UCL as the Reasonable Maximum Exposure (RME) concentration.

b Uncertainty analysis performed only for exposure points and chemicals of concern with exposure point concentration = maximum concentration and number of samples > 1.

c Largest ratio of maximum concentration to mean concentration for each exposure point.

d Largest calculated cancer risk for each exposure point.

e Largest calculated non-cancer hazard quotient for each exposure point.

Table F6-9

Summary of PCB Concentration Reduction Based on Preparation and Cooking[a]

Species[b]	Activity	Reduction (%)
Carp	Skin-off & deep frying	37
	Skin-off & deep frying	32
	Skin-off & deep frying	32
	Skin-off & pan frying	25
	Skin-off & pan frying	19
	Skin-off & pan frying	37
	Skin-on & deep frying	38
	Skin-on & deep frying	16
	Skin-on & deep frying	67
	Skin-on & pan frying	22
	Skin-on & pan frying	42
	Skin-on & pan frying	31
Chinook Salmon	Skin-off & baking	38
	Skin-off & baking	48
	Skin-off & baking	29
	Skin-off & charbroiling	44
	Skin-off & charbroiling	62
	Skin-off & charbroiling	33
	Skin-off & charbroiling, scoring	46
	Skin-off & charbroiling, scoring	52
	Skin-off & charbroiling, scoring	44
	Skin-off & canning	36
	Skin-off & canning	33
	Skin-off & canning	39
	Skin-on & baking	33
	Skin-on & baking	49
	Skin-on & baking	25
	Skin-on & charbroiling	40
	Skin-on & charbroiling	40
	Skin-on & charbroiling	44
	Skin-on & charbroiling, scoring	49
	Skin-on & charbroiling, scoring	61
	Skin-on & charbroiling, scoring	37
Smallmouth Bass	Trimming	64
	Baking	16
	Frying	74
	Trimming & cooking	80
	Minimum	16
	Maximum	80

Notes:

a Summary of information presented in Guidance fo Assessing Chemical Contaminant Data for Use in Fish Advisories, Volume 2, Appendix C, Table C-1 (EPA 2000). Reductions are based on standard fillet.

b Only species included in the risk assessment are presented.

Table F6-10
Comparison of PCBs as Aroclors and PCBs as Congeners in Tissue Samples[a]

Species	Total PCBs as Congeners (ug/kg)	Total PCBs as Aroclors (ug/kg)	Ratio of Congeners to Aroclors
Brown bullhead	83	67	1.2
	177	112	1.6
	236	125	1.9
	1950	1719	1.1
	266	155	1.7
	354	314	1.1
Black crappie	103	85	1.2
	106	90	1.2
	146	109	1.3
	301	250	1.2
Common carp	451	300	1.5
	8154	6865	1.2
	343	230	1.5
	574	770	0.7
	616	1010	0.6
	1383	1190	1.2
Smallmouth bass	935	784	1.2
	918	1299	0.7
	457	474	1.0
	512	595	0.9
	417	395	1.1
	345	273	1.3
	549	525	1.0
	528	106	5.0
	505	799	0.6
	4529	4855	0.9
	1072	3515	0.3
	3476	1087	3.2
	663	899	0.7
	748	859	0.9
	123	137	0.9
	275	293	0.9
	317	333	1.0
	108	64	1.7
	111	72	1.5
	78	63	1.2
Crayfish	61	21	2.9
	76	9	9.0
	32	4	8.3
	207	280	0.7
	15	3	5.4
	17	2	10.7
	28	45	0.6
	39	43	0.9
	83	110	0.8
		Minimum	0.3
		Maximum	10.7

Notes
a Results for whole body tissue samples collected during Round 1 where PCBs were analyzed as both Aroclors and Congeners in the same sample.
b ug/kg = micrograms per kilogram

Table F6-11

Comparison of PCBs in Round 1 and Round 3 Fillet Tissue Samples[a]

Species	Exposure Area	Total PCBs as Congeners (ug/kg)	Total PCBs as Aroclors (ug/kg)	Ratio of Congeners to Aroclors
Common carp	RM 0 to 4	260	NA	--
	RM 4 to 8	19722	NA	--
	RM 8 to 12	776	NA	--
	RM 3 to 6	NA	1060	--
	RM 6 to 9	NA	1295	--
	Study Area Wide	19722	1197	16.5
Smallmouth Bass	RM 2	200	NA	--
	RM 3	41	60	0.7
	RM 4	241	NA	--
	RM 5	34	46	0.7
	RM 6	82	39	2.1
	RM 7	211	NA	--
	RM 8	52	93	0.6
	RM 9	104	72	1.4
	RM 10	123	NA	--
	RM 11	1482	NA	--
	Study Area Wide	510	83	6.2

Notes

a Results for fillet tissue samples.

b ug/kg = micrograms per kilogram

Table F6-12
Comparison of Concentrations in Depurated and Undepurated Clam Tissue Samples[a]

Analyte[b]	Units	Tissue Type	Sample Location				
			LW3-CA01E-C00	LW3-CA02W-C00	LW3-CA10W-C00	LW3-CA11E-C00	LW3-CA12E-C00
Arsenic	ug/kg[c]	Depurated	1020	1350	798	819	760
	ug/kg	Undepurated	1070	909	654	773	799
Benzo(a)anthracene	ug/kg	Depurated	4.3	8.2	2.9	1.6	1.7
	ug/kg	Undepurated	5.5	6.7	2.5	1.9	2.6
Benzo(a)pyrene	ug/kg	Depurated	0.43	<0.21	<0.2	0.43	0.31
	ug/kg	Undepurated	0.88	0.85	<0.17	<0.17	<0.16
Benzo(b)fluoranthene	ug/kg	Depurated	0.90	1.80	<0.57	0.97	<0.52
	ug/kg	Undepurated	1.50	1.50	<0.58	<0.43	<0.66
Benzo(k)fluoranthene	ug/kg	Depurated	NA[d]	NA	NA	NA	NA
	ug/kg	Undepurated	0.97	<0.57	<0.25	<0.23	<0.43
Dibenzo(a,h)anthracene	ug/kg	Depurated	NA	NA	NA	NA	NA
	ug/kg	Undepurated	0.87	<0.25	<0.12	<0.12	<0.12
Indeno(1,2,3-cd)pyrene	ug/kg	Depurated	<0.13	0.30	<0.16	<0.13	<0.13
	ug/kg	Undepurated	0.55	0.37	0.19	<0.13	<0.13
Total PCBs	pg/g[e]	Depurated	110217	82627	154738	479834	87183
	pg/g	Undepurated	126847	83320	85171	855964	140714
PCB TEQ	pg/g	Depurated	1.20	0.86	0.71	0.65	0.52
	pg/g	Undepurated	1.39	0.90	0.69	1.72	0.92
Dioxin/furan TEQ	pg/g	Depurated	0.29	0.37	0.31	0.20	0.26
	pg/g	Undepurated	0.51	0.56	0.39	0.53	0.68
Aldrin	ug/kg	Depurated	0.187	0.278	0.173	<0.0679	<0.0766
	ug/kg	Undepurated	0.23	0.291	0.132	<0.0901	0.11
Dieldrin	ug/kg	Depurated	0.504	0.593	0.589	0.339	0.425
	ug/kg	Undepurated	0.591	0.651	0.338	0.452	0.61
DDD	ug/kg	Depurated	8.2	10.8	2.5	1.3	1.5
	ug/kg	Undepurated	10.2	11.8	1.7	1.7	2.0
DDE	ug/kg	Depurated	13.5	15.3	8.2	4.1	4.8
	ug/kg	Undepurated	16.5	16.4	5.3	5.4	6.3
DDT	ug/kg	Depurated	1.4	1.7	0.7	0.6	0.8
	ug/kg	Undepurated	1.8	1.9	0.5	0.8	1.1

Notes
a Concentrations for locations where both depurated and undepurated clam tissue samples were collected.
b Only contaminants potentially posing unacceptable risks are presented.
c ug/kg = micrograms per kilogram
d NA = not analyzed
e pg/g = picograms per gram

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

SECTION 2 TABLES

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table 2-1

BHHRA Data From Within Study Area[a], Summarized by Matrix

Matrix	Data Types
Beach Sediment	Composite sediment samples from designated human use beaches within the Study Area.
In-Water Sediment	Surface sediment samples (between 0 and 30.5 cm depth) within the Study Area (river miles 1.9 to 11.8), excluding beach samples and samples within the navigation channel.
Shellfish Tissue	Field-collected composite clam and whole body crayfish tissue within the Study Area.
Fish Tissue	Whole body and fillet composite samples for resident fish (common carp, black crappie, brown bullhead, and smallmouth bass), fillet samples for sturgeon, whole body and fillet composite samples for salmon, and whole body composite samples for lamprey.
Surface Water	Surface water collected using a peristaltic pump and XAD-2 Infiltrex™ 300 system (column and filter) from Round 2 (3 events) and Round 3 (4 events) within the Study Area. Surface water samples were taken from various depths within the water column, as described in Appendix A of the Remedial Investigation Report.
Seep Water	Water samples collected from Outfall 22B from 2002 and later, excluding stormwater events.

Notes:

a Study Area extends from river miles 1.9 to 11.8, including Swan Island Lagoon and excluding Multnomah Channel.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
cm = centimeter.

Table 2-2

BHHRA Data From Outside Of Study Area[a], Summarized by Matrix

Matrix	Data Types
In-Water Sediment	Surface sediment samples (between 0 and 30.5 cm depth) outside of navigation channel from river miles 1.0 to 1.9, river miles 11.8 to 12.2, and Multnomah Channel.
Shellfish Tissue	Field-collected composite clam and whole body crayfish tissue outside the Study Area.
Surface Water	Surface water collected using a peristaltic pump and XAD-2 Infiltrex™ 300 system (column and filter) during Round 3 sampling from Multnomah Channel. Surface water samples were taken from near bottom and near surface horizontally-integrated depths within the water column, as described in Appendix A of the Remedial Investigation Report.

Notes:

a Dataset outside of Study Area includes samples from river miles 1.0 up to 1.9, river miles greater than 11.8 and up to 12.2, and Multnomah Channel.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
cm = centimeter.

Table 2-3
Summary of BHHRA Sediment Data From Within Study Area[a]

Sampling Event	Sampling Dates	No. of Samples[b]	Chemicals Analyzed
Beach Sediment[c]			
Round 1 beach sediment	October 2002	22	PCB Aroclors, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
Round 2 beach sediment	July to November 2004	6	PCB Aroclors, dioxins and furans, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
In-Water Sediment, LWG-Collected			
Round 1 co-located surface sediment	October to November 2002	40	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs, VOCs
Round 2A benthic sediment	December 2005	34	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, PCB congeners, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Round 2A groundwater pathway assessment co-located sediment grabs	November and December 2005	33	butyltins, dioxins and furans, herbicides, metals, PAHs, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Groundwater pathway assessment pilot study	January 2005	11	metals, PAHs, organochlorine pesticides, petroleum, SVOCs, VOCs
Round 2A sediment cores[d]	September to November 2004	34	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, PCB congeners, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Round 2A sediment grabs	July to November 2004	403	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, PCB congeners, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Round 2B sediment cores	October 2005	29	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, PCB congeners, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Round 3 sediment from upstream and downstream	January to February 2007	3	PCB Aroclors, dioxins and furans, metals, PAHs, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Round 3B Biota - Co-located Sediments	October to December 2007	20	PCB Aroclors, butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
Round 3B sediment grabs	November and December 2007	62	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs
In-Water Sediment, Non-LWG-Collected			
2005 O&M dredge sediment characterization	May 2005	73	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
City outfall sediment investigation	October 2002	85	herbicides, metals, PAHs, PCB congeners, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs
City outfall pilot project	August 2002	18	PCB Aroclors, herbicides, metals, PAHs, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs
Gasco source control evaluation	April 2001	6	metals, PAHs, VOCs
McCormick & Baxter RI Phase 3	October 1999	12	dioxins and furans, metals, PAHs, phenols
PAH in surface sediments	June 1997	31	PAHs, SVOCs

Table 2-3
Summary of BHHRA Sediment Data From Within Study Area[a]

Sampling Event	Sampling Dates	No. of Samples[b]	Chemicals Analyzed
Portland Harbor sediment investigation	September 1997 to February 1999	128	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
Portland Shipyard environmental audit	November 1997 to January 1998	6	PCB Aroclors, butyltins, metals, PAHs, phthalates, SVOCs, VOCs
Portland Shipyard sediment investigation	March to April 1998	40	PCB Aroclors, butyltins, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs, VOCs
Terminal 4 EE/CA	March 2003 to May 2004	43	PCB Aroclors, metals, PAHs, organochlorine pesticides, petroleum, phthalates, SVOCs
US Moorings sediment investigation 2002	September 2002	2	PCB Aroclors, butyltins, metals, PAHs, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs
Willamette Cove Sampling and Analysis	September 2007	1	PCB Aroclors, butyltins, dioxins and furans, herbicides, metals, PAHs, PCB congeners, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Willamette River 1998 data	January 1998	4	PCB Aroclors, butyltins, metals, PAHs, phthalates

Notes:

a Study Area extends from river miles 1.9 to 11.8 inclusive, including Swan Island Lagoon, and excluding Multnomah Channel.
b Includes field replicates.
c Beach samples are composites that were collected as mulitple grab samples along transects within designated human use beaches.
d Surface sediment samples from cores within the 0- to 30.5-cm depth interval were included in the BHHRA dataset.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
cm = centimeter.
LWG = Lower Willamette Group.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
SVOC = semivolatile organic compound.
VOC = volatile organic compound.

Table 2-4

Summary of BHHRA Sediment Data From Outside Of Study Area[a]

Sampling Event	Sampling Dates	No. of Samples[b]	Chemicals Analyzed
In-Water Sediment, LWG-Collected			
Round 3 sediment from upstream and downstream	January to February 2007	18	PCB Aroclors, conventionals, dioxins and furans, metals, PAHs, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs, VOCs
Round 3B Biota - Co-located Sediments	October to December 2007	8	PCB Aroclors, butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
Round 3B sediment grabs	November and December 2007	10	PCB Aroclors, conventionals, metals, PAHs, organochlorine pesticides, petroleum, phenols, phthalates, SVOCs

Notes:

a Sediment data outside of Study Area includes samples from river miles 1.0 to 1.9, river miles 11.9 to 12.2, and Multnomah Channel.
b Includes field replicates.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
LWG = Lower Willamette Group.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
SVOC = semivolatile organic compound.
VOC = volatile organic compound.

Table 2-5

Summary of BHHRA Surface Water And Groundwater Seep Data From Within Study Area[a]

Sampling Event	Sampling Method	No. of Samples[b]	Chemicals Analyzed
Surface Water			
Round 2A Surface Water, Nov 2004	Peristaltic pump	25	PCB Aroclors[c], butyltins, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)[d]	8	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, phthalates, SVOCs
Round 2A Surface Water, Mar 2005	Peristaltic pump	27	PCB Aroclors, butyltins, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	8	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, phthalates, SVOCs
Round 2A Surface Water, Jul 2005	Peristaltic pump	25	PCB Aroclors, butyltins, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	7	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, phthalates, SVOCs
Round 3A Surface Water, Jan 2006	Peristaltic pump	3	Butyltins, herbicides, metals, PAHs, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	2	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, SVOCs
Round 3A Surface Water, Sep 2006	Peristaltic pump	10	Butyltins, herbicides, metals, PAHs, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	10	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, SVOCs
Round 3A Surface Water, Nov 2006	Peristaltic pump	38	Butyltins, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	36	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, SVOCs

Table 2-5

Summary of BHHRA Surface Water And Groundwater Seep Data From Within Study Area[a]

Sampling Event	Sampling Method	No. of Samples[b]	Chemicals Analyzed
Round 3A Surface Water High Flow Event, Jan and Feb 2007	Peristaltic pump	38	Butyltins, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	36	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, SVOCs
Groundwater Seep			
Rhône-Poulenc Outfall 22B Effluent Sampling	--	2	PCB Aroclors, dioxins and furans, herbicides, metals, PAHs, petroleum, organochlorine pesticides, phenols, phthalates, SVOCs, VOCs

Notes:

a Study Area extends from river miles 1.9 to 11.8, including Swan Island Lagoon and excluding Multnomah Channel.
b Includes field replicates.
c PCB Aroclors were derived from individual congeners by Axys Analytical Services, Ltd. for all XAD samples.
d For XAD samples, each combined filter and water column sample is presented as a single sample.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
SVOC = semivolatile organic compound.
VOC = volatile organic compound.
XAD = XAD-2 Infiltrex™ 300 system.

Table 2-6

Summary of BHHRA Surface Water Data From Outside Of Study Area[a]

Sampling Event	Sampling Method	No. of Samples[b]	Chemicals Analyzed
Surface Water			
Round 3A Surface Water, Sep 2006	Peristaltic pump	2	Butyltins, herbicides, metals, PAHs, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	2	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, SVOCs
Round 3A Surface Water, Nov 2006	Peristaltic pump	2	Butyltins, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	2	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, SVOCs
Round 3A Surface Water High Flow Event, Jan and Feb 2007	Peristaltic pump	2	Butyltins, herbicides, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	XAD (combined filter and water column samples)	2	Dioxins and furans, PAHs, PCB congeners, organochlorine pesticides, SVOCs

Notes:

a Samples from outside the Study Area are samples collected from station W027 in Multnomah Channel.

b Includes field replicates.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
SVOC = semivolatile organic compound.
XAD = XAD-2 Infiltrex™ 300 system.

Table 2-7
Summary of BHHRA Tissue Data From Within Study Area[a]

Sampling Event	Species	Tissue Type	No. of Samples[b]	Chemicals Analyzed
Round 1 Tissue Sampling June - November 2002	Black crappie	Whole body	4	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet with skin	4	PCB Aroclors, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet without skin	4	Mercury
	Brown bullhead	Whole body	6	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet without skin	6	PCB Aroclors, metals (including mercury), PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
	Common carp	Whole body	6	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet with skin	6	PCB Aroclors, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet without skin	6	Mercury
	Smallmouth bass	Whole body	14	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet with skin	5	PCB Aroclors, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet without skin	5	Mercury
	Crayfish	Whole body	27	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
	Clams	Whole body	3	PCB Aroclors, butyltins, metals, PAHs, organochlorine pesticides, phenols, phthalates, SVOCs
Round 2 Tissue Sampling November - December 2005	Clams	Whole body	33	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
Round 3 Tissue Sampling August - November 2007	Smallmouth bass	Whole body[c]	18	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
		Fillet with skin	18	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
	Common carp	Whole body[c]	9	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, SVOCs
		Fillet with skin	9	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols,SVOCs
	Clams	Whole body, depurated	3	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, SVOCs
		Whole body, undepurated	7	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
	Crayfish	Whole body	5	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
ODHS Tissue Sampling[d] May - August 2003	Salmon	Whole body	4	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, SVOCs
		Fillet with skin	3	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, SVOCs
		Fillet without skin	3	Mercury, PCB congeners, dioxins and furans
	Lamprey	Whole body	4	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, SVOCs
	Sturgeon[e]	Fillet without skin	5	PCB Aroclors, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, SVOCs

Notes:

a Study Area extends from river miles 1.9 to 11.8, including Swan Island Lagoon and excluding Multnomah Channel.
b Samples are composites, except as noted. Includes field replicates.
c Whole body samples were analyzed as fillet tissue and remainder. Results were combined to calculate whole body concentrations.
d A cooperative effort of the Oregon Department of Human Services (ODHS), Agency for Toxic Substances and Disease Registry (ATSDR), Oregon Department of Fish and Wildlife (ODFW), the City of Portland and EPA Region 10 conducted in the summer of 2003.
e Sturgeon samples were individual fish, not composites.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
SVOC = semivolatile organic compound.

Table 2-8

Summary of BHHRA Tissue Data From Outside Of Study Area[a]

Sampling Event	Species	Tissue Type	No. of Samples[b]	Chemicals Analyzed
Round 3 Tissue Sampling August - November 2007	Clams	Whole body, depurated	2	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, SVOCs
		Whole body, undepurated	3	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs
	Crayfish	Whole body	4	Butyltins, dioxins and furans, metals, PAHs, PCB congeners, organochlorine pesticides, phenols, phthalates, SVOCs

Notes:

a Tissue data outside of Study Area includes samples from river miles 1.0 to 1.9, river miles 11.9 to 12.2, and Multnomah Channel.

b Samples are composites. Number indicated includes field replicates.

Abbreviations:

BHHRA = Baseline Human Health Risk Assessment.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
SVOC = semivolatile organic compound.

Table 2-9
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Industrial Use Beach Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	CAS Number	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
Study Area-wide Industrial Use Beaches		**Metals**											
	7429-90-5	Aluminum		mg/kg	9.2E+03	1.9E+04	LWG0108B032SDS015C00	100%	NA - NA	9.9E+04	nc	N	Maximum detected value does not exceed screening value.
	7440-36-0	Antimony		mg/kg	2.0E-01	3.3E-01	LW2-B004	25%	9.0E-02 - 1.2E-01	4.1E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-38-2	Arsenic		mg/kg	1.7E+00	2.7E+00	LW2-B004	100%	NA - NA	1.6E+00	ca	Y	Maximum detected value exceeds screening value.
	7440-43-9	Cadmium		mg/kg	3.0E-02	7.3E-01	LW2-B004	100%	NA - NA	8.0E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-47-3	Chromium	d	mg/kg	1.3E+01	8.4E+01	LW2-B004	100%	NA - NA	1.5E+05	nc	N	Maximum detected value does not exceed screening value.
	7440-50-8	Copper		mg/kg	1.2E+01	2.8E+01	LW2-B004	100%	NA - NA	4.1E+03	nc	N	Maximum detected value does not exceed screening value.
	7439-92-1	Lead	e	mg/kg	5.1E+00	5.0E+01	LWG0106B025SDS015C00	100%	NA - NA	8.0E+02	nc	N	Maximum detected value does not exceed screening value.
	7439-97-6	Mercury		mg/kg	8.0E-03	4.0E-02	LW2-B004	38%	4.0E-02 - 6.0E-02	3.4E+00	nc	N	Maximum detected value does not exceed screening value.
	7440-02-0	Nickel		mg/kg	1.4E+01	6.9E+01	LWG0106B025SDS015C00	100%	NA - NA	2.0E+03	nc	N	Maximum detected value does not exceed screening value.
	7440-22-4	Silver		mg/kg	2.5E-02	1.4E-01	LW2-B004	38%	2.0E-02 - 3.0E-02	5.1E+02	nc	N	Maximum detected value does not exceed screening value.
	7440-66-6	Zinc		mg/kg	6.4E+01	2.5E+02	LW2-B004	100%	NA - NA	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
		Polynuclear Aromatic Hydrocarbons											
	91-57-6	2-Methylnaphthalene		ug/kg	5.1E-01	2.2E+03	LWG0106B025SDS015C00	50%	1.9E+01 - 2.0E+01	4.1E+05	nc	N	Maximum detected value does not exceed screening value.
	83-32-9	Acenaphthene		ug/kg	2.4E-01	3.6E+03	LWG0106B025SDS015C00	38%	2.0E-01 - 2.0E+01	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
	208-96-8	Acenaphthylene	f	ug/kg	7.5E-01	5.0E+03	LWG0106B025SDS015C00	63%	1.9E+01 - 2.0E+01	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
	120-12-7	Anthracene		ug/kg	6.3E-01	8.0E+03	LWG0106B025SDS015C00	63%	1.9E+01 - 2.0E+01	1.7E+07	nc	N	Maximum detected value does not exceed screening value.
	56-55-3	Benzo(a)anthracene		ug/kg	1.8E+00	2.9E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	50-32-8	Benzo(a)pyrene		ug/kg	1.3E+00	4.1E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
	205-99-2	Benzo(b)fluoranthene		ug/kg	3.1E+00	3.1E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	191-24-2	Benzo(g,h,i)perylene	g	ug/kg	1.6E+00	3.6E+04	LWG0106B025SDS015C00	100%	NA - NA	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	207-08-9	Benzo(k)fluoranthene		ug/kg	1.1E+00	2.4E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+04	ca	Y	Maximum detected value exceeds screening value.
	218-01-9	Chrysene		ug/kg	1.6E+00	3.8E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+05	ca	N	Maximum detected value does not exceed screening value.
	53-70-3	Dibenzo(a,h)anthracene		ug/kg	1.5E+00	9.5E+03	LWG0106B025SDS015C00	63%	3.1E-01 - 4.0E+00	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
	206-44-0	Fluoranthene		ug/kg	3.6E+00	6.8E+04	LWG0106B025SDS015C00	75%	1.9E+01 - 2.0E+01	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	86-73-7	Fluorene		ug/kg	3.3E-01	3.6E+03	LWG0106B025SDS015C00	38%	2.4E-01 - 2.0E+01	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	1.2E+00	3.1E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	91-20-3	Naphthalene		ug/kg	5.6E+00	7.0E+03	LWG0106B025SDS015C00	38%	1.3E+00 - 2.0E+01	1.8E+04	ca	N	Maximum detected value does not exceed screening value.
	85-01-8	Phenanthrene	g	ug/kg	1.7E+00	4.7E+04	LWG0106B025SDS015C00	63%	1.9E+01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	129-00-0	Pyrene		ug/kg	4.3E+00	8.0E+04	LWG0106B025SDS015C00	75%	1.9E+01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
		Phthalates											
	117-81-7	Bis(2-ethylhexyl) phthalate		ug/kg	2.0E+01	5.0E+01	LWG0105B019SDS015C00	50%	5.6E+00 - 9.8E+01	1.2E+05	ca	N	Maximum detected value does not exceed screening value.
	84-74-2	Dibutyl phthalate		ug/kg	3.5E+00	1.4E+01	LW2-B004	25%	3.1E+00 - 9.8E+01	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
		SVOCs											
	86-74-8	Carbazole	h	ug/kg	1.8E+00	2.8E+03	LWG0106B025SDS015C00	50%	1.6E+00 - 4.0E+00	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	132-64-9	Dibenzofuran		ug/kg	3.1E-01	5.6E+02	LWG0106B025SDS015C00	50%	2.1E-01 - 4.0E+00	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
		Polychlorinated Biphenyls											
		Total PCB Aroclors	i	ug/kg	1.7E+01	1.6E+03	LW2-B004	63%	3.8E+00 - 3.9E+00	7.4E+02	ca	Y	Maximum detected value exceeds screening value.
		Dioxin/Furan											
		Total PCB TEQ	j	pg/g	3.8E+00	3.1E+01	LW2-B004	100%	NA - NA	1.8E+01	ca	Y	Maximum detected value exceeds screening value.
		Total Dioxin TEQ	j	pg/g	1.7E-01	9.5E-01	LW2-B004	100%	NA - NA	1.8E+01	ca	N	Maximum detected value does not exceed screening value.
		Pesticides											
	319-84-6	alpha-Hexachlorocyclohexane		ug/kg	4.8E-01	4.8E-01	LW2-B004	13%	3.1E-02 - 3.9E+00	2.7E+02	ca	N	Maximum detected value does not exceed screening value.
	319-85-7	beta-Hexachlorocyclohexane		ug/kg	1.1E+00	1.3E+00	LW2-B006	25%	3.3E-02 - 4.2E+01	9.6E+02	ca	N	Maximum detected value does not exceed screening value.

Table 2-9
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Industrial Use Beach Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	CAS Number	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Total DDD	k	ug/kg	1.1E+00	1.5E+00	LW2-B004	38%	4.5E-02 - 9.0E+00	7.2E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDT	l	ug/kg	3.3E-01	6.7E+00	LWG0106B029SDS015C00	50%	3.9E-01 - 1.2E+01	7.0E+03	ca	N	Maximum detected value does not exceed screening value.

Notes:

a Chemicals listed include analytes detected in human health beach sediment samples from beaches designated as having potential for industrial use.
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
c Screening concentrations and toxicity classifications are from EPA RSLs for industrial soil (Nov 2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.
d EPA RSL for trivalent chromium used for chromium screening concentration.
e EPA RSL for lead not divided by 10 for screening.
f EPA RSL for acenaphthene used as surrogate.
g EPA RSL for pyrene used as surrogate.
h EPA RSL for fluorene used as surrogate.
i EPA RSL for PCBs as Aroclor 1254 used for screening concentration.
j EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration. Detection limits listed are for individual congeners/isomers before TEQ adjustment.
k EPA RSL for DDD used for total DDD screening concentration.
l EPA RSL for DDT used for total DDT screening concentration.

Abbreviations:

ca = Carcinogen.
CAS = Chemical Abstract Services number.
COPC = Chemical of potential concern.
EPA = U.S. Environmental Protection Agency.
max = Ceiling limit recommended for screening value.
mg/kg = Milligrams per kilogram.
N = No.
NA = Not applicable. Chemical detected at 100% frequency.
nc = Noncarcinogen.
RSL = Regional screening level.
SVOC = Semivolatile organic compound.
TEQ = Toxicity equivalent.
Y = Yes.

Table 2-10
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Sediment at Beaches Used for Recreation, by Transients, and/or by Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Recreation, Transients, and/or Fishers Use

Exposure Point	CAS Number	Chemical[a]		Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
Study Area wide Residential Use Beaches		**Metals**											
	7429-90-5	Aluminum		mg/kg	1.0E+04	2.2E+04	LWG0103B031SDS015C00	100%	NA - NA	7.7E+03	nc	Y	Maximum detected value exceeds screening value.
	7440-36-0	Antimony		mg/kg	2.0E-01	1.3E+01	LWG0104B024SDS015C00	35%	1.1E-01 - 1.8E-01	3.1E+00	nc	Y	Maximum detected value exceeds screening value.
	7440-38-2	Arsenic		mg/kg	7.0E-01	9.9E+00	LWG0106B030SDS015C00	100%	NA - NA	3.9E-01	ca	Y	Maximum detected value exceeds screening value.
	7440-43-9	Cadmium		mg/kg	3.0E-02	2.3E-01	LWG0106B022SDS015C00	100%	NA - NA	7.0E+00	nc	N	Maximum detected value does not exceed screening value.
	7440-47-3	Chromium	d	mg/kg	1.3E+01	7.7E+01	LWG0106B030SDS015C00	100%	NA - NA	1.2E+04	nc	N	Maximum detected value does not exceed screening value.
	7440-50-8	Copper		mg/kg	1.4E+01	6.1E+02	LWG0106B030SDS015C00	100%	NA - NA	3.1E+02	nc	Y	Maximum detected value exceeds screening value.
	7439-92-1	Lead	e	mg/kg	4.7E+00	6.2E+01	LWG0105B018SDS015C00	100%	NA - NA	4.0E+02	nc	N	Maximum detected value does not exceed screening value.
	7439-97-6	Mercury		mg/kg	1.9E-02	1.8E-01	LWG0106B026SDS015C00	20%	4.0E-02 - 6.0E-02	5.6E-01	nc	N	Maximum detected value does not exceed screening value.
	7440-02-0	Nickel		mg/kg	1.4E+01	4.1E+01	LWG0106B030SDS015C00	100%	NA - NA	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	7782-49-2	Selenium		mg/kg	5.0E-02	6.0E-02	LW2-B005	10%	4.0E-02 - 3.0E-01	3.9E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-22-4	Silver		mg/kg	2.0E-02	2.0E-01	LWG0106B030SDS015C00	30%	2.0E-02 - 3.0E-02	3.9E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-66-6	Zinc		mg/kg	5.5E+01	1.4E+02	LWG0106B022SDS015C00	100%	NA - NA	2.3E+03	nc	N	Maximum detected value does not exceed screening value.
		Polynuclear Aromatic Hydrocarbons											
	91-57-6	2-Methylnaphthalene		ug/kg	8.6E-01	8.3E+00	LW2-B003	15%	1.9E+01 - 2.0E+01	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
	83-32-9	Acenaphthene		ug/kg	2.3E+00	3.2E+01	LW2-B003	10%	2.1E-01 - 2.0E+01	3.4E+05	nc	N	Maximum detected value does not exceed screening value.
	208-96-8	Acenaphthylene	f	ug/kg	1.8E+00	5.1E+01	LWG0104B024SDS015C00	20%	1.9E+01 - 2.0E+01	3.4E+05	nc	N	Maximum detected value does not exceed screening value.
	120-12-7	Anthracene		ug/kg	1.4E+00	4.6E+01	LWG0104B024SDS015C00	20%	1.9E+01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	56-55-3	Benzo(a)anthracene		ug/kg	4.8E+00	2.1E+02	LW2-B003	95%	1.9E+00 - 1.9E+00	1.5E+02	ca	Y	Maximum detected value exceeds screening value.
	50-32-8	Benzo(a)pyrene		ug/kg	4.4E+00	3.6E+02	LW2-B003, LWG0104B024SDS015C00	95%	1.9E+00 - 1.9E+00	1.5E+01	ca	Y	Maximum detected value exceeds screening value.
	205-99-2	Benzo(b)fluoranthene		ug/kg	2.1E+00	3.1E+02	LW2-B003	100%	NA - NA	1.5E+02	ca	Y	Maximum detected value exceeds screening value.
	191-24-2	Benzo(g,h,i)perylene	g	ug/kg	1.9E+00	3.1E+02	LW2-B003	100%	NA - NA	1.7E+05	nc	N	Maximum detected value does not exceed screening value.
	207-08-9	Benzo(k)fluoranthene		ug/kg	2.7E+00	2.7E+02	LWG0104B024SDS015C00	100%	NA - NA	1.5E+03	ca	N	Maximum detected value does not exceed screening value.
	218-01-9	Chrysene		ug/kg	3.6E+00	3.1E+02	LWG0104B024SDS015C00	100%	NA - NA	1.5E+04	ca	N	Maximum detected value does not exceed screening value.
	53-70-3	Dibenzo(a,h)anthracene		ug/kg	2.2E+00	3.3E+01	LW2-B003	50%	1.9E+00 - 9.5E+00	1.5E+01	ca	Y	Maximum detected value exceeds screening value.
	206-44-0	Fluoranthene		ug/kg	7.3E+00	5.2E+02	LWG0104B024SDS015C00	70%	1.9E+01 - 1.9E+01	2.3E+05	nc	N	Maximum detected value does not exceed screening value.
	86-73-7	Fluorene		ug/kg	4.0E-01	6.5E+00	LW2-B003	15%	1.9E+01 - 2.0E+01	2.3E+05	nc	N	Maximum detected value does not exceed screening value.
	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	4.4E+00	2.8E+02	LW2-B003	95%	1.9E+00 - 1.9E+00	1.5E+02	ca	Y	Maximum detected value exceeds screening value.
	91-20-3	Naphthalene		ug/kg	1.1E+01	4.1E+01	LWG0106B022SDS015C00	20%	1.9E+00 - 2.0E+01	3.6E+03	ca	N	Maximum detected value does not exceed screening value.
	85-01-8	Phenanthrene	g	ug/kg	1.7E+00	3.2E+02	LWG0104B024SDS015C00	55%	1.9E+01 - 2.0E+01	1.7E+05	nc	N	Maximum detected value does not exceed screening value.
	129-00-0	Pyrene		ug/kg	1.2E+01	7.0E+02	LWG0104B024SDS015C00	70%	1.9E+01 - 2.0E+01	1.7E+05	nc	N	Maximum detected value does not exceed screening value.
		Phthalates											
	117-81-7	Bis(2-ethylhexyl) phthalate		ug/kg	2.1E+01	2.3E+02	LWG0105B018SDS015C00	75%	8.2E+00 - 1.9E+01	3.5E+04	ca	N	Maximum detected value does not exceed screening value.
	84-74-2	Dibutyl phthalate		ug/kg	3.9E+00	1.9E+02	LWG0106B030SDS015C00	45%	3.2E+00 - 2.0E+01	6.1E+05	nc	N	Maximum detected value does not exceed screening value.
	84-66-2	Diethyl phthalate		ug/kg	4.8E+01	4.8E+01	LWG0106B030SDS015C00	5%	4.3E+00 - 2.0E+01	4.9E+06	nc	N	Maximum detected value does not exceed screening value.
		SVOCs											
	86-74-8	Carbazole	h	ug/kg	2.6E+00	1.6E+01	LWG0104B024SDS015C00	25%	1.6E+00 - 9.5E+00	2.3E+05	nc	N	Maximum detected value does not exceed screening value.
	132-64-9	Dibenzofuran		ug/kg	7.9E-01	1.1E+01	LWG0106B022SDS015C00	25%	2.3E-01 - 9.5E+00	7.8E+03	nc	N	Maximum detected value does not exceed screening value.
	118-74-1	Hexachlorobenzene		ug/kg	6.6E-01	6.6E-01	LWG0107B024SDS015C00	5%	1.9E-01 - 2.9E+00	3.0E+02	ca	N	Maximum detected value does not exceed screening value.
		Phenols											
	106-44-5	4-Methylphenol		ug/kg	9.5E+00	9.5E+00	LW2-B003	5%	3.6E+00 - 2.0E+01	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
	87-86-5	Pentachlorophenol		ug/kg	2.2E+01	2.2E+01	LWG0107B023SDS015C00	5%	4.8E-01 - 4.8E+01	8.9E+02	ca	N	Maximum detected value does not exceed screening value.
		Polychlorinated Biphenyls											
		Total PCB Aroclors	i	ug/kg	6.5E+00	8.2E+01	LWG0104B024SDS015C00	50%	1.6E+00 - 4.6E+01	2.2E+02	ca	N	Maximum detected value does not exceed screening value.
		Dioxin/Furan											
		Total Dioxin TEQ	j	pg/g	3.5E-02	8.8E-02	LW2-B005	100%	NA - NA	4.5E+00	ca	N	Maximum detected value does not exceed screening value.

Table 2-10
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Sediment at Beaches Used for Recreation, by Transients, and/or by Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Recreation, Transients, and/or Fishers Use

Exposure Point	CAS Number	Chemical[a]		Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Pesticides											
	319-85-7	beta-Hexachlorocyclohexane		ug/kg	3.5E+00	5.1E+00	LW2-B005	10%	3.4E-02 - 4.9E+00	2.7E+02	ca	N	Maximum detected value does not exceed screening value.
	53494-70-5	Endrin ketone	k	ug/kg	4.6E-01	4.6E-01	LW2-B003	5%	2.8E-02 - 1.1E+00	1.8E+03	nc	N	Maximum detected value does not exceed screening value.
		Total Chlordanes	l	ug/kg	5.9E+00	5.9E+00	LWG0109B027SDS015C	5%	3.2E-02 - 4.1E+00	1.6E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDD	m	ug/kg	1.0E+00	1.3E+02	LWG0107B024SDS015C00	35%	3.8E-01 - 7.3E-01	2.0E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDE	n	ug/kg	1.6E-01	1.0E+02	LWG0107B024SDS015C00	25%	3.8E-01 - 4.6E+00	1.4E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDT	o	ug/kg	9.2E-01	1.4E+02	LWG0107B024SDS015C00	30%	3.8E-01 - 2.6E+00	1.7E+03	ca	N	Maximum detected value does not exceed screening value.

Notes:

a Chemicals listed include analytes detected in human health beach sediment samples from beaches designated as having potential for residential/recreational use.
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
c Screening concentrations and toxicity classifications are from EPA RSLs for residential soil (Nov 2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.
d EPA RSL for trivalent chromium used for chromium screening concentration.
e EPA RSL for lead not divided by 10 for screening.
f EPA RSL for acenaphthene used as surrogate.
g EPA RSL for pyrene used as surrogate.
h EPA RSL for fluorene used as surrogate.
i EPA RSL for PCBs as Aroclor 1254 used for screening value.
j EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening value. Detection limits listed are for individual dioxin/furans before TEQ adjustment.
k EPA RSL for endrin used as surrogate.
l EPA RSL for chlordane used for total chlordane screening value .
m EPA RSL for DDD used for total DDD screening value.
n EPA RSL for DDE used for total DDE screening value.
o EPA RSL for DDT used for total DDT screening value.

Abbreviations:

ca = Carcinogen.
CAS = Chemical Abstract Services number.
COPC = Chemical of potential concern.
EPA = U.S. Environmental Protection Agency.
max = Ceiling limit recommended for screening value.
mg/kg = Milligrams per kilogram.
N = No.
NA = Not applicable. Chemical detected at 100% frequency.
nc = Noncarcinogen.
RSL = Regional screening level.
SVOC = Semivolatile organic compound.
TEQ = Toxicity equivalent.
Y = Yes.

Table 2-11
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical[a]		Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
Study Area-wide		**Metals**											
	7429-90-5	Aluminum		mg/kg	1.6E+03	4.6E+04	WR-WSI98SD139	100%	NA - NA	9.9E+04	nc	N	Maximum detected value does not exceed screening value.
	7440-36-0	Antimony		mg/kg	4.0E-02	3.2E+01	WLCOFJ0222B04	75%	3.0E-02 - 8.0E+00	4.1E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-38-2	Arsenic		mg/kg	9.7E-01	7.6E+01	WLCOFJ024803	89%	3.0E+00 - 1.0E+01	1.6E+00	ca	Y	Maximum detected value exceeds screening value.
	7440-39-3	Barium		mg/kg	6.7E+01	6.0E+03	CP-09-A-PG	100%	NA - NA	1.9E+04	nc	N	Maximum detected value does not exceed screening value.
	7440-41-7	Beryllium		mg/kg	2.2E-01	9.0E-01	WR-WSI98SD075	100%	NA - NA	2.0E+02	nc	N	Maximum detected value does not exceed screening value.
	7440-43-9	Cadmium		mg/kg	1.6E-02	4.6E+01	WLCOFJ02M0301	92%	1.6E-03 - 1.1E+00	8.0E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-47-3	Chromium	d	mg/kg	4.1E+00	7.7E+02	WLCOFJ0219A01	100%	2.8E+01 - 4.5E+01	1.5E+05	nc	N	Maximum detected value does not exceed screening value.
	18540-29-9	Chromium hexavalent		mg/kg	2.0E-01	2.1E+00	LW2-GBT012	45%	1.0E-01 - 6.0E-01	5.6E+00	ca	N	Maximum detected value does not exceed screening value.
	7440-48-4	Cobalt		mg/kg	1.1E+01	2.4E+01	WR-WSI98SD075	100%	NA - NA	3.0E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-50-8	Copper		mg/kg	4.4E+00	2.8E+03	LW3-UG01	100%	NA - NA	4.1E+03	nc	N	Maximum detected value does not exceed screening value.
	7439-89-6	Iron		mg/kg	2.9E+04	6.5E+04	WR-WSI98SD075	100%	NA - NA	7.2E+04	nc	N	Maximum detected value does not exceed screening value.
	7439-92-1	Lead	e	mg/kg	2.2E+00	1.3E+04	LW3-GWC1	100%	5.3E+00 - 1.0E+01	8.0E+02	nc	Y	Maximum detected value exceeds screening value.
	7439-96-5	Manganese		mg/kg	2.4E+02	2.1E+03	KM-08-A-PG, LWP1-ARC03B	100%	NA - NA	2.3E+03	nc	N	Maximum detected value does not exceed screening value.
	7439-97-6	Mercury		mg/kg	7.0E-03	6.5E+01	LW3-GWC1	95%	8.0E-03 - 1.0E-01	3.4E+00	nc	Y	Maximum detected value exceeds screening value.
	7440-02-0	Nickel		mg/kg	4.8E+00	5.9E+02	PSYSEA98PSY27	99%	1.5E+01 - 3.0E+01	2.0E+03	nc	N	Maximum detected value does not exceed screening value.
	7782-49-2	Selenium		mg/kg	3.0E-02	2.0E+01	WR-WSI98SD139	46%	3.0E-02 - 6.0E+00	5.1E+02	nc	N	Maximum detected value does not exceed screening value.
	7440-22-4	Silver		mg/kg	1.4E-02	1.5E+01	WLCOFJ02S0202	97%	2.8E-02 - 1.0E+00	5.1E+02	nc	N	Maximum detected value does not exceed screening value.
	7440-28-0	Thallium	f	mg/kg	2.6E-02	2.7E+01	WR-WSI98SD043	85%	5.1E-02 - 1.0E+01	NA	--	Y	Screening value not available.
	7440-31-5	Tin		mg/kg	8.9E-01	5.4E+00	WRD&M98DMJ	100%	NA - NA	6.1E+04	nc	N	Maximum detected value does not exceed screening value.
	7440-32-6	Titanium	f	mg/kg	1.3E+03	3.5E+03	WRD&M98DMJ	100%	NA - NA	NA	--	Y	Screening value not available.
	7440-62-2	Vanadium		mg/kg	6.9E+01	1.5E+02	WR-WSI98SD075	100%	NA - NA	7.2E+00	nc	Y	Maximum detected value exceeds screening value.
	7440-66-6	Zinc		mg/kg	9.7E+00	2.9E+03	WLCOFJ02M0301	100%	NA - NA	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
		Butyltins											Maximum detected value exceeds screening value.
	78763-54-9	Butyltin ion	g	ug/kg	9.3E-02	7.4E+02	WR-WSI98SD012	72%	4.2E-02 - 6.9E+00	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	683-18-1	Dibutyltin dichloride	g	ug/kg	1.7E+01	3.4E+01	LWG0103R004SDS015C10,	100%	NA - NA	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	14488-53-0	Dibutyltin ion	g	ug/kg	1.4E-01	2.7E+03	LW2-G421	76%	4.0E-02 - 3.3E+01	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	1118-46-3	Monobutyltin trichloride	g	ug/kg	8.2E+00	2.8E+01	LWG0103R004SDS015C10	75%	NA - NA	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	1461-25-2	Tetrabutyltin	g	ug/kg	2.7E-01	1.0E+03	LW2-G421	32%	8.1E-02 - 6.0E+00	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	1461-22-9	Tributyltin chloride	g	ug/kg	2.5E+01	6.4E+01	LWG0103R005SDS015C00	100%	NA - NA	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	36643-28-4	Tributyltin ion	g	ug/kg	4.5E-01	4.7E+04	WR-WSI98SD012	94%	7.9E-02 - 5.8E+00	1.8E+04	nc	Y	Maximum detected value exceeds screening value.
		Polynuclear Aromatic Hydrocarbons											Maximum detected value exceeds screening value.
	2245-38-7	1,6,7-Trimethylnaphthalene	h	ug/kg	2.4E-01	2.2E+02	WLCT4C04UP14	93%	5.0E+00 - 5.0E+00	1.8E+04	ca	N	Maximum detected value does not exceed screening value.
	90-12-0	1-Methylnaphthalene		ug/kg	2.4E-01	9.0E+02	LW3-G609	98%	5.0E+00 - 5.0E+00	9.9E+04	ca	N	Maximum detected value does not exceed screening value.
	832-69-9	1-Methylphenanthrene	i	ug/kg	3.8E-01	1.8E+03	WLCT4C04UP13	98%	5.0E+00 - 5.0E+00	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	581-42-0	2,6-Dimethylnaphthalene	h	ug/kg	2.0E-01	2.5E+02	WLCT4C04UP13	95%	5.0E+00 - 5.0E+00	1.8E+04	ca	N	Maximum detected value does not exceed screening value.
	91-57-6	2-Methylnaphthalene		ug/kg	3.7E-01	5.3E+04	GS-04-A-PG-2	82%	4.9E-01 - 1.6E+02	4.1E+05	nc	N	Maximum detected value does not exceed screening value.
	83-32-9	Acenaphthene		ug/kg	2.2E-01	1.8E+05	WLCGSD01AN0103	88%	2.3E-01 - 2.2E+02	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
	208-96-8	Acenaphthylene	j	ug/kg	3.4E-01	1.2E+04	GS-04-A-PG-2, LW3-C662	81%	3.2E-01 - 1.6E+02	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
	120-12-7	Anthracene		ug/kg	3.5E-01	1.6E+05	WLCGSD01AN0103	92%	3.3E-01 - 2.2E+02	1.7E+07	nc	N	Maximum detected value does not exceed screening value.
	56-55-3	Benzo(a)anthracene		ug/kg	5.0E-01	1.2E+05	WLCGSD01AN0103	97%	1.2E+00 - 2.2E+02	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	50-32-8	Benzo(a)pyrene		ug/kg	8.6E-01	1.6E+05	GS-04-A-PG-2	97%	3.3E-01 - 2.2E+02	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
	205-99-2	Benzo(b)fluoranthene		ug/kg	1.1E+00	1.3E+05	LW2-C273, LW2-C301, LW2-G283	99%	7.2E-01 - 2.0E+01	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	192-97-2	Benzo(e)pyrene	i	ug/kg	1.6E+00	3.2E+04	WLCT4C04UP13	100%	NA - NA	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	191-24-2	Benzo(g,h,i)perylene	i	ug/kg	5.6E-01	1.3E+05	GS-04-A-PG-2, WLCGSG04RAA17	95%	7.5E-01 - 2.2E+02	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	207-08-9	Benzo(k)fluoranthene		ug/kg	7.7E-01	8.9E+04	GS-04-A-PG-2	98%	5.0E-01 - 2.0E+01	2.1E+04	ca	Y	Maximum detected value exceeds screening value.
	218-01-9	Chrysene		ug/kg	2.0E+00	1.4E+05	WLCGSD01AN0103	98%	6.2E-01 - 2.2E+02	2.1E+05	ca	N	Maximum detected value does not exceed screening value.
	53-70-3	Dibenzo(a,h)anthracene		ug/kg	2.2E-01	1.5E+04	GS-04-A-PG-2, LW2-C301	86%	3.8E-01 - 2.2E+02	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
	132-65-0	Dibenzothiophene	k	ug/kg	5.3E-01	1.1E+04	LW3-G609	97%	2.1E-01 - 4.1E-01	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	206-44-0	Fluoranthene		ug/kg	1.1E+00	3.5E+05	GS-04-A-PG-2	99%	1.6E+00 - 1.3E+02	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	86-73-7	Fluorene		ug/kg	3.2E-01	1.1E+05	WLCGSD01AN0103	88%	2.6E-01 - 2.2E+02	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	9.0E-01	1.3E+05	GS-04-A-PG-2	95%	3.6E-01 - 2.2E+02	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	91-20-3	Naphthalene		ug/kg	2.7E-01	1.0E+05	WLCGSD01AN0102	71%	4.3E-01 - 1.6E+02	1.8E+04	ca	Y	Maximum detected value exceeds screening value.

Table 2-11
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical[a]		Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	85-01-8	Phenanthrene	i	ug/kg	5.3E-01	4.0E+05	LW2-G301, WLCGSD01AN0103	98%	1.6E+00 - 2.2E+02	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	198-55-0	Perylene	i	ug/kg	9.5E-01	1.3E+04	WLCT4C04UP13	100%	NA - NA	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	129-00-0	Pyrene		ug/kg	2.8E+00	4.5E+05	GS-04-A-PG-2	100%	5.4E-01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
		Phthalates											Maximum detected value exceeds screening value.
	117-81-7	Bis(2-ethylhexyl) phthalate		ug/kg	7.0E+00	4.4E+05	LW2-G367	61%	2.3E+00 - 1.9E+04	1.2E+05	ca	Y	Maximum detected value exceeds screening value.
	85-68-7	Butylbenzyl phthalate		ug/kg	2.2E+00	2.8E+03	LW2-G111	33%	1.9E+00 - 2.2E+03	9.1E+05	ca	N	Maximum detected value does not exceed screening value.
	84-74-2	Dibutyl phthalate		ug/kg	3.7E+00	3.8E+03	WLCOFJ02M0301	32%	3.3E+00 - 1.8E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	84-66-2	Diethyl phthalate		ug/kg	2.0E+00	3.7E+02	LW2-G093	7%	1.3E+00 - 2.2E+03	4.9E+07	nc	N	Maximum detected value does not exceed screening value.
	131-11-3	Dimethyl phthalate	l	ug/kg	1.4E+00	1.7E+02	PSYSEA98PSY03	5%	1.0E+00 - 2.2E+03	4.9E+07	nc	N	Maximum detected value does not exceed screening value.
	117-84-0	Di-n-octyl phthalate	l	ug/kg	3.4E+00	1.5E+04	WLCOFH02M101	10%	1.5E+00 - 1.6E+03	4.9E+07	nc	N	Maximum detected value does not exceed screening value.
		SVOCs											Maximum detected value exceeds screening value.
	120-82-1	1,2,4-Trichlorobenzene		ug/kg	3.1E+00	3.1E+02	LW2-G355	2%	4.4E-01 - 2.2E+03	9.9E+04	ca	N	Maximum detected value does not exceed screening value.
	95-50-1	1,2-Dichlorobenzene		ug/kg	1.6E-01	6.1E+02	LW2-GBT017	2%	9.2E-02 - 2.2E+03	9.8E+05	nc	N	Maximum detected value does not exceed screening value.
	541-73-1	1,3-Dichlorobenzene	m	ug/kg	3.6E+00	9.8E+01	RP-03-C-PG	0.4%	1.4E-01 - 2.2E+03	9.8E+05	nc	N	Maximum detected value does not exceed screening value.
	106-46-7	1,4-Dichlorobenzene		ug/kg	8.8E-01	7.3E+02	LW2-G505	2%	1.4E-01 - 2.2E+03	1.2E+04	ca	N	Maximum detected value does not exceed screening value.
	99-09-2	3-Nitroaniline	n	ug/kg	4.8E+02	4.8E+02	WLCOFH02M103	0.1%	2.5E+00 - 2.2E+03	6.0E+05	nc	N	Maximum detected value does not exceed screening value.
	106-47-8	4-Chloroaniline		ug/kg	1.0E+01	1.3E+01	LW3-C757, LW3-G743	0.2%	1.9E+00 - 2.2E+03	8.6E+03	ca	N	Maximum detected value does not exceed screening value.
	100-01-6	4-Nitroaniline		ug/kg	3.9E+01	9.6E+01	LW2-G099	0.2%	1.8E+00 - 2.2E+03	8.6E+04	ca	N	Maximum detected value does not exceed screening value.
	62-53-3	Aniline		ug/kg	9.5E+00	6.7E+02	LW2-G401	1%	1.5E+00 - 2.2E+03	3.0E+05	ca	N	Maximum detected value does not exceed screening value.
	65-85-0	Benzoic acid		ug/kg	9.9E+01	4.1E+03	WLCOFH02M106	5%	5.2E+01 - 5.3E+04	2.5E+08	nc	N	Maximum detected value does not exceed screening value.
	100-51-6	Benzyl alcohol		ug/kg	2.3E+00	2.4E+02	WLCOFJ0252A05	10%	2.1E+00 - 2.2E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	111-44-4	Bis(2-chloroethyl) ether		ug/kg	4.4E+00	1.4E+01	LW2-G232, LW2-G375	0.3%	1.9E+00 - 2.2E+03	1.0E+03	ca	N	Maximum detected value does not exceed screening value.
	86-74-8	Carbazole	k	ug/kg	1.6E+00	3.0E+04	LW2-C299, LW2-G264	62%	1.3E+00 - 2.2E+03	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	132-64-9	Dibenzofuran		ug/kg	2.5E-01	7.8E+03	LW2-G294	78%	2.2E-01 - 2.2E+03	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
	92-52-4	Diphenyl		ug/kg	4.4E-01	4.5E+02	WLCASF97S021	88%	4.9E+00 - 5.1E+00	5.1E+06	nc	N	Maximum detected value does not exceed screening value.
	118-74-1	Hexachlorobenzene		ug/kg	1.2E-02	3.4E+02	LW2-G355	34%	1.7E-02 - 1.2E+03	1.1E+03	ca	N	Maximum detected value does not exceed screening value.
	87-68-3	Hexachlorobutadiene		ug/kg	6.5E-02	2.3E+02	WR-WSI98SD092	6%	1.8E-03 - 2.0E+02	2.2E+04	ca	N	Maximum detected value does not exceed screening value.
	67-72-1	Hexachloroethane		ug/kg	2.5E-01	1.5E+03	LW2-G355	11%	4.9E-02 - 4.8E+02	1.2E+05	ca	N	Maximum detected value does not exceed screening value.
	86-30-6	N-Nitrosodiphenylamine		ug/kg	2.0E+00	6.1E+01	CP-09-A-PG	1%	1.6E+00 - 2.2E+03	3.5E+05	ca	N	Maximum detected value does not exceed screening value.
		Phenols											Maximum detected value exceeds screening value.
	4901-51-3	2,3,4,5-Tetrachlorophenol	o	ug/kg	6.2E-01	1.8E+02	LW2-G355	2%	2.5E-01 - 1.6E+03	1.8E+06	nc	N	Maximum detected value does not exceed screening value.
	25167-83-3_3	2,3,4,6;2,3,5,6-Tetrachlorophenol coelution	o	ug/kg	1.0E+00	4.9E+01	LW2-G355	2%	4.4E-01 - 3.7E+02	1.8E+06	nc	N	Maximum detected value does not exceed screening value.
	935-95-5	2,3,5,6-Tetrachlorophenol	o	ug/kg	3.8E-01	2.8E+01	WLCOFJ024806	3%	2.0E-01 - 2.2E+03	1.8E+06	nc	N	Maximum detected value does not exceed screening value.
	95-95-4	2,4,5-Trichlorophenol		ug/kg	7.8E-01	4.8E+01	LW2-G302	1%	3.6E-01 - 2.2E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	88-06-2	2,4,6-Trichlorophenol		ug/kg	2.4E-01	2.2E+02	CP-07-D-PG	3%	1.3E-01 - 2.2E+03	1.6E+05	ca	N	Maximum detected value does not exceed screening value.
	120-83-2	2,4-Dichlorophenol		ug/kg	4.7E+00	1.2E+02	LW2-G332	1%	1.0E+00 - 2.2E+03	1.8E+05	nc	N	Maximum detected value does not exceed screening value.
	105-67-9	2,4-Dimethylphenol		ug/kg	1.8E+01	3.0E+02	LWG0109R002SDS015C00	0.3%	5.5E+00 - 2.2E+03	1.2E+06	nc	N	Maximum detected value does not exceed screening value.
	95-57-8	2-Chlorophenol		ug/kg	9.8E+00	5.4E+01	LW2-G334	0.2%	2.0E+00 - 2.2E+03	5.1E+05	nc	N	Maximum detected value does not exceed screening value.
	95-48-7	2-Methylphenol		ug/kg	6.9E+01	2.9E+02	LW2-G415	0.3%	1.5E+00 - 2.2E+03	3.1E+06	nc	N	Maximum detected value does not exceed screening value.
	59-50-7	4-Chloro-3-methylphenol		ug/kg	2.4E+00	3.1E+02	WLCOFH021805	1%	1.4E+00 - 2.2E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	106-44-5	4-Methylphenol		ug/kg	2.0E+00	1.4E+03	WR-WSI98SD139	48%	1.5E+00 - 4.3E+03	3.1E+05	nc	N	Maximum detected value does not exceed screening value.
	87-86-5	Pentachlorophenol		ug/kg	5.0E-01	8.4E+03	WLCOFJ0252C01	21%	1.7E-01 - 2.2E+03	2.7E+03	ca	Y	Maximum detected value exceeds screening value.
	108-95-2	Phenol		ug/kg	2.8E+00	6.8E+02	LW2-G092	28%	2.0E+00 - 2.2E+03	1.8E+07	nc	N	Maximum detected value does not exceed screening value.
		Polychlorinated Biphenyls											Maximum detected value exceeds screening value.
	11097-69-1	Total PCB Aroclors	p	ug/kg	5.1E+00	3.1E+04	LW2-G453	80%	1.3E+00 - 1.0E+03	7.4E+02	ca	Y	Maximum detected value exceeds screening value.
	11097-69-1	Total PCB Congeners	p	pg/g	1.8E+03	3.5E+07	LW2-G453	100%	3.9E-03 - 2.0E-02	7.4E+05	ca	Y	Maximum detected value exceeds screening value.
		Dioxin/Furan											Maximum detected value exceeds screening value.
	1746-01-6	Total Dioxin TEQ	q	pg/g	2.9E-02	1.4E+04	LWG0107R006SDS015C00	100%	NA - NA	1.8E+01	ca	Y	Maximum detected value exceeds screening value.
	1746-01-6	Total PCB TEQ	q	pg/g	5.2E-02	2.4E+02	LW2-G453	100%	NA - NA	1.8E+01	ca	Y	Maximum detected value exceeds screening value.
		Pesticides											Maximum detected value exceeds screening value.
	309-00-2	Aldrin		ug/kg	3.3E-03	6.9E+02	LW2-G355	24%	1.6E-02 - 9.9E+01	1.0E+02	ca	Y	Maximum detected value exceeds screening value.
	319-84-6	alpha-Hexachlorocyclohexane		ug/kg	2.4E-03	1.0E+01	LW2-G453	20%	1.4E-03 - 9.9E+01	2.7E+02	ca	N	Maximum detected value does not exceed screening value.
	319-85-7	beta-Hexachlorocyclohexane		ug/kg	1.4E-03	2.0E+01	LW2-G274	42%	1.1E-03 - 9.9E+01	9.6E+02	ca	N	Maximum detected value does not exceed screening value.
	319-86-8	delta-Hexachlorocyclohexane	f	ug/kg	1.8E-03	5.3E+00	WLCOFJ0222B04	15%	9.8E-04 - 9.9E+01	NA	--	Y	Screening value not available.

Table 2-11
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical[a]		Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	60-57-1	Dieldrin		ug/kg	8.3E-03	3.6E+02	LW2-G453	21%	3.0E-02 - 2.7E+02	1.1E+02	ca	Y	Maximum detected value exceeds screening value.
	72-20-8	Endrin		ug/kg	2.0E-03	3.2E+01	AP-04-C-PG, LW2-C295	8%	1.3E-02 - 2.0E+02	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	7421-93-4	Endrin aldehyde	r	ug/kg	1.1E-01	1.4E+01	LW3-G609	4%	4.2E-02 - 2.0E+02	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	53494-70-5	Endrin ketone	r	ug/kg	5.5E-03	9.0E+01	LW2-G453	18%	2.1E-03 - 2.0E+02	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	58-89-9	gamma-Hexachlorocyclohexane		ug/kg	3.1E-03	4.3E+02	LWG0107R006SDS015C00	18%	4.7E-03 - 9.9E+01	2.1E+03	ca	N	Maximum detected value does not exceed screening value.
	76-44-8	Heptachlor		ug/kg	2.6E-03	6.0E+00	PSYSEA98PSY01	7%	1.4E-03 - 9.9E+01	3.8E+02	ca	N	Maximum detected value does not exceed screening value.
	1024-57-3	Heptachlor epoxide		ug/kg	1.6E-03	1.7E+01	AP-04-C-PG	9%	1.9E-03 - 9.9E+01	1.9E+02	ca	N	Maximum detected value does not exceed screening value.
	72-43-5	Methoxychlor		ug/kg	4.8E-02	3.4E+01	LW2-G333	13%	2.3E-02 - 9.9E+02	3.1E+05	nc	N	Maximum detected value does not exceed screening value.
	2385-85-5	Mirex		ug/kg	9.5E-02	5.0E+01	LW2-C525	4%	3.4E-02 - 1.3E+02	9.6E+01	ca	N	Maximum detected value does not exceed screening value.
	12789-03-6	Total Chlordanes	s	ug/kg	6.3E-02	6.7E+02	LW2-G355	67%	4.1E-02 - 2.3E+02	6.5E+03	ca	N	Maximum detected value does not exceed screening value.
	72-54-8	Total DDDs	t	ug/kg	6.7E-02	3.0E+03	LW2-G360	86%	5.3E-02 - 1.3E+02	7.2E+03	ca	N	Maximum detected value does not exceed screening value.
	72-55-9	Total DDEs	u	ug/kg	1.1E-01	2.5E+03	LW2-G453	82%	4.5E-02 - 1.3E+02	5.1E+03	ca	N	Maximum detected value does not exceed screening value.
	50-29-3	Total DDTs	v	ug/kg	4.4E-02	2.3E+04	LWP-TZSAP04B	78%	5.6E-02 - 4.1E+01	7.0E+03	ca	Y	Maximum detected value exceeds screening value.
	115-29-7	Total Endosulfans	w	ug/kg	2.7E-02	2.7E+02	WR-WSI98SD0920000CC	27%	4.5E-02 - 2.0E+02	3.7E+05	nc	N	Maximum detected value does not exceed screening value.
		Herbicides											Maximum detected value exceeds screening value.
	93-76-5	2,4,5-T		ug/kg	1.6E+01	1.6E+01	WLCOFJ02M0201	1%	1.1E-01 - 1.1E+02	6.2E+05	nc	N	Maximum detected value does not exceed screening value.
	94-75-7	2,4-D		ug/kg	9.0E+00	3.3E+03	LW2-G334	6%	7.5E-02 - 1.3E+02	7.7E+05	nc	N	Maximum detected value does not exceed screening value.
	94-82-6	2,4-DB		ug/kg	1.3E+01	3.4E+02	LW2-G334	4%	1.1E-01 - 2.7E+02	4.9E+05	nc	N	Maximum detected value does not exceed screening value.
	120-36-5	Dichloroprop	x	ug/kg	9.4E+00	9.4E+00	RP-07-B-PG	1%	1.2E-01 - 1.3E+02	7.7E+05	nc	N	Maximum detected value does not exceed screening value.
	94-74-6	MCPA		ug/kg	4.1E+00	3.6E+02	LW2-G334	1%	1.6E-01 - 6.7E+04	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
	93-65-2	MCPP		ug/kg	1.9E+02	4.2E+03	WLCDRD05PG058	1%	1.2E-01 - 9.1E+04	6.2E+04	nc	N	Maximum detected value does not exceed screening value.
	93-72-1	Silvex		ug/kg	5.4E+00	5.4E+00	RP-03-C-PG	1%	1.1E-01 - 4.4E+01	4.9E+05	nc	N	Maximum detected value does not exceed screening value.
		VOCs											Maximum detected value exceeds screening value.
	630-20-6	1,1,1,2-Tetrachloroethane		ug/kg	2.9E-01	2.9E-01	LW2-GBT018	0.5%	3.8E-02 - 5.0E+01	9.3E+03	ca	N	Maximum detected value does not exceed screening value.
	75-34-3	1,1-Dichloroethane		ug/kg	2.5E-01	3.1E-01	CP-07-A-PG, CP-07-D-PG, LW2-	1%	7.0E-02 - 5.0E+01	1.7E+04	ca	N	Maximum detected value does not exceed screening value.
	96-18-4	1,2,3-Trichloropropane		ug/kg	5.0E-01	8.6E-01	WLCDRD05PG042	1%	1.4E-01 - 2.5E+02	9.5E+01	ca	N	Maximum detected value does not exceed screening value.
	95-50-1	1,2-Dichlorobenzene		ug/kg	1.6E-01	6.1E+02	LW2-GBT017	2%	9.2E-02 - 2.2E+03	9.8E+05	nc	N	Maximum detected value does not exceed screening value.
	107-06-2	1,2-Dichloroethane		ug/kg	1.1E-01	3.5E-01	LW2-G263	1%	3.8E-02 - 5.0E+01	2.2E+03	ca	N	Maximum detected value does not exceed screening value.
	67-64-1	Acetone		ug/kg	3.4E+00	1.6E+02	LW2-GBT003	10%	2.0E+00 - 2.5E+02	6.3E+07	nc	N	Maximum detected value does not exceed screening value.
	71-43-2	Benzene		ug/kg	3.0E-02	7.2E+02	LWP1-AP04D	17%	1.0E-02 - 5.0E+01	5.4E+03	ca	N	Maximum detected value does not exceed screening value.
	75-15-0	Carbon disulfide		ug/kg	1.1E-01	4.5E+00	LW2-G092	9%	9.3E-02 - 2.5E+01	3.7E+05	nc	N	Maximum detected value does not exceed screening value.
	108-90-7	Chlorobenzene		ug/kg	1.4E-01	3.5E+04	LWP1-AP04D	16%	7.2E-02 - 5.0E+01	1.4E+05	nc	N	Maximum detected value does not exceed screening value.
	75-00-3	Chloroethane		ug/kg	7.7E+00	3.2E+01	GN-05-A-PG	1%	2.8E-01 - 5.0E+02	6.1E+06	nc	N	Maximum detected value does not exceed screening value.
	67-66-3	Chloroform		ug/kg	8.7E-02	9.8E+01	CP-07-D-PG	6%	6.8E-02 - 5.0E+01	1.5E+03	ca	N	Maximum detected value does not exceed screening value.
	156-59-2	cis-1,2-Dichloroethene		ug/kg	2.1E-01	2.7E-01	RP-03-C-PG, AP-03-A-TR	3%	7.6E-02 - 2.0E+00	2.0E+05	nc	N	Maximum detected value does not exceed screening value.
	75-71-8	Dichlorodifluoromethane		ug/kg	2.0E-01	2.9E+01	LW2-GBT004	17%	8.2E-02 - 5.0E+02	7.8E+04	nc	N	Maximum detected value does not exceed screening value.
	100-41-4	Ethylbenzene		ug/kg	7.0E-02	7.1E+02	GS-04-A-PG-2	13%	9.0E-03 - 5.0E+01	2.7E+04	ca	N	Maximum detected value does not exceed screening value.
	98-82-8	Isopropylbenzene		ug/kg	7.3E-02	5.2E+02	GS-04-A-PG-2	15%	5.4E-02 - 1.0E+02	1.1E+06	nc	N	Maximum detected value does not exceed screening value.
	108-10-1	Methyl isobutyl ketone		ug/kg	3.3E-01	3.3E-01	EM-03-A-PG	0.5%	3.0E-01 - 2.5E+02	5.3E+06	nc	N	Maximum detected value does not exceed screening value.
	591-78-6	Methyl n-butyl ketone		ug/kg	1.8E+00	1.8E+00	GN-02-E-PG	0.5%	7.8E-01 - 2.5E+02	1.4E+05	nc	N	Maximum detected value does not exceed screening value.
	1634-04-4	Methyl tert-butyl ether		ug/kg	7.0E-02	8.4E-01	LW2-G061, R2-AR-02-TR	4%	4.8E-02 - 2.9E-01	2.2E+05	ca	N	Maximum detected value does not exceed screening value.
	75-09-2	Methylene chloride		ug/kg	8.8E-01	1.3E+00	LW2-GBT004	1%	4.0E-01 - 2.5E+02	5.3E+04	ca	N	Maximum detected value does not exceed screening value.
	78-93-3	Methylethyl ketone		ug/kg	2.1E+00	9.8E+00	LW2-G360	18%	1.0E+01 - 1.3E+03	2.0E+07	nc	N	Maximum detected value does not exceed screening value.
	100-42-5	Styrene		ug/kg	1.1E+00	1.1E+00	LW2-G283	0.5%	9.0E-02 - 5.0E+01	3.6E+06	nc	N	Maximum detected value does not exceed screening value.
	127-18-4	Tetrachloroethene		ug/kg	2.2E-01	9.1E-01	CP-07-A-PG	1%	1.1E-01 - 5.0E+01	2.6E+03	ca	N	Maximum detected value does not exceed screening value.
	108-88-3	Toluene		ug/kg	3.0E-02	5.2E+01	GS-04-A-PG-2	4%	2.0E-02 - 5.0E+01	4.5E+06	nc	N	Maximum detected value does not exceed screening value.
	156-60-5	trans-1,2-Dichloroethene		ug/kg	4.8E-01	4.8E-01	RP-03-C-PG	0.5%	8.2E-02 - 2.5E+01	6.9E+04	nc	N	Maximum detected value does not exceed screening value.
	79-01-6	Trichloroethene	y	ug/kg	1.1E-01	9.1E-01	LW2-G200, WLCSLH01GP63	2%	7.6E-02 - 5.0E+01	1.4E+04	ca	N	Maximum detected value does not exceed screening value.
	75-01-4	Vinyl chloride		ug/kg	3.4E-01	3.4E-01	GS-07-D-PG, AP-03-A-TR	0.5%	1.1E-01 - 5.0E+02	1.7E+03	ca	N	Maximum detected value does not exceed screening value.
	1330-20-7	Total Xylenes		ug/kg	9.0E-02	6.7E+02	LWG2-PG-GS4A-2	16%	2.0E-02 - 1.1E+00	2.7E+05	nc	N	Maximum detected value does not exceed screening value.
		Petroleum											Maximum detected value exceeds screening value.
	DRH	Diesel Range Hydrocarbons	z	mg/kg	3.1E+00	2.0E+04	LW2-G294	97%	4.3E+00 - 2.3E+01	7.0E+04	nc	N	Maximum detected value does not exceed screening value.
	GRH	Gasoline Range Hydrocarbons	aa	mg/kg	1.5E+00	2.6E+02	GS-04-A-PG-2, LW2-C302	14%	8.2E-01 - 1.4E+01	2.2E+04	nc	N	Maximum detected value does not exceed screening value.

Table 2-11
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical[a]		Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	68782-97-8	Lube Oil	ab	mg/kg	8.0E+00	9.4E+03	WLCOFJ02M0301	98%	1.0E+00 - 3.2E+00	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
	M09800000	Motor oil	ab	mg/kg	1.1E+02	1.3E+02	WLCMRI02CS004	100%	NA - NA	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
	RRH	Residual Range Hydrocarbons	ab	mg/kg	7.7E+00	1.8E+04	LW2-G453	96%	2.5E+01 - 2.9E+02	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
		Conventionals											Maximum detected value exceeds screening value.
	57-12-5	Cyanide		mg/kg	1.4E-01	7.3E+00	GS-04-A-PG-2	100%	NA - NA	2.0E+03	nc	N	Maximum detected value does not exceed screening value.
	14797-73-0	Perchlorate		ug/kg	9.6E+04	2.7E+05	LWP1-CP07B	23%	2.2E+01 - 2.6E+01	7.2E+04	nc	Y	Maximum detected value exceeds screening value.

Notes:

a Chemical list includes analytes detected in human health in-water sediment samples.
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
c Screening concentrations and toxicity classifications are from EPA RSLs for industrial soil (Nov 2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.
d EPA RSL for chromium III used for chromium screening concentration.
e EPA RSL for lead not divided by 10 for screening.
f A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
g EPA RSL for tributyltin oxide (TBTO) used as surrogate.
h EPA RSL for naphthalene used as surrogate.
i EPA RSL for pyrene used as surrogate.
j EPA RSL for acenaphthene used as surrogate.
k EPA RSL for fluorene used as surrogate.
l EPA RSL for diethyl phthalate used as surrogate.
m EPA RSL for 1,2-dichlorobenzene used as surrogate.
n EPA RSL for 2-nitroaniline used as a surrogate.
o EPA RSL for 2,3,4,6-tetrachlorophenol used as surrogate.
p EPA RSL for PCBs as Aroclor 1254 used for screening concentration.
q EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration. Detection limits listed are for individual congeners/isomers before TEQ adjustment.
r EPA RSL for endrin used as surrogate.
s EPA RSL for technical chlordane used for total chlordane.
t EPA RSL for DDD used for total DDD.
u EPA RSL for p,p'-DDE used for total DDE.
v EPA RSL for DDT used for total DDT.
w EPA RSL for endosulfan used for total endosulfan.
x EPA RSL for 2,4-D used as surrogate.
y The trichloroethene screening level was calculated consistent with the 2008 EPA Region 10 recommendations (EPA 2008a).
z DEQ risk-based concentration (RBC) for occupational surface soil exposure to generic diesel (DEQ 2003) used for screening concentration.
aa DEQ risk-based concentration (RBC) for occupational surface soil exposure to generic gasoline (DEQ 2003) used for screening concentration.
ab DEQ risk-based concentration (RBC) for occupational surface soil exposure to generic oil (DEQ 2003) used for screening concentration.

Abbreviations:

ca= Carcinogen.
CAS = Chemical Abstract Services number.
COPC = Chemical of potential concern.
DEQ = Oregon Department of Environmental Quality.
EPA = U.S. Environmental Protection Agency.
max = Ceiling limit recommended for screening value.
mg/kg = Milligrams per kilogram.
N = No.
NA = Not applicable. Chemical detected at 100% frequency.
nc = Noncarcinogen.
RBC = Risk-based concentration.
sat = Soil saturation concentration recommended for screening value.
RSL = Regional Screening Level.
SVOC = Semivolatile organic compound.
TEQ = Toxicity equivalent.
Y = Yes.

Table 2-12
Summary of Samples Used in the Selection of Chemicals of Potential Concern For Surface Water Exposure Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
Transect Stations								
W005	3.9	Round 3 surface water	September 2006, Low Flow	LW3-W2005-WS-Int[e]	Y	Y	--	Y
				LW3-W2005-WSXAD-Comb-Int[f]	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3005-WS-Int	Y	Y	--	Y
				LW3-W3005-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4005-WS-Int	Y	Y	--	Y
				LW3-W4005-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W1005	Y	Y	--	Y
				LW3-W1005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W005	Y	Y	--	Y
				LW2-W005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2005	Y	Y	--	Y
				LW2-W2005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3005	Y	Y	Y	Y
				LW2-W3005-WSXAD-Combo	Y	Y	Y	Y
W011	6.3	Round 3 surface water	September 2006, Low Flow	LW3-W2011-WS-Int	Y	Y	--	Y
				LW3-W2011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3011-WS-Int	Y	Y	--	Y
				LW3-W3011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4011-WS-Int	Y	Y	--	Y
				LW3-W4011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W011	Y	Y	--	Y
				LW2-W011-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2011-WSXAD-Combo	Y	Y	--	Y
				LW2-W2011B	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3011	Y	Y	Y	Y
				LW2-W3011-WSXAD-Combo	Y	Y	Y	Y
W023	11	Round 3 surface water	September 2006, Low Flow	LW3-W2023-WS-Int	Y	Y	--	Y
				LW3-W2023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3023-WS-Int	Y	Y	--	Y
				LW3-W3023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4023-WS-Int	Y	Y	--	Y
				LW3-W4023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W1023-WSXAD-Combo	Y	Y	--	Y
				LW3-W1023-1	Y	Y	--	Y
				LW3-W1023-2	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W023	Y	Y	--	Y
				LW2-W023-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2023	Y	Y	--	Y
				LW2-W2023-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3023	Y	Y	Y	Y
				LW2-W3023-WSXAD-Combo	Y	Y	Y	Y

Table 2-12
Summary of Samples Used in the Selection of Chemicals of Potential Concern For Surface Water Exposure Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W025	2	Round 3 surface water	September 2006, Low Flow	LW3-W2025-WS-Int	Y	Y	--	Y
				LW3-W2025-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3025-WS-Int	Y	Y	--	Y
				LW3-W3025-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4025-WS-Int	Y	Y	--	Y
				LW3-W4025-WSXAD-Comb-Int	Y	Y	--	Y
W027	2.9 MC	Round 3 surface water	September 2006, Low Flow	LW3-W2027-WS-Int	Y	Y	--	--
				LW3-W2027-WSXAD-Comb-Int	Y	Y	--	--
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3027-WS-Int	Y	Y	--	--
				LW3-W3027-WSXAD-Comb-Int	Y	Y	--	--
		Round 3 surface water	January or February 2007, High Flow	LW3-W4027-WS-Int	Y	Y	--	--
				LW3-W4027-WSXAD-Comb-Int	Y	Y	--	--
W024	16	Round 3 surface water	January 2006, High Flow	LW3-W1024	--	--	--	--
				LW3-W1024-WSXAD-Combo	--	--	--	--
Single-Point Stations								
W001	2 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W001	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2001	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3001	Y	--	--	--
W002	2.2 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W002	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2002-1	Y	--	--	--
				LW2-W2002-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3002-1	Y	--	--	--
				LW2-W3002-2	Y	--	--	--
W003	3 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W003	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2003	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3003	Y	--	--	--
W004	3.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W004	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2004-1	Y	--	--	--
				LW2-W2004-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3004	Y	--	--	--
W006	4 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W006	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2006	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3006	Y	--	--	--
W007	4.4 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W007	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2007	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3007	Y	--	--	--
W008	4.6 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W008	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2008	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3008	Y	--	--	--
W009	5.6 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W009	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2009	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3009	Y	--	--	--

Table 2-12
Summary of Samples Used in the Selection of Chemicals of Potential Concern For Surface Water Exposure Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W010 Cathedral Park	5.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W010	Y	--	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2010	Y	--	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3010	Y	--	Y	Y
W012	6.3 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W012	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2012	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3012	Y	--	--	--
W013	6.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W013-1	Y	--	--	--
				LW2-W013-1-WSXAD-Combo	Y	--	--	--
				LW2-W013-2	Y	--	--	--
				LW2-W013-2-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2013-1	Y	--	--	--
				LW2-W2013-1-WSXAD-Combo	Y	--	--	--
				LW2-W2013-2	Y	--	--	--
				LW2-W2013-2-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3013-1	Y	--	--	--
				LW2-W3013-1-WSXAD-Combo	Y	--	--	--
W014 Willamette Cove	6.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W014	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2014	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3014	Y	Y	Y	Y
W015	6.9 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W015	Y	--	--	--
				LW2-W015-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2015	Y	--	--	--
				LW2-W2015-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3015	Y	--	--	--
				LW2-W3015-WSXAD-Combo	Y	--	--	--
W016	7.2 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W016-1	Y	--	--	--
				LW2-W016-WSXAD-Combo	Y	--	--	--
				LW2-W016-2	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2016-1	Y	--	--	--
				LW2-W2016-WSXAD-Combo	Y	--	--	--
				LW2-W2016-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3016-1	Y	--	--	--
				LW2-W3016-WSXAD-Combo	Y	--	--	--
				LW2-W3016-2	Y	--	--	--
W017	7.5 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W017	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2017	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3017	Y	--	--	--
W018 SIL	8.3 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W018	Y	--	--	--
				LW2-W018-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2018	Y	--	--	--
				LW2-W2018-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3018	Y	--	--	--
				LW2-W3018-WSXAD-Combo	Y	--	--	--

Table 2-12
Summary of Samples Used in the Selection of Chemicals of Potential Concern For Surface Water Exposure Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W019	8.6 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W019	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2019	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3019	Y	--	--	--
W020 SIL	9.1 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W020	Y	--	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2020	Y	--	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3020	Y	--	Y	Y
W021 SIL	8.7 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W021	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2021	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3021	Y	--	--	--
W022	9.7 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W022	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2022	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3022	Y	--	--	--
W026	2.1 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3026-WS-Int	Y	--	--	Y
				LW3-W3026-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4026-WS-Int	Y	--	--	Y
				LW3-W4026-WSXAD-Comb-Int	Y	--	--	Y
W028	3.6 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3028-WS-Int	Y	--	--	Y
				LW3-W3028-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4028-WS-Int	Y	--	--	Y
				LW3-W4028-WSXAD-Comb-Int	Y	--	--	Y
W029	4.4 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3029-WS-Int	Y	--	--	Y
				LW3-W3029-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4029-WS-Int	Y	--	--	Y
				LW3-W4029-WSXAD-Comb-Int	Y	--	--	Y
W030	5.5 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3030-WS-Int	Y	--	--	Y
				LW3-W3030-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4030-WS-Int	Y	--	--	Y
				LW3-W4030-WSXAD-Comb-Int	Y	--	--	Y
W031	6.1 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3031-WS-Int	Y	--	--	Y
				LW3-W3031-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4031-WS-Int	Y	--	--	Y
				LW3-W4031-WSXAD-Comb-Int	Y	--	--	Y
W032	6.7 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3032-WS-Int	Y	--	--	Y
				LW3-W3032-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4032-WS-Int	Y	--	--	Y
				LW3-W4032-WSXAD-Comb-Int	Y	--	--	Y
W033	7.0 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3033-WS-Int	Y	--	--	Y
				LW3-W3033-2-WS-Int	Y	--	--	Y
				LW3-W3033-WSXAD-Comb-Int	Y	--	--	Y
				LW3-W3033-2-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4033-WS-Int	Y	--	--	Y
				LW3-W4033-2-WS-Int	Y	--	--	Y
				LW3-W4033-WSXAD-Comb-Int	Y	--	--	Y

Table 2-12
Summary of Samples Used in the Selection of Chemicals of Potential Concern For Surface Water Exposure Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W034	7.5 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3034-WS-Int	Y	--	--	Y
				LW3-W3034-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4034-WS-Int	Y	--	--	Y
				LW3-W4034-WSXAD-Comb-Int	Y	--	--	Y
W035 SIL	8.5 SIL	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3035-WS-Int	Y	--	--	Y
				LW3-W3035-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4035-WS-Int	Y	--	--	Y
				LW3-W4035-WSXAD-Comb-Int	Y	--	--	Y
W036	8.6 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3036-WS-Int	Y	--	--	Y
				LW3-W3036-2-WS-Int	Y	--	--	Y
				LW3-W3036-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4036-WS-Int	Y	--	--	Y
				LW3-W4036-WSXAD-Comb-Int	Y	--	--	Y
W037	9.6 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3037-WS-Int	Y	--	--	Y
				LW3-W3037-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4037-WS-Int	Y	--	--	Y
				LW3-W4037-WSXAD-Comb-Int	Y	--	--	Y
W038	9.9 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3038-WS-Int	Y	--	--	Y
				LW3-W3038-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4038-WS-Int	Y	--	--	Y
				LW3-W4038-WSXAD-Comb-Int	Y	--	--	Y

Notes:

a The surface water exposure dataset for direct contact to divers includes samples from all transects and all single point stations within the study area. In addition, EPCs were calculated for Multnomah Channel.

b The surface water exposure dataset for direct contact to transients includes year-round samples from transects and single point stations within the study area where transient exposure may occur. In addition, EPCs were calculated for Multnomah Channel.

c The surface water exposure dataset for direct contact to recreational beach users includes samples from summer sampling events at single point stations within the study area where recreational beach exposure may occur. In addition, study area wide EPCs were calculated using summer samples from all transect stations within the study area.

d The surface water exposure dataset for the scenario describing the potential future domestic use of untreated surface water includes all vertically integrated and combined transect samples within the study area.

e "Int" indicates sample results with this sample ID were combined to represent an integrated concentration before EPC calculations. Either results from a near-bottom and near-surface sample pair were combined, or results from vertically integrated samples collected from the east, west, and middle sections of the river were combined, according to the rules discussed in Section 2 of the BHHRA.

f "Comb" or "Combo" is included in sample IDs for samples collected with an XAD-2 Infiltrex™ 300 system, indicating both column and filter results were combined before EPC calculations, according to the rules discussed in Section 2 of the BHHRA.

Abbreviations:

-- = sample was not used for EPC calculations for the given exposure scenario.
BHHRA = Baseline human health risk assessment.
Comb or Combo = Combined column and filter results (for XAD samples only). See footnote f.
E = East.
EPC = Exposure point concentration.
Int = Integrated sample results (calculated). See footnote e.
MC = Multnomah Channel.
SIL = Swan Island Lagoon.
W = West.
Y = sample was used for EPC calculations for the given receptor.

Table 2-13
Occurrence, Distribution and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Divers

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Direct Contact With Divers

Exposure Point	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
Study Area-wide	**Metals**												
	Aluminum		ug/l	1.5E+00	1.9E+03	W023	1/20/2006	84%	9.0E-01 - 5.0E+00	3.7E+03	nc	N	Maximum detected values does not exceed screening value.
	Antimony		ug/l	1.5E-02	1.3E-01	W001	7/5/2005	50%	2.0E-02 - 7.0E-02	1.5E+00	nc	N	Maximum detected values does not exceed screening value.
	Arsenic		ug/l	2.0E-01	7.5E-01	W001	7/5/2005	91%	3.8E-01 - 5.1E-01	4.5E-02	ca	Y	Maximum detected value exceeds screening value.
	Cadmium		ug/l	8.0E-03	5.0E-02	W004	3/17/2005	24%	2.0E-03 - 7.0E-02	1.8E+00	nc	N	Maximum detected values does not exceed screening value.
	Chromium	d	ug/l	1.0E-01	1.7E+00	W036	1/1/2007	55%	1.1E-01 - 5.7E-01	5.5E+03	nc	N	Maximum detected values does not exceed screening value.
	Chromium hexavalent		ug/l	5.0E-01	9.0E-01	W011	11/1/2006	23%	6.0E-01 - 2.0E+01	4.3E-02	ca	Y	Maximum detected value exceeds screening value.
	Copper		ug/l	3.7E-01	3.7E+00	W023	1/20/2006	99%	4.4E-01 - 5.4E-01	1.5E+02	nc	N	Maximum detected values does not exceed screening value.
	Lead	e	ug/l	8.0E-03	1.8E+00	W008	7/8/2005	86%	8.0E-03 - 5.1E-02	1.5E+01	NA	N	Maximum detected values does not exceed screening value.
	Mercury		ug/l	1.3E-02	2.5E-02	W031	11/1/2006	3%	2.0E-02 - 8.0E-02	5.7E-02	nc	N	Maximum detected values does not exceed screening value.
	Nickel		ug/l	1.5E-01	1.9E+00	W033	1/1/2007	86%	2.0E-01 - 9.9E-01	7.3E+01	nc	N	Maximum detected values does not exceed screening value.
	Selenium		ug/l	1.0E-01	1.0E+00	W002	3/4/2005	58%	1.0E-01 - 6.0E-01	1.8E+01	nc	N	Maximum detected values does not exceed screening value.
	Silver		ug/l	6.8E-03	6.1E-02	W002	7/5/2005	2%	3.0E-03 - 5.2E-02	1.8E+01	nc	N	Maximum detected values does not exceed screening value.
	Thallium	f	ug/l	4.0E-03	3.2E-02	W015	11/29/2004	16%	4.0E-03 - 4.0E-03	2.0E+00	NL	N	Maximum detected values does not exceed screening value.
	Zinc		ug/l	9.0E-01	5.8E+01	W022	12/2/2004	74%	6.0E-01 - 6.0E+00	1.1E+03	nc	N	Maximum detected values does not exceed screening value.
	Butyltins								-				
	Butyltin ion	g	ug/l	1.5E-03	3.0E-02	W023	1/1/2007	11%	1.7E-03 - 4.0E-02	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	Dibutyltin ion	g	ug/l	6.1E-04	7.3E-03	W009	12/1/2004	14%	5.5E-04 - 2.5E-02	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	Tributyltin ion	g	ug/l	6.5E-04	2.8E-03	W035	1/1/2007	9%	6.0E-04 - 1.4E-02	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	Polynuclear Aromatic Hydrocarbons								-				
	2-Methylnaphthalene		ug/l	1.2E-03	3.2E-01	W031	1/1/2007	30%	2.7E-03 - 3.4E-02	1.5E+01	nc	N	Maximum detected values does not exceed screening value.
	Acenaphthene		ug/l	2.1E-04	2.1E-01	W012	7/15/2005	33%	2.0E-03 - 1.6E-02	2.2E+02	nc	N	Maximum detected values does not exceed screening value.
	Acenaphthylene	h	ug/l	2.8E-04	4.3E-02	W012	7/15/2005	32%	2.1E-04 - 2.7E-02	2.2E+02	nc	N	Maximum detected values does not exceed screening value.
	Anthracene		ug/l	2.9E-04	2.4E-01	W031	1/1/2007	22%	1.6E-04 - 1.5E-02	1.1E+03	nc	N	Maximum detected values does not exceed screening value.
	Benzo(a)anthracene		ug/l	5.2E-05	1.4E-01	W031	1/1/2007	37%	3.4E-04 - 8.4E-03	2.9E-02	ca	Y	Maximum detected value exceeds screening value.
	Benzo(a)pyrene		ug/l	1.8E-05	1.5E-01	W012	7/15/2005	33%	6.1E-04 - 8.6E-03	2.9E-03	ca	Y	Maximum detected value exceeds screening value.
	Benzo(b)fluoranthene		ug/l	2.4E-05	1.1E-01	W012	7/15/2005	34%	2.0E-03 - 9.2E-03	2.9E-02	ca	Y	Maximum detected value exceeds screening value.
	Benzo(g,h,i)perylene	i	ug/l	7.5E-05	1.4E-01	W012	7/15/2005	30%	3.3E-04 - 1.5E-02	1.1E+02	nc	N	Maximum detected values does not exceed screening value.
	Benzo(k)fluoranthene		ug/l	1.6E-05	1.0E-01	W012	7/15/2005	34%	1.4E-03 - 1.1E-02	2.9E-01	ca	N	Maximum detected values does not exceed screening value.
	Chrysene		ug/l	9.5E-05	1.9E-01	W012	7/15/2005	47%	1.3E-03 - 1.1E-02	2.9E+00	ca	N	Maximum detected values does not exceed screening value.
	Dibenzo(a,h)anthracene		ug/l	2.6E-05	1.4E-02	W031	1/1/2007	15%	4.3E-05 - 7.2E-03	2.9E-03	ca	Y	Maximum detected value exceeds screening value.
	Fluoranthene		ug/l	5.1E-04	4.1E-01	W031	1/1/2007	59%	2.4E-03 - 1.9E-02	1.5E+02	nc	N	Maximum detected values does not exceed screening value.
	Fluorene		ug/l	3.7E-04	1.6E-01	W031	1/1/2007	33%	2.6E-03 - 1.1E-02	1.5E+02	nc	N	Maximum detected values does not exceed screening value.
	Indeno(1,2,3-cd)pyrene		ug/l	1.6E-04	1.1E-01	W012	7/15/2005	29%	1.5E-04 - 8.4E-03	2.9E-02	ca	Y	Maximum detected value exceeds screening value.
	Naphthalene		ug/l	7.4E-04	7.7E-01	W012	12/2/2004	13%	3.2E-03 - 9.9E-02	1.4E-01	ca	Y	Maximum detected value exceeds screening value.
	Phenanthrene	i	ug/l	7.9E-04	1.1E+00	W031	1/1/2007	32%	2.2E-03 - 1.7E-02	1.1E+02	nc	N	Maximum detected values does not exceed screening value.
	Pyrene		ug/l	4.3E-04	6.5E-01	W031	1/1/2007	62%	1.5E-03 - 2.8E-02	1.1E+02	nc	N	Maximum detected values does not exceed screening value.
	Phthalates								-				
	Bis(2-ethylhexyl) phthalate		ug/l	7.8E-03	3.6E+00	W005	11/1/2006	15%	4.3E-03 - 4.1E+00	4.8E+00	ca	N	Maximum detected values does not exceed screening value.
	Butylbenzyl phthalate		ug/l	8.9E-04	1.2E-01	W025	9/1/2006	20%	5.1E-04 - 7.3E-02	3.5E+01	ca	N	Maximum detected values does not exceed screening value.
	Dibutyl phthalate		ug/l	1.5E-03	1.5E-01	W029	1/1/2007	6%	9.8E-04 - 3.0E-01	3.7E+02	nc	N	Maximum detected values does not exceed screening value.

Table 2-13
Occurrence, Distribution and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Divers

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Direct Contact With Divers

Exposure Point	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	Diethyl phthalate		ug/l	1.2E-03	1.7E-01	W005	11/1/2006	15%	6.7E-04 - 1.4E-01	2.9E+03	nc	N	Maximum detected values does not exceed screening value.
	Dimethyl phthalate	j	ug/l	4.8E-03	4.8E-03	W015	11/30/2004	1%	2.6E-04 - 1.5E-02	3.7E+04	nc	N	Maximum detected values does not exceed screening value.
	Di-n-octyl phthalate	k	ug/l	1.4E-04	1.7E-02	W034	1/1/2007	2%	1.1E-04 - 3.6E-02	2.9E+03	nc	N	Maximum detected values does not exceed screening value.
	Phenols								-				
	4-Chloro-3-methylphenol		ug/l	2.3E-02	6.5E-01	W003	3/4/2005	8%	2.9E-02 - 6.8E-01	3.7E+02	nc	N	Maximum detected values does not exceed screening value.
	Phenol		ug/l	1.6E-02	2.0E-01	W033	1/1/2007	9%	2.0E-02 - 3.3E-01	1.1E+03	nc	N	Maximum detected values does not exceed screening value.
	Polychlorinated Biphenyls												
	Total PCB Congeners	l	pg/l	1.1E+02	1.2E+04	W013-1	3/1/2005	100%	NA - NA	3.4E+04	ca	N	Maximum detected values does not exceed screening value.
	Dioxin/Furan												
	Total Dioxin/Furan TEQ	m	pg/l	3.1E-02	5.0E-01	W015	11/30/2004	100%	NA - NA	5.2E-01	ca	N	Maximum detected values does not exceed screening value.
	Total PCB TEQ	m	pg/l	1.6E-03	8.5E-02	W005	9/1/2006	100%	NA - NA	5.2E-01	ca	N	Maximum detected values does not exceed screening value.
	Pesticides												
	Aldrin		ug/l	3.0E-07	4.1E-03	W030	1/1/2007	41%	3.4E-07 - 1.8E-03	4.0E-03	ca	Y	Maximum detected value exceeds screening value.
	alpha-Hexachlorocyclohexane		ug/l	3.8E-06	2.0E-04	W026	11/1/2006	47%	6.0E-05 - 5.4E-04	1.1E-02	ca	N	Maximum detected values does not exceed screening value.
	beta-Hexachlorocyclohexane		ug/l	1.7E-06	3.6E-04	W026	1/1/2007	37%	3.5E-06 - 1.9E-03	3.7E-02	ca	N	Maximum detected values does not exceed screening value.
	delta-Hexachlorocyclohexane	n	ug/l	6.3E-07	1.7E-03	W013-1	11/8/2004	22%	4.2E-07 - 9.8E-04	NL	NL	Y	Analyte detected and no screening value or surrogate exists.
	Dieldrin		ug/l	1.7E-05	7.0E-04	W028	1/1/2007	45%	4.0E-04 - 5.4E-04	4.2E-03	ca	N	Maximum detected values does not exceed screening value.
	Endrin		ug/l	1.7E-07	1.7E-04	W038	11/1/2006	13%	4.6E-07 - 7.4E-04	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	Endrin aldehyde	o	ug/l	2.1E-04	9.1E-04	W036	1/1/2007	4%	1.4E-07 - 5.4E-04	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	Endrin ketone	o	ug/l	3.4E-07	2.0E-04	W036	11/1/2006	30%	4.0E-07 - 5.4E-04	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	gamma-Hexachlorocyclohexane		ug/l	7.2E-06	1.1E-03	W026	1/1/2007	49%	1.2E-04 - 5.6E-04	6.1E-02	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor		ug/l	1.3E-07	1.6E-03	W030	1/1/2007	15%	6.9E-08 - 2.2E-03	1.5E-02	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor epoxide		ug/l	2.1E-06	7.1E-05	W037	1/1/2007	42%	6.8E-06 - 5.4E-04	7.4E-03	ca	N	Maximum detected values does not exceed screening value.
	Methoxychlor		ug/l	9.2E-07	1.1E-02	W013-2	11/9/2004	27%	1.3E-06 - 1.6E-03	1.8E+01	nc	N	Maximum detected values does not exceed screening value.
	Total Chlordanes		ug/l	1.4E-05	2.9E-03	W002	7/5/2005	47%	4.7E-04 - 1.9E-03	1.9E-01	ca	N	Maximum detected values does not exceed screening value.
	Total DDD	p	ug/l	1.5E-05	5.2E-03	W015	11/30/2004	47%	4.7E-04 - 1.4E-03	2.8E-01	ca	N	Maximum detected values does not exceed screening value.
	Total DDE	q	ug/l	1.7E-05	7.5E-04	W016-1	7/18/2005	49%	2.6E-04 - 7.8E-04	2.0E-01	ca	N	Maximum detected values does not exceed screening value.
	Total DDT	r	ug/l	1.6E-06	1.9E-02	W001	3/4/2005	53%	4.1E-04 - 1.1E-03	2.0E-01	ca	N	Maximum detected values does not exceed screening value.
	Total Endosulfan		ug/l	1.5E-05	1.2E-03	W013-1	11/8/2004	50%	3.1E-04 - 5.4E-04	2.2E+01	nc	N	Maximum detected values does not exceed screening value.
	SVOCs								-				
	1,4-Dichlorobenzene		ug/l	1.9E-02	1.9E-02	W022	12/2/2004	1%	1.4E-02 - 1.5E-02	4.3E-01	ca	N	Maximum detected values does not exceed screening value.
	4-Chloroaniline		ug/l	1.3E-02	1.3E-02	W023	1/1/2007	1%	1.8E-02 - 2.0E-02	3.4E-01	ca	N	Maximum detected values does not exceed screening value.
	Aniline		ug/l	1.2E+00	1.2E+00	W035	1/1/2007	1%	2.5E-01 - 1.2E+00	1.2E+01	ca	N	Maximum detected values does not exceed screening value.
	Benzoic acid		ug/l	1.2E+00	2.2E+00	W017	12/1/2004	9%	1.8E+00 - 2.1E+00	1.5E+04	nc	N	Maximum detected values does not exceed screening value.
	Carbazole	s	ug/l	2.4E-02	8.3E-02	W031	1/1/2007	3%	1.3E-02 - 1.5E-02	1.5E+02	nc	N	Maximum detected values does not exceed screening value.
	Dibenzofuran		ug/l	2.5E-02	2.5E-02	W031	1/1/2007	1%	5.7E-03 - 2.9E-02	3.7E+00	nc	N	Maximum detected values does not exceed screening value.
	Hexachlorobenzene		ug/l	1.3E-05	7.0E-03	W022	3/16/2005	37%	3.1E-04 - 1.6E-02	4.2E-02	ca	N	Maximum detected values does not exceed screening value.
	Hexachlorobutadiene		ug/l	1.1E-07	2.6E-03	W017	12/1/2004	23%	2.3E-07 - 2.2E-02	8.6E-01	ca	N	Maximum detected values does not exceed screening value.
	Isophorone		ug/l	7.1E-03	1.8E-02	W017	12/1/2004	3%	8.5E-03 - 9.5E-03	7.1E+01	ca	N	Maximum detected values does not exceed screening value.
	Herbicides								-				
	2,4-D		ug/l	4.7E-02	1.6E-01	W035	1/1/2007	4%	3.4E-02 - 2.1E-01	3.7E+01	nc	N	Maximum detected values does not exceed screening value.
	2,4-DB		ug/l	1.4E-01	2.1E-01	W025	9/1/2006	2%	4.0E-02 - 4.1E-01	2.9E+01	nc	N	Maximum detected values does not exceed screening value.
	Dalapon		ug/l	2.3E-01	2.6E-01	W036	1/1/2007	2%	1.8E-01 - 6.7E-01	1.1E+02	nc	N	Maximum detected values does not exceed screening value.
	MCPP		ug/l	5.2E+00	1.9E+01	W035	1/1/2007	4%	6.0E+00 - 1.2E+02	3.7E+00	nc	Y	Maximum detected value exceeds screening value.

Table 2-13
Occurrence, Distribution and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Divers

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Direct Contact With Divers

Exposure Point	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	Conventionals												
	Perchlorate		ug/l	3.0E-01	1.6E+01	W016-2	11/30/2004	46%	2.0E-01 - 1.0E+00	2.6E+00	nc	Y	Maximum detected value exceeds screening value.

Notes: a Chemical list includes analytes detected in surface water samples determined to represent human health exposure to a diver from direct contact. Integrated samples have been averaged prior to screening. Benzo(j +k)fluoranthene is assumed to be entirely benzo(k)fluoranthene.
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
c Screening concentrations and toxicity classifications are from EPA RSLs for tapwater (Nov 2010) unless otherwise noted. SLs for noncarcinogenic chemicals are divided by 10.
d EPA RSL for trivalent chromium used for chromium screening concentration.
e EPA action level for drinking water used for lead (May 2005). Screening level not divided by 10 for screening.
f EPA RSL was not available and a surrogate chemical could not be identified. Thallium MCL (May 2009) used as screening level.
g EPA RSL for tributyltin oxide (TBTO) used as surrogate.
h EPA RSL for acenaphthene used as surrogate.
i EPA RSL for pyrene used as surrogate.
j EPA Region 6 SL for tapwater (8 March 2008) used for Dimethyl phthalate.
k EPA RSL for diethyl phthalate used as surrogate.
l EPA RSL for PCBs as Aroclor 1254 used for screening concentration.
m EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration.
n A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
o EPA RSL for endrin used as surrogate.
p EPA RSL for DDD used for total DDD.
q EPA RSL for p,p'-DDE used for total DDE.
r EPA RSL for DDT used for total DDT.
s EPA RSL for fluorene used as surrogate.

Abbreviations: ca = Carcinogen.
COPC = Chemical of potential concern.
EPA = U.S. Environmental Protection Agency.
MCL = Maximum Contaminant Level.
N = No.
NA = Not applicable. Chemical detected at 100% frequency, or screening value does not exist for given chemical.
nc = Noncarcinogen.
NL = Not listed.
pg/l = Picograms per liter.
RSL = Regional screening level.
SVOCs = Semivolatile organic compounds.
TEQ = Toxicity equivalent.
ug/l = Micrograms per liter.
Y = Yes.

Table 2-14
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Transients or Beach Users

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Direct Contact With Transients or Beach Users

Exposure Point	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
Study Area-wide	**Metals**												
	Aluminum		ug/l	1.5E+00	1.9E+03	W023	Jan-06	83%	2.0E+00 - 5.0E+00	3.7E+03	nc	N	Maximum detected values does not exceed screening value.
	Antimony		ug/l	1.7E-02	6.3E-02	W025	Sep-06	55%	2.0E-02 - 5.0E-02	1.5E+00	nc	N	Maximum detected values does not exceed screening value.
	Arsenic		ug/l	2.0E-01	6.0E-01	W025	Sep-06	87%	3.8E-01 - 5.1E-01	4.5E-02	ca	Y	Maximum detected value exceeds screening value.
	Cadmium		ug/l	2.0E-02	3.0E-02	W005, W011, W014, W020, W023	Jul-05, Mar-05/ Jul-05, Dec-04, Dec-04/ Jul-05, Jul-05	16%	2.0E-03 - 5.1E-02	1.8E+00	nc	N	Maximum detected values does not exceed screening value.
	Chromium	d	ug/l	1.2E-01	1.6E+00	W023	Jan-06	58%	1.4E-01 - 4.3E-01	5.5E+03	nc	N	Maximum detected values does not exceed screening value.
	Chromium hexavalent		ug/l	9.0E-01	9.0E-01	W011	Nov-06	33%	6.0E-01 - 2.0E+01	4.3E-02	ca	Y	Maximum detected value exceeds screening value.
	Copper		ug/l	4.5E-01	3.7E+00	W023	Jan-06	100%	NA - NA	1.5E+02	nc	N	Maximum detected values does not exceed screening value.
	Lead	e	ug/l	8.0E-03	8.6E-01	W023	Jan-06	90%	8.0E-03 - 4.6E-02	1.5E+01	NA	N	Maximum detected values does not exceed screening value.
	Mercury		ug/l	1.3E-02	2.3E-02	W023	Nov-06	10%	2.0E-02 - 8.0E-02	5.7E-02	nc	N	Maximum detected value does not exceed screening value.
	Nickel		ug/l	4.0E-01	1.9E+00	W023	Jan-06	87%	2.0E-01 - 9.6E-01	7.3E+01	nc	N	Maximum detected value does not exceed screening value.
	Selenium		ug/l	1.0E-01	7.0E-01	W023	Mar-05	56%	1.0E-01 - 4.0E-01	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	Silver		ug/l	8.8E-03	2.5E-02	W005	Nov-04	3%	3.0E-03 - 5.2E-02	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	Thallium	f	ug/l	2.5E-02	2.5E-02	W005	Nov-04	13%	4.0E-03 - 4.0E-03	2.0E+00	NL	N	Maximum detected value does not exceed screening value.
	Zinc		ug/l	1.4E+00	6.4E+00	W023	Jan-06	69%	7.7E-01 - 4.1E+00	1.1E+03	nc	N	Maximum detected value does not exceed screening value.
	Butyltins												
	Butyltin ion	g	ug/l	1.5E-03	3.0E-02	W023	Jan-07	16%	1.7E-03 - 3.8E-02	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	Dibutyltin ion	g	ug/l	7.8E-04	1.0E-03	W020, W023	Jul-05, Mar-05	13%	5.5E-04 - 2.5E-02	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	Tributyltin ion	g	ug/l	6.5E-04	6.5E-04	W011	Nov-06	3%	6.0E-04 - 1.4E-02	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	Polynuclear Aromatic Hydrocarbons												
	2-Methylnaphthalene		ug/l	1.2E-03	2.4E-02	W023	Mar-05	41%	2.7E-03 - 1.1E-02	1.5E+01	nc	N	Maximum detected value does not exceed screening value.
	Acenaphthene		ug/l	2.1E-04	6.0E-03	W005	Jan-06	46%	2.0E-03 - 8.0E-03	2.2E+02	nc	N	Maximum detected value does not exceed screening value.
	Acenaphthylene	h	ug/l	2.8E-04	9.1E-03	W023	Nov-04	34%	2.2E-04 - 8.5E-03	2.2E+02	nc	N	Maximum detected value does not exceed screening value.
	Anthracene		ug/l	3.5E-04	2.0E-03	W011	Jul-05	20%	1.6E-04 - 7.8E-03	1.1E+03	nc	N	Maximum detected value does not exceed screening value.
	Benzo(a)anthracene		ug/l	5.2E-05	1.0E-02	W011, W023	Nov-04, Nov-04	50%	2.1E-03 - 7.8E-03	2.9E-02	ca	N	Maximum detected value does not exceed screening value.
	Benzo(a)pyrene		ug/l	2.6E-05	2.1E-03	W005	Sep-06	45%	1.6E-03 - 8.6E-03	2.9E-03	ca	N	Maximum detected value does not exceed screening value.
	Benzo(b)fluoranthene		ug/l	2.4E-05	2.1E-03	W005	Jan-06	46%	2.0E-03 - 9.2E-03	2.9E-02	ca	N	Maximum detected value does not exceed screening value.
	Benzo(g,h,i)perylene	i	ug/l	7.5E-05	1.0E-02	W023M	Mar-07	45%	3.3E-04 - 1.5E-02	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	Benzo(k)fluoranthene		ug/l	1.6E-05	6.7E-03	W011	Nov-04	48%	1.4E-03 - 1.1E-02	2.9E-01	ca	N	Maximum detected value does not exceed screening value.
	Chrysene		ug/l	9.5E-05	7.7E-03	W011	Nov-04	52%	1.3E-03 - 1.1E-02	2.9E+00	ca	N	Maximum detected value does not exceed screening value.
	Dibenzo(a,h)anthracene		ug/l	2.6E-05	4.5E-04	W023	Nov-06	18%	4.3E-05 - 7.2E-03	2.9E-03	ca	N	Maximum detected value does not exceed screening value.
	Fluoranthene		ug/l	5.1E-04	2.0E-02	W020	Jul-05	70%	2.4E-03 - 9.6E-03	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	Fluorene		ug/l	3.7E-04	3.9E-03	W005	Jan-06	46%	2.6E-03 - 1.1E-02	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	Indeno(1,2,3-cd)pyrene		ug/l	1.6E-04	8.6E-03	W023M	Mar-07	36%	1.5E-04 - 8.4E-03	2.9E-02	ca	N	Maximum detected value does not exceed screening value.
	Naphthalene		ug/l	1.0E-03	3.5E-02	W023	Mar-05	11%	3.6E-03 - 9.1E-02	1.4E-01	ca	N	Maximum detected value does not exceed screening value.
	Phenanthrene	i	ug/l	7.9E-04	7.3E-03	W020	Jul-05	45%	2.2E-03 - 1.3E-02	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	Pyrene		ug/l	4.3E-04	1.5E-02	W005	Sep-06	68%	2.3E-03 - 9.4E-03	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	Phthalates												
	Bis(2-ethylhexyl) phthalate		ug/l	9.1E-03	3.6E+00	W005	Nov-06	28%	4.3E-03 - 4.0E+00	4.8E+00	ca	N	Maximum detected value does not exceed screening value.
	Butylbenzyl phthalate		ug/l	1.2E-03	1.2E-01	W025	Sep-06	25%	6.4E-04 - 6.7E-02	3.5E+01	ca	N	Maximum detected value does not exceed screening value.
	Dibutyl phthalate		ug/l	1.5E-03	2.0E-03	W011	Jul-05	8%	1.0E-03 - 2.2E-01	3.7E+02	nc	N	Maximum detected value does not exceed screening value.
	Diethyl phthalate		ug/l	2.1E-03	1.7E-01	W005	Nov-06	20%	6.7E-04 - 1.4E-01	2.9E+03	nc	N	Maximum detected value does not exceed screening value.
	Di-n-octyl phthalate	j	ug/l	7.1E-03	7.1E-03	W023	Nov-06	3%	1.1E-04 - 3.6E-02	2.9E+03	nc	N	Maximum detected value does not exceed screening value.
	Phenols												
	4-Chloro-3-methylphenol		ug/l	2.3E-02	7.5E-02	W020	Jul-05	10%	2.9E-02 - 1.5E-01	3.7E+02	nc	N	Maximum detected value does not exceed screening value.
	Phenol		ug/l	1.6E-02	6.7E-02	W023	Jul-05	16%	2.0E-02 - 3.3E-02	1.1E+03	nc	N	Maximum detected value does not exceed screening value.
	Polychlorinated Biphenyls												
	Total PCB Congeners	k	pg/l	1.1E+02	8.1E+02	W011	Sep-06	100%	NA - NA	3.4E+04	ca	N	Maximum detected value does not exceed screening value.
	Dioxin/Furan												
	Total Dioxin/Furan TEQ	l	pg/l	3.1E-02	3.3E-01	W005	Jul-05	100%	NA - NA	5.2E-01	ca	N	Maximum detected value does not exceed screening value.
	Total PCB TEQ	l	pg/l	1.6E-03	8.5E-02	W005	Sep-06	100%	NA - NA	5.2E-01	ca	N	Maximum detected value does not exceed screening value.
	Pesticides												
	Aldrin		ug/l	3.0E-07	4.7E-06	W005	Sep-06	77%	3.4E-07 - 5.1E-04	4.0E-03	ca	N	Maximum detected value does not exceed screening value.
	alpha-Hexachlorocyclohexane		ug/l	8.5E-06	8.2E-05	W023	Jul-05	83%	4.8E-04 - 5.1E-04	1.1E-02	ca	N	Maximum detected value does not exceed screening value.
	beta-Hexachlorocyclohexane		ug/l	1.7E-06	9.4E-06	W023	Jul-05	67%	3.5E-06 - 5.1E-04	3.7E-02	ca	N	Maximum detected value does not exceed screening value.

Table 2-14
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Transients or Beach Users

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Direct Contact With Transients or Beach Users

Exposure Point	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	Concentration Used for Screening[c]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	delta-Hexachlorocyclohexane	m	ug/l	7.7E-07	8.1E-04	W014	Dec-04	43%	4.2E-07 - 5.1E-04	NL	NL	Y	Analyte detected and no screening value or surrogate exists.
	Dieldrin		ug/l	1.7E-05	3.8E-04	W005	Jan-06	83%	4.8E-04 - 5.1E-04	4.2E-03	ca	N	Maximum detected value does not exceed screening value.
	Endrin		ug/l	1.7E-07	2.1E-06	W023	Nov-06	30%	4.6E-07 - 5.1E-04	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	Endrin ketone	n	ug/l	3.4E-07	3.6E-06	W005	Jan-06	57%	4.0E-07 - 5.1E-04	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	gamma-Hexachlorocyclohexane		ug/l	8.6E-06	3.5E-05	W005	Sep-06	83%	4.8E-04 - 5.1E-04	6.1E-02	ca	N	Maximum detected value does not exceed screening value.
	Heptachlor		ug/l	1.3E-07	7.5E-07	W005	Nov-06	23%	9.5E-08 - 5.1E-04	1.5E-02	ca	N	Maximum detected value does not exceed screening value.
	Heptachlor epoxide		ug/l	2.1E-06	2.5E-05	W023	Jan-06	83%	4.8E-04 - 5.1E-04	7.4E-03	ca	N	Maximum detected value does not exceed screening value.
	Methoxychlor		ug/l	9.2E-07	1.5E-05	W023	Sep-06	60%	1.5E-06 - 5.1E-04	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	Total Chlordanes		ug/l	1.4E-05	9.2E-05	W005	Jan-07	83%	4.8E-04 - 5.1E-04	1.9E-01	ca	N	Maximum detected value does not exceed screening value.
	Total DDD	o	ug/l	1.5E-05	3.0E-04	W005	Sep-06	83%	4.8E-04 - 5.1E-04	2.8E-01	ca	N	Maximum detected value does not exceed screening value.
	Total DDE	p	ug/l	1.7E-05	2.0E-04	W005	Jan-06	83%	4.8E-04 - 5.1E-04	2.0E-01	ca	N	Maximum detected value does not exceed screening value.
	Total DDT	q	ug/l	3.8E-06	3.4E-04	W023	Jan-06	83%	4.8E-04 - 5.1E-04	2.0E-01	ca	N	Maximum detected value does not exceed screening value.
	Total Endosulfan		ug/l	6.1E-05	6.1E-04	W005	Jan-06	83%	4.8E-04 - 5.1E-04	2.2E+01	nc	N	Maximum detected value does not exceed screening value.
	SVOCs												
	4-Chloroaniline		ug/l	1.3E-02	1.3E-02	W023	Jan-07	3%	1.8E-02 - 2.0E-02	3.4E-01	ca	N	Maximum detected value does not exceed screening value.
	Benzoic acid		ug/l	1.2E+00	1.3E+00	W025	Jan-07	10%	1.8E+00 - 2.0E+00	1.5E+04	nc	N	Maximum detected value does not exceed screening value.
	Hexachlorobenzene		ug/l	1.6E-05	7.3E-05	W023	Mar-05	45%	4.8E-04 - 1.6E-02	4.2E-02	ca	N	Maximum detected value does not exceed screening value.
	Hexachlorobutadiene		ug/l	5.7E-07	4.1E-06	W025	Sep-06	29%	2.3E-07 - 2.2E-02	8.6E-01	ca	N	Maximum detected value does not exceed screening value.
	Isophorone		ug/l	7.1E-03	1.3E-02	W023M	Mar-07	6%	8.5E-03 - 9.5E-03	7.1E+01	ca	N	Maximum detected value does not exceed screening value.
	Herbicides												
	2,4-D		ug/l	5.2E-02	1.4E-01	W005	Nov-04	6%	3.4E-02 - 5.9E-02	3.7E+01	nc	N	Maximum detected value does not exceed screening value.
	2,4-DB		ug/l	1.4E-01	2.1E-01	W025	Sep-06	7%	4.1E-02 - 4.0E-01	2.9E+01	nc	N	Maximum detected value does not exceed screening value.
	MCPP		ug/l	8.0E+00	9.1E+00	W005	Sep-06	7%	6.0E+00 - 1.1E+02	3.7E+00	nc	Y	Maximum detected value exceeds screening value.

Notes: a Chemical list includes analytes detected in surface water samples determined to represent human health exposure from direct contact. Integrated samples have been averaged prior to screening. Benzo(j +k)fluoranthene is assumed to be entirely benzo(k)fluoranthene.
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
c Screening concentrations and toxicity classifications are from EPA RSLs for tapwater (Nov 2010) unless otherwise noted. SLs for noncarcinogenic chemicals are divided by 10.
d EPA RSL for trivalent chromium used for chromium screening concentration.
e EPA MCL for tapwater used for lead. Screening level not divided by 10 for screening.
f Regional screening value was not available and a surrogate chemical could not be identified. Thallium MCL used as screening level.
g EPA RSL for tributyltin oxide (TBTO) used as surrogate.
h EPA RSL for acenaphthene used as surrogate.
i EPA RSL for pyrene used as surrogate.
j EPA RSL for diethyl phthalate used as surrogate.
k EPA RSL for PCBs as Aroclor 1254 used for screening concentration.
l EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration.
m A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
n EPA RSL for endrin used as surrogate.
o EPA RSL for DDD used for total DDD.
p EPA RSL for p,p'-DDE used for total DDE.
q EPA RSL for DDT used for total DDT.

Abbreviations: ca = Carcinogen.
CAS = Chemical Abstract Services.
COPC = Chemical of potential concern.
EPA = U.S. Environmental Protection Agency.
MCL = Maximum Contaminant Level. National Primary Drinking Wter Regulations. EPA 2010.
N = No.
NA = Not applicable. Chemical detected at 100% frequency, or screening value does not exist for given chemical.
nc = Noncarcinogen.
NL = Not listed.
pg/l = Picograms per liter.
RSL = Regional screening level.
SVOC = Semivolatile organic compound.
TEQ = Toxicity equivalent.
ug/l = Micrograms per liter.
Y = Yes.

Table 2-15
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Groundwater Seep

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater Seep[a]

Exposure Point	CAS Number	Chemical[b]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening[c]	Screening Toxicity Value[c] (nc/ca)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Outfall 22B		**Metals**											
	7429-90-5	Aluminum		ug/l	1.7E+02	1.7E+02	Outfall 22B	100%	NA - NA	3.7E+03	nc	N	Maximum detected value does not exceed screening value.
	7440-36-0	Antimony		ug/l	1.0E+00	1.0E+00	Outfall 22B	100%	NA - NA	1.5E+00	nc	N	Maximum detected value does not exceed screening value.
	7440-38-2	Arsenic		ug/l	5.5E+00	8.1E+00	Outfall 22B	100%	NA - NA	4.5E-02	ca	Y	Maximum detected value exceeds screening value.
	7440-39-3	Barium		ug/l	4.5E+01	4.5E+01	Outfall 22B	100%	NA - NA	7.3E+02	nc	N	Maximum detected value does not exceed screening value.
	7440-42-8	Boron		ug/l	1.4E+03	1.4E+03	Outfall 22B	100%	NA - NA	7.3E+02	nc	Y	Maximum detected value exceeds screening value.
	7440-43-9	Cadmium		ug/l	1.2E-01	1.2E-01	Outfall 22B	33%	1.4E-01 - 1.4E-01	1.8E+00	nc	N	Maximum detected value does not exceed screening value.
	7440-47-3	Chromium	d	ug/l	1.2E+00	1.2E+00	Outfall 22B	33%	7.2E-01 - 1.3E+00	5.5E+03	nc	N	Maximum detected value does not exceed screening value.
	7440-50-8	Copper		ug/l	2.1E+00	1.2E+01	Outfall 22B	67%	7.9E-01 - 7.9E-01	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	7439-89-6	Iron		ug/l	1.6E+04	1.6E+04	Outfall 22B	100%	NA - NA	2.6E+03	nc	Y	Maximum detected value exceeds screening value.
	7439-92-1	Lead	e	ug/l	3.0E+00	5.1E+00	Outfall 22B	67%	2.2E-01 - 2.2E-01	1.5E+01	nc	N	Maximum detected value does not exceed screening value.
	7439-96-5	Manganese		ug/l	2.4E+03	2.4E+03	Outfall 22B	100%	NA - NA	8.8E+01	nc	Y	Maximum detected value exceeds screening value.
	7439-97-6	Mercury		ug/l	6.3E-03	6.3E-03	Outfall 22B	33%	1.1E-03 - 1.3E-01	5.7E-02	nc	N	Maximum detected value does not exceed screening value.
	7439-98-7	Molybdenum		ug/l	6.9E+02	6.9E+02	Outfall 22B	100%	NA - NA	1.8E+01	nc	Y	Maximum detected value exceeds screening value.
	7440-02-0	Nickel		ug/l	2.2E+00	2.6E+00	Outfall 22B	100%	NA - NA	7.3E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-62-2	Vanadium		ug/l	2.3E+00	8.9E+00	Outfall 22B	100%	NA - NA	2.6E-01	nc	Y	Maximum detected value exceeds screening value.
	7440-66-6	Zinc		ug/l	2.3E+00	2.5E+01	Outfall 22B	100%	NA - NA	1.1E+03	nc	N	Maximum detected value does not exceed screening value.
		Polynuclear Aromatic Hydrocarbons											Maximum detected value exceeds screening value.
	91-57-6	2-Methylnaphthalene		ug/l	2.4E-01	2.4E-01	Outfall 22B	50%	3.0E+00 - 3.0E+00	1.5E+01	nc	N	Maximum detected value does not exceed screening value.
	83-32-9	Acenaphthene		ug/l	2.3E-01	3.5E-01	Outfall 22B	100%	NA - NA	2.2E+02	nc	N	Maximum detected value does not exceed screening value.
	206-44-0	Fluoranthene		ug/l	1.3E-01	1.3E-01	Outfall 22B	50%	1.5E-01 - 1.5E-01	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	91-20-3	Naphthalene		ug/l	1.3E-01	1.3E-01	Outfall 22B	50%	9.9E-02 - 9.9E-02	1.4E-01	ca	N	Maximum detected value does not exceed screening value.
	85-01-8	Phenanthrene	f	ug/l	1.4E-01	1.8E-01	Outfall 22B	100%	NA - NA	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	129-00-0	Pyrene		ug/l	1.0E-01	1.0E-01	Outfall 22B	50%	1.5E-01 - 1.5E-01	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
		SVOCs											Maximum detected value exceeds screening value.
	95-50-1	1,2-Dichlorobenzene		ug/l	7.7E-01	8.6E-01	Outfall 22B	100%	NA - NA	3.7E+01	nc	N	Maximum detected value does not exceed screening value.
	106-46-7	1,4-Dichlorobenzene		ug/l	9.6E-01	1.2E+00	Outfall 22B	100%	NA - NA	4.3E-01	ca	Y	Maximum detected value exceeds screening value.
		Phenols											Maximum detected value exceeds screening value.
	95-95-4	2,4,5-Trichlorophenol		ug/l	5.6E-01	5.6E-01	Outfall 22B	50%	5.0E+00 - 5.0E+00	3.7E+02	nc	N	Maximum detected value does not exceed screening value.
	88-06-2	2,4,6-Trichlorophenol		ug/l	4.5E-01	4.5E-01	Outfall 22B	50%	5.0E+00 - 5.0E+00	6.1E+00	ca	N	Maximum detected value does not exceed screening value.
	120-83-2	2,4-Dichlorophenol		ug/l	1.1E+01	1.6E+01	Outfall 22B	100%	NA - NA	1.1E+01	nc	Y	Maximum detected value exceeds screening value.
	105-67-9	2,4-Dimethylphenol		ug/l	1.4E+00	1.4E+00	Outfall 22B	50%	1.0E+01 - 1.0E+01	7.3E+01	nc	N	Maximum detected value does not exceed screening value.
	95-57-8	2-Chlorophenol		ug/l	1.2E+00	1.2E+00	Outfall 22B	50%	5.0E+00 - 5.0E+00	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	95-48-7	2-Methylphenol		ug/l	5.2E+00	5.2E+00	Outfall 22B	50%	2.4E-01 - 2.4E-01	1.8E+02	nc	N	Maximum detected value does not exceed screening value.
	100-02-7	4-Nitrophenol	g	ug/l	5.7E-01	5.7E-01	Outfall 22B	50%	1.0E+01 - 1.0E+01	1.2E-01	ca	Y	Maximum detected value exceeds screening value.
	87-86-5	Pentachlorophenol		ug/l	1.6E-01	1.6E-01	Outfall 22B	50%	5.0E+00 - 5.0E+00	1.7E-01	ca	N	Maximum detected value exceeds screening value.
		Dioxin/Furans											Maximum detected value exceeds screening value.
		Dioxin TEQ	h	ug/l	4.2E-08	4.2E-08	Outfall 22B	50%	1.1E-08 - 1.1E-08	5.2E-07	ca	N	Maximum detected value does not exceed screening value.
		Pesticides											Maximum detected value exceeds screening value.
	309-00-2	Aldrin		ug/l	4.1E-03	4.1E-03	Outfall 22B	50%	5.0E-02 - 5.0E-02	4.0E-03	ca	Y	Maximum detected value exceeds screening value.
	1024-57-3	Heptachlor epoxide		ug/l	7.1E-03	7.1E-03	Outfall 22B	50%	5.0E-02 - 5.0E-02	7.4E-03	ca	N	Maximum detected value does not exceed screening value.
		Total DDE	i	ug/l	9.0E-03	9.0E-03	Outfall 22B	50%	5.0E-02 - 5.0E-02	2.0E-01	ca	N	Maximum detected value does not exceed screening value.

Table 2-15
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Groundwater Seep

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater Seep[a]

Exposure Point	CAS Number	Chemical[b]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening[c]	Screening Toxicity Value[c] (nc/ca)	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Herbicides											Maximum detected value exceeds screening value.
	93-76-5	2,4,5-T		ug/l	3.1E-01	3.1E-01	Outfall 22B	50%	1.4E+00 - 1.4E+00	3.7E+01	nc	N	Maximum detected value does not exceed screening value.
	94-75-7	2,4-D		ug/l	5.9E-01	5.9E-01	Outfall 22B	50%	1.3E+00 - 1.3E+00	3.7E+01	nc	N	Maximum detected value does not exceed screening value.
	94-82-6	2,4-DB		ug/l	4.3E-01	4.3E-01	Outfall 22B	50%	1.9E+00 - 1.9E+00	2.9E+01	nc	N	Maximum detected value does not exceed screening value.
	1918-00-9	Dicamba		ug/l	1.5E+00	1.5E+00	Outfall 22B	50%	4.8E-02 - 4.8E-02	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	94-74-6	MCPA		ug/l	1.6E-01	1.6E-01	Outfall 22B	50%	1.3E+02 - 1.3E+02	1.8E+00	nc	N	Maximum detected value does not exceed screening value.
	93-65-2	MCPP		ug/l	6.9E-01	6.9E-01	Outfall 22B	50%	1.1E+02 - 1.1E+02	3.7E+00	nc	N	Maximum detected value does not exceed screening value.
		VOCs											Maximum detected value exceeds screening value.
	67-64-1	Acetone		ug/l	3.0E+00	3.0E+00	Outfall 22B	50%	2.5E+00 - 2.5E+00	2.2E+03	nc	N	Maximum detected value does not exceed screening value.
	71-43-2	Benzene		ug/l	1.9E-01	1.9E-01	Outfall 22B	50%	5.0E-01 - 5.0E-01	4.1E-01	ca	N	Maximum detected value does not exceed screening value.
	108-90-7	Chlorobenzene		ug/l	8.4E+00	9.2E+00	Outfall 22B	100%	NA - NA	9.1E+00	nc	Y	Maximum detected value exceeds screening value.
	75-09-2	Methylene chloride		ug/l	5.3E-01	5.3E-01	Outfall 22B	50%	4.5E-01 - 4.5E-01	4.8E+00	ca	N	Maximum detected value does not exceed screening value.
	127-18-4	Tetrachloroethene		ug/l	6.4E-01	6.4E-01	Outfall 22B	50%	5.0E-01 - 5.0E-01	1.1E-01	ca	Y	Maximum detected value exceeds screening value.
	79-01-6	Trichloroethene	j	ug/l	3.4E-01	3.4E-01	Outfall 22B	50%	5.0E-01 - 5.0E-01	2.8E-02	ca	Y	Maximum detected value exceeds screening value.

Notes:

a Groundwater seep data represent groundwater that has seeped into holes of the outfall pipe at the given location.
b Chemical list includes analytes detected in Outfall 22B samples in the site characterization and risk assessment (SCRA) dataset from the past 10 years that were not from stormwater sampling events.
c Screening concentrations and toxicity classifications are from EPA RSLs for tap water (Nov 2010). SLs for noncarcinogenic chemicals are divided by 10.
d EPA RSL for chromium III used as a surrogate for chromium.
e EPA Region 6 SL for tap water used for lead. SL not divided by 10 for screening.
f EPA RSL for pyrene used as surrogate.
g EPA RSL for nitrobenzene used as surrogate.
h EPA RSL for 2,3,7,8-TCDD (dioxin) used for screening concentration. Range of detection limits listed is for individual dioxin/furan isomers before TEQ adjustment.
i EPA RSL for DDE used for total DDE. Range of detection limits listed is for individual DDE isomers.
j The trichloroethene screening level was calculated consistent with the 2008 EPA Region 10 recommendations (EPA 2008a).

Abbreviations:

ca = Carcinogen.
CAS = Chemical Abstract Services.
COPC = Chemical of potential concern.
DEQ = Oregon Department of Environmental Quality.
EPA = U.S. Environmental Protection Agency.
N = No.
NA = Not applicable. Chemical detected at 100% frequency.
nc = Noncarcinogen.
RBC = Risk-based concentration.
RSL = Regional screening level.
SVOC = Semivolatile organic compound.
TEQ = Toxicity equivalent.
ug/l = Micrograms per liter.
VOC = Volatile organic compound.
Y = Yes.

Table 2-16
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water as a Potential Future Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	EPA Tapwater SL[c]	MCL[a]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
Study Area-wide	**Metals**													
	Aluminum		ug/l	1.5E+00	1.9E+03	W023	Jan-06	9.1E-01	2.0E+00 - 5.0E+00	3.7E+03	NA	nc	N	Maximum detected values does not exceed screening value.
	Antimony		ug/l	1.5E-02	6.3E-02	W025	Sep-06	4.5E-01	2.0E-02 - 5.0E-02	1.5E+00	6	nc	N	Maximum detected values does not exceed screening value.
	Arsenic		ug/l	2.0E-01	6.0E-01	W025	Sep-06	8.4E-01	3.8E-01 - 5.1E-01	4.5E-02	10	ca	Y	Maximum detected value exceeds screening value.
	Cadmium		ug/l	1.5E-02	3.0E-02	W032	Jan-07	1.4E-01	2.0E-03 - 5.1E-02	1.8E+00	5	nc	N	Maximum detected values does not exceed screening value.
	Chromium	e	ug/l	1.0E-01	1.7E+00	W036	Jan-07	4.8E-01	1.3E-01 - 5.7E-01	5.5E+03	100	nc	N	Maximum detected values does not exceed screening value.
	Chromium hexavalent		ug/l	5.0E-01	9.0E-01	W011	Nov-06	4.3E-01	6.0E-01 - 2.0E+01	4.3E-02	NA	ca	Y	Maximum detected value exceeds screening value.
	Copper		ug/l	4.5E-01	3.7E+00	W023	Jan-06	1.0E+00	0.0E+00 - 0.0E+00	1.5E+02	1300	nc	N	Maximum detected values does not exceed screening value.
	Lead		ug/l	8.0E-03	8.6E-01	W023	Jan-06	8.3E-01	8.0E-03 - 5.1E-02	NL	15	NA	N	Maximum detected values does not exceed screening value.
	Mercury		ug/l	1.3E-02	2.5E-02	W031	Nov-06	7.0E-02	2.0E-02 - 8.0E-02	5.7E-02	2	nc	N	Maximum detected values does not exceed screening value.
	Nickel		ug/l	1.5E-01	1.9E+00	W033	Jan-07	8.8E-01	2.0E-01 - 9.6E-01	7.3E+01	NA	nc	N	Maximum detected values does not exceed screening value.
	Selenium		ug/l	1.0E-01	7.0E-01	W023	Mar-05	4.9E-01	1.0E-01 - 4.0E-01	1.8E+01	50	nc	N	Maximum detected values does not exceed screening value.
	Silver		ug/l	6.8E-03	2.5E-02	W005	Nov-04	2.3E-02	3.0E-03 - 5.2E-02	1.8E+01	NA	nc	N	Maximum detected values does not exceed screening value.
	Thallium		ug/l	2.5E-02	2.5E-02	W005	Nov-04	8.3E-02	4.0E-03 - 4.0E-03	NL	2	nc	N	Maximum detected values does not exceed screening value.
	Zinc		ug/l	1.4E+00	6.4E+00	W023	Jan-06	5.5E-01	6.0E-01 - 6.0E+00	1.1E+03	NA	nc	N	Maximum detected values does not exceed screening value.
	Butyltins													
	Butyltin ion	f	ug/l	1.5E-03	3.0E-02	W023	Jan-07	1.3E-01	1.7E-03 - 3.8E-02	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	Dibutyltin ion	f	ug/l	6.1E-04	4.3E-03	W038	Nov-06	1.4E-01	5.5E-04 - 2.5E-02	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	Tributyltin ion	f	ug/l	6.5E-04	2.8E-03	W035	Jan-07	6.3E-02	6.0E-04 - 1.4E-02	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	Polynuclear Aromatic Hydrocarbons													
	2-Methylnaphthalene		ug/l	1.2E-03	3.2E-01	W031	Jan-07	3.2E-01	2.7E-03 - 1.2E-02	1.5E+01	NA	nc	N	Maximum detected values does not exceed screening value.
	Acenaphthene		ug/l	2.1E-04	1.1E-01	W031	Jan-07	3.7E-01	2.0E-03 - 8.0E-03	2.2E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Acenaphthylene	g	ug/l	2.6E-04	1.9E-02	W031	Jan-07	2.9E-01	2.1E-04 - 8.8E-03	2.2E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Anthracene		ug/l	3.5E-04	2.4E-01	W031	Jan-07	1.6E-01	1.6E-04 - 7.8E-03	1.1E+03	NA	nc	N	Maximum detected values does not exceed screening value.
	Benzo(a)anthracene	h	ug/l	5.2E-05	1.4E-01	W031	Jan-07	4.1E-01	3.4E-04 - 7.8E-03	2.9E-02	0.200	ca	Y	Maximum detected value exceeds screening value.
	Benzo(a)pyrene	h	ug/l	2.6E-05	9.7E-02	W031	Jan-07	3.6E-01	6.1E-04 - 8.6E-03	2.9E-03	0.200	ca	Y	Maximum detected value exceeds screening value.
	Benzo(b)fluoranthene	h	ug/l	2.4E-05	6.7E-02	W031	Jan-07	3.8E-01	2.0E-03 - 9.2E-03	2.9E-02	0.200	ca	Y	Maximum detected value exceeds screening value.
	Benzo(g,h,i)perylene	i	ug/l	7.5E-05	7.2E-02	W031	Jan-07	3.6E-01	3.3E-04 - 1.5E-02	1.1E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Benzo(k)fluoranthene	h	ug/l	1.6E-05	6.8E-02	W031	Jan-07	3.9E-01	1.4E-03 - 1.1E-02	2.9E-01	0.200	ca	N	Maximum detected values does not exceed screening value.
	Chrysene	h	ug/l	9.5E-05	1.9E-01	W031	Jan-07	4.4E-01	1.3E-03 - 1.1E-02	2.9E+00	0.200	ca	N	Maximum detected values does not exceed screening value.
	Dibenzo(a,h)anthracene	h	ug/l	2.6E-05	1.4E-02	W031	Jan-07	1.8E-01	4.3E-05 - 7.2E-03	2.9E-03	0.200	ca	Y	Maximum detected value exceeds screening value.
	Fluoranthene		ug/l	5.1E-04	4.1E-01	W031	Jan-07	6.2E-01	2.4E-03 - 9.6E-03	1.5E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Fluorene		ug/l	3.7E-04	1.6E-01	W031	Jan-07	3.7E-01	2.6E-03 - 1.1E-02	1.5E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Indeno(1,2,3-cd)pyrene	h	ug/l	1.6E-04	6.2E-02	W031	Jan-07	3.0E-01	1.5E-04 - 8.4E-03	2.9E-02	0.200	ca	Y	Maximum detected value exceeds screening value.
	Naphthalene		ug/l	1.0E-03	8.3E-02	W036	Jan-07	1.0E-01	3.6E-03 - 9.3E-02	1.4E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Phenanthrene	i	ug/l	7.9E-04	1.1E+00	W031	Jan-07	3.9E-01	2.2E-03 - 1.7E-02	1.1E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Pyrene		ug/l	4.3E-04	6.5E-01	W031	Jan-07	6.0E-01	1.5E-03 - 9.4E-03	1.1E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Phthalates													
	Bis(2-ethylhexyl) phthalate		ug/l	9.1E-03	3.6E+00	W005	Nov-06	2.3E-01	4.3E-03 - 4.0E+00	4.8E+00	6	ca	N	Maximum detected values does not exceed screening value.
	Butylbenzyl phthalate		ug/l	1.2E-03	1.2E-01	W025	Sep-06	3.2E-01	6.4E-04 - 7.3E-02	3.5E+01	NA	ca	N	Maximum detected values does not exceed screening value.
	Dibutyl phthalate		ug/l	1.5E-03	1.5E-01	W029	Jan-07	6.8E-02	1.0E-03 - 3.0E-01	3.7E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Diethyl phthalate		ug/l	2.1E-03	1.7E-01	W005	Nov-06	2.3E-01	6.7E-04 - 1.4E-01	2.9E+03	NA	nc	N	Maximum detected values does not exceed screening value.
	Di-n-octyl phthalate	j	ug/l	7.1E-03	1.7E-02	W034	Jan-07	2.7E-02	1.1E-04 - 3.6E-02	2.9E+03	NA	nc	N	Maximum detected values does not exceed screening value.
	Phenols													
	4-Chloro-3-methylphenol		ug/l	2.3E-02	7.5E-02	W020	Jul-05	4.7E-02	2.9E-02 - 1.5E-01	3.7E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Phenol		ug/l	1.6E-02	2.0E-01	W033	Jan-07	1.3E-01	2.0E-02 - 3.3E-02	1.1E+03	NA	nc	N	Maximum detected values does not exceed screening value.
	Polychlorinated Biphenyls													
	Total PCB Congeners	k	pg/l	1.1E+02	1.5E+03	W030	Nov-06	1.0E+00	NA - NA	3.4E+04	500000	ca	N	Maximum detected values does not exceed screening value.
	Dioxin/Furan													
	Total Dioxin/Furan TEQ	l	pg/l	3.1E-02	3.3E-01	W005	Jul-05	1.0E+00	NA - NA	5.2E-01	30	ca	N	Maximum detected values does not exceed screening value.
	Total PCB TEQ	l	pg/l	1.6E-03	8.5E-02	W005	Sep-06	1.0E+00	NA - NA	5.2E-01	30	ca	N	Maximum detected values does not exceed screening value.
	Pesticides													
	Aldrin		ug/l	3.0E-07	4.1E-03	W030	Jan-07	5.7E-01	3.4E-07 - 1.8E-03	4.0E-03	NA	ca	Y	Maximum detected value exceeds screening value.
	alpha-Hexachlorocyclohexane		ug/l	8.5E-06	2.0E-04	W026	Nov-06	6.8E-01	6.0E-05 - 5.1E-04	1.1E-02	NA	ca	N	Maximum detected values does not exceed screening value.
	beta-Hexachlorocyclohexane		ug/l	1.7E-06	3.6E-04	W026	Jan-07	4.8E-01	3.5E-06 - 1.9E-03	3.7E-02	NA	ca	N	Maximum detected values does not exceed screening value.
	delta-Hexachlorocyclohexane	m	ug/l	6.3E-07	8.1E-04	W014	Dec-04	2.9E-01	4.2E-07 - 9.8E-04	NL	NL	NL	Y	Analyte detected and no screening value or surrogate exists.

Table 2-16
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water as a Potential Future Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical[a]	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits[b]	EPA Tapwater SL[c]	MCL[d]	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	Dieldrin		ug/l	1.7E-05	7.0E-04	W028, W036	Jan-07	6.3E-01	4.0E-04 - 5.1E-04	4.2E-03	NA	ca	N	Maximum detected values does not exceed screening value.
	Endrin		ug/l	1.7E-07	1.7E-04	W038	Nov-06	1.4E-01	4.6E-07 - 7.4E-04	1.1E+00	2.00	nc	N	Maximum detected values does not exceed screening value.
	Endrin aldehyde	n	ug/l	2.1E-04	9.1E-04	W036	Jan-07	6.6E-02	2.9E-07 - 5.1E-04	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	Endrin ketone	n	ug/l	3.4E-07	2.0E-04	W036	Nov-06	3.5E-01	4.0E-07 - 5.1E-04	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	gamma-Hexachlorocyclohexane		ug/l	8.6E-06	1.1E-03	W026	Jan-07	7.0E-01	1.2E-04 - 5.6E-04	6.1E-02	0.200	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor		ug/l	1.3E-07	1.6E-03	W030	Jan-07	2.1E-01	9.5E-08 - 2.2E-03	1.5E-02	0.400	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor epoxide		ug/l	2.1E-06	7.1E-05	W037	Jan-07	5.7E-01	6.8E-06 - 5.1E-04	7.4E-03	0.200	ca	N	Maximum detected values does not exceed screening value.
	Methoxychlor		ug/l	9.2E-07	2.1E-04	W036	Jan-07	3.8E-01	1.5E-06 - 1.6E-03	1.8E+01	40	nc	N	Maximum detected values does not exceed screening value.
	Total Chlordanes		ug/l	1.4E-05	1.5E-03	W036	Nov-06	6.5E-01	4.8E-04 - 1.9E-03	1.9E-01	2	ca	N	Maximum detected values does not exceed screening value.
	Total DDD	o	ug/l	1.5E-05	8.5E-04	W029	Jan-07	6.5E-01	4.8E-04 - 1.4E-03	2.8E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Total DDE	p	ug/l	1.7E-05	4.8E-04	W037	Jan-07	7.0E-01	2.6E-04 - 7.8E-04	2.0E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Total DDT	q	ug/l	3.8E-06	2.8E-03	W030	Nov-06	7.5E-01	4.1E-04 - 1.1E-03	2.0E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Total Endosulfan		ug/l	6.1E-05	7.2E-04	W026	Nov-06	7.0E-01	3.1E-04 - 5.1E-04	2.2E+01	NA	nc	N	Maximum detected values does not exceed screening value.
	SVOCs													
	4-Chloroaniline		ug/l	1.3E-02	1.3E-02	W023	Jan-07	1.6E-02	1.8E-02 - 2.0E-02	3.4E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Aniline		ug/l	1.2E+00	1.2E+00	W035	Jan-07	1.6E-02	2.5E-01 - 1.2E+00	1.2E+01	NA	ca	N	Maximum detected values does not exceed screening value.
	Benzoic acid		ug/l	1.2E+00	2.1E+00	W026	Nov-06	9.4E-02	1.8E+00 - 2.0E+00	1.5E+04	NA	nc	N	Maximum detected values does not exceed screening value.
	Carbazole	r	ug/l	8.3E-02	8.3E-02	W031	Jan-07	1.6E-02	1.3E-02 - 1.5E-02	1.5E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Dibenzofuran		ug/l	2.5E-02	2.5E-02	W031	Jan-07	1.6E-02	5.7E-03 - 2.9E-02	3.7E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	Hexachlorobenzene		ug/l	1.3E-05	4.1E-03	W036	Jan-07	4.3E-01	3.1E-04 - 1.6E-02	4.2E-02	1	ca	N	Maximum detected values does not exceed screening value.
	Hexachlorobutadiene		ug/l	5.7E-07	3.6E-05	W034	Nov-06	1.8E-01	2.3E-07 - 2.2E-02	8.6E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Isophorone		ug/l	7.1E-03	1.3E-02	W023M	Mar-07	6.3E-02	8.5E-03 - 9.5E-03	7.1E+01	NA	ca	N	Maximum detected values does not exceed screening value.
	Herbicides													
	2,4-D		ug/l	4.7E-02	1.6E-01	W035	Jan-07	7.8E-02	3.4E-02 - 1.7E-01	3.7E+01	70	nc	N	Maximum detected values does not exceed screening value.
	2,4-DB		ug/l	1.4E-01	2.1E-01	W025	Sep-06	3.3E-02	4.0E-02 - 4.1E-01	2.9E+01	NA	nc	N	Maximum detected values does not exceed screening value.
	Dalapon		ug/l	2.6E-01	2.6E-01	W036	Jan-07	1.6E-02	1.8E-01 - 6.7E-01	1.1E+02	200	nc	N	Maximum detected values does not exceed screening value.
	MCPP		ug/l	5.2E+00	1.9E+01	W035	Jan-07	9.8E-02	6.0E+00 - 1.1E+02	3.7E+00	NA	nc	Y	Maximum detected value exceeds screening value.
	Conventionals													
	Perchlorate		ug/l	3.0E-01	3.0E-01	W033	Nov-06	1.4E-01	2.0E-01 - 7.0E-01	2.6E+00	NA	nc	N	Maximum detected values does not exceed screening value.

Notes: a Chemical list includes analytes detected in surface water samples determined to represent potential future human health exposure from surface water as a drinking water source. Data set includes all vertically integrated and combined transect samples within the study area. Integrated samples have been averaged prior to screening. Benzo(j +k)fluoranthene is assumed to be entirely benzo(k)fluoranthene.
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
c Screening concentrations and toxicity classifications are from EPA RSLs for tap water (Nov2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.
d Maximum Contaminant Levels used as screening concentrations are from EPA 816-F-09-004. May 2009. Retrieved online 15 October 2010.
e EPA RSL listed is for trivalent chromium; MCL listed is for total chromium.
f EPA RSL for tributyltin oxide (TBTO) used as surrogate.
g EPA RSL for acenaphthene used as surrogate.
h Benzo(a)pyrene MCL used for screening of all carcinogenic PAHs
i EPA RSL for pyrene used as surrogate.
j EPA RSL for diethyl phthalate used as surrogate.
k EPA RSL for PCBs as Aroclor 1254 used for screening concentration.
l EPA RSL for 2,3,7,8-TCDD (dioxin) used for screening concentration.
m A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
n EPA RSL for endrin used as surrogate.
o EPA RSL for DDD used for total DDD.
p EPA RSL for p,p'-DDE used for total DDE.
q EPA RSL for DDT used for total DDT.
r EPA RSL for fluorene used as surrogate.

Abbreviations: ca = Carcinogen.
CAS = Chemical Abstract Services.
COPC = Chemical of potential concern.
EPA = U.S. Environmental Protection Agency.
MCL = Maximum Contaminant Level.
N = No.
NA = Not applicable. Chemical detected at 100% frequency, or screening value does not exist for given chemical.
nc = Noncarcinogen.
NL = Not listed.
pg/l = Picograms per liter.
RSL = Regional screening level.
SVOC = Semivolatile organic compound.
TEQ = Toxicity equivalent.
ug/l = Micrograms per liter.
Y = Yes.
PAH = Polynuclear aromatic hydrocarbons

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

SECTION 3 TABLES

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table 3-1
Selection of Exposure Pathways

Scenario Timeframe	Exposure Medium	Exposure Point	Receptor Population	Receptor Age[a]	Exposure Route	Rationale for Selection of Exposure Pathway[b]
Current/Future	Surface Water	Transient Use Areas	Transients	Adult	Ingestion Dermal	Transients may ingest water within transient use areas Transients may contact water within transient use areas
		Diver Use Areas	Divers[c]	Adult	Ingestion Dermal	Divers may inadvertently ingest water while working within the study area Divers may contact water while working within the study area
		Recreational Beach Use Areas	Recreational Beach Users	Adult	Ingestion Dermal	Beach users may inadvertantly ingest water while swimming Beach users may use river for swimming
				Child	Ingestion Dermal	Beach users may inadvertantly ingest water while swimming Beach users may use river for swimming
	Seeps	Transient Use Areas	Transients	Adult	Ingestion Dermal	Transients may inadvertantly ingest water from seeps in beach areas Transients may inadvertantly contact water from seeps in beach areas
	In-water Sediment	In-Water Worker Use Areas	In-water Workers	Adult	Ingestion Dermal	Workers may contact sediment while conducting overwater activities Workers may contact sediment while conducting overwater activities
		Diver Use Areas	Divers[c]	Adult	Ingestion Dermal	Divers may contact sediment while working within the study area Divers may contact sediment while working within the study area
		Fishing Use Areas	Tribal Fishers	Adult	Ingestion Dermal	Fishers may contact sediment during bank or boat fishing Fishers may contact sediment during bank or boat fishing
		Fishing Use Areas	Fishers[d]	Adult	Ingestion Dermal	Fishers may contact sediment during bank or boat fishing Fishers may contact sediment during bank or boat fishing
	Beach Sediment	Dockside Worker Use Areas	Dockside Workers	Adult	Ingestion Dermal	Workers may contact sediment while conducting activities in river beaches Workers may contact sediment while conducting activities in river beaches
		Transient Use Areas	Transients	Adult	Ingestion Dermal	Transients may contact sediment while residing on river banks Transients may contact sediment while residing on river banks
		Recreational Beach Use Areas	Recreational Beach Users	Adult	Ingestion Dermal	Recreational beach users may contact sediment in beach areas Recreational beach users may contact sediment in beach areas
				Child	Ingestion Dermal	Recreational beach users may contact sediment in beach areas Recreational beach users may contact sediment in beach areas
		Fishing Use Areas	Tribal Fishers	Adult	Ingestion Dermal	Fishers may contact sediment during bank or boat fishing Fishers may contact sediment during bank or boat fishing
		Fishing Use Areas	Fishers[d]	Adult	Ingestion Dermal	Fishers may contact sediment during bank or boat fishing Fishers may contact sediment during bank or boat fishing
	Tissue	Resident Fish and Shellfish within Study Area	Tribal Fishers	Adult	Ingestion	Chemicals in sediment and water may accumulate in fish tissue
				Child	Ingestion	Chemicals in sediment and water may accumulate in fish tissue
			Fishers[d]	Adult	Ingestion	Chemicals in sediment and water may accumulate in fish and shellfish tissue
				Child	Ingestion	Chemicals in sediment and water may accumulate in fish and shellfish tissue

Table 3-1
Selection of Exposure Pathways

Scenario Timeframe	Exposure Medium	Exposure Point	Receptor Population	Receptor Age[a]	Exposure Route	Rationale for Selection of Exposure Pathway[b]
Potential Future	Surface Water	Surface Water within Study Area	Residents	Adult	Ingestion	Residents may potentially use surface water as a domestic water source in the future
					Dermal	Residents may potentially contact surface water during residential use in the future
					Inhalation	Residents may potentially inhale volatile organic compounds in surface water during household use in the future.
				Child	Ingestion	Residents may potentially use surface water as a domestic water source in the future
					Dermal	Residents may potentially contact surface water during residential use in the future
					Inhalation	Residents may potentially inhale volatile organic compounds in surface water during household use in the future.

Notes:

a Infant consumption of human milk evaluated quantitatively in the BHHRA for all adult exposure pathways, for bioaccumulative chemicals only.
b All scenarios presented were analyzed quatitatively in the BHHRA.
c The diver scenario is evaluated for divers in wet suits and in dry suits.
d Fishers include three different fish ingestion rates, two different shellfish ingestion rates, and two different fishing frequencies.

TABLE 3-2
Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
05B019	**Metals**										
	Arsenic	mg/kg	0	1	2.6E+00	2.6E+00		Fewer than 5 detects[c]		2.6E+00	2.6E+00
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	6.4E+00	6.4E+00				6.4E+00	6.4E+00
	Benzo(a)pyrene	ug/kg	0	1	4.2E+00	4.2E+00				4.2E+00	4.2E+00
	Benzo(b)fluoranthene	ug/kg	0	1	7.3E+00	7.3E+00				7.3E+00	7.3E+00
	Benzo(k)fluoranthene	ug/kg	0	1	7.5E+00	7.5E+00				7.5E+00	7.5E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	5.2E+00	5.2E+00				5.2E+00	5.2E+00
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	1	1	ND	ND				ND	ND
	Dioxin/Furans										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
06B025	**Metals**							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.3E+00	2.3E+00				2.3E+00	2.3E+00
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	2.9E+04	2.9E+04				2.9E+04	2.9E+04
	Benzo(a)pyrene	ug/kg	0	1	4.1E+04	4.1E+04				4.1E+04	4.1E+04
	Benzo(b)fluoranthene	ug/kg	0	1	3.1E+04	3.1E+04				3.1E+04	3.1E+04
	Benzo(k)fluoranthene	ug/kg	0	1	2.4E+04	2.4E+04				2.4E+04	2.4E+04
	Dibenzo(a,h)anthracene	ug/kg	0	1	9.5E+03	9.5E+03				9.5E+03	9.5E+03
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	3.1E+04	3.1E+04				3.1E+04	3.1E+04
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	0	1	4.3E+01	4.3E+01				4.3E+01	4.3E+01
	Dioxin/Furans										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
06B029	**Metals**							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	1.7E+00	1.7E+00				1.7E+00	1.7E+00
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	1.4E+02	1.4E+02				1.4E+02	1.4E+02
	Benzo(a)pyrene	ug/kg	0	1	3.2E+02	3.2E+02				3.2E+02	3.2E+02
	Benzo(b)fluoranthene	ug/kg	0	1	2.5E+02	2.5E+02				2.5E+02	2.5E+02
	Benzo(k)fluoranthene	ug/kg	0	1	2.2E+02	2.2E+02				2.2E+02	2.2E+02
	Dibenzo(a,h)anthracene	ug/kg	0	1	5.9E+01	5.9E+01				5.9E+01	5.9E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.6E+02	2.6E+02				2.6E+02	2.6E+02

TABLE 3-2
Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	1	1	ND	ND				ND	ND
	Dioxin/Furans										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
07B022	**Metals**							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.0E+00	2.0E+00				2.0E+00	2.0E+00
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	7.5E+00	7.5E+00				7.5E+00	7.5E+00
	Benzo(a)pyrene	ug/kg	0	1	7.1E+00	7.1E+00				7.1E+00	7.1E+00
	Benzo(b)fluoranthene	ug/kg	0	1	6.3E+00	6.3E+00				6.3E+00	6.3E+00
	Benzo(k)fluoranthene	ug/kg	0	1	7.1E+00	7.1E+00				7.1E+00	7.1E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	6.3E+00	6.3E+00				6.3E+00	6.3E+00
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	1	1	ND	ND				ND	ND
	Dioxin/Furans										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
08B032	**Metals**							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.2E+00	2.2E+00				2.2E+00	2.2E+00
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
	Benzo(a)pyrene	ug/kg	0	1	1.6E+01	1.6E+01				1.6E+01	1.6E+01
	Benzo(b)fluoranthene	ug/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Benzo(k)fluoranthene	ug/kg	0	1	1.0E+01	1.0E+01				1.0E+01	1.0E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.9E+00	1.9E+00				1.9E+00	1.9E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	0	1	1.9E+01	1.9E+01				1.9E+01	1.9E+01
	Dioxin/Furans										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
B002	**Metals**							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.4E+00	2.4E+00				2.4E+00	2.4E+00

TABLE 3-2
Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	3.8E+00	3.8E+00				3.8E+00	3.8E+00
	Benzo(a)pyrene	ug/kg	0	1	6.6E+00	6.6E+00				6.6E+00	6.6E+00
	Benzo(b)fluoranthene	ug/kg	0	1	7.4E+00	7.4E+00				7.4E+00	7.4E+00
	Benzo(k)fluoranthene	ug/kg	0	1	2.2E+00	2.2E+00				2.2E+00	2.2E+00
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.5E+00	1.5E+00				1.5E+00	1.5E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	6.4E+00	6.4E+00				6.4E+00	6.4E+00
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	0	1	1.7E+02	1.7E+02				1.7E+02	1.7E+02
	Dioxin/Furans										
	Total PCB TEQ	pg/g	0	1	3.8E+00	3.8E+00				3.8E+00	3.8E+00
B004	**Metals**							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.7E+00	2.7E+00				2.7E+00	2.7E+00
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	4.3E+01	4.3E+01				4.3E+01	4.3E+01
	Benzo(a)pyrene	ug/kg	0	1	8.2E+01	8.2E+01				8.2E+01	8.2E+01
	Benzo(b)fluoranthene	ug/kg	0	1	9.9E+01	9.9E+01				9.9E+01	9.9E+01
	Benzo(k)fluoranthene	ug/kg	0	1	3.1E+01	3.1E+01				3.1E+01	3.1E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	9.8E+01	9.8E+01				9.8E+01	9.8E+01
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	0	1	1.6E+03	1.6E+03				1.6E+03	1.6E+03
	Dioxin/Furans										
	Total PCB TEQ	pg/g	0	1	3.1E+01	3.1E+01				3.1E+01	3.1E+01
B006	**Metals**							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.5E+00	2.5E+00				2.5E+00	2.5E+00
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	1.8E+00	1.8E+00				1.8E+00	1.8E+00
	Benzo(a)pyrene	ug/kg	0	1	1.3E+00	1.3E+00				1.3E+00	1.3E+00
	Benzo(b)fluoranthene	ug/kg	0	1	3.1E+00	3.1E+00				3.1E+00	3.1E+00
	Benzo(k)fluoranthene	ug/kg	0	1	1.1E+00	1.1E+00				1.1E+00	1.1E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.2E+00	1.2E+00				1.2E+00	1.2E+00

TABLE 3-2
Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Polychlorinated Biphenyls										
	Total Aroclors	ug/kg	0	1	1.7E+01	1.7E+01				1.7E+01	1.7E+01
	Dioxin/Furans										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA

Notes:

a Total number of samples includes number of samples in dataset, regardless of detection status. No non-detects exceeded the maximum detected concentration.
b Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
c 95% UCL not calculated for analytes with fewer than five detects.

Abbreviations:

95% UCL = 95% Upper confidence limit.
mg/kg = Milligrams per kilogram.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
TEQ = Toxic equivalence quotient.
ug/kg = Micrograms per kilogram.

TABLE 3-3.
Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
03B030	**Metals**										
	Aluminum	mg/kg	0	1	1.2E+04	1.2E+04		Fewer than 5 detects[c]		1.2E+04	1.2E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	1.9E+00	1.9E+00				1.9E+00	1.9E+00
	Copper	mg/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	6.2E+00	6.2E+00				6.2E+00	6.2E+00
	Benzo(a)pyrene	ug/kg	0	1	7.9E+00	7.9E+00				7.9E+00	7.9E+00
	Benzo(b)fluoranthene	ug/kg	0	1	1.0E+01	1.0E+01				1.0E+01	1.0E+01
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.6E+01	1.6E+01				1.6E+01	1.6E+01
03B031	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	2.2E+04	2.2E+04				2.2E+04	2.2E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	3.2E+00	3.2E+00				3.2E+00	3.2E+00
	Copper	mg/kg	0	1	2.3E+01	2.3E+01				2.3E+01	2.3E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	3.8E+01	3.8E+01				3.8E+01	3.8E+01
	Benzo(a)pyrene	ug/kg	0	1	5.3E+01	5.3E+01				5.3E+01	5.3E+01
	Benzo(b)fluoranthene	ug/kg	0	1	3.5E+01	3.5E+01				3.5E+01	3.5E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.2E+01	1.2E+01				1.2E+01	1.2E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.7E+01	4.7E+01				4.7E+01	4.7E+01
03B033	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.4E+04	1.4E+04				1.4E+04	1.4E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	4.0E+00	4.0E+00				4.0E+00	4.0E+00
	Copper	mg/kg	0	1	1.6E+01	1.6E+01				1.6E+01	1.6E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	5.2E+00	5.2E+00				5.2E+00	5.2E+00
	Benzo(a)pyrene	ug/kg	0	1	5.2E+00	5.2E+00				5.2E+00	5.2E+00
	Benzo(b)fluoranthene	ug/kg	0	1	5.2E+00	5.2E+00				5.2E+00	5.2E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	6.4E+00	6.4E+00				6.4E+00	6.4E+00

TABLE 3-3.
Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
04B023	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.2E+04	1.2E+04				1.2E+04	1.2E+04
	Antimony	mg/kg	0	1	3.0E-01	3.0E-01				3.0E-01	3.0E-01
	Arsenic	mg/kg	0	1	2.7E+00	2.7E+00				2.7E+00	2.7E+00
	Copper	mg/kg	0	1	3.3E+01	3.3E+01				3.3E+01	3.3E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	2.6E+01	2.6E+01				2.6E+01	2.6E+01
	Benzo(a)pyrene	ug/kg	0	1	4.2E+01	4.2E+01				4.2E+01	4.2E+01
	Benzo(b)fluoranthene	ug/kg	0	1	3.3E+01	3.3E+01				3.3E+01	3.3E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	3.8E+01	3.8E+01				3.8E+01	3.8E+01
04B024	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	2.1E+04	2.1E+04				2.1E+04	2.1E+04
	Antimony	mg/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
	Arsenic	mg/kg	0	1	4.7E+00	4.7E+00				4.7E+00	4.7E+00
	Copper	mg/kg	0	1	1.9E+02	1.9E+02				1.9E+02	1.9E+02
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	1.8E+02	1.8E+02				1.8E+02	1.8E+02
	Benzo(a)pyrene	ug/kg	0	1	3.6E+02	3.6E+02				3.6E+02	3.6E+02
	Benzo(b)fluoranthene	ug/kg	0	1	3.0E+02	3.0E+02				3.0E+02	3.0E+02
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.3E+01	2.3E+01				2.3E+01	2.3E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.2E+02	2.2E+02				2.2E+02	2.2E+02
05B018	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.9E+04	1.9E+04				1.9E+04	1.9E+04
	Antimony	mg/kg	0	1	2.0E-01	2.0E-01				2.0E-01	2.0E-01
	Arsenic	mg/kg	0	1	2.4E+00	2.4E+00				2.4E+00	2.4E+00
	Copper	mg/kg	0	1	1.1E+02	1.1E+02				1.1E+02	1.1E+02
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	7.2E+01	7.2E+01				7.2E+01	7.2E+01
	Benzo(a)pyrene	ug/kg	0	1	8.6E+01	8.6E+01				8.6E+01	8.6E+01
	Benzo(b)fluoranthene	ug/kg	0	1	1.0E+02	1.0E+02				1.0E+02	1.0E+02
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.6E+01	2.6E+01				2.6E+01	2.6E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	3.9E+01	3.9E+01				3.9E+01	3.9E+01

TABLE 3-3.
Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
06B022	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04				1.5E+04	1.5E+04
	Antimony	mg/kg	0	1	3.0E-01	3.0E-01				3.0E-01	3.0E-01
	Arsenic	mg/kg	0	1	2.6E+00	2.6E+00				2.6E+00	2.6E+00
	Copper	mg/kg	0	1	4.3E+01	4.3E+01				4.3E+01	4.3E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	4.8E+00	4.8E+00				4.8E+00	4.8E+00
	Benzo(a)pyrene	ug/kg	0	1	4.4E+00	4.4E+00				4.4E+00	4.4E+00
	Benzo(b)fluoranthene	ug/kg	0	1	5.6E+00	5.6E+00				5.6E+00	5.6E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.8E+00	4.8E+00				4.8E+00	4.8E+00
06B026	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.2E+04	1.2E+04				1.2E+04	1.2E+04
	Antimony	mg/kg	0	1	8.0E-01	8.0E-01				8.0E-01	8.0E-01
	Arsenic	mg/kg	0	1	1.7E+00	1.7E+00				1.7E+00	1.7E+00
	Copper	mg/kg	0	1	2.0E+01	2.0E+01				2.0E+01	2.0E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	7.9E+00	7.9E+00				7.9E+00	7.9E+00
	Benzo(a)pyrene	ug/kg	0	1	6.4E+00	6.4E+00				6.4E+00	6.4E+00
	Benzo(b)fluoranthene	ug/kg	0	1	1.0E+01	1.0E+01				1.0E+01	1.0E+01
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.1E+01	1.1E+01				1.1E+01	1.1E+01
06B030	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.8E+04	1.8E+04				1.8E+04	1.8E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	9.9E+00	9.9E+00				9.9E+00	9.9E+00
	Copper	mg/kg	0	1	6.1E+02	6.1E+02				6.1E+02	6.1E+02
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	4.5E+01	4.5E+01				4.5E+01	4.5E+01
	Benzo(a)pyrene	ug/kg	0	1	6.6E+01	6.6E+01				6.6E+01	6.6E+01
	Benzo(b)fluoranthene	ug/kg	0	1	8.1E+01	8.1E+01				8.1E+01	8.1E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	5.0E+00	5.0E+00				5.0E+00	5.0E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.7E+01	4.7E+01				4.7E+01	4.7E+01

TABLE 3-3.
Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
07B023	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.0E+04	1.0E+04				1.0E+04	1.0E+04
	Antimony	mg/kg	0	1	3.0E-01	3.0E-01				3.0E-01	3.0E-01
	Arsenic	mg/kg	0	1	7.0E-01	7.0E-01				7.0E-01	7.0E-01
	Copper	mg/kg	0	1	7.0E+01	7.0E+01				7.0E+01	7.0E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Benzo(a)pyrene	ug/kg	0	1	1.5E+01	1.5E+01				1.5E+01	1.5E+01
	Benzo(b)fluoranthene	ug/kg	0	1	1.2E+01	1.2E+01				1.2E+01	1.2E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.5E+00	2.5E+00				2.5E+00	2.5E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
07B024	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04				1.5E+04	1.5E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	1.6E+00	1.6E+00				1.6E+00	1.6E+00
	Copper	mg/kg	0	1	2.1E+01	2.1E+01				2.1E+01	2.1E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	4.5E+01	4.5E+01				4.5E+01	4.5E+01
	Benzo(a)pyrene	ug/kg	0	1	5.3E+01	5.3E+01				5.3E+01	5.3E+01
	Benzo(b)fluoranthene	ug/kg	0	1	6.2E+01	6.2E+01				6.2E+01	6.2E+01
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.3E+01	2.3E+01				2.3E+01	2.3E+01
09B024	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04				1.5E+04	1.5E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	1.1E+00	1.1E+00				1.1E+00	1.1E+00
	Copper	mg/kg	0	1	1.8E+01	1.8E+01				1.8E+01	1.8E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	1.8E+01	1.8E+01				1.8E+01	1.8E+01
	Benzo(a)pyrene	ug/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Benzo(b)fluoranthene	ug/kg	0	1	9.7E+00	9.7E+00				9.7E+00	9.7E+00
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.5E+00	2.5E+00				2.5E+00	2.5E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	8.7E+00	8.7E+00				8.7E+00	8.7E+00

TABLE 3-3.
Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
09B026	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.1E+04	1.1E+04				1.1E+04	1.1E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	2.4E+00	2.4E+00				2.4E+00	2.4E+00
	Copper	mg/kg	0	1	1.8E+01	1.8E+01				1.8E+01	1.8E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Benzo(a)pyrene	ug/kg	1	1	ND	ND				ND	ND
	Benzo(b)fluoranthene	ug/kg	0	1	2.1E+00	2.1E+00				2.1E+00	2.1E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND				ND	ND
09B027	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	3	1.8E+04	2.0E+04				1.8E+04	2.0E+04
	Antimony	mg/kg	0	1	2.0E-01	2.0E-01				2.0E-01	2.0E-01
	Arsenic	mg/kg	0	3	1.3E+00	1.4E+00				1.3E+00	1.4E+00
	Copper	mg/kg	0	3	2.3E+01	2.4E+01				2.3E+01	2.4E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	3	7.7E+00	9.8E+00				7.7E+00	9.8E+00
	Benzo(a)pyrene	ug/kg	0	3	7.0E+00	9.0E+00				7.0E+00	9.0E+00
	Benzo(b)fluoranthene	ug/kg	0	3	8.8E+00	1.0E+01				8.8E+00	1.0E+01
	Dibenzo(a,h)anthracene	ug/kg	3	3	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	3	5.6E+00	6.6E+00				5.6E+00	6.6E+00
09B028	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.6E+04	1.6E+04				1.6E+04	1.6E+04
	Antimony	mg/kg	NA	NA	NA	NA				NA	NA
	Arsenic	mg/kg	0	1	1.3E+00	1.3E+00				1.3E+00	1.3E+00
	Copper	mg/kg	0	1	1.9E+01	1.9E+01				1.9E+01	1.9E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	5.3E+00	5.3E+00				5.3E+00	5.3E+00
	Benzo(a)pyrene	ug/kg	0	1	4.6E+00	4.6E+00				4.6E+00	4.6E+00
	Benzo(b)fluoranthene	ug/kg	0	1	5.0E+00	5.0E+00				5.0E+00	5.0E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.6E+00	4.6E+00				4.6E+00	4.6E+00

TABLE 3-3.
Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
B001	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.6E+04	1.6E+04				1.6E+04	1.6E+04
	Antimony	mg/kg	1	1	ND	ND				ND	ND
	Arsenic	mg/kg	0	1	2.3E+00	2.3E+00				2.3E+00	2.3E+00
	Copper	mg/kg	0	1	1.9E+01	1.9E+01				1.9E+01	1.9E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	6.5E+00	6.5E+00				6.5E+00	6.5E+00
	Benzo(a)pyrene	ug/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Benzo(b)fluoranthene	ug/kg	0	1	1.2E+01	1.2E+01				1.2E+01	1.2E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.2E+00	2.2E+00				2.2E+00	2.2E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	9.7E+00	9.7E+00				9.7E+00	9.7E+00
B003	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.9E+04	1.9E+04				1.9E+04	1.9E+04
	Antimony	mg/kg	1	1	ND	ND				ND	ND
	Arsenic	mg/kg	0	1	2.5E+00	2.5E+00				2.5E+00	2.5E+00
	Copper	mg/kg	0	1	2.0E+01	2.0E+01				2.0E+01	2.0E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	2.1E+02	2.1E+02				2.1E+02	2.1E+02
	Benzo(a)pyrene	ug/kg	0	1	3.6E+02	3.6E+02				3.6E+02	3.6E+02
	Benzo(b)fluoranthene	ug/kg	0	1	3.1E+02	3.1E+02				3.1E+02	3.1E+02
	Dibenzo(a,h)anthracene	ug/kg	0	1	3.3E+01	3.3E+01				3.3E+01	3.3E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.8E+02	2.8E+02				2.8E+02	2.8E+02
B005	**Metals**							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04				1.5E+04	1.5E+04
	Antimony	mg/kg	1	1	ND	ND				ND	ND
	Arsenic	mg/kg	0	1	3.3E+00	3.3E+00				3.3E+00	3.3E+00
	Copper	mg/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Polynuclear Aromatic Hydrocarbons										
	Benzo(a)anthracene	ug/kg	0	1	7.7E+01	7.7E+01				7.7E+01	7.7E+01
	Benzo(a)pyrene	ug/kg	0	1	1.5E+02	1.5E+02				1.5E+02	1.5E+02
	Benzo(b)fluoranthene	ug/kg	0	1	1.2E+02	1.2E+02				1.2E+02	1.2E+02

TABLE 3-3.
Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.5E+01	1.5E+01				1.5E+01	1.5E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.3E+02	1.3E+02				1.3E+02	1.3E+02

Notes:

a Total number of samples includes number of samples in dataset, regardless of detection status. No non-detects exceeded the maximum detected concentration.
b Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
c 95% UCL not calculated for analytes with fewer than five detects.

Abbreviations:

95% UCL = 95% Upper confidence limit.
mg/kg = Milligrams per kilogram.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected.
ug/kg = Micrograms per kilogram.

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 1 West	**Metals**											
	Arsenic	mg/kg	5	0	0	4.2E+00	5.3E+00	normal	95% Student's t-UCL	5.5E+00	4.2E+00	5.3E+00
	Lead	mg/kg	5	0	0	1.4E+01	1.6E+01	non-parametric	95% Student's t-UCL	1.7E+01	1.4E+01	1.6E+01
	Mercury	mg/kg	5	0	0	6.1E-02	7.6E-02	normal	95% Student's t-UCL	7.5E-02	6.1E-02	7.5E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	0	0	8.4E-01	8.4E-01	--	Fewer than 5 detects[f]	--	8.4E-01	8.4E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	5	0	0	5.0E+01	1.5E+02	lognormal	95% H-UCL	3.5E+02	5.0E+01	1.5E+02
	Benzo(a)pyrene	ug/kg	5	0	0	7.4E+01	2.4E+02	lognormal	95% H-UCL	6.6E+02	7.4E+01	2.4E+02
	Benzo(b)fluoranthene	ug/kg	5	0	0	7.4E+01	2.3E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.4E+02	7.4E+01	2.3E+02
	Benzo(k)fluoranthene	ug/kg	5	0	0	3.0E+01	7.7E+01	gamma	95% Approximate Gamma UCL	7.7E+01	3.0E+01	7.7E+01
	Dibenzo(a,h)anthracene	ug/kg	5	0	0	9.4E+00	3.2E+01	lognormal	95% Chebyshev (MVUE) UCL	2.4E+01	9.4E+00	2.4E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	5	0	0	5.8E+01	2.0E+02	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.1E+02	5.8E+01	2.0E+02
	Naphthalene	ug/kg	5	0	0	1.3E+01	3.1E+01	gamma	95% Approximate Gamma UCL	2.9E+01	1.3E+01	2.9E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	5	4	0	1.9E+01	4.4E+01	--	Fewer than 5 detects	--	1.9E+01	4.4E+01
	Phenols											
	Pentachlorophenol	ug/kg	5	1	0	7.2E-01	1.2E+00	--	Fewer than 5 detects	--	7.2E-01	1.2E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	5	1	0	1.1E+01	1.7E+01	--	Fewer than 5 detects	--	1.1E+01	1.7E+01
	Total PCB Congeners	pg/g	1	0	0	7.1E+03	7.1E+03	--	Fewer than 5 detects	--	7.1E+03	7.1E+03
	Total PCBs, Adjusted[g]	pg/g	1	0	0	6.6E+03	6.6E+03	--	Fewer than 5 detects	--	6.6E+03	6.6E+03
	Dioxin/Furans											
	Total Dioxin/Furan TEQ	pg/g	5	0	0	7.6E-01	2.7E+00	--	Fewer than 5 detects	--	7.6E-01	2.7E+00
	Total PCB TEQ	pg/g	1	0	0	3.2E-01	3.2E-01	gamma	95% Approximate Gamma UCL	3.7E+00	3.2E-01	3.2E-01
	Pesticides											
	Aldrin	ug/kg	5	4	0	1.7E-01	3.7E-01	--	Fewer than 5 detects	--	1.7E-01	3.7E-01
	Dieldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	5	0	0	2.5E+00	5.9E+00	normal	95% Student's t-UCL	4.6E+00	2.5E+00	4.6E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 1 East	**Metals**											
	Arsenic	mg/kg	5	0	0	4.1E+00	6.4E+00	normal	95% Student's t-UCL	5.7E+00	4.1E+00	5.7E+00
	Lead	mg/kg	5	0	0	1.1E+01	2.8E+01	normal	95% Student's t-UCL	2.0E+01	1.1E+01	2.0E+01
	Mercury	mg/kg	5	0	0	1.4E+00	7.1E+00	non-parametric	95% Hall's Bootstrap UCL	2.0E+03	1.4E+00	7.1E+00
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	1.1E+00	1.2E+00	--	Fewer than 5 detects	--	1.1E+00	1.2E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	5	0	0	3.1E+01	5.6E+01	normal	95% Student's t-UCL	5.3E+01	3.1E+01	5.3E+01
	Benzo(a)pyrene	ug/kg	5	0	0	4.6E+01	8.4E+01	normal	95% Student's t-UCL	8.1E+01	4.6E+01	8.1E+01

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	5	0	0	4.2E+01	6.9E+01	normal	95% Student's t-UCL	7.0E+01	4.2E+01	6.9E+01
	Benzo(k)fluoranthene	ug/kg	5	0	0	2.7E+01	5.1E+01	normal	95% Student's t-UCL	4.8E+01	2.7E+01	4.8E+01
	Dibenzo(a,h)anthracene	ug/kg	5	0	0	5.5E+00	9.1E+00	normal	95% Student's t-UCL	9.1E+00	5.5E+00	9.1E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	5	0	0	3.3E+01	6.2E+01	normal	95% Student's t-UCL	5.6E+01	3.3E+01	5.6E+01
	Naphthalene	ug/kg	5	2	0	8.3E+00	2.3E+01	--	Fewer than 5 detects	--	8.3E+00	2.3E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	5	2	1	4.0E+01	7.1E+01	--	Fewer than 5 detects	--	4.0E+01	7.1E+01
	Phenols											
	Pentachlorophenol	ug/kg	5	2	0	7.6E-01	2.5E+00	--	Fewer than 5 detects	--	7.6E-01	2.5E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	5	4	0	1.0E+02	5.1E+02	--	Fewer than 5 detects	--	1.0E+02	5.1E+02
	Total PCB Congeners	pg/g	2	0	0	2.8E+03	3.7E+03	--	Fewer than 5 detects	--	2.8E+03	3.7E+03
	Total PCBs, Adjusted	pg/g	2	0	0	2.6E+03	3.5E+03	--	Fewer than 5 detects	--	2.6E+03	3.5E+03
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	5	0	0	4.7E-01	9.4E-01	normal	95% Student's t-UCL	7.5E-01	4.7E-01	7.5E-01
	Total PCB TEQ	pg/g	2	0	0	2.7E-01	2.7E-01	--	Fewer than 5 detects	--	2.7E-01	2.7E-01
	Pesticides											
	Aldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	5	0	0	1.8E+00	5.6E+00	normal	95% Student's t-UCL	4.0E+00	1.8E+00	4.0E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 1.5 West	**Metals**											
	Arsenic	mg/kg	2	0	0	3.6E+00	4.4E+00	--	Fewer than 5 detects	--	3.6E+00	4.4E+00
	Lead	mg/kg	2	0	0	1.1E+01	1.5E+01	--	Fewer than 5 detects	--	1.1E+01	1.5E+01
	Mercury	mg/kg	2	0	0	5.1E-02	6.8E-02	--	Fewer than 5 detects	--	5.1E-02	6.8E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	2	0	0	1.9E+01	3.3E+01	--	Fewer than 5 detects	--	1.9E+01	3.3E+01
	Benzo(a)pyrene	ug/kg	2	0	0	2.7E+01	4.8E+01	--	Fewer than 5 detects	--	2.7E+01	4.8E+01
	Benzo(b)fluoranthene	ug/kg	2	0	0	2.3E+01	4.1E+01	--	Fewer than 5 detects	--	2.3E+01	4.1E+01
	Benzo(k)fluoranthene	ug/kg	2	0	0	1.9E+01	3.4E+01	--	Fewer than 5 detects	--	1.9E+01	3.4E+01
	Dibenzo(a,h)anthracene	ug/kg	2	0	0	3.3E+00	5.9E+00	--	Fewer than 5 detects	--	3.3E+00	5.9E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	2.1E+01	3.7E+01	--	Fewer than 5 detects	--	2.1E+01	3.7E+01
	Naphthalene	ug/kg	2	1	0	5.3E+00	9.6E+00	--	Fewer than 5 detects	--	5.3E+00	9.6E+00
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Phenols											
	Pentachlorophenol	ug/kg	2	1	0	8.1E-01	1.5E+00	--	Fewer than 5 detects	--	8.1E-01	1.5E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	2	1	0	1.2E+01	2.2E+01	--	Fewer than 5 detects	--	1.2E+01	2.2E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	8.5E-02	9.4E-02	--	Fewer than 5 detects	--	8.5E-02	9.4E-02
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Pesticides											
	Aldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	2	1	0	7.9E-01	1.1E+00	--	Fewer than 5 detects	--	7.9E-01	1.1E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 1.5 East	**Metals**											
	Arsenic	mg/kg	4	0	0	4.4E+00	5.4E+00	--	Fewer than 5 detects	--	4.4E+00	5.4E+00
	Lead	mg/kg	4	0	0	1.1E+01	1.3E+01	--	Fewer than 5 detects	--	1.1E+01	1.3E+01
	Mercury	mg/kg	4	0	0	6.4E-02	1.3E-01	--	Fewer than 5 detects	--	6.4E-02	1.3E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	0	0	3.7E-01	3.7E-01	--	Fewer than 5 detects	--	3.7E-01	3.7E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	4	0	0	2.5E+02	9.4E+02	--	Fewer than 5 detects	--	2.5E+02	9.4E+02
	Benzo(a)pyrene	ug/kg	4	0	0	3.7E+02	1.4E+03	--	Fewer than 5 detects	--	3.7E+02	1.4E+03
	Benzo(b)fluoranthene	ug/kg	4	0	0	2.2E+02	8.2E+02	--	Fewer than 5 detects	--	2.2E+02	8.2E+02
	Benzo(k)fluoranthene	ug/kg	4	0	0	2.2E+02	8.2E+02	--	Fewer than 5 detects	--	2.2E+02	8.2E+02
	Dibenzo(a,h)anthracene	ug/kg	4	0	0	3.7E+01	1.4E+02	--	Fewer than 5 detects	--	3.7E+01	1.4E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	4	0	0	2.6E+02	1.0E+03	--	Fewer than 5 detects	--	2.6E+02	1.0E+03
	Naphthalene	ug/kg	4	1	0	9.8E+01	3.7E+02	--	Fewer than 5 detects	--	9.8E+01	3.7E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	4	1	0	7.1E+01	1.7E+02	--	Fewer than 5 detects	--	7.1E+01	1.7E+02
	Phenols											
	Pentachlorophenol	ug/kg	4	2	0	1.6E+00	4.1E+00	--	Fewer than 5 detects	--	1.6E+00	4.1E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	4	1	0	2.2E+01	4.1E+01	--	Fewer than 5 detects	--	2.2E+01	4.1E+01
	Total PCB Congeners	pg/g	1	0	0	3.5E+03	3.5E+03	--	Fewer than 5 detects	--	3.5E+03	3.5E+03
	Total PCBs, Adjusted	pg/g	1	0	0	3.2E+03	3.2E+03	--	Fewer than 5 detects	--	3.2E+03	3.2E+03
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	5.7E-01	1.8E+00	--	Fewer than 5 detects	--	5.7E-01	1.8E+00
	Total PCB TEQ	pg/g	1	0	0	1.1E-01	1.1E-01	--	Fewer than 5 detects	--	1.1E-01	1.1E-01
	Pesticides											
	Aldrin	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	4	3	3	6.9E-02	6.9E-02	--	Fewer than 5 detects	--	6.9E-02	6.9E-02
	Total DDT	ug/kg	4	1	0	6.8E+00	2.2E+01	--	Fewer than 5 detects	--	6.8E+00	2.2E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 2 West	**Metals**											
	Arsenic	mg/kg	8	0	0	3.4E+00	4.3E+00	normal	95% Student's t-UCL	3.8E+00	3.4E+00	3.8E+00
	Lead	mg/kg	8	0	0	1.1E+01	1.5E+01	normal	95% Student's t-UCL	1.4E+01	1.1E+01	1.4E+01
	Mercury	mg/kg	8	0	0	6.2E-02	8.7E-02	normal	95% Student's t-UCL	7.8E-02	6.2E-02	7.8E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	0	0	2.1E+00	2.1E+00	--	Fewer than 5 detects	--	2.1E+00	2.1E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	8	0	0	3.1E+01	9.0E+01	gamma	95% Approximate Gamma UCL	5.5E+01	3.1E+01	5.5E+01
	Benzo(a)pyrene	ug/kg	8	0	0	5.5E+01	1.7E+02	gamma	95% Approximate Gamma UCL	9.8E+01	5.5E+01	9.8E+01
	Benzo(b)fluoranthene	ug/kg	8	0	0	5.6E+01	1.6E+02	gamma	95% Approximate Gamma UCL	9.8E+01	5.6E+01	9.8E+01
	Benzo(k)fluoranthene	ug/kg	8	0	0	1.8E+01	5.3E+01	gamma	95% Approximate Gamma UCL	3.2E+01	1.8E+01	3.2E+01
	Dibenzo(a,h)anthracene	ug/kg	8	0	0	6.1E+00	1.6E+01	gamma	95% Approximate Gamma UCL	1.0E+01	6.1E+00	1.0E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	8	0	0	4.6E+01	1.3E+02	gamma	95% Approximate Gamma UCL	8.1E+01	4.6E+01	8.1E+01
	Naphthalene	ug/kg	8	2	0	7.2E+00	1.2E+01	normal	95% KM (t) UCL	1.0E+01	7.2E+00	1.0E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	8	3	0	3.3E+01	6.8E+01	normal	95% KM (t) UCL	4.8E+01	3.3E+01	4.8E+01
	Phenols											
	Pentachlorophenol	ug/kg	8	8	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	8	2	0	1.3E+01	2.3E+01	normal	95% KM (t) UCL	1.8E+01	1.3E+01	1.8E+01
	Total PCB Congeners	pg/g	2	0	0	7.8E+03	1.2E+04	--	Fewer than 5 detects	--	7.8E+03	1.2E+04
	Total PCBs, Adjusted	pg/g	2	0	0	7.3E+03	1.1E+04	--	Fewer than 5 detects	--	7.3E+03	1.1E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	8.2E-01	2.2E+00	--	Fewer than 5 detects	--	8.2E-01	2.2E+00
	Total PCB TEQ	pg/g	2	0	0	2.5E-01	3.5E-01	--	Fewer than 5 detects	--	2.5E-01	3.5E-01
	Pesticides											
	Aldrin	ug/kg	5	4	0	9.1E-02	3.6E-01	--	Fewer than 5 detects	--	9.1E-02	3.6E-01
	Dieldrin	ug/kg	8	4	0	1.1E-01	2.7E-01	--	Fewer than 5 detects	--	1.1E-01	2.7E-01
	Total DDT	ug/kg	8	0	0	1.4E+00	4.3E+00	gamma	95% Approximate Gamma UCL	3.2E+00	1.4E+00	3.2E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 2 East	**Metals**											
	Arsenic	mg/kg	34	0	0	4.1E+00	5.8E+00	normal	95% Student's t-UCL	4.3E+00	4.1E+00	4.3E+00
	Lead	mg/kg	34	0	0	2.6E+01	1.1E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	4.3E+01	2.6E+01	4.3E+01
	Mercury	mg/kg	34	2	0	8.2E-02	1.5E-01	normal	95% KM (t) UCL	9.1E-02	8.2E-02	9.1E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	2	1	0	2.7E+00	3.7E+00	--	Fewer than 5 detects	--	2.7E+00	3.7E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	34	0	0	5.8E+01	2.0E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	9.7E+01	5.8E+01	9.7E+01
	Benzo(a)pyrene	ug/kg	34	0	0	8.6E+01	4.1E+02	lognormal	95% H-UCL	1.2E+02	8.6E+01	1.2E+02

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	34	0	0	9.4E+01	4.2E+02	lognormal	95% H-UCL	1.3E+02	9.4E+01	1.3E+02
	Benzo(k)fluoranthene	ug/kg	34	0	0	4.1E+01	1.8E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	7.7E+01	4.1E+01	7.7E+01
	Dibenzo(a,h)anthracene	ug/kg	34	0	0	1.3E+01	6.0E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.4E+01	1.3E+01	2.4E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	34	0	0	7.5E+01	4.0E+02	lognormal	95% H-UCL	1.1E+02	7.5E+01	1.1E+02
	Naphthalene	ug/kg	34	10	0	1.4E+01	8.7E+01	non-parametric	95% KM (BCA) UCL	2.1E+01	1.4E+01	2.1E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	34	10	0	9.9E+01	2.7E+02	normal	95% KM (t) UCL	1.2E+02	9.9E+01	1.2E+02
	Phenols											
	Pentachlorophenol	ug/kg	20	18	14	5.3E-01	2.2E+00	--	Fewer than 5 detects	--	5.3E-01	2.2E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	34	1	0	4.3E+02	1.9E+03	non-parametric	99% KM (Chebyshev) UCL	1.5E+03	4.3E+02	1.5E+03
	Total PCB Congeners	pg/g	17	0	0	8.6E+05	9.8E+06	non-parametric	99% KM (Chebyshev) UCL	6.6E+06	8.6E+05	6.6E+06
	Total PCBs, Adjusted	pg/g	17	0	0	8.2E+05	9.4E+06	non-parametric	99% KM (Chebyshev) UCL	6.3E+06	8.2E+05	6.3E+06
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	8	0	0	1.2E+00	5.6E+00	gamma	95% KM (Chebyshev) UCL	4.0E+00	1.2E+00	4.0E+00
	Total PCB TEQ	pg/g	17	0	0	1.3E+01	1.2E+02	non-parametric	99% KM (Chebyshev) UCL	8.5E+01	1.3E+01	8.5E+01
	Pesticides											
	Aldrin	ug/kg	21	14	2	4.7E-01	2.6E+00	normal	95% KM (t) UCL	7.0E-01	4.7E-01	7.0E-01
	Dieldrin	ug/kg	34	18	2	6.0E-01	9.3E+00	lognormal	95% KM (BCA) UCL	1.2E+00	6.0E-01	1.2E+00
	Total DDT	ug/kg	34	4	1	2.6E+00	8.3E+00	gamma	95% KM (Chebyshev) UCL	4.2E+00	2.6E+00	4.2E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 2.5 West	**Metals**											
	Arsenic	mg/kg	10	0	0	4.0E+00	6.5E+00	normal	95% Student's t-UCL	4.7E+00	4.0E+00	4.7E+00
	Lead	mg/kg	10	0	0	1.3E+01	3.0E+01	normal	95% Student's t-UCL	1.7E+01	1.3E+01	1.7E+01
	Mercury	mg/kg	10	0	0	5.5E-02	1.4E-01	gamma	95% Approximate Gamma UCL	9.1E-02	5.5E-02	9.1E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	0	0	2.3E+00	2.3E+00	--	Fewer than 5 detects	--	2.3E+00	2.3E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	10	0	0	2.1E+02	5.5E+02	normal	95% Student's t-UCL	3.1E+02	2.1E+02	3.1E+02
	Benzo(a)pyrene	ug/kg	10	0	0	3.7E+02	9.7E+02	normal	95% Student's t-UCL	5.5E+02	3.7E+02	5.5E+02
	Benzo(b)fluoranthene	ug/kg	10	0	0	2.8E+02	6.0E+02	normal	95% Student's t-UCL	4.0E+02	2.8E+02	4.0E+02
	Benzo(k)fluoranthene	ug/kg	10	0	0	1.2E+02	4.3E+02	gamma	95% Approximate Gamma UCL	2.5E+02	1.2E+02	2.5E+02
	Dibenzo(a,h)anthracene	ug/kg	10	0	0	4.1E+01	1.3E+02	normal	95% Student's t-UCL	6.4E+01	4.1E+01	6.4E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	10	0	0	3.1E+02	9.0E+02	normal	95% Student's t-UCL	4.7E+02	3.1E+02	4.7E+02
	Naphthalene	ug/kg	10	3	0	4.1E+01	1.6E+02	approx. gamma	95% KM (BCA) UCL	7.6E+01	4.1E+01	7.6E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	10	7	2	1.5E+01	4.3E+01	--	Fewer than 5 detects	--	1.5E+01	4.3E+01
	Phenols											
	Pentachlorophenol	ug/kg	7	5	3	4.5E-01	1.2E+00	--	Fewer than 5 detects	--	4.5E-01	1.2E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	10	5	0	1.1E+01	4.7E+01	normal	95% KM (t) UCL	2.1E+01	1.1E+01	2.1E+01
	Total PCB Congeners	pg/g	1	0	0	7.3E+03	7.3E+03	--	Fewer than 5 detects	--	7.3E+03	7.3E+03
	Total PCBs, Adjusted	pg/g	1	0	0	6.9E+03	6.9E+03	--	Fewer than 5 detects	--	6.9E+03	6.9E+03

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	2.7E-01	4.1E-01	--	Fewer than 5 detects	--	2.7E-01	4.1E-01
	Total PCB TEQ	pg/g	1	0	0	2.1E-01	2.1E-01	--	Fewer than 5 detects	--	2.1E-01	2.1E-01
	Pesticides											
	Aldrin	ug/kg	7	3	1	9.3E-02	2.6E-01	--	Fewer than 5 detects	--	9.3E-02	2.6E-01
	Dieldrin	ug/kg	10	4	1	1.4E-01	3.5E-01	normal	95% KM (t) UCL	2.2E-01	1.4E-01	2.2E-01
	Total DDT	ug/kg	10	0	0	1.4E+00	5.3E+00	lognormal	95% H-UCL	3.4E+00	1.4E+00	3.4E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 2.5 East	**Metals**											
	Arsenic	mg/kg	19	0	0	4.2E+00	1.0E+01	non-parametric	95% Student's t-UCL	4.8E+00	4.2E+00	4.8E+00
	Lead	mg/kg	19	0	0	1.4E+01	3.4E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.0E+01	1.4E+01	2.0E+01
	Mercury	mg/kg	19	0	0	6.8E-02	2.5E-01	gamma	95% Approximate Gamma UCL	9.1E-02	6.8E-02	9.1E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	19	0	0	5.8E+02	1.0E+04	non-parametric	99% Chebyshev (Mean, Sd) UCL	5.8E+03	5.8E+02	5.8E+03
	Benzo(a)pyrene	ug/kg	19	0	0	4.8E+02	7.8E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.5E+03	4.8E+02	4.5E+03
	Benzo(b)fluoranthene	ug/kg	19	0	0	4.4E+02	6.7E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.9E+03	4.4E+02	3.9E+03
	Benzo(k)fluoranthene	ug/kg	19	0	0	1.4E+02	2.1E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.2E+03	1.4E+02	1.2E+03
	Dibenzo(a,h)anthracene	ug/kg	19	0	0	4.9E+01	7.7E+02	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.5E+02	4.9E+01	4.5E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	19	0	0	2.8E+02	4.4E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.6E+03	2.8E+02	2.6E+03
	Naphthalene	ug/kg	19	7	0	5.1E+01	6.9E+02	lognormal	97.5% KM (Chebyshev) UCL	2.8E+02	5.1E+01	2.8E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	19	8	0	7.8E+01	2.1E+02	normal	95% KM (t) UCL	1.1E+02	7.8E+01	1.1E+02
	Phenols											
	Pentachlorophenol	ug/kg	19	18	0	4.3E+00	5.7E+01	--	Fewer than 5 detects	--	4.3E+00	5.7E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	19	2	0	5.6E+01	1.7E+02	gamma	95% KM (BCA) UCL	7.7E+01	5.6E+01	7.7E+01
	Total PCB Congeners	pg/g	7	0	0	6.6E+04	2.0E+05	gamma	95% KM (Chebyshev) UCL	1.8E+05	6.6E+04	1.8E+05
	Total PCBs, Adjusted	pg/g	7	0	0	6.3E+04	1.9E+05	gamma	95% KM (Chebyshev) UCL	1.7E+05	6.3E+04	1.7E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	6.6E-01	1.1E+00	--	Fewer than 5 detects	--	6.6E-01	1.1E+00
	Total PCB TEQ	pg/g	7	0	0	1.3E+00	3.8E+00	gamma	95% KM (Chebyshev) UCL	3.3E+00	1.3E+00	3.3E+00
	Pesticides											
	Aldrin	ug/kg	18	9	1	5.1E-01	1.3E+00	normal	95% KM (t) UCL	7.5E-01	5.1E-01	7.5E-01
	Dieldrin	ug/kg	19	13	2	1.7E-01	5.3E-01	normal	95% KM (t) UCL	3.3E-01	1.7E-01	3.3E-01
	Total DDT	ug/kg	19	4	1	2.4E+00	2.6E+01	lognormal	97.5% KM (Chebyshev) UCL	1.1E+01	2.4E+00	1.1E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 2.5 MC	**Metals**											
	Arsenic	mg/kg	7	0	0	4.3E+00	5.2E+00	normal	95% Student's t-UCL	4.8E+00	4.3E+00	4.8E+00
	Lead	mg/kg	7	0	0	1.3E+01	2.2E+01	normal	95% Student's t-UCL	1.7E+01	1.3E+01	1.7E+01
	Mercury	mg/kg	7	0	0	7.9E-02	1.8E-01	normal	95% Student's t-UCL	1.3E-01	7.9E-02	1.3E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	7	0	0	2.1E+02	4.2E+02	normal	95% Student's t-UCL	3.1E+02	2.1E+02	3.1E+02
	Benzo(a)pyrene	ug/kg	7	0	0	3.4E+02	6.9E+02	normal	95% Student's t-UCL	4.9E+02	3.4E+02	4.9E+02
	Benzo(b)fluoranthene	ug/kg	7	0	0	3.1E+02	6.4E+02	normal	95% Student's t-UCL	4.5E+02	3.1E+02	4.5E+02
	Benzo(k)fluoranthene	ug/kg	7	0	0	1.0E+02	2.1E+02	normal	95% Student's t-UCL	1.4E+02	1.0E+02	1.4E+02
	Dibenzo(a,h)anthracene	ug/kg	7	0	0	3.4E+01	6.0E+01	normal	95% Student's t-UCL	4.7E+01	3.4E+01	4.7E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	7	0	0	2.6E+02	5.4E+02	normal	95% Student's t-UCL	3.8E+02	2.6E+02	3.8E+02
	Naphthalene	ug/kg	7	0	0	5.9E+01	1.4E+02	normal	95% Student's t-UCL	9.9E+01	5.9E+01	9.9E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	7	1	0	5.8E+01	1.4E+02	normal	95% KM (t) UCL	9.3E+01	5.8E+01	9.3E+01
	Phenols											
	Pentachlorophenol	ug/kg	5	3	2	5.5E-01	1.6E+00	--	Fewer than 5 detects	--	5.5E-01	1.6E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	7	1	0	2.5E+01	5.9E+01	normal	95% KM (t) UCL	3.9E+01	2.5E+01	3.9E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Pesticides											
	Aldrin	ug/kg	7	5	0	2.0E-01	6.5E-01	--	Fewer than 5 detects	--	2.0E-01	6.5E-01
	Dieldrin	ug/kg	7	4	0	3.1E-01	9.7E-01	--	Fewer than 5 detects	--	3.1E-01	9.7E-01
	Total DDT	ug/kg	7	1	0	3.7E+00	1.3E+01	gamma	95% KM (Chebyshev) UCL	1.1E+01	3.7E+00	1.1E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 3 West	**Metals**											
	Arsenic	mg/kg	15	0	0	3.7E+00	6.0E+00	normal	95% Student's-t UCL	4.1E+00	3.7E+00	4.1E+00
	Lead	mg/kg	15	0	0	1.2E+01	1.9E+01	normal	95% Student's-t UCL	1.4E+01	1.2E+01	1.4E+01
	Mercury	mg/kg	14	2	0	8.0E-02	1.9E-01	normal	95% KM (t) UCL	1.1E-01	8.0E-02	1.1E-01
	Vanadium	mg/kg	3	0	0	8.6E+01	9.3E+01	--	Fewer than 5 detects	--	8.6E+01	9.3E+01
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	1.0E+01	1.8E+01	--	Fewer than 5 detects	--	1.0E+01	1.8E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	15	0	0	2.9E+02	9.4E+02	gamma	95% Approximate Gamma UCL	4.7E+02	2.9E+02	4.7E+02
	Benzo(a)pyrene	ug/kg	15	0	0	4.6E+02	1.2E+03	gamma	95% Approximate Gamma UCL	7.1E+02	4.6E+02	7.1E+02

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	15	0	0	4.0E+02	1.1E+03	gamma	95% Approximate Gamma UCL	6.0E+02	4.0E+02	6.0E+02
	Benzo(k)fluoranthene	ug/kg	15	0	0	2.3E+02	7.6E+02	gamma	95% Approximate Gamma UCL	4.0E+02	2.3E+02	4.0E+02
	Dibenzo(a,h)anthracene	ug/kg	15	0	0	5.3E+01	1.5E+02	gamma	95% Approximate Gamma UCL	8.2E+01	5.3E+01	8.2E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	15	0	0	3.3E+02	1.1E+03	gamma	95% Approximate Gamma UCL	4.8E+02	3.3E+02	4.8E+02
	Naphthalene	ug/kg	15	1	0	9.8E+01	3.6E+02	gamma	95% KM (Chebyshev) UCL	2.2E+02	9.8E+01	2.2E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	15	9	0	4.0E+01	1.5E+02	normal	95% KM (t) UCL	5.8E+01	4.0E+01	5.8E+01
	Phenols											
	Pentachlorophenol	ug/kg	15	14	0	1.6E+01	1.1E+02	--	Fewer than 5 detects	--	1.6E+01	1.1E+02
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	13	7	1	1.1E+01	3.0E+01	normal	95% KM (t) UCL	1.8E+01	1.1E+01	1.8E+01
	Total PCB Congeners	pg/g	2	0	0	1.6E+04	1.6E+04	--	Fewer than 5 detects	--	1.6E+04	1.6E+04
	Total PCBs, Adjusted	pg/g	2	0	0	1.5E+04	1.5E+04	--	Fewer than 5 detects	--	1.5E+04	1.5E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	5	0	0	6.1E-01	1.7E+00	lognormal	95% KM (Chebyshev) UCL	1.8E+00	6.1E-01	1.7E+00
	Total PCB TEQ	pg/g	2	0	0	4.1E-01	4.4E-01	--	Fewer than 5 detects	--	4.1E-01	4.4E-01
	Pesticides											
	Aldrin	ug/kg	11	5	1	3.5E-01	1.1E+00	normal	95% KM (t) UCL	5.2E-01	3.5E-01	5.2E-01
	Dieldrin	ug/kg	13	10	2	2.0E-01	1.3E+00	--	Fewer than 5 detects	--	2.0E-01	1.3E+00
	Total DDT	ug/kg	13	1	0	2.8E+01	2.3E+02	non-parametric	99% KM (Chebyshev) UCL	2.1E+02	2.8E+01	2.1E+02
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 3 East	**Metals**											
	Arsenic	mg/kg	24	2	0	4.1E+00	9.7E+00	non-parametric	95% KM (Chebyshev) UCL	5.5E+00	4.1E+00	5.5E+00
	Lead	mg/kg	24	0	0	1.2E+01	1.6E+01	non-parametric	95% Student's-t UCL	1.3E+01	1.2E+01	1.3E+01
	Mercury	mg/kg	24	6	0	5.6E-02	2.5E-01	gamma	95% KM (Percentile Bootstrap) UCL	7.5E-02	5.6E-02	7.5E-02
	Vanadium	mg/kg	4	0	0	8.8E+01	1.1E+02	--	Fewer than 5 detects	--	8.8E+01	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	2	1	0	8.3E+00	1.6E+01	--	Fewer than 5 detects	--	8.3E+00	1.6E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	24	1	0	7.7E+01	3.7E+02	gamma	95% KM (Chebyshev) UCL	1.4E+02	7.7E+01	1.4E+02
	Benzo(a)pyrene	ug/kg	24	1	0	8.4E+01	2.7E+02	approx. gamma	95% KM (Chebyshev) UCL	1.4E+02	8.4E+01	1.4E+02
	Benzo(b)fluoranthene	ug/kg	24	1	0	9.9E+01	3.1E+02	approx. gamma	95% KM (Chebyshev) UCL	1.6E+02	9.9E+01	1.6E+02
	Benzo(k)fluoranthene	ug/kg	24	1	0	6.0E+01	2.5E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	6.0E+01	1.1E+02
	Dibenzo(a,h)anthracene	ug/kg	24	3	0	1.4E+01	3.0E+01	normal	95% KM (t) UCL	1.7E+01	1.4E+01	1.7E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	24	1	0	6.7E+01	1.7E+02	normal	95% KM (t) UCL	8.3E+01	6.7E+01	8.3E+01
	Naphthalene	ug/kg	24	12	2	1.3E+01	2.9E+01	normal	95% KM (t) UCL	1.7E+01	1.3E+01	1.7E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	24	11	0	6.5E+01	3.2E+02	gamma	95% KM (t) UCL	8.8E+01	6.5E+01	8.8E+01
	Phenols											
	Pentachlorophenol	ug/kg	13	10	11	1.9E+00	4.6E+00	--	Fewer than 5 detects	--	1.9E+00	4.6E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	21	4	1	1.9E+01	3.4E+01	normal	95% KM (t) UCL	2.3E+01	1.9E+01	2.3E+01
	Total PCB Congeners	pg/g	2	0	0	5.6E+03	9.0E+03	--	Fewer than 5 detects	--	5.6E+03	9.0E+03
	Total PCBs, Adjusted	pg/g	2	0	0	5.3E+03	8.6E+03	--	Fewer than 5 detects	--	5.3E+03	8.6E+03

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	6	0	0	2.9E+00	7.5E+00	normal	95% KM (t) UCL	5.4E+00	2.9E+00	5.4E+00
	Total PCB TEQ	pg/g	2	0	0	7.7E-02	1.0E-01	--	Fewer than 5 detects	--	7.7E-02	1.0E-01
	Pesticides											
	Aldrin	ug/kg	18	11	0	2.9E-01	1.3E+00	normal	95% KM (t) UCL	4.0E-01	2.9E-01	4.0E-01
	Dieldrin	ug/kg	20	17	7	5.7E-02	2.0E-01	--	Fewer than 5 detects	--	5.7E-02	2.0E-01
	Total DDT	ug/kg	20	5	0	1.6E+00	9.9E+00	gamma	95% KM (Chebyshev) UCL	3.8E+00	1.6E+00	3.8E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 3.5 West	**Metals**											
	Arsenic	mg/kg	16	1	0	5.8E+00	1.7E+01	non-parametric	95% KM (Chebyshev) UCL	1.0E+01	5.8E+00	1.0E+01
	Lead	mg/kg	16	0	0	1.5E+01	2.6E+01	non-parametric	95% Student's-t UCL	1.6E+01	1.5E+01	1.6E+01
	Mercury	mg/kg	16	1	0	7.1E-02	2.2E-01	non-parametric	95% KM (Chebyshev) UCL	1.2E-01	7.1E-02	1.2E-01
	Vanadium	mg/kg	2	0	0	9.9E+01	1.0E+02	--	Fewer than 5 detects	--	9.9E+01	1.0E+02
	Butyltins											
	Tributyltin ion	ug/kg	1	0	0	8.1E+01	8.1E+01	--	Fewer than 5 detects	--	8.1E+01	8.1E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	16	0	0	2.6E+02	2.5E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.8E+03	2.6E+02	1.8E+03
	Benzo(a)pyrene	ug/kg	16	0	0	3.9E+02	3.6E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.6E+03	3.9E+02	2.6E+03
	Benzo(b)fluoranthene	ug/kg	16	0	0	3.5E+02	3.2E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.3E+03	3.5E+02	2.3E+03
	Benzo(k)fluoranthene	ug/kg	16	0	0	1.4E+02	1.1E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	8.0E+02	1.4E+02	8.0E+02
	Dibenzo(a,h)anthracene	ug/kg	16	0	0	4.3E+01	3.3E+02	approx. gamma	95% Approximate Gamma UCL	7.5E+01	4.3E+01	7.5E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	16	0	0	3.2E+02	2.9E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.1E+03	3.2E+02	2.1E+03
	Naphthalene	ug/kg	16	1	0	1.3E+02	9.8E+02	lognormal	97.5% KM (Chebyshev) UCL	5.2E+02	1.3E+02	5.2E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	16	11	2	4.6E+01	1.1E+02	normal	95% KM (t) UCL	8.2E+01	4.6E+01	8.2E+01
	Phenols											
	Pentachlorophenol	ug/kg	13	11	3	2.5E+00	1.5E+01	non-parametric	95% KM (BCA) UCL	1.5E+01	2.5E+00	1.5E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	15	1	1	2.3E+01	3.8E+01	normal	95% Student's-t UCL	2.7E+01	2.3E+01	2.7E+01
	Total PCB Congeners	pg/g	2	0	0	1.9E+04	3.0E+04	--	Fewer than 5 detects	--	1.9E+04	3.0E+04
	Total PCBs, Adjusted	pg/g	2	0	0	1.8E+04	2.8E+04	--	Fewer than 5 detects	--	1.8E+04	2.8E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	9.1E-01	1.6E+00	--	Fewer than 5 detects	--	9.1E-01	1.6E+00
	Total PCB TEQ	pg/g	2	0	0	5.1E-01	7.7E-01	--	Fewer than 5 detects	--	5.1E-01	7.7E-01
	Pesticides											
	Aldrin	ug/kg	15	10	0	2.7E-01	1.1E+00	normal	95% KM (t) UCL	4.9E-01	2.7E-01	4.9E-01
	Dieldrin	ug/kg	15	8	4	1.3E-01	2.5E-01	normal	95% KM (t) UCL	1.8E-01	1.3E-01	1.8E-01
	Total DDT	ug/kg	15	1	0	5.8E+00	3.0E+01	lognormal	97.5% KM (Chebyshev) UCL	2.1E+01	5.8E+00	2.1E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 3.5 East	**Metals**											
	Arsenic	mg/kg	39	4	0	3.7E+00	9.2E+00	lognormal	95% KM (Chebyshev) UCL	4.8E+00	3.7E+00	4.8E+00
	Lead	mg/kg	39	1	0	2.7E+01	2.0E+02	non-parametric	95% KM (Chebyshev) UCL	5.2E+01	2.7E+01	5.2E+01
	Mercury	mg/kg	39	1	0	7.9E-02	3.4E-01	lognormal	95% KM (Chebyshev) UCL	1.3E-01	7.9E-02	1.3E-01
	Vanadium	mg/kg	5	0	0	9.9E+01	1.1E+02	normal	95% Student's-t UCL	1.1E+02	9.9E+01	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	27	1	0	1.8E+03	4.7E+04	non-parametric	99% KM (Chebyshev) UCL	1.9E+04	1.8E+03	1.9E+04
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	40	0	0	2.9E+02	6.0E+03	lognormal	97.5% KM (Chebyshev) UCL	1.2E+03	2.9E+02	1.2E+03
	Benzo(a)pyrene	ug/kg	40	0	0	2.5E+02	3.8E+03	lognormal	97.5% KM (Chebyshev) UCL	8.7E+02	2.5E+02	8.7E+02
	Benzo(b)fluoranthene	ug/kg	40	0	0	3.5E+02	5.9E+03	lognormal	97.5% KM (Chebyshev) UCL	1.3E+03	3.5E+02	1.3E+03
	Benzo(k)fluoranthene	ug/kg	40	0	0	1.7E+02	3.4E+03	lognormal	97.5% KM (Chebyshev) UCL	7.1E+02	1.7E+02	7.1E+02
	Dibenzo(a,h)anthracene	ug/kg	40	1	0	4.1E+01	4.1E+02	lognormal	97.5% KM (Chebyshev) UCL	1.3E+02	4.1E+01	1.3E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	40	0	0	1.5E+02	1.1E+03	lognormal	95% KM (Chebyshev) UCL	3.3E+02	1.5E+02	3.3E+02
	Naphthalene	ug/kg	40	17	1	1.4E+01	6.4E+01	gamma	95% KM (t) UCL	1.8E+01	1.4E+01	1.8E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	39	14	0	1.3E+03	1.7E+04	non-parametric	99% KM (Chebyshev) UCL	6.9E+03	1.3E+03	6.9E+03
	Phenols											
	Pentachlorophenol	ug/kg	33	26	6	2.0E+00	1.3E+01	lognormal	95% KM (t) UCL	2.5E+00	2.0E+00	2.5E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	35	5	0	3.8E+02	3.5E+03	non-parametric	99% KM (Chebyshev) UCL	1.7E+03	3.8E+02	1.7E+03
	Total PCB Congeners	pg/g	13	0	0	7.7E+05	3.5E+06	non-parametric	99% KM (Chebyshev) UCL	4.4E+06	7.7E+05	3.5E+06
	Total PCBs, Adjusted	pg/g	13	0	0	7.0E+05	3.2E+06	non-parametric	99% KM (Chebyshev) UCL	4.0E+06	7.0E+05	3.2E+06
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	10	0	0	3.3E+00	1.9E+01	gamma	95% KM (Chebyshev) UCL	1.1E+01	3.3E+00	1.1E+01
	Total PCB TEQ	pg/g	13	0	0	1.7E+01	1.2E+02	non-parametric	99% KM (Chebyshev) UCL	1.1E+02	1.7E+01	1.1E+02
	Pesticides											
	Aldrin	ug/kg	34	13	1	3.7E-01	1.7E+00	gamma	95% KM (BCA) UCL	5.0E-01	3.7E-01	5.0E-01
	Dieldrin	ug/kg	37	29	2	1.3E-01	1.2E+00	approx. gamma	95% KM (t) UCL	1.5E-01	1.3E-01	1.5E-01
	Total DDT	ug/kg	37	4	0	6.2E+00	6.7E+01	lognormal	99% KM (Chebyshev) UCL	2.7E+01	6.2E+00	2.7E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4 West	**Metals**											
	Arsenic	mg/kg	32	6	0	3.4E+00	8.8E+00	non-parametric	95% KM (Chebyshev) UCL	4.4E+00	3.4E+00	4.4E+00
	Lead	mg/kg	32	0	0	1.5E+01	3.9E+01	lognormal	95% KM (Chebyshev) UCL	2.0E+01	1.5E+01	2.0E+01
	Mercury	mg/kg	32	0	0	8.2E-02	4.4E-01	non-parametric	95% KM (Chebyshev) UCL	1.4E-01	8.2E-02	1.4E-01
	Vanadium	mg/kg	6	0	0	1.0E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.0E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	6.1E+00	8.2E+00	--	Fewer than 5 detects	--	6.1E+00	8.2E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	33	0	0	2.5E+02	1.6E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	9.0E+02	2.5E+02	9.0E+02
	Benzo(a)pyrene	ug/kg	33	0	0	4.0E+02	2.5E+03	approx. gamma	95% Approximate Gamma UCL	5.8E+02	4.0E+02	5.8E+02

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	33	0	0	3.6E+02	2.3E+03	gamma	95% Approximate Gamma UCL	5.2E+02	3.6E+02	5.2E+02
	Benzo(k)fluoranthene	ug/kg	28	1	0	1.3E+02	1.2E+03	lognormal	95% KM (Chebyshev) UCL	3.2E+02	1.3E+02	3.2E+02
	Dibenzo(a,h)anthracene	ug/kg	33	4	0	4.4E+01	2.5E+02	gamma	95% KM (Chebyshev) UCL	8.9E+01	4.4E+01	8.9E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	33	0	0	3.2E+02	2.3E+03	approx. gamma	95% Approximate Gamma UCL	4.6E+02	3.2E+02	4.6E+02
	Naphthalene	ug/kg	33	4	0	7.7E+01	4.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.9E+02	7.7E+01	1.9E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	32	23	4	4.2E+01	1.2E+02	normal	95% KM (t) UCL	7.1E+01	4.2E+01	7.1E+01
	Phenols											
	Pentachlorophenol	ug/kg	25	19	7	4.5E+00	2.9E+01	normal	95% KM (t) UCL	6.7E+00	4.5E+00	6.7E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	20	3	0	2.1E+01	5.0E+01	normal	95% KM (t) UCL	2.6E+01	2.1E+01	2.6E+01
	Total PCB Congeners	pg/g	2	0	0	1.9E+04	2.6E+04	--	Fewer than 5 detects	--	1.9E+04	2.6E+04
	Total PCBs, Adjusted	pg/g	2	0	0	1.8E+04	2.5E+04	--	Fewer than 5 detects	--	1.8E+04	2.5E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	1.6E+00	3.3E+00	--	Fewer than 5 detects	--	1.6E+00	3.3E+00
	Total PCB TEQ	pg/g	2	0	0	4.7E-01	6.5E-01	--	Fewer than 5 detects	--	4.7E-01	6.5E-01
	Pesticides											
	Aldrin	ug/kg	25	18	0	3.9E-01	1.4E+00	gamma	95% KM (t) UCL	4.9E-01	3.9E-01	4.9E-01
	Dieldrin	ug/kg	25	23	12	7.1E-02	2.8E-01	--	Fewer than 5 detects	--	7.1E-02	2.8E-01
	Total DDT	ug/kg	25	7	0	1.9E+01	1.5E+02	approx. gamma	95% KM (Chebyshev) UCL	5.6E+01	1.9E+01	5.6E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4 East	**Metals**											
	Arsenic	mg/kg	48	3	0	4.2E+00	1.6E+01	lognormal	95% KM (Chebyshev) UCL	5.6E+00	4.2E+00	5.6E+00
	Lead	mg/kg	48	0	0	8.0E+01	2.0E+03	non-parametric	95% KM (Chebyshev) UCL	2.5E+02	8.0E+01	2.5E+02
	Mercury	mg/kg	48	5	0	6.6E-02	2.8E-01	non-parametric	95% KM (Chebyshev) UCL	9.6E-02	6.6E-02	9.6E-02
	Vanadium	mg/kg	5	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	9	0	0	2.6E+01	5.9E+01	normal	95% KM (t) UCL	3.6E+01	2.6E+01	3.6E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	48	0	0	6.3E+02	4.3E+03	lognormal	97.5% KM (Chebyshev) UCL	1.6E+03	6.3E+02	1.6E+03
	Benzo(a)pyrene	ug/kg	48	0	0	8.8E+02	6.3E+03	lognormal	97.5% KM (Chebyshev) UCL	2.2E+03	8.8E+02	2.2E+03
	Benzo(b)fluoranthene	ug/kg	48	0	0	9.0E+02	6.2E+03	lognormal	97.5% KM (Chebyshev) UCL	2.3E+03	9.0E+02	2.3E+03
	Benzo(k)fluoranthene	ug/kg	43	0	0	7.1E+02	4.9E+03	lognormal	97.5% KM (Chebyshev) UCL	1.8E+03	7.1E+02	1.8E+03
	Dibenzo(a,h)anthracene	ug/kg	48	3	0	1.4E+02	1.1E+03	lognormal	97.5% KM (Chebyshev) UCL	3.7E+02	1.4E+02	3.7E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	48	1	0	6.4E+02	4.8E+03	lognormal	97.5% KM (Chebyshev) UCL	1.7E+03	6.4E+02	1.7E+03
	Naphthalene	ug/kg	48	8	0	3.9E+01	3.6E+02	gamma	95% KM (Chebyshev) UCL	7.4E+01	3.9E+01	7.4E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	49	20	1	9.1E+02	1.4E+04	lognormal	97.5% KM (Chebyshev) UCL	3.3E+03	9.1E+02	3.3E+03
	Phenols											
	Pentachlorophenol	ug/kg	22	13	0	4.5E+02	8.4E+03	non-parametric	99% KM (Chebyshev) UCL	4.3E+03	4.5E+02	4.3E+03
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	40	5	0	1.5E+02	1.7E+03	non-parametric	95% KM (Chebyshev) UCL	3.6E+02	1.5E+02	3.6E+02
	Total PCB Congeners	pg/g	5	0	0	2.2E+05	7.0E+05	normal	95% KM (t) UCL	4.9E+05	2.2E+05	4.9E+05
	Total PCBs, Adjusted	pg/g	5	0	0	2.1E+05	6.8E+05	normal	95% KM (t) UCL	4.8E+05	2.1E+05	4.8E+05

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	6	0	0	4.1E+00	1.0E+01	normal	95% KM (t) UCL	6.9E+00	4.1E+00	6.9E+00
	Total PCB TEQ	pg/g	5	0	0	1.9E+00	3.4E+00	normal	95% KM (t) UCL	3.4E+00	1.9E+00	3.4E+00
	Pesticides											
	Aldrin	ug/kg	17	12	2	4.7E-01	3.2E+00	gamma	95% KM (t) UCL	7.9E-01	4.7E-01	7.9E-01
	Dieldrin	ug/kg	17	14	12	8.9E-02	1.6E-01	--	Fewer than 5 detects	--	8.9E-02	1.6E-01
	Total DDT	ug/kg	44	11	0	5.4E+00	6.9E+01	lognormal	95% KM (Chebyshev) UCL	1.2E+01	5.4E+00	1.2E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4.5 West	**Metals**											
	Arsenic	mg/kg	41	4	0	3.6E+00	1.3E+01	non-parametric	95% KM (Chebyshev) UCL	4.9E+00	3.6E+00	4.9E+00
	Lead	mg/kg	41	0	0	2.8E+01	3.3E+02	non-parametric	95% KM (Chebyshev) UCL	6.3E+01	2.8E+01	6.3E+01
	Mercury	mg/kg	38	2	0	8.6E-02	7.4E-01	non-parametric	95% KM (Chebyshev) UCL	1.7E-01	8.6E-02	1.7E-01
	Vanadium	mg/kg	6	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	4	0	0	7.5E+00	1.4E+01	--	Fewer than 5 detects	--	7.5E+00	1.4E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	42	0	0	5.5E+02	5.1E+03	non-parametric	97.5% KM (Chebyshev) UCL	1.6E+03	5.5E+02	1.6E+03
	Benzo(a)pyrene	ug/kg	42	0	0	7.6E+02	7.5E+03	non-parametric	97.5% KM (Chebyshev) UCL	2.2E+03	7.6E+02	2.2E+03
	Benzo(b)fluoranthene	ug/kg	42	0	0	6.6E+02	6.5E+03	non-parametric	95% KM (Chebyshev) UCL	1.5E+03	6.6E+02	1.5E+03
	Benzo(k)fluoranthene	ug/kg	42	0	0	2.9E+02	2.3E+03	non-parametric	95% KM (Chebyshev) UCL	6.2E+02	2.9E+02	6.2E+02
	Dibenzo(a,h)anthracene	ug/kg	42	2	0	8.5E+01	5.9E+02	non-parametric	97.5% KM (Chebyshev) UCL	2.3E+02	8.5E+01	2.3E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	42	0	0	5.9E+02	5.9E+03	non-parametric	97.5% KM (Chebyshev) UCL	1.7E+03	5.9E+02	1.7E+03
	Naphthalene	ug/kg	42	7	0	1.6E+02	1.4E+03	non-parametric	95% KM (Chebyshev) UCL	3.9E+02	1.6E+02	3.9E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	38	27	0	5.0E+01	2.3E+02	non-parametric	95% KM (t) UCL	7.0E+01	5.0E+01	7.0E+01
	Phenols											
	Pentachlorophenol	ug/kg	31	26	7	1.7E+00	8.8E+00	normal	95% KM (t) UCL	2.3E+00	1.7E+00	2.3E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	24	9	0	2.5E+01	1.3E+02	approx. gamma	95% KM (Percentile Bootstrap) UCL	3.8E+01	2.5E+01	3.8E+01
	Total PCB Congeners	pg/g	5	0	0	8.5E+04	1.6E+05	normal	95% KM (t) UCL	1.5E+05	8.5E+04	1.5E+05
	Total PCBs, Adjusted	pg/g	5	0	0	7.9E+04	1.6E+05	normal	95% KM (t) UCL	1.4E+05	7.9E+04	1.4E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	2.6E+00	6.8E+00	--	Fewer than 5 detects	--	2.6E+00	6.8E+00
	Total PCB TEQ	pg/g	5	0	0	1.4E+00	3.3E+00	normal	95% KM (t) UCL	2.5E+00	1.4E+00	2.5E+00
	Pesticides											
	Aldrin	ug/kg	23	19	0	1.7E-01	1.2E+00	--	Fewer than 5 detects	--	1.7E-01	1.2E+00
	Dieldrin	ug/kg	23	13	6	1.3E-01	3.9E-01	normal	95% KM (t) UCL	1.8E-01	1.3E-01	1.8E-01
	Total DDT	ug/kg	23	6	0	4.5E+00	5.0E+01	lognormal	99% KM (Chebyshev) UCL	2.7E+01	4.5E+00	2.7E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 4.5 East	**Metals**											
	Arsenic	mg/kg	25	5	0	4.0E+00	1.2E+01	gamma	95% KM (BCA) UCL	4.9E+00	4.0E+00	4.9E+00
	Lead	mg/kg	25	0	0	1.6E+02	1.7E+03	lognormal	95% Chebyshev (MVUE) UCL	3.5E+02	1.6E+02	3.5E+02
	Mercury	mg/kg	25	0	0	6.3E-02	1.2E-01	normal	95% Student's-t UCL	7.3E-02	6.3E-02	7.3E-02
	Vanadium	mg/kg	6	0	0	1.0E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.0E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	4.1E+01	7.2E+01	--	Fewer than 5 detects	--	4.1E+01	7.2E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	25	0	0	3.3E+03	4.1E+04	lognormal	97.5% Chebyshev (MVUE) UCL	2.0E+04	3.3E+03	2.0E+04
	Benzo(a)pyrene	ug/kg	25	0	0	4.3E+03	4.8E+04	approx. gamma	95% Adjusted Gamma UCL	8.7E+03	4.3E+03	8.7E+03
	Benzo(b)fluoranthene	ug/kg	25	0	0	3.8E+03	4.4E+04	gamma	95% Adjusted Gamma UCL	7.5E+03	3.8E+03	7.5E+03
	Benzo(k)fluoranthene	ug/kg	25	0	0	3.4E+03	4.2E+04	approx. gamma	95% Adjusted Gamma UCL	6.9E+03	3.4E+03	6.9E+03
	Dibenzo(a,h)anthracene	ug/kg	25	0	0	7.1E+02	6.5E+03	gamma	95% Adjusted Gamma UCL	1.4E+03	7.1E+02	1.4E+03
	Indeno(1,2,3-cd)pyrene	ug/kg	25	0	0	3.0E+03	3.1E+04	gamma	95% Adjusted Gamma UCL	6.1E+03	3.0E+03	6.1E+03
	Naphthalene	ug/kg	25	3	0	1.5E+02	1.7E+03	gamma	95% KM (Chebyshev) UCL	4.4E+02	1.5E+02	4.4E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	25	16	0	8.3E+01	5.2E+02	lognormal	95% KM (t) UCL	1.2E+02	8.3E+01	1.2E+02
	Phenols											
	Pentachlorophenol	ug/kg	2	1	7	1.8E+00	3.2E+00	--	Fewer than 5 detects	--	1.8E+00	3.2E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	20	5	1	3.5E+01	8.4E+01	normal	95% KM (t) UCL	4.4E+01	3.5E+01	4.4E+01
	Total PCB Congeners	pg/g	2	0	0	1.3E+04	1.3E+04	--	Fewer than 5 detects	--	1.3E+04	1.3E+04
	Total PCBs, Adjusted	pg/g	2	0	0	1.2E+04	1.2E+04	--	Fewer than 5 detects	--	1.2E+04	1.2E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	2.8E-01	2.8E-01	--	Fewer than 5 detects	--	2.8E-01	2.8E-01
	Total PCB TEQ	pg/g	2	0	0	3.2E-01	3.4E-01	--	Fewer than 5 detects	--	3.2E-01	3.4E-01
	Pesticides											
	Aldrin	ug/kg	4	2	2	1.1E-01	1.5E-01	--	Fewer than 5 detects	--	1.1E-01	1.5E-01
	Dieldrin	ug/kg	4	3	2	5.8E-02	8.4E-02	--	Fewer than 5 detects	--	5.8E-02	8.4E-02
	Total DDT	ug/kg	20	7	0	4.9E+00	3.1E+01	gamma	95% KM (BCA) UCL	8.7E+00	4.9E+00	8.7E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5 West	**Metals**											
	Arsenic	mg/kg	27	7	0	3.2E+00	6.1E+00	normal	95% KM (t) UCL	3.8E+00	3.2E+00	3.8E+00
	Lead	mg/kg	27	0	0	1.2E+01	1.6E+01	non-parametric	95% KM (Chebyshev) UCL	1.5E+01	1.2E+01	1.5E+01
	Mercury	mg/kg	27	0	0	5.2E-02	1.4E-01	approx. gamma	95% KM (BCA) UCL	6.0E-02	5.2E-02	6.0E-02
	Vanadium	mg/kg	8	0	0	9.8E+01	1.1E+02	normal	95% Student's-t UCL	1.0E+02	9.8E+01	1.0E+02
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	1.8E+01	2.1E+01	--	Fewer than 5 detects	--	1.8E+01	2.1E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	40	0	0	5.9E+02	1.0E+04	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.4E+03	5.9E+02	3.4E+03
	Benzo(a)pyrene	ug/kg	40	0	0	7.9E+02	1.3E+04	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.5E+03	7.9E+02	4.5E+03

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	40	0	0	5.7E+02	7.5E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.0E+03	5.7E+02	3.0E+03
	Benzo(k)fluoranthene	ug/kg	40	0	0	4.1E+02	8.3E+03	lognormal	95% H-UCL	5.7E+02	4.1E+02	5.7E+02
	Dibenzo(a,h)anthracene	ug/kg	40	2	0	8.2E+01	1.2E+03	non-parametric	95% KM (Chebyshev) UCL	2.3E+02	8.2E+01	2.3E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	40	0	0	5.9E+02	9.3E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.3E+03	5.9E+02	3.3E+03
	Naphthalene	ug/kg	40	4	0	1.4E+02	2.5E+03	non-parametric	95% KM (Chebyshev) UCL	4.2E+02	1.4E+02	4.2E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	27	11	0	7.1E+01	2.5E+02	gamma	95% KM (t) UCL	9.1E+01	7.1E+01	9.1E+01
	Phenols											
	Pentachlorophenol	ug/kg	27	23	0	2.1E+01	1.4E+02	gamma	95% KM (t) UCL	1.8E+01	2.1E+01	1.8E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	15	5	0	1.7E+01	5.1E+01	gamma	95% KM (Percentile Bootstrap) UCL	2.5E+01	1.7E+01	2.5E+01
	Total PCB Congeners	pg/g	2	0	0	8.0E+04	9.6E+04	--	Fewer than 5 detects	--	8.0E+04	9.6E+04
	Total PCBs, Adjusted	pg/g	2	0	0	7.8E+04	9.2E+04	--	Fewer than 5 detects	--	7.8E+04	9.2E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	3.5E+00	5.4E+00	--	Fewer than 5 detects	--	3.5E+00	5.4E+00
	Total PCB TEQ	pg/g	2	0	0	1.2E+00	2.1E+00	--	Fewer than 5 detects	--	1.2E+00	2.1E+00
	Pesticides											
	Aldrin	ug/kg	12	8	0	4.4E-01	1.9E+00	--	Fewer than 5 detects	--	4.4E-01	1.9E+00
	Dieldrin	ug/kg	15	11	2	1.5E-01	7.8E-01	--	Fewer than 5 detects	--	1.5E-01	7.8E-01
	Total DDT	ug/kg	16	1	0	1.2E+01	1.2E+02	lognormal	99% KM (Chebyshev) UCL	8.2E+01	1.2E+01	8.2E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5 East	**Metals**											
	Arsenic	mg/kg	22	2	0	3.2E+00	6.0E+00	normal	95% KM (t) UCL	3.7E+00	3.2E+00	3.7E+00
	Lead	mg/kg	22	0	0	1.4E+01	3.9E+01	approx. gamma	95% Approximate Gamma UCL	1.7E+01	1.4E+01	1.7E+01
	Mercury	mg/kg	22	1	0	6.8E-02	2.0E-01	gamma	95% KM (BCA) UCL	8.6E-02	6.8E-02	8.6E-02
	Vanadium	mg/kg	3	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	4	0	0	5.7E+01	1.2E+02	--	Fewer than 5 detects	--	5.7E+01	1.2E+02
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	22	0	0	2.1E+02	9.9E+02	gamma	95% Approximate Gamma UCL	3.3E+02	2.1E+02	3.3E+02
	Benzo(a)pyrene	ug/kg	22	0	0	3.0E+02	1.9E+03	approx. gamma	95% Approximate Gamma UCL	4.7E+02	3.0E+02	4.7E+02
	Benzo(b)fluoranthene	ug/kg	22	0	0	3.2E+02	1.6E+03	lognormal	95% Chebyshev (MVUE) UCL	6.7E+02	3.2E+02	6.7E+02
	Benzo(k)fluoranthene	ug/kg	17	0	0	1.5E+02	5.3E+02	gamma	95% KM (Chebyshev) UCL	3.0E+02	1.5E+02	3.0E+02
	Dibenzo(a,h)anthracene	ug/kg	22	1	0	4.3E+01	2.0E+02	gamma	95% KM (Chebyshev) UCL	9.1E+01	4.3E+01	9.1E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	22	0	0	2.4E+02	1.6E+03	lognormal	95% Chebyshev (MVUE) UCL	4.8E+02	2.4E+02	4.8E+02
	Naphthalene	ug/kg	22	4	0	5.5E+01	3.6E+02	gamma	95% KM (Chebyshev) UCL	1.3E+02	5.5E+01	1.3E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	22	12	0	8.5E+01	3.9E+02	gamma	95% KM (t) UCL	1.3E+02	8.5E+01	1.3E+02
	Phenols											
	Pentachlorophenol	ug/kg	19	14	3	6.5E+00	4.7E+01	lognormal	95% KM (BCA) UCL	1.3E+01	6.5E+00	1.3E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	15	3	0	2.0E+01	4.5E+01	normal	95% KM (t) UCL	2.5E+01	2.0E+01	2.5E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Pesticides											
	Aldrin	ug/kg	20	18	6	1.9E-01	8.0E-01	--	Fewer than 5 detects	--	1.9E-01	8.0E-01
	Dieldrin	ug/kg	20	17	7	1.9E-01	7.9E-01	--	Fewer than 5 detects	--	1.9E-01	7.9E-01
	Total DDT	ug/kg	20	10	0	1.4E+00	6.5E+00	gamma	95% KM (t) UCL	1.9E+00	1.4E+00	1.9E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5.5 West	**Metals**											
	Arsenic	mg/kg	29	4	0	4.3E+00	1.3E+01	non-parametric	95% KM (Chebyshev) UCL	6.1E+00	4.3E+00	6.1E+00
	Lead	mg/kg	29	0	0	2.0E+01	3.7E+01	normal	95% KM (t) UCL	2.3E+01	2.0E+01	2.3E+01
	Mercury	mg/kg	29	1	0	6.8E-02	1.7E-01	normal	95% KM (t) UCL	8.0E-02	6.8E-02	8.0E-02
	Vanadium	mg/kg	3	0	0	9.2E+01	1.1E+02	--	Fewer than 5 detects	--	9.2E+01	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	17	1	0	1.7E+01	9.1E+01	gamma	95% KM (Chebyshev) UCL	4.3E+01	1.7E+01	4.3E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	31	0	0	1.3E+03	1.7E+04	lognormal	95% H-UCL	3.0E+03	1.3E+03	3.0E+03
	Benzo(a)pyrene	ug/kg	31	0	0	1.9E+03	2.3E+04	lognormal	95% H-UCL	4.3E+03	1.9E+03	4.3E+03
	Benzo(b)fluoranthene	ug/kg	31	0	0	1.5E+03	2.0E+04	lognormal	95% H-UCL	3.1E+03	1.5E+03	3.1E+03
	Benzo(k)fluoranthene	ug/kg	31	0	0	7.5E+02	6.0E+03	lognormal	95% Chebyshev (MVUE) UCL	2.0E+03	7.5E+02	2.0E+03
	Dibenzo(a,h)anthracene	ug/kg	31	0	0	1.7E+02	1.5E+03	lognormal	95% H-UCL	3.5E+02	1.7E+02	3.5E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	31	0	0	1.5E+03	1.7E+04	lognormal	95% Chebyshev (MVUE) UCL	3.5E+03	1.5E+03	3.5E+03
	Naphthalene	ug/kg	31	4	0	1.2E+02	9.4E+02	lognormal	97.5% KM (Chebyshev) UCL	3.3E+02	1.2E+02	3.3E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	29	19	0	7.4E+01	2.1E+02	non-parametric	95% KM (BCA) UCL	1.8E+01	7.4E+01	1.8E+01
	Phenols											
	Pentachlorophenol	ug/kg	29	21	0	1.2E+01	1.4E+02	non-parametric	95% KM (BCA) UCL	1.8E+01	1.2E+01	1.8E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	29	12	0	3.2E+01	2.4E+02	gamma	95% KM (BCA) UCL	5.1E+01	3.2E+01	5.1E+01
	Total PCB Congeners	pg/g	4	0	0	1.8E+04	3.2E+04	--	Fewer than 5 detects	--	1.8E+04	3.2E+04
	Total PCBs, Adjusted	pg/g	4	0	0	1.7E+04	2.9E+04	--	Fewer than 5 detects	--	1.7E+04	2.9E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	1.5E+00	2.3E+00	--	Fewer than 5 detects	--	1.5E+00	2.3E+00
	Total PCB TEQ	pg/g	4	0	0	5.8E-01	1.1E+00	--	Fewer than 5 detects	--	5.8E-01	1.1E+00
	Pesticides											
	Aldrin	ug/kg	26	21	0	4.2E-01	4.7E+00	normal	95% KM (t) UCL	6.7E-01	4.2E-01	6.7E-01
	Dieldrin	ug/kg	28	21	4	3.1E-01	1.5E+00	gamma	95% KM (t) UCL	4.1E-01	3.1E-01	4.1E-01
	Total DDT	ug/kg	28	1	0	1.9E+01	2.8E+02	approx. gamma	95% KM (Chebyshev) UCL	6.2E+01	1.9E+01	6.2E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 5.5 East	**Metals**											
	Arsenic	mg/kg	47	3	0	5.8E+00	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	8.9E+00	5.8E+00	8.9E+00
	Lead	mg/kg	47	0	0	6.0E+01	3.3E+02	lognormal	95% H-UCL	7.9E+01	6.0E+01	7.9E+01
	Mercury	mg/kg	47	1	0	2.3E-01	4.8E+00	non-parametric	95% KM (Chebyshev) UCL	6.7E-01	2.3E-01	6.7E-01
	Vanadium	mg/kg	3	0	0	8.5E+01	9.1E+01	--	Fewer than 5 detects	--	8.5E+01	9.1E+01
	Butyltins											
	Tributyltin ion	ug/kg	19	0	0	1.7E+02	4.8E+02	gamma	95% KM (Chebyshev) UCL	3.2E+02	1.7E+02	3.2E+02
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	47	0	0	4.6E+02	2.6E+03	gamma	95% Approximate Gamma UCL	5.7E+02	4.6E+02	5.7E+02
	Benzo(a)pyrene	ug/kg	47	0	0	5.6E+02	2.5E+03	gamma	95% Approximate Gamma UCL	7.0E+02	5.6E+02	7.0E+02
	Benzo(b)fluoranthene	ug/kg	47	0	0	6.8E+02	4.1E+03	gamma	95% Approximate Gamma UCL	8.4E+02	6.8E+02	8.4E+02
	Benzo(k)fluoranthene	ug/kg	33	0	0	2.6E+02	1.1E+03	gamma	95% KM (Chebyshev) UCL	4.4E+02	2.6E+02	4.4E+02
	Dibenzo(a,h)anthracene	ug/kg	47	1	0	8.8E+01	4.6E+02	gamma	95% KM (Chebyshev) UCL	1.4E+02	8.8E+01	1.4E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	47	0	0	4.3E+02	2.1E+03	gamma	95% Approximate Gamma UCL	5.3E+02	4.3E+02	5.3E+02
	Naphthalene	ug/kg	47	3	0	1.3E+02	2.3E+03	lognormal	95% KM (Chebyshev) UCL	3.5E+02	1.3E+02	3.5E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	47	13	0	2.6E+02	1.5E+03	gamma	95% KM (Percentile Bootstrap) UCL	3.3E+02	2.6E+02	3.3E+02
	Phenols											
	Pentachlorophenol	ug/kg	39	18	8	1.3E+01	8.8E+01	gamma	95% KM (t) UCL	1.8E+01	1.3E+01	1.8E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	31	1	0	1.1E+02	4.1E+02	lognormal	95% KM (Chebyshev) UCL	1.8E+02	1.1E+02	1.8E+02
	Total PCB Congeners	pg/g	8	0	0	8.1E+04	2.5E+05	gamma	95% KM (Chebyshev) UCL	2.2E+05	8.1E+04	2.2E+05
	Total PCBs, Adjusted	pg/g	8	0	0	7.7E+04	2.4E+05	gamma	95% KM (Chebyshev) UCL	2.1E+05	7.7E+04	2.1E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	5	0	0	4.4E+00	1.1E+01	normal	95% KM (t) UCL	8.9E+00	4.4E+00	8.9E+00
	Total PCB TEQ	pg/g	8	0	0	2.0E+00	7.4E+00	gamma	95% KM (Chebyshev) UCL	5.8E+00	2.0E+00	5.8E+00
	Pesticides											
	Aldrin	ug/kg	44	35	1	4.1E-01	2.6E+00	normal	95% KM (t) UCL	4.0E-01	4.1E-01	4.0E-01
	Dieldrin	ug/kg	44	36	2	4.7E-01	5.3E+00	gamma	95% KM (t) UCL	6.0E-01	4.7E-01	6.0E-01
	Total DDT	ug/kg	45	10	0	8.2E+00	9.3E+01	lognormal	95% KM (Chebyshev) UCL	2.0E+01	8.2E+00	2.0E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 6 West	**Metals**											
	Arsenic	mg/kg	45	7	2	3.7E+00	8.1E+00	gamma	95% KM (BCA) UCL	4.1E+00	3.7E+00	4.1E+00
	Lead	mg/kg	45	0	0	4.3E+01	6.8E+02	non-parametric	95% KM (Chebyshev) UCL	1.1E+02	4.3E+01	1.1E+02
	Mercury	mg/kg	38	2	0	1.1E-01	4.3E-01	approx. gamma	95% KM (BCA) UCL	1.4E-01	1.1E-01	1.4E-01
	Vanadium	mg/kg	6	0	0	1.2E+02	1.4E+02	normal	95% Student's-t UCL	1.3E+02	1.2E+02	1.3E+02
	Butyltins											
	Tributyltin ion	ug/kg	8	0	0	1.3E+01	3.3E+01	normal	95% KM (t) UCL	2.0E+01	1.3E+01	2.0E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	44	0	0	2.5E+04	1.2E+05	gamma	95% KM (Chebyshev) UCL	4.8E+04	2.5E+04	4.8E+04
	Benzo(a)pyrene	ug/kg	44	0	0	3.1E+04	1.6E+05	gamma	95% KM (Chebyshev) UCL	5.8E+04	3.1E+04	5.8E+04

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	44	0	0	2.2E+04	1.3E+05	gamma	95% KM (Chebyshev) UCL	4.3E+04	2.2E+04	4.3E+04
	Benzo(k)fluoranthene	ug/kg	44	0	0	1.4E+04	8.9E+04	gamma	95% KM (Chebyshev) UCL	2.7E+04	1.4E+04	2.7E+04
	Dibenzo(a,h)anthracene	ug/kg	44	0	0	2.9E+03	1.5E+04	gamma	95% KM (Chebyshev) UCL	5.4E+03	2.9E+03	5.4E+03
	Indeno(1,2,3-cd)pyrene	ug/kg	44	0	0	2.1E+04	1.3E+05	gamma	95% KM (Chebyshev) UCL	4.0E+04	2.1E+04	4.0E+04
	Naphthalene	ug/kg	44	0	0	1.1E+04	1.0E+05	lognormal	99% KM (Chebyshev) UCL	4.4E+04	1.1E+04	4.4E+04
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	38	27	0	2.2E+02	3.2E+03	non-parametric	95% KM (BCA) UCL	3.8E+02	2.2E+02	3.8E+02
	Phenols											
	Pentachlorophenol	ug/kg	36	23	2	2.2E+01	2.9E+02	lognormal	95% KM (BCA) UCL	3.5E+01	2.2E+01	3.5E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	28	13	0	4.3E+01	2.1E+02	gamma	95% KM (t) UCL	6.1E+01	4.3E+01	6.1E+01
	Total PCB Congeners	pg/g	3	0	0	8.6E+04	1.9E+05	--	Fewer than 5 detects	--	8.6E+04	1.9E+05
	Total PCBs, Adjusted	pg/g	3	0	0	8.2E+04	1.8E+05	--	Fewer than 5 detects	--	8.2E+04	1.8E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	1.5E+00	1.5E+00	--	Fewer than 5 detects	--	1.5E+00	1.5E+00
	Total PCB TEQ	pg/g	3	0	0	1.4E+00	2.8E+00	--	Fewer than 5 detects	--	1.4E+00	2.8E+00
	Pesticides											
	Aldrin	ug/kg	23	16	0	1.2E+00	7.9E+00	normal	95% KM (t) UCL	2.3E+00	1.2E+00	2.3E+00
	Dieldrin	ug/kg	27	20	0	1.1E+00	1.1E+01	gamma	95% KM (t) UCL	1.8E+00	1.1E+00	1.8E+00
	Total DDT	ug/kg	27	0	0	3.6E+01	2.3E+02	approx. gamma	95% KM (Chebyshev) UCL	8.1E+01	3.6E+01	8.1E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 6 East	**Metals**											
	Arsenic	mg/kg	22	0	0	3.7E+00	1.0E+01	gamma	95% Approximate Gamma UCL	4.4E+00	3.7E+00	4.4E+00
	Lead	mg/kg	22	0	0	1.9E+01	3.6E+01	approx. gamma	95% Approximate Gamma UCL	2.3E+01	1.9E+01	2.3E+01
	Mercury	mg/kg	22	0	0	2.9E-01	9.2E-01	gamma	95% Approximate Gamma UCL	4.0E-01	2.9E-01	4.0E-01
	Vanadium	mg/kg	2	0	0	9.1E+01	9.8E+01	--	Fewer than 5 detects	--	9.1E+01	9.8E+01
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	1.8E+02	3.5E+02	--	Fewer than 5 detects	--	1.8E+02	3.5E+02
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	22	0	0	5.3E+02	6.5E+03	lognormal	95% Chebyshev (MVUE) UCL	1.3E+03	5.3E+02	1.3E+03
	Benzo(a)pyrene	ug/kg	22	0	0	7.5E+02	9.5E+03	lognormal	95% Chebyshev (MVUE) UCL	1.9E+03	7.5E+02	1.9E+03
	Benzo(b)fluoranthene	ug/kg	22	1	0	7.3E+02	9.1E+03	non-parametric	97.5% KM (Chebyshev) UCL	3.3E+03	7.3E+02	3.3E+03
	Benzo(k)fluoranthene	ug/kg	16	0	0	4.6E+02	5.4E+03	lognormal	97.5% KM (Chebyshev) UCL	2.5E+03	4.6E+02	2.5E+03
	Dibenzo(a,h)anthracene	ug/kg	22	1	0	9.6E+01	8.8E+02	approx. gamma	95% KM (Chebyshev) UCL	2.7E+02	9.6E+01	2.7E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	22	0	0	4.2E+02	4.1E+03	lognormal	95% Chebyshev (MVUE) UCL	1.1E+03	4.2E+02	1.1E+03
	Naphthalene	ug/kg	22	2	0	2.5E+02	3.0E+03	approx. gamma	95% KM (Chebyshev) UCL	8.4E+02	2.5E+02	8.4E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	22	14	0	8.2E+01	5.9E+02	gamma	95% KM (t) UCL	1.4E+02	8.2E+01	1.4E+02
	Phenols											
	Pentachlorophenol	ug/kg	19	15	3	7.7E+00	4.4E+01	--	Fewer than 5 detects	--	7.7E+00	4.4E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	13	0	0	7.7E+01	2.4E+02	gamma	95% KM (Chebyshev) UCL	1.8E+02	7.7E+01	1.8E+02
	Total PCB Congeners	pg/g	3	0	0	4.1E+04	1.1E+05	--	Fewer than 5 detects	--	4.1E+04	1.1E+05
	Total PCBs, Adjusted	pg/g	3	0	0	3.8E+04	1.0E+05	--	Fewer than 5 detects	--	3.8E+04	1.0E+05

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	3.2E+00	4.1E+00	--	Fewer than 5 detects	--	3.2E+00	4.1E+00
	Total PCB TEQ	pg/g	3	0	0	1.2E+00	3.4E+00	--	Fewer than 5 detects	--	1.2E+00	3.4E+00
	Pesticides											
	Aldrin	ug/kg	18	13	0	4.1E-01	1.7E+00	normal	95% KM (t) UCL	6.4E-01	4.1E-01	6.4E-01
	Dieldrin	ug/kg	16	15	11	4.4E-02	1.0E-01	--	Fewer than 5 detects	--	4.4E-02	1.0E-01
	Total DDT	ug/kg	19	5	0	2.9E+00	1.3E+01	gamma	95% KM (Percentile Bootstrap) UCL	4.2E+00	2.9E+00	4.2E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 6.5 West	**Metals**											
RM 6.5 West	Arsenic	mg/kg	48	7	0	7.4E+00	5.4E+01	non-parametric	95% KM (Chebyshev) UCL	1.4E+01	7.4E+00	1.4E+01
	Lead	mg/kg	48	0	0	4.0E+01	2.7E+02	non-parametric	95% KM (Chebyshev) UCL	7.3E+01	4.0E+01	7.3E+01
	Mercury	mg/kg	48	2	0	1.1E-01	7.2E-01	lognormal	95% KM (Chebyshev) UCL	2.0E-01	1.1E-01	2.0E-01
	Vanadium	mg/kg	7	0	0	1.2E+02	1.5E+02	normal	95% Student's-t UCL	1.4E+02	1.2E+02	1.4E+02
	Butyltins											
	Tributyltin ion	ug/kg	5	0	0	2.6E+01	5.4E+01	normal	95% KM (t) UCL	4.6E+01	2.6E+01	4.6E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	49	0	0	7.4E+02	7.1E+03	gamma	95% Approximate Gamma UCL	1.0E+03	7.4E+02	1.0E+03
	Benzo(a)pyrene	ug/kg	49	0	0	9.1E+02	8.2E+03	gamma	95% Approximate Gamma UCL	1.2E+03	9.1E+02	1.2E+03
	Benzo(b)fluoranthene	ug/kg	49	0	0	1.0E+03	1.3E+04	approx. gamma	95% Approximate Gamma UCL	1.4E+03	1.0E+03	1.4E+03
	Benzo(k)fluoranthene	ug/kg	41	0	0	4.0E+02	1.4E+03	gamma	95% KM (Chebyshev) UCL	6.6E+02	4.0E+02	6.6E+02
	Dibenzo(a,h)anthracene	ug/kg	49	1	0	1.7E+02	2.9E+03	approx. gamma	95% KM (Chebyshev) UCL	4.2E+02	1.7E+02	4.2E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	49	0	0	6.2E+02	5.1E+03	gamma	95% Approximate Gamma UCL	8.3E+02	6.2E+02	8.3E+02
	Naphthalene	ug/kg	49	5	0	1.1E+02	6.9E+02	approx. gamma	95% KM (BCA) UCL	1.4E+02	1.1E+02	1.4E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	48	29	0	8.1E+01	7.0E+02	gamma	95% KM (t) UCL	1.1E+02	8.1E+01	1.1E+02
	Phenols											
	Pentachlorophenol	ug/kg	36	29	12	1.6E+00	9.7E+00	normal	95% KM (t) UCL	2.4E+00	1.6E+00	2.4E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	32	13	2	6.4E+01	3.3E+02	gamma	95% KM (BCA) UCL	9.1E+01	6.4E+01	9.1E+01
	Total PCB Congeners	pg/g	6	0	0	1.9E+05	4.8E+05	normal	95% KM (t) UCL	3.3E+05	1.9E+05	3.3E+05
	Total PCBs, Adjusted	pg/g	6	0	0	1.8E+05	4.7E+05	normal	95% KM (t) UCL	3.2E+05	1.8E+05	3.2E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	24	0	0	2.1E+01	2.2E+02	lognormal	99% KM (Chebyshev) UCL	1.1E+02	2.1E+01	1.1E+02
	Total PCB TEQ	pg/g	6	0	0	1.8E+00	3.6E+00	normal	95% KM (t) UCL	3.0E+00	1.8E+00	3.0E+00
	Pesticides											
	Aldrin	ug/kg	45	33	3	1.7E+00	2.6E+01	gamma	95% KM (t) UCL	2.5E+00	1.7E+00	2.5E+00
	Dieldrin	ug/kg	46	39	5	5.4E-01	3.9E+00	normal	95% KM (t) UCL	5.9E-01	5.4E-01	5.9E-01
	Total DDT	ug/kg	46	1	0	9.2E+01	4.9E+02	gamma	95% KM (Chebyshev) UCL	1.7E+02	9.2E+01	1.7E+02
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 6.5 East	**Metals**											
	Arsenic	mg/kg	37	3	0	4.2E+00	1.6E+01	non-parametric	95% KM (Chebyshev) UCL	5.8E+00	4.2E+00	5.8E+00
	Lead	mg/kg	33	0	0	4.3E+02	1.3E+04	non-parametric	97.5% KM (Chebyshev) UCL	3.0E+03	4.3E+02	3.0E+03
	Mercury	mg/kg	33	1	0	2.2E+00	6.5E+01	non-parametric	97.5% KM (Chebyshev) UCL	1.4E+01	2.2E+00	1.4E+01
	Vanadium	mg/kg	3	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	12	1	0	4.3E+01	1.8E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	4.3E+01	1.1E+02
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	39	1	0	1.1E+02	1.1E+03	approx. gamma	95% KM (Chebyshev) UCL	2.3E+02	1.1E+02	2.3E+02
	Benzo(a)pyrene	ug/kg	39	1	0	8.6E+01	4.4E+02	gamma	95% KM (Chebyshev) UCL	1.5E+02	8.6E+01	1.5E+02
	Benzo(b)fluoranthene	ug/kg	39	1	0	1.1E+02	5.3E+02	lognormal	97.5% KM (Chebyshev) UCL	2.3E+02	1.1E+02	2.3E+02
	Benzo(k)fluoranthene	ug/kg	39	2	0	6.1E+01	3.9E+02	lognormal	97.5% KM (Chebyshev) UCL	1.5E+02	6.1E+01	1.5E+02
	Dibenzo(a,h)anthracene	ug/kg	39	6	0	1.5E+01	7.1E+01	gamma	95% KM (BCA) UCL	1.9E+01	1.5E+01	1.9E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	39	3	0	5.9E+01	3.0E+02	gamma	95% KM (Chebyshev) UCL	1.0E+02	5.9E+01	1.0E+02
	Naphthalene	ug/kg	39	6	0	6.5E+01	3.5E+02	gamma	95% KM (Chebyshev) UCL	1.2E+02	6.5E+01	1.2E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	33	16	0	9.3E+01	6.1E+02	gamma	95% KM (t) UCL	1.2E+02	9.3E+01	1.2E+02
	Phenols											
	Pentachlorophenol	ug/kg	26	14	10	3.9E+00	1.4E+01	normal	95% KM (t) UCL	4.9E+00	3.9E+00	4.9E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	30	9	0	2.0E+02	3.3E+03	lognormal	99% KM (Chebyshev) UCL	1.3E+03	2.0E+02	1.3E+03
	Total PCB Congeners	pg/g	22	0	0	3.9E+05	5.9E+06	lognormal	99% KM (Chebyshev) UCL	3.1E+06	3.9E+05	3.1E+06
	Total PCBs, Adjusted	pg/g	22	0	0	3.8E+05	5.8E+06	lognormal	99% KM (Chebyshev) UCL	3.0E+06	3.8E+05	3.0E+06
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	12	0	0	2.0E+01	8.9E+01	lognormal	99% KM (Chebyshev) UCL	1.0E+02	2.0E+01	8.9E+01
	Total PCB TEQ	pg/g	22	0	0	3.0E+00	3.4E+01	non-parametric	99% KM (Chebyshev) UCL	1.3E+01	3.0E+00	1.3E+01
	Pesticides											
	Aldrin	ug/kg	28	25	4	7.6E-02	2.9E-01	--	Fewer than 5 detects	--	7.6E-02	2.9E-01
	Dieldrin	ug/kg	28	23	2	1.5E-01	9.7E-01	non-parametric	95% KM (t) UCL	2.0E-01	1.5E-01	2.0E-01
	Total DDT	ug/kg	28	5	0	1.5E+01	3.2E+02	non-parametric	99% KM (Chebyshev) UCL	1.3E+02	1.5E+01	1.3E+02
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 7 West	**Metals**											
	Arsenic	mg/kg	41	8	0	4.2E+00	8.4E+00	non-parametric	95% KM (Chebyshev) UCL	5.3E+00	4.2E+00	5.3E+00
	Lead	mg/kg	41	0	0	6.9E+01	1.3E+03	non-parametric	95% KM (Chebyshev) UCL	2.1E+02	6.9E+01	2.1E+02
	Mercury	mg/kg	41	1	0	8.1E-02	3.1E-01	non-parametric	95% KM (Chebyshev) UCL	1.1E-01	8.1E-02	1.1E-01
	Vanadium	mg/kg	8	0	0	1.0E+02	1.1E+02	normal	95% Student's-t UCL	1.0E+02	1.0E+02	1.0E+02
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	6.0E+00	6.4E+00	--	Fewer than 5 detects	--	6.0E+00	6.4E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	42	0	0	5.6E+02	1.6E+04	non-parametric	95% KM (Chebyshev) UCL	2.2E+03	5.6E+02	2.2E+03
	Benzo(a)pyrene	ug/kg	42	0	0	4.7E+02	1.2E+04	non-parametric	95% KM (Chebyshev) UCL	1.7E+03	4.7E+02	1.7E+03

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	42	0	0	1.1E+03	3.3E+04	non-parametric	95% KM (Chebyshev) UCL	4.5E+03	1.1E+03	4.5E+03
	Benzo(k)fluoranthene	ug/kg	42	0	0	3.9E+02	1.0E+04	non-parametric	95% KM (Chebyshev) UCL	1.4E+03	3.9E+02	1.4E+03
	Dibenzo(a,h)anthracene	ug/kg	42	7	0	1.3E+02	3.9E+03	non-parametric	97.5% KM (Chebyshev) UCL	7.1E+02	1.3E+02	7.1E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	42	0	0	3.7E+02	9.9E+03	non-parametric	95% KM (Chebyshev) UCL	1.4E+03	3.7E+02	1.4E+03
	Naphthalene	ug/kg	46	24	0	8.8E+00	4.0E+01	normal	95% KM (t) UCL	1.1E+01	8.8E+00	1.1E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	41	11	0	2.1E+02	8.3E+02	lognormal	95% KM (BCA) UCL	2.7E+02	2.1E+02	2.7E+02
	Phenols											
	Pentachlorophenol	ug/kg	41	32	0	2.7E+01	3.2E+02	lognormal	95% KM (BCA) UCL	4.4E+01	2.7E+01	4.4E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	28	15	6	7.1E+01	3.3E+02	gamma	95% KM (t) UCL	9.3E+01	7.1E+01	9.3E+01
	Total PCB Congeners	pg/g	7	0	0	2.7E+05	9.7E+05	gamma	95% KM (Chebyshev) UCL	8.4E+05	2.7E+05	8.4E+05
	Total PCBs, Adjusted	pg/g	7	0	0	2.6E+05	9.2E+05	gamma	95% KM (Chebyshev) UCL	8.0E+05	2.6E+05	8.0E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	9	0	0	1.7E+03	1.4E+04	lognormal	99% KM (Chebyshev) UCL	1.7E+04	1.7E+03	1.4E+04
	Total PCB TEQ	pg/g	7	0	0	7.7E+00	3.3E+01	approx. gamma	95% KM (Chebyshev) UCL	2.7E+01	7.7E+00	2.7E+01
	Pesticides											
	Aldrin	ug/kg	41	27	0	2.7E+01	6.9E+02	lognormal	99% KM (Chebyshev) UCL	1.9E+02	2.7E+01	1.9E+02
	Dieldrin	ug/kg	41	34	10	1.3E+00	1.3E+01	gamma	95% KM (t) UCL	2.0E+00	1.3E+00	2.0E+00
	Total DDT	ug/kg	45	0	0	2.3E+03	2.3E+04	lognormal	97.5% KM (Chebyshev) UCL	6.3E+03	2.3E+03	6.3E+03
	Conventionals											
	Perchlorate	ug/kg	13	10	0	4.9E+04	2.7E+05	--	Fewer than 5 detects	--	4.9E+04	2.7E+05
RM 7 East	**Metals**											
	Arsenic	mg/kg	40	8	0	1.0E+01	7.6E+01	non-parametric	95% KM (BCA) UCL	1.5E+01	1.0E+01	1.5E+01
	Lead	mg/kg	32	2	0	3.6E+01	5.2E+02	non-parametric	95% KM (Chebyshev) UCL	1.1E+02	3.6E+01	1.1E+02
	Mercury	mg/kg	32	4	0	5.8E-02	1.5E-01	normal	95% KM (t) UCL	6.8E-02	5.8E-02	6.8E-02
	Vanadium	mg/kg	8	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	12	0	0	2.6E+02	1.6E+03	lognormal	97.5% KM (Chebyshev) UCL	1.0E+03	2.6E+02	1.0E+03
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	40	6	0	1.2E+02	2.7E+03	lognormal	95% KM (Chebyshev) UCL	4.2E+02	1.2E+02	4.2E+02
	Benzo(a)pyrene	ug/kg	40	6	0	1.6E+02	3.9E+03	non-parametric	95% KM (Chebyshev) UCL	5.8E+02	1.6E+02	5.8E+02
	Benzo(b)fluoranthene	ug/kg	40	5	0	2.1E+02	4.1E+03	non-parametric	95% KM (Chebyshev) UCL	6.7E+02	2.1E+02	6.7E+02
	Benzo(k)fluoranthene	ug/kg	35	8	0	1.1E+02	3.0E+03	non-parametric	97.5% KM (Chebyshev) UCL	6.5E+02	1.1E+02	6.5E+02
	Dibenzo(a,h)anthracene	ug/kg	40	18	0	4.3E+01	8.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.9E+02	4.3E+01	1.9E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	40	11	0	1.1E+02	2.6E+03	non-parametric	95% KM (Chebyshev) UCL	3.9E+02	1.1E+02	3.9E+02
	Naphthalene	ug/kg	40	14	0	2.2E+01	1.6E+02	lognormal	95% KM (Chebyshev) UCL	4.5E+01	2.2E+01	4.5E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	32	12	0	3.0E+02	5.2E+03	lognormal	97.5% KM (Chebyshev) UCL	1.3E+03	3.0E+02	1.3E+03
	Phenols											
	Pentachlorophenol	ug/kg	38	29	0	7.7E+01	8.0E+02	gamma	95% KM (t) UCL	1.2E+02	7.7E+01	1.2E+02
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	19	4	0	4.2E+01	2.7E+02	lognormal	95% KM (BCA) UCL	7.0E+01	4.2E+01	7.0E+01
	Total PCB Congeners	pg/g	9	0	0	2.1E+04	5.0E+04	normal	95% KM (t) UCL	3.0E+04	2.1E+04	3.0E+04
	Total PCBs, Adjusted	pg/g	9	0	0	2.0E+04	4.7E+04	normal	95% KM (t) UCL	2.8E+04	2.0E+04	2.8E+04

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	1.7E+01	4.0E+01	--	Fewer than 5 detects	--	1.7E+01	4.0E+01
	Total PCB TEQ	pg/g	9	0	0	5.5E-01	1.2E+00	normal	95% KM (t) UCL	7.4E-01	5.5E-01	7.4E-01
	Pesticides											
	Aldrin	ug/kg	23	19	6	1.3E-01	4.6E-01	--	Fewer than 5 detects	--	1.3E-01	4.6E-01
	Dieldrin	ug/kg	23	18	7	8.2E-02	3.5E-01	normal	95% KM (t) UCL	1.2E-01	8.2E-02	1.2E-01
	Total DDT	ug/kg	23	8	0	3.6E+00	2.7E+01	lognormal	97.5% KM (Chebyshev) UCL	1.3E+01	3.6E+00	1.3E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 7.5 West	**Metals**											
	Arsenic	mg/kg	39	10	4	3.2E+00	5.4E+00	normal	95% KM (t) UCL	3.7E+00	3.2E+00	3.7E+00
	Lead	mg/kg	39	0	0	1.7E+01	7.2E+01	non-parametric	95% KM (Chebyshev) UCL	2.4E+01	1.7E+01	2.4E+01
	Mercury	mg/kg	39	1	0	7.7E-02	4.6E-01	non-parametric	95% KM (Chebyshev) UCL	1.3E-01	7.7E-02	1.3E-01
	Vanadium	mg/kg	10	0	0	9.5E+01	1.1E+02	non-parametric	95% Student's-t UCL	1.0E+02	9.5E+01	1.0E+02
	Butyltins											
	Tributyltin ion	ug/kg	4	2	0	5.4E+00	9.7E+00	--	Fewer than 5 detects	--	5.4E+00	9.7E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	51	1	0	1.5E+02	3.4E+03	non-parametric	95% KM (Chebyshev) UCL	4.3E+02	1.5E+02	4.3E+02
	Benzo(a)pyrene	ug/kg	51	2	0	1.3E+02	2.5E+03	lognormal	95% KM (Chebyshev) UCL	3.4E+02	1.3E+02	3.4E+02
	Benzo(b)fluoranthene	ug/kg	51	1	0	1.7E+02	3.4E+03	lognormal	95% KM (Chebyshev) UCL	4.6E+02	1.7E+02	4.6E+02
	Benzo(k)fluoranthene	ug/kg	44	1	0	6.1E+01	6.9E+02	non-parametric	95% KM (Chebyshev) UCL	1.3E+02	6.1E+01	1.3E+02
	Dibenzo(a,h)anthracene	ug/kg	51	15	0	2.0E+01	3.5E+02	lognormal	95% KM (Chebyshev) UCL	5.0E+01	2.0E+01	5.0E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	51	2	0	8.4E+01	1.1E+03	non-parametric	95% KM (Chebyshev) UCL	1.9E+02	8.4E+01	1.9E+02
	Naphthalene	ug/kg	51	18	0	2.5E+01	1.5E+02	lognormal	95% KM (BCA) UCL	3.3E+01	2.5E+01	3.3E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	39	12	0	1.4E+02	6.2E+02	gamma	95% KM (Percentile Bootstrap) UCL	1.8E+02	1.4E+02	1.8E+02
	Phenols											
	Pentachlorophenol	ug/kg	21	14	17	1.5E+00	8.2E+00	gamma	95% KM (t) UCL	2.1E+00	1.5E+00	2.1E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	21	5	1	8.6E+01	7.7E+02	approx. gamma	95% KM (Chebyshev) UCL	2.5E+02	8.6E+01	2.5E+02
	Total PCB Congeners	pg/g	9	0	0	2.6E+04	6.0E+04	normal	95% KM (t) UCL	3.6E+04	2.6E+04	3.6E+04
	Total PCBs, Adjusted	pg/g	9	0	0	2.4E+04	5.7E+04	normal	95% KM (t) UCL	3.4E+04	2.4E+04	3.4E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	8	0	0	9.3E-01	3.5E+00	gamma	95% KM (Chebyshev) UCL	2.6E+00	9.3E-01	2.6E+00
	Total PCB TEQ	pg/g	9	0	0	6.6E-01	1.6E+00	normal	95% KM (t) UCL	9.2E-01	6.6E-01	9.2E-01
	Pesticides											
	Aldrin	ug/kg	28	23	9	1.8E-01	9.7E-01	normal	95% KM (t) UCL	2.9E-01	1.8E-01	2.9E-01
	Dieldrin	ug/kg	28	24	9	1.8E-01	7.7E-01	--	Fewer than 5 detects	--	1.8E-01	7.7E-01
	Total DDT	ug/kg	28	8	0	2.1E+01	2.7E+02	lognormal	99% KM (Chebyshev) UCL	1.3E+02	2.1E+01	1.3E+02
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 7.5 East	**Metals**											
	Arsenic	mg/kg	15	7	0	3.3E+00	5.3E+00	normal	95% KM (t) UCL	4.2E+00	3.3E+00	4.2E+00
	Lead	mg/kg	15	0	0	1.3E+01	2.3E+01	gamma	95% Approximate Gamma UCL	1.5E+01	1.3E+01	1.5E+01
	Mercury	mg/kg	15	0	0	7.6E-02	2.6E-01	non-parametric	95% Student's-t UCL	1.0E-01	7.6E-02	1.0E-01
	Vanadium	mg/kg	7	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	10	0	0	1.6E+02	3.1E+02	normal	95% KM (t) UCL	2.3E+02	1.6E+02	2.3E+02
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	15	4	0	2.6E+01	1.2E+02	approx. gamma	95% KM (Percentile Bootstrap) UCL	4.0E+01	2.6E+01	4.0E+01
	Benzo(a)pyrene	ug/kg	15	3	0	2.6E+01	8.2E+01	gamma	95% KM (BCA) UCL	3.5E+01	2.6E+01	3.5E+01
	Benzo(b)fluoranthene	ug/kg	15	3	0	3.2E+01	1.0E+02	non-parametric	95% KM (BCA) UCL	4.4E+01	3.2E+01	4.4E+01
	Benzo(k)fluoranthene	ug/kg	15	4	0	2.0E+01	1.0E+02	approx. gamma	95% KM (Percentile Bootstrap) UCL	3.1E+01	2.0E+01	3.1E+01
	Dibenzo(a,h)anthracene	ug/kg	15	6	0	9.2E+00	3.0E+01	gamma	95% KM (BCA) UCL	1.1E+01	9.2E+00	1.1E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	15	6	0	1.8E+01	4.2E+01	normal	95% KM (t) UCL	2.4E+01	1.8E+01	2.4E+01
	Naphthalene	ug/kg	15	11	8	6.1E+00	1.1E+01	--	Fewer than 5 detects	--	6.1E+00	1.1E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	15	4	0	6.1E+02	7.3E+03	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+03	6.1E+02	3.7E+03
	Phenols											
	Pentachlorophenol	ug/kg	14	14	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	12	6	0	3.2E+01	8.7E+01	normal	95% KM (t) UCL	4.5E+01	3.2E+01	4.5E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Pesticides											
	Aldrin	ug/kg	7	7	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	7	5	1	1.5E-01	3.4E-01	--	Fewer than 5 detects	--	1.5E-01	3.4E-01
	Total DDT	ug/kg	7	3	0	1.1E+00	3.3E+00	--	Fewer than 5 detects	--	1.1E+00	3.3E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 8 West	**Metals**											
	Arsenic	mg/kg	24	4	0	4.1E+00	2.3E+01	non-parametric	95% KM (Chebyshev) UCL	8.0E+00	4.1E+00	8.0E+00
	Lead	mg/kg	24	0	0	5.0E+01	3.5E+02	non-parametric	95% KM (Chebyshev) UCL	1.2E+02	5.0E+01	1.2E+02
	Mercury	mg/kg	24	2	0	1.7E-01	8.0E-01	approx. gamma	95% KM (Chebyshev) UCL	3.3E-01	1.7E-01	3.3E-01
	Vanadium	mg/kg	4	0	0	9.5E+01	1.0E+02	--	Fewer than 5 detects	--	9.5E+01	1.0E+02
	Butyltins											
	Tributyltin ion	ug/kg	9	3	0	1.3E+01	5.5E+01	normal	95% KM (t) UCL	2.5E+01	1.3E+01	2.5E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	26	0	0	1.8E+02	1.2E+03	lognormal	97.5% KM (Chebyshev) UCL	5.5E+02	1.8E+02	5.5E+02
	Benzo(a)pyrene	ug/kg	26	0	0	1.7E+02	9.1E+02	lognormal	97.5% KM (Chebyshev) UCL	4.9E+02	1.7E+02	4.9E+02

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	26	0	0	2.3E+02	1.5E+03	lognormal	97.5% KM (Chebyshev) UCL	6.9E+02	2.3E+02	6.9E+02
	Benzo(k)fluoranthene	ug/kg	20	0	0	5.0E+01	3.1E+02	approx. gamma	95% KM (Chebyshev) UCL	1.2E+02	5.0E+01	1.2E+02
	Dibenzo(a,h)anthracene	ug/kg	26	8	0	3.1E+01	2.2E+02	lognormal	99% KM (Chebyshev) UCL	1.4E+02	3.1E+01	1.4E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	26	1	0	1.1E+02	6.2E+02	lognormal	97.5% KM (Chebyshev) UCL	3.2E+02	1.1E+02	3.2E+02
	Naphthalene	ug/kg	26	10	0	5.1E+01	2.7E+02	gamma	95% KM (BCA) UCL	8.1E+01	5.1E+01	8.1E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	24	5	0	6.0E+02	4.4E+03	lognormal	99% KM (Chebyshev) UCL	3.0E+03	6.0E+02	3.0E+03
	Phenols											
	Pentachlorophenol	ug/kg	15	11	9	3.1E+00	1.5E+01	--	Fewer than 5 detects	--	3.1E+00	1.5E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	13	1	0	1.2E+02	6.2E+02	lognormal	97.5% KM (Chebyshev) UCL	4.0E+02	1.2E+02	4.0E+02
	Total PCB Congeners	pg/g	3	0	0	8.3E+04	1.2E+05	--	Fewer than 5 detects	--	8.3E+04	1.2E+05
	Total PCBs, Adjusted	pg/g	3	0	0	7.6E+04	1.0E+05	--	Fewer than 5 detects	--	7.6E+04	1.0E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	2.6E-01	4.3E-01	--	Fewer than 5 detects	--	2.6E-01	4.3E-01
	Total PCB TEQ	pg/g	3	0	0	3.6E+00	6.1E+00	--	Fewer than 5 detects	--	3.6E+00	6.1E+00
	Pesticides											
	Aldrin	ug/kg	19	17	12	4.0E-02	1.2E-01	--	Fewer than 5 detects	--	4.0E-02	1.2E-01
	Dieldrin	ug/kg	19	12	0	2.0E+00	2.8E+01	gamma	95% KM (t) UCL	4.6E+00	2.0E+00	4.6E+00
	Total DDT	ug/kg	19	5	0	6.5E+00	6.3E+01	gamma	95% KM (Chebyshev) UCL	2.1E+01	6.5E+00	2.1E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 8 East	**Metals**											
	Arsenic	mg/kg	37	4	0	6.2E+00	1.7E+01	non-parametric	95% KM (Chebyshev) UCL	9.1E+00	6.2E+00	9.1E+00
	Lead	mg/kg	37	0	0	2.8E+01	1.1E+02	non-parametric	95% KM (Chebyshev) UCL	4.6E+01	2.8E+01	4.6E+01
	Mercury	mg/kg	37	3	0	1.2E-01	8.6E-01	non-parametric	95% KM (Chebyshev) UCL	2.2E-01	1.2E-01	2.2E-01
	Vanadium	mg/kg	6	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	13	0	0	2.4E+03	9.3E+03	gamma	95% KM (Chebyshev) UCL	5.8E+03	2.4E+03	5.8E+03
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	36	1	0	1.7E+02	1.5E+03	non-parametric	97.5% KM (Chebyshev) UCL	5.0E+02	1.7E+02	5.0E+02
	Benzo(a)pyrene	ug/kg	36	1	0	1.7E+02	1.6E+03	non-parametric	97.5% KM (Chebyshev) UCL	5.3E+02	1.7E+02	5.3E+02
	Benzo(b)fluoranthene	ug/kg	36	1	0	2.0E+02	1.4E+03	non-parametric	97.5% KM (Chebyshev) UCL	5.5E+02	2.0E+02	5.5E+02
	Benzo(k)fluoranthene	ug/kg	35	1	0	1.3E+02	1.1E+03	lognormal	97.5% KM (Chebyshev) UCL	3.7E+02	1.3E+02	3.7E+02
	Dibenzo(a,h)anthracene	ug/kg	36	14	0	2.6E+01	2.4E+02	gamma	95% KM (BCA) UCL	4.0E+01	2.6E+01	4.0E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	36	1	0	1.2E+02	1.1E+03	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+02	1.2E+02	3.7E+02
	Naphthalene	ug/kg	36	19	0	1.6E+01	6.4E+01	gamma	95% KM (t) UCL	2.2E+01	1.6E+01	2.2E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	35	0	0	7.7E+02	3.1E+03	lognormal	95% KM (Chebyshev) UCL	1.3E+03	7.7E+02	1.3E+03
	Phenols											
	Pentachlorophenol	ug/kg	15	10	19	1.3E+01	8.5E+01	normal	95% KM (t) UCL	2.7E+01	1.3E+01	2.7E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	32	11	0	1.7E+02	1.6E+03	lognormal	97.5% KM (Chebyshev) UCL	5.8E+02	1.7E+02	5.8E+02
	Total PCB Congeners	pg/g	4	0	0	2.4E+05	7.3E+05	--	Fewer than 5 detects	--	2.4E+05	7.3E+05
	Total PCBs, Adjusted	pg/g	4	0	0	2.2E+05	6.7E+05	--	Fewer than 5 detects	--	2.2E+05	6.7E+05

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	9.3E-01	2.1E+00	--	Fewer than 5 detects	--	9.3E-01	2.1E+00
	Total PCB TEQ	pg/g	4	0	0	5.8E+00	1.7E+01	--	Fewer than 5 detects	--	5.8E+00	1.7E+01
	Pesticides											
	Aldrin	ug/kg	17	14	4	1.1E-01	4.4E-01	--	Fewer than 5 detects	--	1.1E-01	4.4E-01
	Dieldrin	ug/kg	17	12	0	7.9E-01	1.0E+01	lognormal	97.5% KM (Chebyshev) UCL	4.7E+00	7.9E-01	4.7E+00
	Total DDT	ug/kg	17	6	0	1.1E+01	1.4E+02	non-parametric	99% KM (Chebyshev) UCL	9.4E+01	1.1E+01	9.4E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 8 SIL	**Metals**											
	Arsenic	mg/kg	85	6	0	5.4E+00	1.6E+01	gamma	95% KM (BCA) UCL	5.9E+00	5.4E+00	5.9E+00
	Lead	mg/kg	85	0	0	4.6E+01	9.4E+02	non-parametric	95% KM (BCA) UCL	7.0E+01	4.6E+01	7.0E+01
	Mercury	mg/kg	84	10	0	1.2E-01	7.7E-01	non-parametric	95% KM (BCA) UCL	1.4E-01	1.2E-01	1.4E-01
	Vanadium	mg/kg	6	0	0	1.1E+02	1.2E+02	normal	95% Student's-t UCL	1.2E+02	1.1E+02	1.2E+02
	Butyltins											
	Tributyltin ion	ug/kg	24	0	0	2.2E+03	4.6E+04	non-parametric	99% KM (Chebyshev) UCL	2.1E+04	2.2E+03	2.1E+04
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	86	8	0	2.4E+02	5.6E+03	lognormal	95% KM (Chebyshev) UCL	5.4E+02	2.4E+02	5.4E+02
	Benzo(a)pyrene	ug/kg	86	12	0	2.0E+02	2.6E+03	non-parametric	95% KM (Chebyshev) UCL	3.6E+02	2.0E+02	3.6E+02
	Benzo(b)fluoranthene	ug/kg	86	5	0	3.8E+02	4.5E+03	lognormal	95% KM (Chebyshev) UCL	7.0E+02	3.8E+02	7.0E+02
	Benzo(k)fluoranthene	ug/kg	61	0	0	2.1E+02	1.5E+03	gamma	95% KM (Chebyshev) UCL	3.5E+02	2.1E+02	3.5E+02
	Dibenzo(a,h)anthracene	ug/kg	86	31	0	3.6E+01	6.7E+02	lognormal	95% KM (Chebyshev) UCL	7.1E+01	3.6E+01	7.1E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	86	12	0	1.2E+02	1.1E+03	approx. gamma	95% KM (Chebyshev) UCL	2.1E+02	1.2E+02	2.1E+02
	Naphthalene	ug/kg	86	28	0	2.5E+01	2.3E+02	lognormal	95% KM (BCA) UCL	3.0E+01	2.5E+01	3.0E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	84	9	0	8.1E+03	4.4E+05	lognormal	97.5% KM (Chebyshev) UCL	4.1E+04	8.1E+03	4.1E+04
	Phenols											
	Pentachlorophenol	ug/kg	81	58	1	3.9E+01	2.5E+02	gamma	95% KM (t) UCL	3.3E+01	3.9E+01	3.3E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	64	6	0	2.8E+02	2.5E+03	approx. gamma	95% KM (Chebyshev) UCL	5.3E+02	2.8E+02	5.3E+02
	Total PCB Congeners	pg/g	15	0	0	1.0E+06	1.3E+07	lognormal	99% KM (Chebyshev) UCL	9.2E+06	1.0E+06	9.2E+06
	Total PCBs, Adjusted	pg/g	15	0	0	1.0E+06	1.2E+07	lognormal	99% KM (Chebyshev) UCL	9.0E+06	1.0E+06	9.0E+06
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	9	0	0	6.3E+00	4.0E+01	non-parametric	97.5% KM (Chebyshev) UCL	3.3E+01	6.3E+00	3.3E+01
	Total PCB TEQ	pg/g	15	0	0	1.2E+01	1.2E+02	lognormal	99% KM (Chebyshev) UCL	8.8E+01	1.2E+01	8.8E+01
	Pesticides											
	Aldrin	ug/kg	59	54	2	6.2E-01	6.0E+00	gamma	95% KM (t) UCL	3.6E-01	6.2E-01	3.6E-01
	Dieldrin	ug/kg	59	52	0	1.4E+00	2.2E+01	gamma	95% KM (t) UCL	1.4E+00	1.4E+00	1.4E+00
	Total DDT	ug/kg	59	31	0	5.2E+00	7.9E+01	lognormal	95% KM (Chebyshev) UCL	1.2E+01	5.2E+00	1.2E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 8.5 West	**Metals**											
	Arsenic	mg/kg	32	3	0	6.7E+00	3.4E+01	non-parametric	95% KM (Chebyshev) UCL	1.2E+01	6.7E+00	1.2E+01
	Lead	mg/kg	32	0	0	1.1E+02	9.6E+02	non-parametric	97.5% KM (Chebyshev) UCL	3.1E+02	1.1E+02	3.1E+02
	Mercury	mg/kg	32	1	0	2.0E-01	2.0E+00	non-parametric	95% KM (Chebyshev) UCL	4.7E-01	2.0E-01	4.7E-01
	Vanadium	mg/kg	3	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	18	1	0	1.3E+01	3.0E+01	normal	95% KM (t) UCL	1.7E+01	1.3E+01	1.7E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	32	3	0	9.4E+01	4.1E+02	lognormal	95% KM (Chebyshev) UCL	1.8E+02	9.4E+01	1.8E+02
	Benzo(a)pyrene	ug/kg	32	5	0	9.1E+01	5.0E+02	lognormal	97.5% KM (Chebyshev) UCL	2.2E+02	9.1E+01	2.2E+02
	Benzo(b)fluoranthene	ug/kg	32	4	0	1.3E+02	6.0E+02	approx. gamma	95% KM (BCA) UCL	1.8E+02	1.3E+02	1.8E+02
	Benzo(k)fluoranthene	ug/kg	23	0	0	5.5E+01	2.6E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	5.5E+01	1.1E+02
	Dibenzo(a,h)anthracene	ug/kg	32	13	0	1.1E+01	7.1E+01	gamma	95% KM (BCA) UCL	1.7E+01	1.1E+01	1.7E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	32	7	0	5.2E+01	3.2E+02	approx. gamma	95% KM (BCA) UCL	7.6E+01	5.2E+01	7.6E+01
	Naphthalene	ug/kg	32	13	0	2.4E+01	1.5E+02	non-parametric	95% KM (t) UCL	3.7E+01	2.4E+01	3.7E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	32	4	0	6.3E+02	4.5E+03	lognormal	97.5% KM (Chebyshev) UCL	1.7E+03	6.3E+02	1.7E+03
	Phenols											
	Pentachlorophenol	ug/kg	27	18	5	2.8E+00	1.8E+01	lognormal	95% KM (t) UCL	3.9E+00	2.8E+00	3.9E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	27	0	0	1.4E+03	3.1E+04	non-parametric	97.5% KM (Chebyshev) UCL	8.5E+03	1.4E+03	8.5E+03
	Total PCB Congeners	pg/g	8	0	0	4.7E+06	3.5E+07	non-parametric	99% KM (Chebyshev) UCL	4.8E+07	4.7E+06	3.5E+07
	Total PCBs, Adjusted	pg/g	8	0	0	4.5E+06	3.4E+07	non-parametric	99% KM (Chebyshev) UCL	4.7E+07	4.5E+06	3.4E+07
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	5	0	0	5.0E+00	1.8E+01	gamma	95% KM (Chebyshev) UCL	2.0E+01	5.0E+00	1.8E+01
	Total PCB TEQ	pg/g	8	0	0	3.3E+01	2.4E+02	non-parametric	99% KM (Chebyshev) UCL	3.3E+02	3.3E+01	2.4E+02
	Pesticides											
	Aldrin	ug/kg	27	8	0	1.1E+01	1.3E+02	gamma	95% KM (Chebyshev) UCL	3.2E+01	1.1E+01	3.2E+01
	Dieldrin	ug/kg	27	20	0	1.5E+01	3.6E+02	gamma	95% KM (t) UCL	3.9E+01	1.5E+01	3.9E+01
	Total DDT	ug/kg	27	12	0	6.0E+00	6.7E+01	lognormal	97.5% KM (Chebyshev) UCL	2.2E+01	6.0E+00	2.2E+01
	Conventionals											
RM 8.5 West	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 8.5 East	**Metals**											
	Arsenic	mg/kg	13	2	0	4.7E+00	1.5E+01	non-parametric	95% KM (Chebyshev) UCL	9.0E+00	4.7E+00	9.0E+00
	Lead	mg/kg	13	0	0	2.1E+01	5.5E+01	non-parametric	95% Student's-t UCL	2.8E+01	2.1E+01	2.8E+01
	Mercury	mg/kg	13	0	0	1.2E-01	5.4E-01	approx. gamma	95% Approximate Gamma UCL	1.8E-01	1.2E-01	1.8E-01
	Vanadium	mg/kg	2	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	4	0	0	2.3E+01	3.1E+01	--	Fewer than 5 detects	--	2.3E+01	3.1E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	13	1	0	4.1E+01	1.8E+02	gamma	95% KM (Chebyshev) UCL	9.7E+01	4.1E+01	9.7E+01
	Benzo(a)pyrene	ug/kg	13	1	0	4.6E+01	1.8E+02	gamma	95% KM (Chebyshev) UCL	1.0E+02	4.6E+01	1.0E+02

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	13	0	0	7.1E+01	3.5E+02	lognormal	95% H-UCL	1.4E+02	7.1E+01	1.4E+02
	Benzo(k)fluoranthene	ug/kg	13	1	0	3.6E+01	2.0E+02	approx. gamma	95% KM (Chebyshev) UCL	9.8E+01	3.6E+01	9.8E+01
	Dibenzo(a,h)anthracene	ug/kg	13	4	1	8.3E+00	2.2E+01	normal	95% KM (t) UCL	1.2E+01	8.3E+00	1.2E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	13	1	0	3.9E+01	1.3E+02	gamma	95% KM (Chebyshev) UCL	8.0E+01	3.9E+01	8.0E+01
	Naphthalene	ug/kg	13	9	0	2.0E+01	1.5E+02	--	Fewer than 5 detects	--	2.0E+01	1.5E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	13	5	0	4.5E+02	2.4E+03	gamma	95% KM (BCA) UCL	9.2E+02	4.5E+02	9.2E+02
	Phenols											
	Pentachlorophenol	ug/kg	13	13	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	12	3	0	4.6E+01	1.5E+02	lognormal	95% KM (BCA) UCL	7.2E+01	4.6E+01	7.2E+01
	Total PCB Congeners	pg/g	4	0	0	2.9E+04	4.6E+04	--	Fewer than 5 detects	--	2.9E+04	4.6E+04
	Total PCBs, Adjusted	pg/g	4	0	0	2.8E+04	4.5E+04	--	Fewer than 5 detects	--	2.8E+04	4.5E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	6.3E-01	9.4E-01	--	Fewer than 5 detects	--	6.3E-01	9.4E-01
	Total PCB TEQ	pg/g	4	0	0	4.2E-01	5.9E-01	--	Fewer than 5 detects	--	4.2E-01	5.9E-01
	Pesticides											
	Aldrin	ug/kg	10	8	7	3.2E-02	4.1E-02	--	Fewer than 5 detects	--	3.2E-02	4.1E-02
	Dieldrin	ug/kg	10	7	2	1.3E-01	4.4E-01	--	Fewer than 5 detects	--	1.3E-01	4.4E-01
	Total DDT	ug/kg	10	1	0	1.5E+00	4.0E+00	normal	95% KM (t) UCL	2.3E+00	1.5E+00	2.3E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9 West	**Metals**											
	Arsenic	mg/kg	17	2	0	4.2E+00	9.8E+00	approx. gamma	95% KM (BCA) UCL	5.0E+00	4.2E+00	5.0E+00
	Lead	mg/kg	17	0	0	4.2E+01	1.8E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	9.7E+01	4.2E+01	9.7E+01
	Mercury	mg/kg	17	0	0	1.2E-01	4.1E-01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.3E-01	1.2E-01	2.3E-01
	Vanadium	mg/kg	2	0	0	1.1E+02	1.1E+02	--	Fewer than 5 detects	--	1.1E+02	1.1E+02
	Butyltins											
	Tributyltin ion	ug/kg	9	1	0	9.9E+00	3.1E+01	normal	95% KM (t) UCL	1.7E+01	9.9E+00	1.7E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	17	0	0	1.5E+02	1.6E+03	approx. gamma	95% Approximate Gamma UCL	3.2E+02	1.5E+02	3.2E+02
	Benzo(a)pyrene	ug/kg	17	0	0	1.0E+02	7.9E+02	gamma	95% Approximate Gamma UCL	1.9E+02	1.0E+02	1.9E+02
	Benzo(b)fluoranthene	ug/kg	17	0	0	1.6E+02	1.0E+03	gamma	95% Approximate Gamma UCL	3.0E+02	1.6E+02	3.0E+02
	Benzo(k)fluoranthene	ug/kg	17	0	0	6.2E+01	4.0E+02	gamma	95% Approximate Gamma UCL	1.1E+02	6.2E+01	1.1E+02
	Dibenzo(a,h)anthracene	ug/kg	17	1	0	1.8E+01	1.1E+02	gamma	95% KM (Chebyshev) UCL	4.8E+01	1.8E+01	4.8E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	17	0	0	6.7E+01	3.9E+02	gamma	95% Approximate Gamma UCL	1.2E+02	6.7E+01	1.2E+02
	Naphthalene	ug/kg	17	7	0	1.7E+01	6.7E+01	normal	95% KM (t) UCL	2.5E+01	1.7E+01	2.5E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	17	5	0	1.7E+02	9.8E+02	gamma	95% KM (Chebyshev) UCL	4.4E+02	1.7E+02	4.4E+02
	Phenols											
	Pentachlorophenol	ug/kg	15	13	2	4.7E+00	4.5E+01	--	Fewer than 5 detects	--	4.7E+00	4.5E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	16	0	0	4.5E+02	2.5E+03	non-parametric	99% KM (Chebyshev) UCL	2.3E+03	4.5E+02	2.3E+03
	Total PCB Congeners	pg/g	6	0	0	8.9E+05	2.5E+06	normal	95% KM (t) UCL	1.8E+06	8.9E+05	1.8E+06
	Total PCBs, Adjusted	pg/g	6	0	0	8.4E+05	2.4E+06	normal	95% KM (t) UCL	1.7E+06	8.4E+05	1.7E+06

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	3.9E+00	6.0E+00	--	Fewer than 5 detects	--	3.9E+00	6.0E+00
	Total PCB TEQ	pg/g	6	0	0	1.6E+01	4.8E+01	normal	95% KM (t) UCL	3.2E+01	1.6E+01	3.2E+01
	Pesticides											
	Aldrin	ug/kg	16	13	1	2.2E-01	1.4E+00	--	Fewer than 5 detects	--	2.2E-01	1.4E+00
	Dieldrin	ug/kg	16	12	1	2.0E-01	6.3E-01	--	Fewer than 5 detects	--	2.0E-01	6.3E-01
	Total DDT	ug/kg	16	2	0	4.4E+00	1.9E+01	gamma	95% KM (Chebyshev) UCL	9.9E+00	4.4E+00	9.9E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9 East	**Metals**											
	Arsenic	mg/kg	16	0	0	3.8E+00	1.2E+01	non-parametric	95% Student's-t UCL	4.8E+00	3.8E+00	4.8E+00
	Lead	mg/kg	16	0	0	2.6E+01	8.7E+01	approx. gamma	95% Approximate Gamma UCL	3.5E+01	2.6E+01	3.5E+01
	Mercury	mg/kg	16	0	0	5.0E-02	9.1E-02	normal	95% Student's-t UCL	6.1E-02	5.0E-02	6.1E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	16	4	1	1.0E+01	2.2E+01	normal	95% KM (t) UCL	1.4E+01	1.0E+01	1.4E+01
	Benzo(a)pyrene	ug/kg	16	4	1	1.3E+01	3.5E+01	normal	95% KM (t) UCL	1.7E+01	1.3E+01	1.7E+01
	Benzo(b)fluoranthene	ug/kg	16	3	1	1.8E+01	3.9E+01	normal	95% KM (t) UCL	2.4E+01	1.8E+01	2.4E+01
	Benzo(k)fluoranthene	ug/kg	9	0	0	8.3E+00	1.3E+01	normal	95% Student's-t UCL	1.1E+01	8.3E+00	1.1E+01
	Dibenzo(a,h)anthracene	ug/kg	16	7	2	2.1E+00	4.8E+00	normal	95% KM (t) UCL	2.9E+00	2.1E+00	2.9E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	16	4	1	1.1E+01	2.6E+01	normal	95% KM (t) UCL	1.4E+01	1.1E+01	1.4E+01
	Naphthalene	ug/kg	16	12	2	2.7E+00	8.9E+00	--	Fewer than 5 detects	--	2.7E+00	8.9E+00
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	16	1	0	3.6E+02	4.2E+03	non-parametric	97.5% KM (Chebyshev) UCL	2.0E+03	3.6E+02	2.0E+03
	Phenols											
	Pentachlorophenol	ug/kg	16	16	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	9	0	0	5.2E+01	2.0E+02	lognormal	95% H-UCL	1.0E+02	5.2E+01	1.0E+02
	Total PCB Congeners	pg/g	2	0	0	6.4E+04	1.1E+05	--	Fewer than 5 detects	--	6.4E+04	1.1E+05
	Total PCBs, Adjusted	pg/g	2	0	0	6.2E+04	1.0E+05	--	Fewer than 5 detects	--	6.2E+04	1.0E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	2.2E-01	2.2E-01	--	Fewer than 5 detects	--	2.2E-01	2.2E-01
	Total PCB TEQ	pg/g	2	0	0	6.3E-01	6.3E-01	--	Fewer than 5 detects	--	6.3E-01	6.3E-01
	Pesticides											
	Aldrin	ug/kg	16	16	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	16	15	9	8.8E-02	2.6E-01	--	Fewer than 5 detects	--	8.8E-02	2.6E-01
	Total DDT	ug/kg	16	8	0	1.4E+00	4.6E+00	normal	95% KM (t) UCL	1.9E+00	1.4E+00	1.9E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 9.5 West	**Metals**											
	Arsenic	mg/kg	12	0	0	3.8E+00	7.8E+00	approx. gamma	95% Approximate Gamma UCL	4.5E+00	3.8E+00	4.5E+00
	Lead	mg/kg	12	0	0	2.6E+01	7.2E+01	gamma	95% Approximate Gamma UCL	3.7E+01	2.6E+01	3.7E+01
	Mercury	mg/kg	12	1	0	6.2E-02	1.2E-01	normal	95% KM (t) UCL	7.5E-02	6.2E-02	7.5E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	0	0	1.0E+01	1.0E+01	--	Fewer than 5 detects	--	1.0E+01	1.0E+01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	12	0	0	1.2E+02	5.7E+02	gamma	95% Approximate Gamma UCL	2.6E+02	1.2E+02	2.6E+02
	Benzo(a)pyrene	ug/kg	12	0	0	1.7E+02	8.4E+02	gamma	95% Approximate Gamma UCL	3.6E+02	1.7E+02	3.6E+02
	Benzo(b)fluoranthene	ug/kg	12	0	0	2.3E+02	1.3E+03	approx. gamma	95% Approximate Gamma UCL	5.3E+02	2.3E+02	5.3E+02
	Benzo(k)fluoranthene	ug/kg	12	0	0	1.0E+02	4.7E+02	approx. gamma	95% Approximate Gamma UCL	2.4E+02	1.0E+02	2.4E+02
	Dibenzo(a,h)anthracene	ug/kg	12	0	0	3.2E+01	1.3E+02	lognormal	99% Chebyshev (MVUE) UCL	1.7E+02	3.2E+01	1.3E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	12	0	0	1.4E+02	6.8E+02	gamma	95% Approximate Gamma UCL	3.0E+02	1.4E+02	3.0E+02
	Naphthalene	ug/kg	12	5	0	4.1E+01	3.5E+02	non-parametric	97.5% KM (Chebyshev) UCL	2.2E+02	4.1E+01	2.2E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	12	1	0	8.6E+02	3.9E+03	approx. gamma	95% KM (Chebyshev) UCL	2.4E+03	8.6E+02	2.4E+03
	Phenols											
	Pentachlorophenol	ug/kg	12	10	0	1.1E+01	9.8E+01	--	Fewer than 5 detects	--	1.1E+01	9.8E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	12	0	0	2.1E+02	6.4E+02	normal	95% Student's-t UCL	3.0E+02	2.1E+02	3.0E+02
	Total PCB Congeners	pg/g	6	0	0	3.5E+05	6.0E+05	normal	95% KM (t) UCL	5.0E+05	3.5E+05	5.0E+05
	Total PCBs, Adjusted	pg/g	6	0	0	3.5E+05	5.9E+05	normal	95% KM (t) UCL	4.9E+05	3.5E+05	4.9E+05
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	8.6E+00	1.7E+01	--	Fewer than 5 detects	--	8.6E+00	1.7E+01
	Total PCB TEQ	pg/g	6	0	0	3.6E+00	6.8E+00	gamma	95% KM (BCA) UCL	4.8E+00	3.6E+00	4.8E+00
	Pesticides											
	Aldrin	ug/kg	12	9	1	5.8E-01	2.8E+00	--	Fewer than 5 detects	--	5.8E-01	2.8E+00
	Dieldrin	ug/kg	12	9	0	6.1E-01	4.9E+00	--	Fewer than 5 detects	--	6.1E-01	4.9E+00
	Total DDT	ug/kg	12	2	1	3.1E+00	9.2E+00	normal	95% KM (t) UCL	4.5E+00	3.1E+00	4.5E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9.5 East	**Metals**											
	Arsenic	mg/kg	20	0	0	3.3E+00	6.4E+00	non-parametric	95% Student's-t UCL	3.7E+00	3.3E+00	3.7E+00
	Lead	mg/kg	20	0	0	1.6E+01	5.5E+01	non-parametric	95% Student's-t UCL	2.0E+01	1.6E+01	2.0E+01
	Mercury	mg/kg	20	2	0	6.3E-02	3.1E-01	non-parametric	95% KM (Chebyshev) UCL	1.2E-01	6.3E-02	1.2E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	2.6E+00	3.6E+00	--	Fewer than 5 detects	--	2.6E+00	3.6E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	20	0	0	2.2E+01	8.4E+01	approx. gamma	95% Approximate Gamma UCL	3.0E+01	2.2E+01	3.0E+01
	Benzo(a)pyrene	ug/kg	20	0	0	2.5E+01	1.1E+02	lognormal	95% H-UCL	3.4E+01	2.5E+01	3.4E+01

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	20	0	0	2.9E+01	1.1E+02	approx. gamma	95% Approximate Gamma UCL	4.0E+01	2.9E+01	4.0E+01
	Benzo(k)fluoranthene	ug/kg	20	0	0	1.7E+01	7.9E+01	gamma	95% Approximate Gamma UCL	2.4E+01	1.7E+01	2.4E+01
	Dibenzo(a,h)anthracene	ug/kg	20	3	0	4.4E+00	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	9.2E+00	4.4E+00	9.2E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	20	0	0	2.0E+01	1.0E+02	lognormal	95% H-UCL	2.7E+01	2.0E+01	2.7E+01
	Naphthalene	ug/kg	20	14	1	3.4E+00	1.2E+01	normal	95% KM (t) UCL	4.8E+00	3.4E+00	4.8E+00
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	20	3	0	1.6E+02	9.2E+02	approx. gamma	95% KM (BCA) UCL	2.6E+02	1.6E+02	2.6E+02
	Phenols											
	Pentachlorophenol	ug/kg	13	9	7	1.1E+00	3.4E+00	--	Fewer than 5 detects	--	1.1E+00	3.4E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	20	3	0	4.0E+01	1.4E+02	gamma	95% KM (BCA) UCL	5.6E+01	4.0E+01	5.6E+01
	Total PCB Congeners	pg/g	4	0	0	1.0E+04	1.3E+04	--	Fewer than 5 detects	--	1.0E+04	1.3E+04
	Total PCBs, Adjusted	pg/g	4	0	0	9.6E+03	1.2E+04	--	Fewer than 5 detects	--	9.6E+03	1.2E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	8.9E-01	1.1E+00	--	Fewer than 5 detects	--	8.9E-01	1.1E+00
	Total PCB TEQ	pg/g	4	0	0	2.6E-01	3.3E-01	--	Fewer than 5 detects	--	2.6E-01	3.3E-01
	Pesticides											
	Aldrin	ug/kg	20	18	2	9.1E-02	4.7E-01	--	Fewer than 5 detects	--	9.1E-02	4.7E-01
	Dieldrin	ug/kg	20	19	18	3.0E-02	4.3E-02	--	Fewer than 5 detects	--	3.0E-02	4.3E-02
	Total DDT	ug/kg	20	5	3	1.1E+00	2.8E+00	normal	95% KM (t) UCL	1.6E+00	1.1E+00	1.6E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 10 West	**Metals**											
	Arsenic	mg/kg	9	0	0	1.0E+01	4.3E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.9E+01	1.0E+01	2.9E+01
	Lead	mg/kg	9	0	0	6.6E+01	2.3E+02	gamma	95% Approximate Gamma UCL	1.3E+02	6.6E+01	1.3E+02
	Mercury	mg/kg	9	0	0	9.0E-02	1.4E-01	normal	95% Student's-t UCL	1.1E-01	9.0E-02	1.1E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	3	0	0	2.4E+00	3.4E+00	--	Fewer than 5 detects	--	2.4E+00	3.4E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	9	0	0	1.4E+02	6.2E+02	gamma	95% Approximate Gamma UCL	3.2E+02	1.4E+02	3.2E+02
	Benzo(a)pyrene	ug/kg	9	0	0	1.5E+02	8.1E+02	lognormal	95% Chebyshev (MVUE) UCL	3.4E+02	1.5E+02	3.4E+02
	Benzo(b)fluoranthene	ug/kg	9	0	0	1.9E+02	9.1E+02	lognormal	95% Chebyshev (MVUE) UCL	4.3E+02	1.9E+02	4.3E+02
	Benzo(k)fluoranthene	ug/kg	9	0	0	7.9E+01	3.7E+02	gamma	95% Approximate Gamma UCL	1.8E+02	7.9E+01	1.8E+02
	Dibenzo(a,h)anthracene	ug/kg	9	0	0	3.5E+01	2.3E+02	lognormal	95% Chebyshev (MVUE) UCL	7.5E+01	3.5E+01	7.5E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	9	0	0	1.4E+02	8.2E+02	lognormal	95% Chebyshev (MVUE) UCL	3.0E+02	1.4E+02	3.0E+02
	Naphthalene	ug/kg	9	2	0	2.0E+01	7.8E+01	approx. gamma	95% KM (Chebyshev) UCL	5.9E+01	2.0E+01	5.9E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	9	4	0	1.2E+02	2.7E+02	normal	95% KM (t) UCL	1.8E+02	1.2E+02	1.8E+02
	Phenols											
	Pentachlorophenol	ug/kg	8	4	1	3.0E+00	7.5E+00	--	Fewer than 5 detects	--	3.0E+00	7.5E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	9	0	0	1.8E+02	9.3E+02	gamma	95% Approximate Gamma UCL	4.4E+02	1.8E+02	4.4E+02
	Total PCB Congeners	pg/g	4	0	0	1.3E+05	3.4E+05	--	Fewer than 5 detects	--	1.3E+05	3.4E+05
	Total PCBs, Adjusted	pg/g	4	0	0	1.3E+05	3.3E+05	--	Fewer than 5 detects	--	1.3E+05	3.3E+05

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	5.1E+00	9.9E+00	--	Fewer than 5 detects	--	5.1E+00	9.9E+00
	Total PCB TEQ	pg/g	4	0	0	1.8E+00	3.0E+00	--	Fewer than 5 detects	--	1.8E+00	3.0E+00
	Pesticides											
	Aldrin	ug/kg	9	8	2	1.5E-01	5.0E-01	--	Fewer than 5 detects	--	1.5E-01	5.0E-01
	Dieldrin	ug/kg	9	9	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	9	2	0	4.7E+00	9.3E+00	normal	95% KM (t) UCL	6.7E+00	4.7E+00	6.7E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 10 East	**Metals**											
	Arsenic	mg/kg	9	0	0	3.0E+00	3.9E+00	non-parametric	95% Student's-t UCL	3.5E+00	3.0E+00	3.5E+00
	Lead	mg/kg	9	0	0	1.8E+01	3.0E+01	normal	95% Student's-t UCL	2.1E+01	1.8E+01	2.1E+01
	Mercury	mg/kg	9	0	0	6.8E-02	1.4E-01	normal	95% Student's-t UCL	9.0E-02	6.8E-02	9.0E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	1	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	9	0	0	1.2E+02	4.5E+02	gamma	95% Approximate Gamma UCL	2.7E+02	1.2E+02	2.7E+02
	Benzo(a)pyrene	ug/kg	9	0	0	1.4E+02	6.1E+02	gamma	95% Approximate Gamma UCL	3.5E+02	1.4E+02	3.5E+02
	Benzo(b)fluoranthene	ug/kg	9	0	0	1.7E+02	6.5E+02	gamma	95% Approximate Gamma UCL	4.0E+02	1.7E+02	4.0E+02
	Benzo(k)fluoranthene	ug/kg	9	0	0	6.3E+01	2.0E+02	normal	95% Student's-t UCL	1.0E+02	6.3E+01	1.0E+02
	Dibenzo(a,h)anthracene	ug/kg	9	0	0	2.3E+01	8.5E+01	gamma	95% Approximate Gamma UCL	5.2E+01	2.3E+01	5.2E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	9	0	0	1.2E+02	4.8E+02	gamma	95% Approximate Gamma UCL	2.8E+02	1.2E+02	2.8E+02
	Naphthalene	ug/kg	9	3	0	1.2E+01	4.5E+01	gamma	95% KM (Percentile Bootstrap) UCL	2.2E+01	1.2E+01	2.2E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	9	2	1	1.3E+02	3.4E+02	gamma	95% KM (BCA) UCL	1.9E+02	1.3E+02	1.9E+02
	Phenols											
	Pentachlorophenol	ug/kg	3	1	6	2.6E+00	3.3E+00	--	Fewer than 5 detects	--	2.6E+00	3.3E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	9	0	0	3.4E+01	8.6E+01	normal	95% Student's-t UCL	4.8E+01	3.4E+01	4.8E+01
	Total PCB Congeners	pg/g	4	0	0	3.0E+04	3.8E+04	--	Fewer than 5 detects	--	3.0E+04	3.8E+04
	Total PCBs, Adjusted	pg/g	4	0	0	2.8E+04	3.7E+04	--	Fewer than 5 detects	--	2.8E+04	3.7E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	5.4E-01	5.4E-01	--	Fewer than 5 detects	--	5.4E-01	5.4E-01
	Total PCB TEQ	pg/g	4	0	0	6.9E-01	8.0E-01	--	Fewer than 5 detects	--	6.9E-01	8.0E-01
	Pesticides											
	Aldrin	ug/kg	9	8	5	4.0E-02	8.3E-02	--	Fewer than 5 detects	--	4.0E-02	8.3E-02
	Dieldrin	ug/kg	9	8	5	4.7E-02	9.4E-02	--	Fewer than 5 detects	--	4.7E-02	9.4E-02
	Total DDT	ug/kg	9	5	4	5.3E-01	7.7E-01	--	Fewer than 5 detects	--	5.3E-01	7.7E-01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 10.5 West	**Metals**											
	Arsenic	mg/kg	11	0	0	4.0E+00	7.7E+00	non-parametric	95% Student's-t UCL	4.7E+00	4.0E+00	4.7E+00
	Lead	mg/kg	11	0	0	1.3E+01	1.8E+01	normal	95% Student's-t UCL	1.4E+01	1.3E+01	1.4E+01
	Mercury	mg/kg	11	0	0	6.9E-02	9.9E-02	normal	95% Student's-t UCL	7.7E-02	6.9E-02	7.7E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	11	0	0	2.8E+01	1.3E+02	lognormal	95% Chebyshev (MVUE) UCL	6.1E+01	2.8E+01	6.1E+01
	Benzo(a)pyrene	ug/kg	11	0	0	2.6E+01	1.1E+02	gamma	95% Approximate Gamma UCL	4.8E+01	2.6E+01	4.8E+01
	Benzo(b)fluoranthene	ug/kg	11	0	0	3.5E+01	1.5E+02	gamma	95% Approximate Gamma UCL	6.8E+01	3.5E+01	6.8E+01
	Benzo(k)fluoranthene	ug/kg	11	0	0	1.3E+01	4.2E+01	approx. gamma	95% Approximate Gamma UCL	2.0E+01	1.3E+01	2.0E+01
	Dibenzo(a,h)anthracene	ug/kg	11	0	0	4.4E+00	2.0E+01	gamma	95% Approximate Gamma UCL	7.9E+00	4.4E+00	7.9E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	11	0	0	2.2E+01	9.3E+01	gamma	95% Approximate Gamma UCL	3.7E+01	2.2E+01	3.7E+01
	Naphthalene	ug/kg	11	7	0	2.7E+01	2.6E+02	--	Fewer than 5 detects	--	2.7E+01	2.6E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	11	4	0	1.4E+02	5.9E+02	non-parametric	95% KM (BCA) UCL	2.5E+02	1.4E+02	2.5E+02
	Phenols											
	Pentachlorophenol	ug/kg	11	7	0	8.6E+00	3.8E+01	--	Fewer than 5 detects	--	8.6E+00	3.8E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	11	0	0	3.2E+01	5.6E+01	normal	95% Student's-t UCL	3.9E+01	3.2E+01	3.9E+01
	Total PCB Congeners	pg/g	1	0	0	3.1E+04	3.1E+04	--	Fewer than 5 detects	--	3.1E+04	3.1E+04
	Total PCBs, Adjusted	pg/g	1	0	0	2.9E+04	2.9E+04	--	Fewer than 5 detects	--	2.9E+04	2.9E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	1	0	0	6.9E-01	6.9E-01	--	Fewer than 5 detects	--	6.9E-01	6.9E-01
	Pesticides											
	Aldrin	ug/kg	11	10	1	2.0E-01	9.3E-01	--	Fewer than 5 detects	--	2.0E-01	9.3E-01
	Dieldrin	ug/kg	11	11	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	11	3	0	1.7E+00	6.0E+00	normal	95% KM (t) UCL	2.7E+00	1.7E+00	2.7E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 10.5 East	**Metals**											
	Arsenic	mg/kg	6	0	0	3.1E+00	3.4E+00	normal	95% Student's-t UCL	3.3E+00	3.1E+00	3.3E+00
	Lead	mg/kg	6	0	0	1.2E+01	1.5E+01	normal	95% Student's-t UCL	1.4E+01	1.2E+01	1.4E+01
	Mercury	mg/kg	6	0	0	6.1E-02	8.0E-02	normal	95% Student's-t UCL	7.4E-02	6.1E-02	7.4E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	6	0	0	3.9E+01	1.3E+02	gamma	95% Approximate Gamma UCL	1.0E+02	3.9E+01	1.0E+02
	Benzo(a)pyrene	ug/kg	6	0	0	3.4E+01	8.9E+01	gamma	95% Approximate Gamma UCL	7.1E+01	3.4E+01	7.1E+01

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	6	0	0	5.0E+01	1.4E+02	gamma	95% Approximate Gamma UCL	1.1E+02	5.0E+01	1.1E+02
	Benzo(k)fluoranthene	ug/kg	6	0	0	2.5E+01	8.6E+01	gamma	95% Approximate Gamma UCL	7.2E+01	2.5E+01	7.2E+01
	Dibenzo(a,h)anthracene	ug/kg	6	0	0	5.5E+00	1.4E+01	normal	95% Student's-t UCL	9.2E+00	5.5E+00	9.2E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	6	0	0	2.7E+01	7.2E+01	normal	95% Student's-t UCL	4.7E+01	2.7E+01	4.7E+01
	Naphthalene	ug/kg	6	5	4	3.5E+00	5.2E+00	--	Fewer than 5 detects	--	3.5E+00	5.2E+00
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	6	5	1	4.6E+01	1.1E+02	--	Fewer than 5 detects	--	4.6E+01	1.1E+02
	Phenols											
	Pentachlorophenol	ug/kg	6	5	0	3.2E+00	1.1E+01	--	Fewer than 5 detects	--	3.2E+00	1.1E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	6	0	0	5.2E+01	2.0E+02	gamma	95% Approximate Gamma UCL	1.5E+02	5.2E+01	1.5E+02
	Total PCB Congeners	pg/g	2	0	0	2.9E+04	4.2E+04	--	Fewer than 5 detects	--	2.9E+04	4.2E+04
	Total PCBs, Adjusted	pg/g	2	0	0	2.8E+04	4.1E+04	--	Fewer than 5 detects	--	2.8E+04	4.1E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	2	0	0	3.5E-01	3.9E-01	--	Fewer than 5 detects	--	3.5E-01	3.9E-01
	Pesticides											
	Aldrin	ug/kg	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	6	1	0	2.8E+00	1.3E+01	gamma	95% KM (Chebyshev) UCL	1.2E+01	2.8E+00	1.2E+01
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 11 West	**Metals**											
	Arsenic	mg/kg	7	0	0	3.4E+00	4.0E+00	normal	95% Student's-t UCL	3.6E+00	3.4E+00	3.6E+00
	Lead	mg/kg	7	0	0	1.4E+01	1.9E+01	normal	95% Student's-t UCL	1.6E+01	1.4E+01	1.6E+01
	Mercury	mg/kg	7	0	0	5.6E-02	8.7E-02	normal	95% Student's-t UCL	6.9E-02	5.6E-02	6.9E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	7	0	0	6.2E+01	3.0E+02	gamma	95% Approximate Gamma UCL	2.0E+02	6.2E+01	2.0E+02
	Benzo(a)pyrene	ug/kg	7	0	0	6.6E+01	3.3E+02	approx. gamma	95% Approximate Gamma UCL	2.2E+02	6.6E+01	2.2E+02
	Benzo(b)fluoranthene	ug/kg	7	0	0	4.0E+01	1.4E+02	gamma	95% Approximate Gamma UCL	1.0E+02	4.0E+01	1.0E+02
	Benzo(k)fluoranthene	ug/kg	7	0	0	3.7E+01	1.7E+02	approx. gamma	95% Approximate Gamma UCL	1.1E+02	3.7E+01	1.1E+02
	Dibenzo(a,h)anthracene	ug/kg	7	0	0	8.8E+00	4.1E+01	gamma	95% Approximate Gamma UCL	2.7E+01	8.8E+00	2.7E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	7	0	0	4.0E+01	1.8E+02	gamma	95% Approximate Gamma UCL	1.2E+02	4.0E+01	1.2E+02
	Naphthalene	ug/kg	7	5	0	5.4E+01	3.2E+02	--	Fewer than 5 detects	--	5.4E+01	3.2E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	7	0	0	3.7E+02	1.1E+03	approx. gamma	95% Approximate Gamma UCL	1.0E+03	3.7E+02	1.0E+03
	Phenols											
	Pentachlorophenol	ug/kg	6	5	1	9.8E-01	3.1E+00	--	Fewer than 5 detects	--	9.8E-01	3.1E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	7	0	0	2.8E+01	4.1E+01	normal	95% Student's-t UCL	3.5E+01	2.8E+01	3.5E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Pesticides											
	Aldrin	ug/kg	7	7	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	7	6	0	5.7E-01	2.5E+00	--	Fewer than 5 detects	--	5.7E-01	2.5E+00
	Total DDT	ug/kg	7	3	0	1.3E+00	2.1E+00	--	Fewer than 5 detects	--	1.3E+00	2.1E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 11 East	**Metals**											
	Arsenic	mg/kg	5	0	0	2.7E+00	3.3E+00	normal	95% Student's-t UCL	3.2E+00	2.7E+00	3.2E+00
	Lead	mg/kg	5	0	0	7.2E+01	1.8E+02	normal	95% Student's-t UCL	1.4E+02	7.2E+01	1.4E+02
	Mercury	mg/kg	5	0	0	7.0E-02	1.3E-01	normal	95% Student's-t UCL	1.1E-01	7.0E-02	1.1E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	4.0E+00	5.8E+00	--	Fewer than 5 detects	--	4.0E+00	5.8E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	5	0	0	8.3E+01	2.2E+02	normal	95% Student's-t UCL	1.6E+02	8.3E+01	1.6E+02
	Benzo(a)pyrene	ug/kg	5	0	0	5.5E+01	1.2E+02	lognormal	95% H-UCL	1.2E+02	5.5E+01	1.2E+02
	Benzo(b)fluoranthene	ug/kg	5	0	0	1.3E+02	3.4E+02	normal	95% Student's-t UCL	2.5E+02	1.3E+02	2.5E+02
	Benzo(k)fluoranthene	ug/kg	4	0	0	3.7E+01	9.4E+01	--	Fewer than 5 detects	--	3.7E+01	9.4E+01
	Dibenzo(a,h)anthracene	ug/kg	5	0	0	1.2E+01	2.2E+01	normal	95% Student's-t UCL	2.0E+01	1.2E+01	2.0E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	5	0	0	3.8E+01	6.4E+01	normal	95% Student's-t UCL	5.3E+01	3.8E+01	5.3E+01
	Naphthalene	ug/kg	5	1	0	1.2E+01	3.0E+01	--	Fewer than 5 detects	--	1.2E+01	3.0E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	5	2	2	9.4E+01	1.4E+02	--	Fewer than 5 detects	--	9.4E+01	1.4E+02
	Phenols											
	Pentachlorophenol	ug/kg	5	2	0	2.7E+00	8.7E+00	--	Fewer than 5 detects	--	2.7E+00	8.7E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	5	0	0	1.1E+03	3.8E+03	gamma	95% Approximate Gamma UCL	6.3E+03	1.1E+03	3.8E+03
	Total PCB Congeners	pg/g	4	0	0	2.4E+06	6.6E+06	--	Fewer than 5 detects	--	2.4E+06	6.6E+06
	Total PCBs, Adjusted	pg/g	4	0	0	2.3E+06	6.5E+06	--	Fewer than 5 detects	--	2.3E+06	6.5E+06
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	2.0E+00	3.0E+00	--	Fewer than 5 detects	--	2.0E+00	3.0E+00
	Total PCB TEQ	pg/g	4	0	0	1.2E+01	3.1E+01	--	Fewer than 5 detects	--	1.2E+01	3.1E+01
	Pesticides											
	Aldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	5	1	0	9.9E+01	3.8E+02	--	Fewer than 5 detects	--	9.9E+01	3.8E+02
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 11.5 West	**Metals**											
	Arsenic	mg/kg	4	0	0	3.0E+00	3.5E+00	--	Fewer than 5 detects	--	3.0E+00	3.5E+00
	Lead	mg/kg	4	0	0	1.0E+01	1.2E+01	--	Fewer than 5 detects	--	1.0E+01	1.2E+01
	Mercury	mg/kg	4	1	1	3.0E-02	3.1E-02	--	Fewer than 5 detects	--	3.0E-02	3.1E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	1	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	4	0	0	9.5E+00	1.6E+01	--	Fewer than 5 detects	--	9.5E+00	1.6E+01
	Benzo(a)pyrene	ug/kg	4	0	0	1.1E+01	1.8E+01	--	Fewer than 5 detects	--	1.1E+01	1.8E+01
	Benzo(b)fluoranthene	ug/kg	4	1	0	9.7E+00	1.7E+01	--	Fewer than 5 detects	--	9.7E+00	1.7E+01
	Benzo(k)fluoranthene	ug/kg	4	1	0	6.4E+00	1.4E+01	--	Fewer than 5 detects	--	6.4E+00	1.4E+01
	Dibenzo(a,h)anthracene	ug/kg	4	2	0	1.2E+00	2.9E+00	--	Fewer than 5 detects	--	1.2E+00	2.9E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	4	0	0	7.4E+00	1.4E+01	--	Fewer than 5 detects	--	7.4E+00	1.4E+01
	Naphthalene	ug/kg	4	2	0	3.3E+00	6.4E+00	--	Fewer than 5 detects	--	3.3E+00	6.4E+00
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	4	1	0	1.8E+02	5.2E+02	--	Fewer than 5 detects	--	1.8E+02	5.2E+02
	Phenols											
	Pentachlorophenol	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	4	1	0	1.2E+01	2.4E+01	--	Fewer than 5 detects	--	1.2E+01	2.4E+01
	Total PCB Congeners	pg/g	1	0	0	6.3E+04	6.3E+04	--	Fewer than 5 detects	--	6.3E+04	6.3E+04
	Total PCBs, Adjusted	pg/g	1	0	0	6.2E+04	6.2E+04	--	Fewer than 5 detects	--	6.2E+04	6.2E+04
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	1.8E-01	1.8E-01	--	Fewer than 5 detects	--	1.8E-01	1.8E-01
	Total PCB TEQ	pg/g	1	0	0	2.9E-01	2.9E-01	--	Fewer than 5 detects	--	2.9E-01	2.9E-01
	Pesticides											
	Aldrin	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	4	3	3	9.0E-02	9.0E-02	--	Fewer than 5 detects	--	9.0E-02	9.0E-02
	Total DDT	ug/kg	4	1	0	9.8E-01	1.9E+00	--	Fewer than 5 detects	--	9.8E-01	1.9E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 12 West	**Metals**											
	Arsenic	mg/kg	8	0	0	3.2E+00	4.9E+00	normal	95% Student's-t UCL	3.9E+00	3.2E+00	3.9E+00
	Lead	mg/kg	8	0	0	3.7E+01	8.6E+01	normal	95% Student's-t UCL	5.5E+01	3.7E+01	5.5E+01
	Mercury	mg/kg	8	0	0	2.9E-01	1.3E+00	gamma	95% Approximate Gamma UCL	7.4E-01	2.9E-01	7.4E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	1	1	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	8	0	0	2.6E+02	1.7E+03	lognormal	99% Chebyshev (MVUE) UCL	1.1E+03	2.6E+02	1.1E+03
	Benzo(a)pyrene	ug/kg	8	0	0	4.1E+02	2.8E+03	lognormal	99% Chebyshev (MVUE) UCL	1.8E+03	4.1E+02	1.8E+03

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	8	0	0	3.5E+02	2.4E+03	lognormal	99% Chebyshev (MVUE) UCL	1.4E+03	3.5E+02	1.4E+03
	Benzo(k)fluoranthene	ug/kg	8	0	0	1.2E+02	6.7E+02	gamma	95% Adjusted Gamma UCL	5.9E+02	1.2E+02	5.9E+02
	Dibenzo(a,h)anthracene	ug/kg	8	2	0	3.2E+01	2.1E+02	lognormal	99% KM (Chebyshev) UCL	2.9E+02	3.2E+01	2.1E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	8	0	0	3.4E+02	2.3E+03	lognormal	99% Chebyshev (MVUE) UCL	1.5E+03	3.4E+02	1.5E+03
	Naphthalene	ug/kg	8	1	0	4.5E+01	2.0E+02	gamma	95% KM (Chebyshev) UCL	1.5E+02	4.5E+01	1.5E+02
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	8	4	2	8.0E+01	1.9E+02	--	Fewer than 5 detects	--	8.0E+01	1.9E+02
	Phenols											
	Pentachlorophenol	ug/kg	8	6	0	3.4E+00	2.0E+01	--	Fewer than 5 detects	--	3.4E+00	2.0E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	8	1	0	7.0E+01	2.0E+02	normal	95% KM (t) UCL	1.2E+02	7.0E+01	1.2E+02
	Total PCB Congeners	pg/g	1	0	0	7.4E+03	7.4E+03	--	Fewer than 5 detects	--	7.4E+03	7.4E+03
	Total PCBs, Adjusted	pg/g	1	0	0	6.9E+03	6.9E+03	--	Fewer than 5 detects	--	6.9E+03	6.9E+03
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	1.7E-01	1.7E-01	--	Fewer than 5 detects	--	1.7E-01	1.7E-01
	Total PCB TEQ	pg/g	1	0	0	4.5E-01	4.5E-01	--	Fewer than 5 detects	--	4.5E-01	4.5E-01
	Pesticides											
	Aldrin	ug/kg	8	4	0	3.2E-01	7.0E-01	--	Fewer than 5 detects	--	3.2E-01	7.0E-01
	Dieldrin	ug/kg	8	8	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	8	1	0	5.9E+00	1.7E+01	normal	95% KM (t) UCL	9.5E+00	5.9E+00	9.5E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 12 East	**Metals**											
	Arsenic	mg/kg	2	0	0	2.3E+00	2.6E+00	--	Fewer than 5 detects	--	2.3E+00	2.6E+00
	Lead	mg/kg	2	0	0	7.8E+01	9.0E+01	--	Fewer than 5 detects	--	7.8E+01	9.0E+01
	Mercury	mg/kg	2	0	0	4.5E-02	6.5E-02	--	Fewer than 5 detects	--	4.5E-02	6.5E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Butyltins											
	Tributyltin ion	ug/kg	2	0	0	4.0E+00	4.8E+00	--	Fewer than 5 detects	--	4.0E+00	4.8E+00
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	2	0	0	1.8E+01	1.8E+01	--	Fewer than 5 detects	--	1.8E+01	1.8E+01
	Benzo(a)pyrene	ug/kg	2	0	0	1.9E+01	1.9E+01	--	Fewer than 5 detects	--	1.9E+01	1.9E+01
	Benzo(b)fluoranthene	ug/kg	2	0	0	2.7E+01	2.7E+01	--	Fewer than 5 detects	--	2.7E+01	2.7E+01
	Benzo(k)fluoranthene	ug/kg	2	0	0	7.8E+00	8.4E+00	--	Fewer than 5 detects	--	7.8E+00	8.4E+00
	Dibenzo(a,h)anthracene	ug/kg	2	0	0	4.0E+00	4.5E+00	--	Fewer than 5 detects	--	4.0E+00	4.5E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	1.6E+01	1.7E+01	--	Fewer than 5 detects	--	1.6E+01	1.7E+01
	Naphthalene	ug/kg	2	0	0	2.6E+01	4.2E+01	--	Fewer than 5 detects	--	2.6E+01	4.2E+01
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	2	0	0	9.2E+03	1.8E+04	--	Fewer than 5 detects	--	9.2E+03	1.8E+04
	Phenols											
	Pentachlorophenol	ug/kg	2	1	0	1.7E+00	3.2E+00	--	Fewer than 5 detects	--	1.7E+00	3.2E+00
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	2	0	0	1.6E+02	1.8E+02	--	Fewer than 5 detects	--	1.6E+02	1.8E+02
	Total PCB Congeners	pg/g	2	0	0	7.6E+05	9.1E+05	--	Fewer than 5 detects	--	7.6E+05	9.1E+05
	Total PCBs, Adjusted	pg/g	2	0	0	7.5E+05	9.0E+05	--	Fewer than 5 detects	--	7.5E+05	9.0E+05

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	1.7E+00	1.7E+00	--	Fewer than 5 detects	--	1.7E+00	1.7E+00
	Total PCB TEQ	pg/g	2	0	0	3.9E+00	4.6E+00	--	Fewer than 5 detects	--	3.9E+00	4.6E+00
	Pesticides											
	Aldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	2	1	1	9.4E+00	9.4E+00	--	Fewer than 5 detects	--	9.4E+00	9.4E+00
	Conventionals											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
Study Area-wide[h]	**Metals**											
	Arsenic	mg/kg	1027	112	0	4.7E+00	7.6E+01	non-parametric	95% KM (BCA) UCL	5.0E+00	4.7E+00	5.0E+00
	Lead	mg/kg	1015	3	0	5.2E+01	1.3E+04	non-parametric	95% KM (BCA) UCL	8.1E+01	5.2E+01	8.1E+01
	Mercury	mg/kg	1003	53	0	1.7E-01	6.5E+01	non-parametric	95% KM (BCA) UCL	3.0E-01	1.7E-01	3.0E-01
	Vanadium	mg/kg	128	0	0	1.0E+02	1.5E+02	non-parametric	95% Student's-t UCL	1.0E+02	1.0E+02	1.0E+02
	Butyltins											
	Tributyltin ion	ug/kg	236	13	0	6.1E+02	4.7E+04	non-parametric	97.5% KM (Chebyshev) UCL	2.4E+03	6.1E+02	2.4E+03
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/kg	1062	30	0	1.4E+03	1.2E+05	non-parametric	97.5% KM (Chebyshev) UCL	3.1E+03	1.4E+03	3.1E+03
	Benzo(a)pyrene	ug/kg	1062	36	0	1.8E+03	1.6E+05	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+03	1.8E+03	3.7E+03
	Benzo(b)fluoranthene	ug/kg	1062	25	0	1.4E+03	1.3E+05	non-parametric	97.5% KM (Chebyshev) UCL	2.9E+03	1.4E+03	2.9E+03
	Benzo(k)fluoranthene	ug/kg	958	19	0	9.3E+02	8.9E+04	non-parametric	97.5% KM (Chebyshev) UCL	2.0E+03	9.3E+02	2.0E+03
	Dibenzo(a,h)anthracene	ug/kg	1062	152	0	1.9E+02	1.5E+04	non-parametric	97.5% KM (Chebyshev) UCL	3.8E+02	1.9E+02	3.8E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	1062	50	0	1.2E+03	1.3E+05	non-parametric	97.5% KM (Chebyshev) UCL	2.6E+03	1.2E+03	2.6E+03
	Naphthalene	ug/kg	1066	311	0	5.0E+02	1.0E+05	non-parametric	97.5% KM (Chebyshev) UCL	1.5E+03	5.0E+02	1.5E+03
	Phthalates											
	Bis(2-ethylhexyl) phthalate	ug/kg	1003	389	0	9.6E+02	4.4E+05	non-parametric	95% KM (Chebyshev) UCL	2.9E+03	9.6E+02	2.9E+03
	Phenols											
	Pentachlorophenol	ug/kg	964	762	0	3.2E+01	8.4E+03	non-parametric	95% KM (Chebyshev) UCL	5.6E+01	3.2E+01	5.6E+01
	Polychlorinated Biphenyls											
	Total Aroclors	ug/kg	785	159	0	1.9E+02	3.1E+04	non-parametric	95% KM (Chebyshev) UCL	3.6E+02	1.9E+02	3.6E+02
	Total PCB Congeners	pg/g	200	0	0	5.6E+05	3.5E+07	non-parametric	97.5% KM (Chebyshev) UCL	1.8E+06	5.6E+05	1.8E+06
	Total PCBs, Adjusted	pg/g	200	0	0	5.4E+05	3.4E+07	non-parametric	97.5% KM (Chebyshev) UCL	1.8E+06	5.4E+05	1.8E+06
	Dioxin/Furan											
	Total Dioxin/Furan TEQ	pg/g	158	0	0	1.0E+02	1.4E+04	non-parametric	97.5% KM (Chebyshev) UCL	6.6E+02	1.0E+02	6.6E+02
	Total PCB TEQ	pg/g	200	0	0	6.6E+00	2.4E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.7E+01	6.6E+00	1.7E+01
	Pesticides											
	Aldrin	ug/kg	757	567	0	2.4E+00	6.9E+02	non-parametric	95% KM (Chebyshev) UCL	5.8E+00	2.4E+00	5.8E+00
	Dieldrin	ug/kg	792	623	0	2.1E+00	3.6E+02	non-parametric	95% KM (Chebyshev) UCL	2.8E+00	2.1E+00	2.8E+00
	Total DDT	ug/kg	844	189	0	1.4E+02	2.3E+04	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+02	1.4E+02	3.7E+02

TABLE 3-4.
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Conventionals											
	Perchlorate	ug/kg	13	10	0	4.9E+04	2.7E+05	--	Fewer than 5 detects	--	4.9E+04	2.7E+05

Notes:

a Exposure points for in-water sediment are per half river mile, per side of river. No samples within the human health data set were taken at exposure area of RM 11.5 East, and therefore it is not listed in the table. In-water sediment data set for human health includes in-water sediment samples taken from less than 30.5 centimeters in depth and outside of the navigation channel.
b Total number of non-detects in the dataset.
c Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
e Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
f 95% UCL not calculated for analytes with fewer than five detects.
g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.
h Study Area-wide data set includes samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
DDT = Dichlorodiphenyltrichloroethane.
MC - Multnomah Channel.
mg/kg = Milligrams per kilogram.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected. Chemical not detected in given exposure area.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
SIL = Swan Island Lagoon.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

Table 3-5
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
Transect Stations								
W005	3.9	Round 3 surface water	September 2006, Low Flow	LW3-W2005-WS-Int[e]	Y	Y	--	Y
				LW3-W2005-WSXAD-Comb-Int[f]	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3005-WS-Int	Y	Y	--	Y
				LW3-W3005-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4005-WS-Int	Y	Y	--	Y
				LW3-W4005-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W1005	Y	Y	--	Y
				LW3-W1005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W005	Y	Y	--	Y
				LW2-W005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2005	Y	Y	--	Y
				LW2-W2005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3005	Y	Y	Y	Y
				LW2-W3005-WSXAD-Combo	Y	Y	Y	Y
W011	6.3	Round 3 surface water	September 2006, Low Flow	LW3-W2011-WS-Int	Y	Y	--	Y
				LW3-W2011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3011-WS-Int	Y	Y	--	Y
				LW3-W3011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4011-WS-Int	Y	Y	--	Y
				LW3-W4011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W011	Y	Y	--	Y
				LW2-W011-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2011-WSXAD-Combo	Y	Y	--	Y
				LW2-W2011B	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3011	Y	Y	Y	Y
				LW2-W3011-WSXAD-Combo	Y	Y	Y	Y
W023	11	Round 3 surface water	September 2006, Low Flow	LW3-W2023-WS-Int	Y	Y	--	Y
				LW3-W2023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3023-WS-Int	Y	Y	--	Y
				LW3-W3023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4023-WS-Int	Y	Y	--	Y
				LW3-W4023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W1023-WSXAD-Combo	Y	Y	--	Y
				LW3-W1023-1	Y	Y	--	Y
				LW3-W1023-2	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W023	Y	Y	--	Y
				LW2-W023-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2023	Y	Y	--	Y
				LW2-W2023-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3023	Y	Y	Y	Y
				LW2-W3023-WSXAD-Combo	Y	Y	Y	Y

Table 3-5
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W025	2	Round 3 surface water	September 2006, Low Flow	LW3-W2025-WS-Int	Y	Y	--	Y
				LW3-W2025-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3025-WS-Int	Y	Y	--	Y
				LW3-W3025-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4025-WS-Int	Y	Y	--	Y
				LW3-W4025-WSXAD-Comb-Int	Y	Y	--	Y
W027	2.9 MC	Round 3 surface water	September 2006, Low Flow	LW3-W2027-WS-Int	Y	Y	--	--
				LW3-W2027-WSXAD-Comb-Int	Y	Y	--	--
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3027-WS-Int	Y	Y	--	--
				LW3-W3027-WSXAD-Comb-Int	Y	Y	--	--
		Round 3 surface water	January or February 2007, High Flow	LW3-W4027-WS-Int	Y	Y	--	--
				LW3-W4027-WSXAD-Comb-Int	Y	Y	--	--
W024	16	Round 3 surface water	January 2006, High Flow	LW3-W1024	--	--	--	--
				LW3-W1024-WSXAD-Combo	--	--	--	--
Single-Point Stations								
W001	2 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W001	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2001	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3001	Y	--	--	--
W002	2.2 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W002	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2002-1	Y	--	--	--
				LW2-W2002-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3002-1	Y	--	--	--
				LW2-W3002-2	Y	--	--	--
W003	3 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W003	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2003	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3003	Y	--	--	--
W004	3.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W004	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2004-1	Y	--	--	--
				LW2-W2004-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3004	Y	--	--	--
W006	4 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W006	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2006	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3006	Y	--	--	--
W007	4.4 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W007	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2007	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3007	Y	--	--	--
W008	4.6 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W008	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2008	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3008	Y	--	--	--
W009	5.6 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W009	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2009	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3009	Y	--	--	--

Table 3-5
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W010 Cathedral Park	5.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W010	Y	--	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2010	Y	--	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3010	Y	--	Y	Y
W012	6.3 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W012	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2012	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3012	Y	--	--	--
W013	6.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W013-1	Y	--	--	--
				LW2-W013-1-WSXAD-Combo	Y	--	--	--
				LW2-W013-2	Y	--	--	--
				LW2-W013-2-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2013-1	Y	--	--	--
				LW2-W2013-1-WSXAD-Combo	Y	--	--	--
				LW2-W2013-2	Y	--	--	--
				LW2-W2013-2-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3013-1	Y	--	--	--
				LW2-W3013-1-WSXAD-Combo	Y	--	--	--
W014 Willamette Cove	6.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W014	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2014	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3014	Y	Y	Y	Y
W015	6.9 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W015	Y	--	--	--
				LW2-W015-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2015	Y	--	--	--
				LW2-W2015-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3015	Y	--	--	--
				LW2-W3015-WSXAD-Combo	Y	--	--	--
W016	7.2 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W016-1	Y	--	--	--
				LW2-W016-WSXAD-Combo	Y	--	--	--
				LW2-W016-2	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2016-1	Y	--	--	--
				LW2-W2016-WSXAD-Combo	Y	--	--	--
				LW2-W2016-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3016-1	Y	--	--	--
				LW2-W3016-WSXAD-Combo	Y	--	--	--
				LW2-W3016-2	Y	--	--	--
W017	7.5 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W017	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2017	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3017	Y	--	--	--
W018 SIL	8.3 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W018	Y	--	--	--
				LW2-W018-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2018	Y	--	--	--
				LW2-W2018-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3018	Y	--	--	--
				LW2-W3018-WSXAD-Combo	Y	--	--	--

Table 3-5
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W019	8.6 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W019	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2019	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3019	Y	--	--	--
W020 SIL	9.1 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W020	Y	--	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2020	Y	--	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3020	Y	--	Y	Y
W021 SIL	8.7 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W021	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2021	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3021	Y	--	--	--
W022	9.7 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W022	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2022	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3022	Y	--	--	--
W026	2.1 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3026-WS-Int	Y	--	--	Y
				LW3-W3026-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4026-WS-Int	Y	--	--	Y
				LW3-W4026-WSXAD-Comb-Int	Y	--	--	Y
W028	3.6 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3028-WS-Int	Y	--	--	Y
				LW3-W3028-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4028-WS-Int	Y	--	--	Y
				LW3-W4028-WSXAD-Comb-Int	Y	--	--	Y
W029	4.4 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3029-WS-Int	Y	--	--	Y
				LW3-W3029-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4029-WS-Int	Y	--	--	Y
				LW3-W4029-WSXAD-Comb-Int	Y	--	--	Y
W030	5.5 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3030-WS-Int	Y	--	--	Y
				LW3-W3030-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4030-WS-Int	Y	--	--	Y
				LW3-W4030-WSXAD-Comb-Int	Y	--	--	Y
W031	6.1 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3031-WS-Int	Y	--	--	Y
				LW3-W3031-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4031-WS-Int	Y	--	--	Y
				LW3-W4031-WSXAD-Comb-Int	Y	--	--	Y
W032	6.7 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3032-WS-Int	Y	--	--	Y
				LW3-W3032-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4032-WS-Int	Y	--	--	Y
				LW3-W4032-WSXAD-Comb-Int	Y	--	--	Y
W033	7.0 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3033-WS-Int	Y	--	--	Y
				LW3-W3033-2-WS-Int	Y	--	--	Y
				LW3-W3033-WSXAD-Comb-Int	Y	--	--	Y
				LW3-W3033-2-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4033-WS-Int	Y	--	--	Y
				LW3-W4033-2-WS-Int	Y	--	--	Y
				LW3-W4033-WSXAD-Comb-Int	Y	--	--	Y

Table 3-5
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact[a]	Transients, Direct Contact[b]	Recreational Beach Users, Direct Contact[c]	Surface Water for Potential Future Domestic Use[d]
W034	7.5 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3034-WS-Int	Y	--	--	Y
				LW3-W3034-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4034-WS-Int	Y	--	--	Y
				LW3-W4034-WSXAD-Comb-Int	Y	--	--	Y
W035 SIL	8.5 SIL	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3035-WS-Int	Y	--	--	Y
				LW3-W3035-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4035-WS-Int	Y	--	--	Y
				LW3-W4035-WSXAD-Comb-Int	Y	--	--	Y
W036	8.6 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3036-WS-Int	Y	--	--	Y
				LW3-W3036-2-WS-Int	Y	--	--	Y
				LW3-W3036-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4036-WS-Int	Y	--	--	Y
				LW3-W4036-WSXAD-Comb-Int	Y	--	--	Y
W037	9.6 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3037-WS-Int	Y	--	--	Y
				LW3-W3037-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4037-WS-Int	Y	--	--	Y
				LW3-W4037-WSXAD-Comb-Int	Y	--	--	Y
W038	9.9 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3038-WS-Int	Y	--	--	Y
				LW3-W3038-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4038-WS-Int	Y	--	--	Y
				LW3-W4038-WSXAD-Comb-Int	Y	--	--	Y

Notes:

a The surface water exposure dataset for direct contact to divers includes samples from all transects and all single point stations within the study area. In addition, EPCs were calculated for Multnomah Channel.

b The surface water exposure dataset for direct contact to transients includes year-round samples from transects and single point stations within the study area where transients exposure may occur. In addition, EPCs were calculated for Multnomah Channel.

c The surface water exposure dataset for direct contact to recreational beach users includes samples from summer sampling events at single point stations within the study area where recreational beach exposure may occur. In addition, study area wide EPCs were calculated using summer samples from all transect stations within the study area.

d The surface water exposure dataset for the scenario describing the potential future domestic use of untreated surface water includes all vertically integrated and combined transect samples within the study area.

e "Int" indicates sample results with this sample ID were combined to represent an integrated concentration before EPC calculations. Either results from a near-bottom and near-surface sample pair were combined, or results from vertically integrated samples collected from the east, west, and middle sections of the river were combined, according to the rules discussed in Section 2 of the BHHRA.

f "Comb" or "Combo" is included in sample IDs for samples collected with an XAD-2 Infiltrex™ 300 system, indicating both column and filter results were combined before EPC calculations, according to the rules discussed in Section 2 of the BHHRA.

Abbreviations:

-- = Not applicable. Sample was not used for EPC calculations for the given exposure scenario.
BHHRA = Baseline human health risk assessment.
Comb or Combo = Combined column and filter results (for XAD samples only). See footnote f.
E = East.
EPC = Exposure point concentration.
Int = Integrated sample results (calculated). See footnote e.
MC = Multnomah Channel.
SIL = Swan Island Lagoon.
W = West.
Y = sample was used for EPC calculations for the given receptor.

TABLE 3-6.
Exposure Point Concentration Summary - Surface Water, Transients Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Transients Use

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Willamette Cove	**Metals**								Fewer than 5 detects[e]			
W014	Arsenic, total	ug/l	3	0	0	4.4E-01	5.2E-01				4.4E-01	5.2E-01
	Arsenic, dissolved	ug/l	3	0	0	3.9E-01	4.6E-01				3.9E-01	4.6E-01
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA
	Herbicides											
	MCPP	ug/l	3	3	0	ND	ND				ND	ND
Transect, RM 3.9	**Metals**											
W005	Arsenic, total	ug/l	7	0	0	4.6E-01	5.5E-01	normal	95% Student's-t UCL	5.2E-01	4.6E-01	5.2E-01
	Arsenic, dissolved	ug/l	7	1	0	3.0E-01	4.8E-01	normal	95% KM (t) UCL	3.9E-01	3.0E-01	3.9E-01
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA
	Herbicides											
	MCPP	ug/l	6	5	2	4.7E+00	9.1E+00	--	Fewer than 5 detects	--	4.7E+00	9.1E+00
Transect, RM 6.3	**Metals**											
W011	Arsenic, total	ug/l	6	1	0	3.9E-01	5.0E-01	normal	95% KM (t) UCL	4.7E-01	3.9E-01	4.7E-01
	Arsenic, dissolved	ug/l	6	2	0	3.0E-01	4.5E-01	--	Fewer than 5 detects	--	3.0E-01	4.5E-01
	Chromium, hexavalent	ug/l	2	1	1	6.0E-01	9.0E-01	--	Fewer than 5 detcts	--	6.0E-01	9.0E-01
	Herbicides											
	MCPP	ug/l	6	6	0	ND	ND	--	Fewer than 5 detects	--	ND	ND
Transect, RM 11	**Metals**											
W023	Arsenic, total	ug/l	9	1	0	4.0E-01	5.4E-01	normal	95% KM (t) UCL	4.7E-01	4.0E-01	4.7E-01
	Arsenic, dissolved	ug/l	9	1	0	2.8E-01	4.3E-01	non-parametric	95% KM (Chebyshev) UCL	4.4E-01	2.8E-01	4.3E-01
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA
	Herbicides											
	MCPP	ug/l	7	6	2	4.2E+00	8.0E+00	--	Fewer than 5 detects	--	4.2E+00	8.0E+00
Transect, RM 2	**Metals**								Fewer than 5 detects			
W025	Arsenic, total	ug/l	4	1	0	3.5E-01	6.0E-01				3.5E-01	6.0E-01
	Arsenic, dissolved	ug/l	4	1	0	3.0E-01	5.7E-01				3.0E-01	5.7E-01
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA
	Herbicides											
	MCPP	ug/l	4	4	0	ND	ND				ND	ND

TABLE 3-6.
Exposure Point Concentration Summary - Surface Water, Transients Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Transients Use

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transect, MC	**Metals**								Fewer than 5 detects			
W027	Arsenic, total	ug/l	3	0	0	4.4E-01	5.0E-01				4.4E-01	5.0E-01
	Arsenic, dissolved	ug/l	3	1	0	3.1E-01	4.8E-01				3.1E-01	4.8E-01
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA
	Herbicides											
	MCPP	ug/l	3	2	0	6.3E+00	1.3E+01				6.3E+00	1.3E+01
Study Area-Wide[f]	**Metals**											
Transects	Arsenic, total	ug/l	26	3	0	4.0E-01	6.0E-01	normal	95% KM (t) UCL	4.5E-01	4.0E-01	4.5E-01
	Arsenic, dissolved	ug/l	26	5	0	2.9E-01	5.7E-01	non-parametric	95% KM (Chebyshev) UCL	4.0E-01	2.9E-01	4.0E-01
	Chromium, hexavalent	ug/l	2	1	1	6.0E-01	9.0E-01	--	Fewer than 5 detcts	--	6.0E-01	9.0E-01
	Herbicides											
	MCPP	ug/l	23	21	8	4.0E+00	9.1E+00	--	Fewer than 5 detects	--	4.0E+00	9.1E+00

Notes:

a Total number of non-detects in the dataset.

b Number of non-detects with detection limit exceeding the maximum detected concentration for a given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.

c Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.

d Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.

e 95% UCL not calculated for analytes with fewer than five detects.

f Study Area-wide data set for transient exposure includes year-round transect samples from the following stations: W005, W011, W023, and W025.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit.
MC = Multnomah Channel.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected. Chemical not detected in given exposure area.
ug/l = Micrograms per liter.

TABLE 3-7.
Exposure Point Concentration Summary - Surface Water, Recreational Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Recreational Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples[a]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[b]	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Cathedral Park	**Metals**							Fewer than 5 detects[c]			
W010	Arsenic, total	ug/l	0	1	5.4E-01	5.4E-01				5.4E-01	5.4E-01
	Arsenic, dissolved	ug/l	0	1	4.6E-01	4.6E-01				4.6E-01	4.6E-01
	Chromium, hexavalent[d]	--	0	0	NA	NA				NA	NA
	Herbicides										
	MCPP	ug/l	1	1	ND	ND				ND	ND
Willamette Cove	**Metals**							Fewer than 5 detects			
W014	Arsenic, total	ug/l	0	1	5.2E-01	5.2E-01				5.2E-01	5.2E-01
	Arsenic, dissolved	ug/l	0	1	4.6E-01	4.6E-01				4.6E-01	4.6E-01
	Chromium, hexavalent	--	0	0	NA	NA				NA	NA
	Herbicides										
	MCPP	ug/l	1	1	ND	ND				ND	ND
Swan Island Lagoon	**Metals**							Fewer than 5 detects			
W020	Arsenic, total	ug/l	0	1	4.7E-01	4.7E-01				4.7E-01	4.7E-01
	Arsenic, dissolved	ug/l	0	1	4.4E-01	4.4E-01				4.4E-01	4.4E-01
	Chromium, hexavalent	--	0	0	NA	NA				NA	NA
	Herbicides										
	MCPP	ug/l	1	1	ND	ND				ND	ND
Study Area-Wide Transects[e]	**Metals**							Fewer than 5 detects			
	Arsenic, total	ug/l	0	3	5.1E-01	5.5E-01				5.1E-01	5.5E-01
	Arsenic, dissolved	ug/l	0	3	4.5E-01	4.8E-01				4.5E-01	4.8E-01
	Chromium, hexavalent	--	0	0	NA	NA				NA	NA
	Herbicides										
	MCPP	ug/l	3	3	ND	ND				ND	ND

Notes:

a Total number of samples includes number of samples in dataset, regardless of detection status. No non-detects exceeded the maximum detected concentration for industrial beach sediment.

b Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.

c 95% UCL not calculated for analytes with fewer than five detects.

d Hexavalent chromium was selected as a Chemical of Potential Concern for the combined dataset that included samples evaulated for direct contact by transients and recreational beach users. It was not analyzed in samples evaluated only for direct contact by recreational beach users.

e Study Area-wide data set for recreational beach use exposure includes July transect samples from the following stations: W005, W011, and W023.

Abbreviations:

95% UCL = 95% Upper confidence limit.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
ug/l = Micrograms per liter.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected. Chemical not detected in given exposure area.

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Single Point Samples												
RM 2.0 E	**Metals**											
	Arsenic, total	ug/l	5	0	0	4.6E-01	7.5E-01	normal	95% Student's-t UCL	6.2E-01	4.6E-01	6.2E-01
	Arsenic, dissolved	ug/l	5	1	0	3.5E-01	6.4E-01	--	Fewer than 5 detects[f]	--	3.5E-01	6.4E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	4	3	4.1E-03	6.5E-03	--	Fewer than 5 detects	--	4.1E-03	6.5E-03
	Pesticides											
	Aldrin	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Herbicides											
	MCPP	ug/l	5	4	4	5.2E+00	5.2E+00	--	Fewer than 5 detects	--	5.2E+00	5.2E+00
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 2.0 W	**Metals**											
	Arsenic, total	ug/l	5	0	0	5.6E-01	7.1E-01	normal	95% Student's-t UCL	6.9E-01	5.6E-01	6.9E-01
	Arsenic, dissolved	ug/l	5	0	0	5.0E-01	6.2E-01	normal	95% Student's-t UCL	6.3E-01	5.0E-01	6.2E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Pesticides											
	Aldrin	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 3.0 W	**Metals**											
	Arsenic, total	ug/l	3	0	0	4.3E-01	4.9E-01	--	Fewer than 5 detects	--	4.3E-01	4.9E-01
	Arsenic, dissolved	ug/l	3	0	0	3.5E-01	4.1E-01				3.5E-01	4.1E-01

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	3	2	2	3.0E-03	3.0E-03				3.0E-03	3.0E-03
	Benzo(a)pyrene	ug/l	3	2	2	2.7E-03	2.7E-03				2.7E-03	2.7E-03
	Benzo(b)fluoranthene	ug/l	3	2	2	2.8E-03	2.8E-03				2.8E-03	2.8E-03
	Dibenzo(a,h)anthracene	ug/l	3	3	ND	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	ND	ND	ND				ND	ND
	Naphthalene	ug/l	3	3	ND	ND	ND				ND	ND
	Pesticides											
	Aldrin	ug/l	3	3	ND	ND	ND				ND	ND
	Herbicides											
	MCPP	ug/l	3	3	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 3.5 E	**Metals**											
	Arsenic, total	ug/l	5	0	0	4.3E-01	4.9E-01	normal	95% Student's-t UCL	5.0E-01	4.3E-01	4.9E-01
	Arsenic, dissolved	ug/l	5	1	0	3.1E-01	4.1E-01	--	Fewer than 5 detects	--	3.1E-01	4.1E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	4	0	4.6E-03	1.2E-02	--	Fewer than 5 detects	--	4.6E-03	1.2E-02
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	4	2	4.6E-03	9.0E-03	--	Fewer than 5 detects	--	4.6E-03	9.0E-03
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	4	3	3.3E-03	5.5E-03	--	Fewer than 5 detects	--	3.3E-03	5.5E-03
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Pesticides											
	Aldrin	ug/l	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4.0 E	**Metals**											
	Arsenic, total	ug/l	3	0	0	4.4E-01	4.8E-01	--	Fewer than 5 detects	--	4.4E-01	4.8E-01
	Arsenic, dissolved	ug/l	3	0	0	3.7E-01	4.2E-01				3.7E-01	4.2E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	3	2	0	3.6E-03	6.5E-03				3.6E-03	6.5E-03
	Benzo(a)pyrene	ug/l	3	2	0	2.4E-03	4.0E-03				2.4E-03	4.0E-03
	Benzo(b)fluoranthene	ug/l	3	2	0	2.6E-03	4.0E-03				2.6E-03	4.0E-03
	Dibenzo(a,h)anthracene	ug/l	3	3	ND	ND	ND				ND	ND

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	ND	ND	ND				ND	ND
	Naphthalene	ug/l	3	3	ND	ND	ND				ND	ND
	Pesticides											
	Aldrin	ug/l	3	3	ND	ND	ND				ND	ND
	Herbicides											
	MCPP	ug/l	3	3	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4.0 W	**Metals**											
	Arsenic, total	ug/l	5	1	0	3.7E-01	4.9E-01	--	Fewer than 5 detects	--	3.7E-01	4.9E-01
	Arsenic, dissolved	ug/l	5	1	0	3.0E-01	4.2E-01				3.0E-01	4.2E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	4	2	3.4E-03	5.9E-03				3.4E-03	5.9E-03
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND				ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND				ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND				ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND				ND	ND
	Pesticides											
	Aldrin	ug/l	5	5	ND	ND	ND				ND	ND
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4.5 E	**Metals**											
	Arsenic, total	ug/l	3	0	0	4.3E-01	4.8E-01	--	Fewer than 5 detects	--	4.3E-01	4.8E-01
	Arsenic, dissolved	ug/l	3	0	0	3.8E-01	4.3E-01				3.8E-01	4.3E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	3	1	0	4.8E-03	7.8E-03				4.8E-03	7.8E-03
	Benzo(a)pyrene	ug/l	3	1	0	4.1E-03	7.5E-03				4.1E-03	7.5E-03
	Benzo(b)fluoranthene	ug/l	3	1	0	4.7E-03	8.0E-03				4.7E-03	8.0E-03
	Dibenzo(a,h)anthracene	ug/l	3	2	0	2.6E-03	4.4E-03				2.6E-03	4.4E-03
	Indeno(1,2,3-cd)pyrene	ug/l	3	2	0	3.3E-03	5.7E-03				3.3E-03	5.7E-03
	Naphthalene	ug/l	3	3	ND	ND	ND				ND	ND
	Pesticides											
	Aldrin	ug/l	3	3	ND	ND	ND				ND	ND

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Herbicides											
	MCPP	ug/l	3	3	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5.5 E	**Metals**											
	Arsenic, total	ug/l	5	0	0	4.2E-01	5.4E-01	normal	95% Student's-t UCL	5.0E-01	4.2E-01	5.0E-01
	Arsenic, dissolved	ug/l	5	1	0	3.1E-01	4.6E-01	--	Fewer than 5 detects	--	3.1E-01	4.6E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Pesticides											
	Aldrin	ug/l	5	4	0	9.8E-04	4.1E-03	--	Fewer than 5 detects	--	9.8E-04	4.1E-03
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5.5 W	**Metals**											
	Arsenic, total	ug/l	3	0	0	4.3E-01	5.0E-01	--	Fewer than 5 detects	--	4.3E-01	5.0E-01
	Arsenic, dissolved	ug/l	3	0	0	3.7E-01	4.2E-01				3.7E-01	4.2E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	3	2	0	2.8E-03	4.3E-03				2.8E-03	4.3E-03
	Benzo(a)pyrene	ug/l	3	3	ND	ND	ND				ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	ND	ND	ND				ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	ND	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	ND	ND	ND				ND	ND
	Naphthalene	ug/l	3	3	ND	ND	ND				ND	ND
	Pesticides											
	Aldrin	ug/l	3	3	ND	ND	ND				ND	ND
	Herbicides											
	MCPP	ug/l	3	3	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 6.0 W	**Metals**											
	Arsenic, total	ug/l	5	0	0	4.4E-01	5.6E-01	normal	95% Student's-t UCL	5.2E-01	4.4E-01	5.2E-01
	Arsenic, dissolved	ug/l	5	1	0	3.2E-01	4.7E-01	--	Fewer than 5 detects	--	3.2E-01	4.7E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	2	0	5.5E-02	1.4E-01	--	Fewer than 5 detects	--	5.5E-02	1.4E-01
	Benzo(a)pyrene	ug/l	5	2	0	5.5E-02	1.5E-01	--	Fewer than 5 detects	--	5.5E-02	1.5E-01
	Benzo(b)fluoranthene	ug/l	5	2	0	4.1E-02	1.1E-01	--	Fewer than 5 detects	--	4.1E-02	1.1E-01
	Dibenzo(a,h)anthracene	ug/l	5	3	0	6.3E-03	1.4E-02	--	Fewer than 5 detects	--	6.3E-03	1.4E-02
	Indeno(1,2,3-cd)pyrene	ug/l	5	1	0	4.1E-02	1.1E-01	--	Fewer than 5 detects	--	4.1E-02	1.1E-01
	Naphthalene	ug/l	5	1	0	1.9E-01	7.7E-01	--	Fewer than 5 detects	--	1.9E-01	7.7E-01
	Pesticides											
	Aldrin	ug/l	5	3	3	1.6E-06	2.1E-06	--	Fewer than 5 detects	--	1.6E-06	2.1E-06
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 6.5 E	**Metals**											
	Arsenic, total	ug/l	10	0	0	3.9E-01	5.2E-01	normal	95% KM (t) UCL	4.2E-01	3.9E-01	4.2E-01
	Arsenic, dissolved	ug/l	10	0	0	3.3E-01	4.6E-01	normal	95% KM (t) UCL	3.7E-01	3.3E-01	3.7E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	17	10	7	8.0E-04	2.8E-03	gamma	95% KM (t) UCL	1.2E-03	8.0E-04	1.2E-03
	Benzo(a)pyrene	ug/l	17	9	7	6.3E-04	2.4E-03	gamma	95% KM (t) UCL	9.4E-04	6.3E-04	9.4E-04
	Benzo(b)fluoranthene	ug/l	17	10	10	5.1E-04	1.1E-03	normal	95% KM (t) UCL	7.2E-04	5.1E-04	7.2E-04
	Dibenzo(a,h)anthracene	ug/l	17	15	10	1.6E-04	8.8E-04	--	Fewer than 5 detects	--	1.6E-04	8.8E-04
	Indeno(1,2,3-cd)pyrene	ug/l	17	11	11	3.5E-04	6.3E-04	normal	95% KM (t) UCL	4.5E-04	3.5E-04	4.5E-04
	Naphthalene	ug/l	17	13	3	6.5E-03	1.7E-02	--	Fewer than 5 detects	--	6.5E-03	1.7E-02
	Pesticides											
	Aldrin	ug/l	12	5	5	1.6E-06	2.4E-06	normal	95% KM (t) UCL	2.1E-06	1.6E-06	2.1E-06
	Herbicides											
	MCPP	ug/l	10	10	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 6.5 W	**Metals**											
	Arsenic, total	ug/l	3	0	0	4.5E-01	5.2E-01	--	Fewer than 5 detects	--	4.5E-01	5.2E-01
	Arsenic, dissolved	ug/l	3	0	0	3.9E-01	4.5E-01				3.9E-01	4.5E-01

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	6	3	0	2.9E-03	6.1E-03				2.9E-03	6.1E-03
	Benzo(a)pyrene	ug/l	6	3	0	2.7E-03	6.6E-03				2.7E-03	6.6E-03
	Benzo(b)fluoranthene	ug/l	6	3	0	3.0E-03	6.8E-03				3.0E-03	6.8E-03
	Dibenzo(a,h)anthracene	ug/l	6	4	3	5.0E-04	8.7E-04				5.0E-04	8.7E-04
	Indeno(1,2,3-cd)pyrene	ug/l	6	2	0	3.2E-03	6.1E-03				3.2E-03	6.1E-03
	Naphthalene	ug/l	6	3	0	1.2E-02	2.9E-02				1.2E-02	2.9E-02
	Pesticides											
	Aldrin	ug/l	3	0	0	6.9E-06	1.6E-05				6.9E-06	1.6E-05
	Herbicides											
	MCPP	ug/l	3	3	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 7.0 W	**Metals**											
	Arsenic, total	ug/l	8	2	0	3.5E-01	5.0E-01	normal	95% KM (t) UCL	4.5E-01	3.5E-01	4.5E-01
	Arsenic, dissolved	ug/l	8	2	0	3.0E-01	4.5E-01	normal	95% KM (t) UCL	4.0E-01	3.0E-01	4.0E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	13	6	2	2.2E-03	7.0E-03	normal	95% KM (t) UCL	3.4E-03	2.2E-03	3.4E-03
	Benzo(a)pyrene	ug/l	13	6	2	2.0E-03	6.6E-03	gamma	95% KM (BCA) UCL	2.9E-03	2.0E-03	2.9E-03
	Benzo(b)fluoranthene	ug/l	12	6	2	1.9E-03	4.9E-03	gamma	95% KM (BCA) UCL	2.4E-03	1.9E-03	2.4E-03
	Dibenzo(a,h)anthracene	ug/l	12	8	6	2.7E-04	5.4E-04	--	Fewer than 5 detects	--	2.7E-04	5.4E-04
	Indeno(1,2,3-cd)pyrene	ug/l	12	6	6	1.1E-03	2.8E-03	gamma	95% KM (Chebyshev) UCL	3.0E-03	1.1E-03	2.8E-03
	Naphthalene	ug/l	13	12	12	7.4E-04	7.4E-04	--	Fewer than 5 detects	--	7.4E-04	7.4E-04
	Pesticides											
	Aldrin	ug/l	6	0	0	2.3E-06	4.0E-06	normal	95% KM (t) UCL	3.3E-06	2.3E-06	3.3E-06
	Herbicides											
	MCPP	ug/l	7	6	5	4.6E+00	6.2E+00	--	Fewer than 5 detects	--	4.6E+00	6.2E+00
	Conventionals											
	Perchlorate	ug/l	9	3	0	2.7E+00	1.6E+01	gamma	95% KM (BCA) UCL	7.0E+00	2.7E+00	7.0E+00
RM 7.5 W	**Metals**											
	Arsenic, total	ug/l	5	0	0	4.8E-01	5.6E-01	normal	95% Student's-t UCL	5.4E-01	4.8E-01	5.4E-01
	Arsenic, dissolved	ug/l	5	0	0	3.6E-01	4.7E-01	normal	95% Student's-t UCL	4.3E-01	3.6E-01	4.3E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Pesticides											
	Aldrin	ug/l	5	4	4	8.7E-07	8.7E-07	--	Fewer than 5 detects	--	8.7E-07	8.7E-07
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
SIL	**Metals**											
	Arsenic, total	ug/l	11	0	0	4.1E-01	4.8E-01	normal	95% KM (t) UCL	4.4E-01	4.1E-01	4.4E-01
	Arsenic, dissolved	ug/l	11	1	0	3.3E-01	4.4E-01	normal	95% KM (t) UCL	3.8E-01	3.3E-01	3.8E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	16	10	0	2.6E-03	1.1E-02	gamma	95% KM (t) UCL	2.9E-03	2.6E-03	2.9E-03
	Benzo(a)pyrene	ug/l	16	12	3	1.5E-03	4.8E-03	--	Fewer than 5 detects	--	1.5E-03	4.8E-03
	Benzo(b)fluoranthene	ug/l	16	11	10	1.5E-03	3.8E-03	normal	95% KM (t) UCL	2.6E-03	1.5E-03	2.6E-03
	Dibenzo(a,h)anthracene	ug/l	16	13	11	3.1E-04	7.8E-04	--	Fewer than 5 detects	--	3.1E-04	7.8E-04
	Indeno(1,2,3-cd)pyrene	ug/l	16	11	10	1.1E-03	2.9E-03	normal	95% KM (t) UCL	1.9E-03	1.1E-03	1.9E-03
	Naphthalene	ug/l	16	15	7	3.5E-03	6.9E-03	--	Fewer than 5 detects	--	3.5E-03	6.9E-03
	Pesticides											
	Aldrin	ug/l	12	7	7	2.2E-06	4.9E-06	normal	95% KM (t) UCL	4.0E-06	2.2E-06	4.0E-06
	Herbicides											
	MCPP	ug/l	11	10	4	7.2E+00	1.9E+01	--	Fewer than 5 detects	--	7.2E+00	1.9E+01
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 8.5 W	**Metals**											
	Arsenic, total	ug/l	5	0	0	4.3E-01	5.4E-01	normal	95% Student's-t UCL	5.0E-01	4.3E-01	5.0E-01
	Arsenic, dissolved	ug/l	5	1	0	3.1E-01	4.6E-01	--	Fewer than 5 detects	--	3.1E-01	4.6E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	4	1	2.9E-03	5.1E-03	--	Fewer than 5 detects	--	2.9E-03	5.1E-03
	Naphthalene	ug/l	5	4	0	2.1E-02	8.3E-02	--	Fewer than 5 detects	--	2.1E-02	8.3E-02

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Pesticides											
	Aldrin	ug/l	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9.5 E	**Metals**											
	Arsenic, total	ug/l	2	0	0	4.1E-01	5.2E-01	--	Fewer than 5 detects	--	4.1E-01	5.2E-01
	Arsenic, dissolved	ug/l	2	0	0	2.8E-01	3.6E-01				2.8E-01	3.6E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	2	2	ND	ND	ND				ND	ND
	Benzo(a)pyrene	ug/l	2	2	ND	ND	ND				ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	ND	ND	ND				ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	ND	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	ND	ND	ND				ND	ND
	Naphthalene	ug/l	2	1	0	1.3E-02	2.0E-02				1.3E-02	2.0E-02
	Pesticides											
	Aldrin	ug/l	2	2	ND	ND	ND				ND	ND
	Herbicides											
	MCPP	ug/l	2	2	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9.5 W	**Metals**											
	Arsenic, total	ug/l	5	0	0	4.9E-01	6.7E-01	normal	95% Student's-t UCL	6.1E-01	4.9E-01	6.1E-01
	Arsenic, dissolved	ug/l	5	0	0	3.7E-01	4.9E-01	normal	95% Student's-t UCL	4.8E-01	3.7E-01	4.8E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	4	0	3.5E-03	7.2E-03	--	Fewer than 5 detects	--	3.5E-03	7.2E-03
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Pesticides											
	Aldrin	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Herbicides											
	MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
Transect Samples												
Transect W025, RM 2	**Metals**											
	Arsenic, total	ug/l	4	1	0	3.5E-01	6.0E-01	--	Fewer than 5 detects	--	3.5E-01	6.0E-01
	Arsenic, dissolved	ug/l	4	1	0	3.0E-01	5.7E-01				3.0E-01	5.7E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	8	4	4	3.7E-04	6.2E-04				3.7E-04	6.2E-04
	Benzo(a)pyrene	ug/l	8	4	4	2.5E-04	5.1E-04				2.5E-04	5.1E-04
	Benzo(b)fluoranthene	ug/l	8	4	4	3.1E-04	6.2E-04				3.1E-04	6.2E-04
	Dibenzo(a,h)anthracene	ug/l	8	7	7	1.5E-04	1.5E-04				1.5E-04	1.5E-04
	Indeno(1,2,3-cd)pyrene	ug/l	8	6	5	1.4E-04	1.9E-04				1.4E-04	1.9E-04
	Naphthalene	ug/l	8	8	ND	ND	ND				ND	ND
	Pesticides											
	Aldrin	ug/l	4	0	0	2.6E-06	4.0E-06				2.6E-06	4.0E-06
	Herbicides											
	MCPP	ug/l	4	4	ND	ND	ND				ND	ND
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
Transect W027, MC	**Metals**											
	Arsenic, total	ug/l	3	0	0	4.4E-01	5.0E-01	--	Fewer than 5 detects	--	4.4E-01	5.0E-01
	Arsenic, dissolved	ug/l	3	1	0	3.1E-01	4.8E-01				3.1E-01	4.8E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	6	2	2	2.2E-03	5.9E-03				2.2E-03	5.9E-03
	Benzo(a)pyrene	ug/l	6	3	3	1.1E-03	1.7E-03				1.1E-03	1.7E-03
	Benzo(b)fluoranthene	ug/l	6	2	2	2.8E-03	8.3E-03				2.8E-03	8.3E-03
	Dibenzo(a,h)anthracene	ug/l	6	4	2	1.7E-03	5.6E-03				1.7E-03	5.6E-03
	Indeno(1,2,3-cd)pyrene	ug/l	6	4	4	8.1E-04	1.2E-03				8.1E-04	1.2E-03
	Naphthalene	ug/l	6	5	5	8.6E-03	8.6E-03				8.6E-03	8.6E-03
	Pesticides											
	Aldrin	ug/l	3	0	0	4.3E-06	4.5E-06				4.3E-06	4.5E-06
	Herbicides											
	MCPP	ug/l	3	2	0	6.3E+00	1.3E+01				6.3E+00	1.3E+01
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transect W005, RM 3.9	**Metals**											
	Arsenic, total	ug/l	7	0	0	4.6E-01	5.5E-01	normal	95% KM (t) UCL	5.2E-01	4.6E-01	5.2E-01
	Arsenic, dissolved	ug/l	7	1	0	3.0E-01	4.8E-01	normal	95% KM (t) UCL	3.9E-01	3.0E-01	3.9E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	14	6	6	1.1E-03	2.4E-03	normal	95% KM (t) UCL	1.6E-03	1.1E-03	1.6E-03
	Benzo(a)pyrene	ug/l	14	7	6	9.8E-04	2.1E-03	normal	95% KM (t) UCL	1.4E-03	9.8E-04	1.4E-03
	Benzo(b)fluoranthene	ug/l	14	6	6	1.1E-03	2.1E-03	normal	95% KM (t) UCL	1.5E-03	1.1E-03	1.5E-03
	Dibenzo(a,h)anthracene	ug/l	14	9	8	1.3E-04	3.3E-04	normal	95% KM (t) UCL	2.2E-04	1.3E-04	2.2E-04
	Indeno(1,2,3-cd)pyrene	ug/l	14	8	7	6.7E-04	1.5E-03	normal	95% KM (t) UCL	9.8E-04	6.7E-04	9.8E-04
	Naphthalene	ug/l	14	12	3	7.7E-03	2.4E-02	--	Fewer than 5 detects	--	7.7E-03	2.4E-02
	Pesticides											
	Aldrin	ug/l	7	0	0	2.7E-06	4.7E-06	normal	95% KM (t) UCL	3.8E-06	2.7E-06	3.8E-06
	Herbicides											
	MCPP	ug/l	6	5	2	4.7E+00	9.1E+00	--	Fewer than 5 detects	--	4.7E+00	9.1E+00
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
Transect W011, RM 6.3	**Metals**											
	Arsenic, total	ug/l	6	1	0	3.9E-01	5.0E-01	normal	95% KM (t) UCL	4.7E-01	3.9E-01	4.7E-01
	Arsenic, dissolved	ug/l	6	2	0	3.0E-01	4.5E-01	--	Fewer than 5 detects	--	3.0E-01	4.5E-01
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	12	5	0	2.5E-03	1.0E-02	gamma	95% KM (BCA) UCL	3.1E-03	2.5E-03	3.1E-03
	Benzo(a)pyrene	ug/l	12	6	6	8.5E-04	1.8E-03	normal	95% KM (t) UCL	1.4E-03	8.5E-04	1.4E-03
	Benzo(b)fluoranthene	ug/l	12	6	6	8.0E-04	1.5E-03	normal	95% KM (t) UCL	1.2E-03	8.0E-04	1.2E-03
	Dibenzo(a,h)anthracene	ug/l	12	10	8	1.0E-04	2.1E-04	--	Fewer than 5 detects	--	1.0E-04	2.1E-04
	Indeno(1,2,3-cd)pyrene	ug/l	12	7	7	6.5E-04	1.3E-03	normal	95% KM (t) UCL	1.1E-03	6.5E-04	1.1E-03
	Naphthalene	ug/l	12	10	5	6.0E-03	1.5E-02	--	Fewer than 5 detects	--	6.0E-03	1.5E-02
	Pesticides											
	Aldrin	ug/l	6	1	0	2.3E-06	4.4E-06	normal	95% KM (t) UCL	3.4E-06	2.3E-06	3.4E-06
	Herbicides											
	MCPP	ug/l	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Conventionals											
	Perchlorate	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
Transect W023, RM 11	**Metals**											
	Arsenic, total	ug/l	9	1	0	4.0E-01	5.4E-01	normal	95% KM (t) UCL	4.7E-01	4.0E-01	4.7E-01
	Arsenic, dissolved	ug/l	9	1	0	2.8E-01	4.3E-01	non-parametric	95% KM (Chebyshev) UCL	4.4E-01	2.8E-01	4.3E-01

TABLE 3-8.
Exposure Point Concentration Summary - Surface Water, Diver Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point[a]	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Polynuclear Aromatic Hydrocarbons											
	Benzo(a)anthracene	ug/l	17	8	0	2.0E-03	1.0E-02	non-parametric	97.5% KM (Chebyshev) UCL	4.5E-03	2.0E-03	4.5E-03
	Benzo(a)pyrene	ug/l	17	9	9	2.8E-04	6.3E-04	normal	95% KM (t) UCL	4.1E-04	2.8E-04	4.1E-04
	Benzo(b)fluoranthene	ug/l	17	9	9	3.6E-04	8.2E-04	normal	95% KM (t) UCL	5.2E-04	3.6E-04	5.2E-04
	Dibenzo(a,h)anthracene	ug/l	17	15	10	1.3E-04	4.5E-04	--	Fewer than 5 detects	--	1.3E-04	4.5E-04
	Indeno(1,2,3-cd)pyrene	ug/l	17	10	0	1.8E-03	8.6E-03	non-parametric	95% KM (BCA) UCL	1.7E-03	1.8E-03	1.7E-03
	Naphthalene	ug/l	17	15	2	9.0E-03	3.5E-02	--	Fewer than 5 detects	--	9.0E-03	3.5E-02
	Pesticides											
	Aldrin	ug/l	8	1	0	2.0E-06	3.9E-06	normal	95% KM (t) UCL	2.8E-06	2.0E-06	2.8E-06
	Herbicides											
	MCPP	ug/l	7	6	2	4.2E+00	8.0E+00	--	Fewer than 5 detects	--	4.2E+00	8.0E+00
	Conventionals											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA

Notes:

a Exposure areas for divers are ½ - mile reaches per side of river throughout the study area, where single point samples from RM 2.0 - 2.4 are in exposure area 2.0, samples from RM 2.5 - 2.9 are in exposure area 2.5, etc. Each transect sample represents its own exposure area, and is listed individually. River mile segments not listed indicate there are no human health surface water samples from that river reach. Swan Island Lagoon and Multnomah Channel are their own exposure areas.

b Total number of non-detects in the dataset.

c Number of non-detects with detection limit exceeding the maximum detected concentration for a given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.

d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.

e Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.

f 95% UCL not calculated for analytes with fewer than five detects.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected. Chemical not detected in given exposure area.
RM = River mile.
SIL = Swan Island Lagoon.
ug/l = Micrograms per liter.
MC = Multnomah Channel.

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transects												
Transect, RM 2	**Metals**											
W025	Arsenic, total	ug/l	4	1	0	3.5E-01	6.0E-01		Fewer than 5 detects[e]		3.5E-01	6.0E-01
	Arsenic, dissolved	ug/l	4	1	0	3.0E-01	5.7E-01		Fewer than 5 detects		3.0E-01	5.7E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	8	4	3	2.1E-03	6.2E-04		Fewer than 5 detects		2.1E-03	6.2E-04
	Benzo(a)pyrene	ug/l	8	4	3	2.3E-03	5.1E-04		Fewer than 5 detects		2.3E-03	5.1E-04
	Benzo(b)fluoranthene	ug/l	8	4	3	2.5E-03	6.2E-04		Fewer than 5 detects		2.5E-03	6.2E-04
	Dibenzo(a,h)anthracene	ug/l	8	7	5	2.0E-03	1.5E-04		Fewer than 5 detects		2.0E-03	1.5E-04
	Indeno(1,2,3-cd)pyrene	ug/l	8	6	4	1.8E-03	1.9E-04		Fewer than 5 detects		1.8E-03	1.9E-04
	Pesticides	ug/l										
	Aldrin	ug/l	4	0	0	2.6E-06	4.0E-06		Fewer than 5 detects		2.6E-06	4.0E-06
	Herbicides	ug/l										
	MCPP	ug/l	4	4	0	ND	ND		Fewer than 5 detects		ND	ND
Transect, RM 3.9	**Metals**											
W005	Arsenic, total	ug/l	7	0	0	4.6E-01	5.5E-01	normal	95% Student's t-UCL	5.2E-01	4.6E-01	5.2E-01
	Arsenic, dissolved	ug/l	7	1	0	3.0E-01	4.8E-01	normal	95% KM (t) UCL	3.9E-01	3.0E-01	3.9E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA		Fewer than 5 detects		NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	14	6	6	1.9E-03	2.4E-03	normal	95% Student's-t UCL	0.00161	1.9E-03	1.6E-03
	Benzo(a)pyrene	ug/l	14	7	6	1.7E-03	2.1E-03	normal	95% KM (t) UCL	0.00138	1.7E-03	1.4E-03
	Benzo(b)fluoranthene	ug/l	14	6	6	1.9E-03	2.1E-03	normal	95% Student's-t UCL	0.00146	1.9E-03	1.5E-03
	Dibenzo(a,h)anthracene	ug/l	14	9	8	1.2E-03	3.3E-04	normal	95% KM (t) UCL	0.0002182	1.2E-03	2.2E-04
	Indeno(1,2,3-cd)pyrene	ug/l	14	8	7	1.5E-03	1.5E-03	normal	95% KM (t) UCL	0.0009765	1.5E-03	9.8E-04
	Pesticides	ug/l										
	Aldrin	ug/l	7	0	0	2.7E-06	4.7E-06	normal	95% Student's t-UCL	3.8E-06	2.7E-06	3.8E-06
	Herbicides	ug/l										
	MCPP	ug/l	6	5	2	5.9E+00	9.1E+00		Fewer than 5 detects		5.9E+00	9.1E+00
Cathedral Park, RM 5.7	**Metals**											
W010	Arsenic, total	ug/l	3	0	0	4.5E-01	5.4E-01		Fewer than 5 detects		4.5E-01	5.4E-01
	Arsenic, dissolved	ug/l	3	0	0	3.8E-01	4.6E-01		Fewer than 5 detects		3.8E-01	4.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transect, RM 6.3	**Metals**											
W011	Arsenic, total	ug/l	6	1	0	3.9E-01	5.0E-01	normal	95% KM (t) UCL	4.7E-01	3.9E-01	4.7E-01
	Arsenic, dissolved	ug/l	6	2	0	3.0E-01	4.5E-01		Fewer than 5 detects		3.0E-01	4.5E-01
	Chromium hexavalent	ug/l	1	1	0	ND	ND		Fewer than 5 detects		ND	ND
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	12	5	0	2.5E-03	1.0E-02	gamma	95% KM (BCA) UCL	3.0E-03	2.5E-03	3.0E-03
	Benzo(a)pyrene	ug/l	12	6	6	2.0E-03	1.8E-03	normal	95% Student's-t UCL	0.00136	2.0E-03	1.4E-03
	Benzo(b)fluoranthene	ug/l	12	6	6	2.2E-03	1.5E-03	normal	95% Student's-t UCL	0.00115	2.2E-03	1.2E-03
	Dibenzo(a,h)anthracene	ug/l	12	10	8	1.6E-03	2.1E-04		Fewer than 5 detects		1.6E-03	2.1E-04
	Indeno(1,2,3-cd)pyrene	ug/l	12	7	7	1.9E-03	1.3E-03	normal	95% Student's-t UCL	0.00107	1.9E-03	1.1E-03
	Pesticides	ug/l										
	Aldrin	ug/l	6	1	0	2.3E-06	4.4E-06	normal	95% KM (t) UCL	3.4E-06	2.3E-06	3.4E-06
	Herbicides	ug/l										
	MCPP	ug/l	6	6	0	ND	ND		Fewer than 5 detects		ND	ND
Willamette Cove, RM 6.9	**Metals**											
W014	Arsenic, total	ug/l	3	0	0	4.4E-01	5.2E-01		Fewer than 5 detects		4.4E-01	5.2E-01
	Arsenic, dissolved	ug/l	3	0	0	3.9E-01	4.6E-01		Fewer than 5 detects		3.9E-01	4.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
Swan Island Lagoon, RM 9.1	**Metals**											
W020	Arsenic, total	ug/l	3	0	0	4.2E-01	4.7E-01		Fewer than 5 detects		4.2E-01	4.7E-01
	Arsenic, dissolved	ug/l	3	0	0	3.7E-01	4.4E-01		Fewer than 5 detects		3.7E-01	4.4E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transect, RM 11	**Metals**											
W023	Arsenic, total	ug/l	9	1	0	4.0E-01	5.4E-01	normal	95% KM (t) UCL	4.8E-01	4.0E-01	3.7E-01
	Arsenic, dissolved	ug/l	9	1	0	2.8E-01	4.3E-01	normal	95% KM (t) UCL	3.7E-01	2.8E-01	4.3E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	17	8	0	2.0E-03	1.0E-02	lognormal	99% KM (Chebyshev) UCL	7.6E-03	2.0E-03	3.0E-03
	Benzo(a)pyrene	ug/l	17	9	8	1.6E-03	6.3E-04	normal	95% Student's-t UCL	0.0004346	1.6E-03	6.3E-04
	Benzo(b)fluoranthene	ug/l	17	9	8	1.8E-03	8.2E-04	normal	95% Student's-t UCL	0.0005526	1.8E-03	5.5E-04
	Dibenzo(a,h)anthracene	ug/l	17	15	8	1.4E-03	4.5E-04		Fewer than 5 detects		1.4E-03	4.5E-04
	Indeno(1,2,3-cd)pyrene	ug/l	17	10	0	1.8E-03	8.6E-03	normal	95% KM (t) UCL	2.5E-04	1.8E-03	2.5E-04
	Pesticides	ug/l										
	Aldrin	ug/l	8	1	0	2.0E-06	3.9E-06	normal	95% KM (t) UCL	2.9E-06	2.0E-06	2.9E-06
	Herbicides	ug/l										
	MCPP	ug/l	7	6	2	5.6E+00	8.0E+00		Fewer than 5 detects		5.6E+00	8.0E+00
Single-Point Stations												
RM 2.1	**Metals**											
W026	Arsenic, total	ug/l	2	0	0	3.9E-01	4.7E-01		Fewer than 5 detects		3.9E-01	4.7E-01
	Arsenic, dissolved	ug/l	2	1	1	2.3E-01	2.5E-01		Fewer than 5 detects		2.3E-01	2.5E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	2	1	1	4.2E+00	5.2E+00		Fewer than 5 detects		4.2E+00	5.2E+00
RM 2.9 (Multnomah Channel)	**Metals**											
W027	Arsenic, total	ug/l	3	0	0	4.4E-01	5.0E-01		Fewer than 5 detects		4.4E-01	5.0E-01
	Arsenic, dissolved	ug/l	3	1	0	3.1E-01	4.8E-01		Fewer than 5 detects		3.1E-01	4.8E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	6	2	2	2.8E-03	5.9E-03		Fewer than 5 detects		2.8E-03	5.9E-03
	Benzo(a)pyrene	ug/l	6	3	3	2.5E-03	1.7E-03		Fewer than 5 detects		2.5E-03	1.7E-03
	Benzo(b)fluoranthene	ug/l	6	2	2	3.4E-03	8.3E-03		Fewer than 5 detects		3.4E-03	8.3E-03
	Dibenzo(a,h)anthracene	ug/l	6	4	2	2.4E-03	5.6E-03		Fewer than 5 detects		2.4E-03	5.6E-03
	Indeno(1,2,3-cd)pyrene	ug/l	6	4	4	2.1E-03	1.2E-03		Fewer than 5 detects		2.1E-03	1.2E-03
	Pesticides	ug/l										
	Aldrin	ug/l	3	0	0	4.3E-06	4.5E-06		Fewer than 5 detects		4.3E-06	4.5E-06
	Herbicides	ug/l										
	MCPP	ug/l	3	2	0	6.3E+00	1.3E+01		Fewer than 5 detects		6.3E+00	1.3E+01

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 3.6	**Metals**											
W028	Arsenic, total	ug/l	2	0	0	3.9E-01	4.6E-01		Fewer than 5 detects		3.9E-01	4.6E-01
	Arsenic, dissolved	ug/l	2	1	1	2.0E-01	2.1E-01		Fewer than 5 detects		2.0E-01	2.1E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
RM 4.4	**Metals**											
W029	Arsenic, total	ug/l	2	1	1	2.8E-01	3.2E-01		Fewer than 5 detects		2.8E-01	3.2E-01
	Arsenic, dissolved	ug/l	2	1	1	2.1E-01	2.1E-01		Fewer than 5 detects		2.1E-01	2.1E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
RM 5.5	**Metals**											
W030	Arsenic, total	ug/l	2	0	0	3.8E-01	4.4E-01		Fewer than 5 detects		3.8E-01	4.4E-01
	Arsenic, dissolved	ug/l	2	1	1	2.0E-01	2.0E-01		Fewer than 5 detects		2.0E-01	2.0E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	2	1	0	2.1E-03	4.1E-03		Fewer than 5 detects		2.1E-03	4.1E-03
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 6.1	**Metals**											
W031	Arsenic, total	ug/l	2	0	0	4.3E-01	4.5E-01		Fewer than 5 detects		4.3E-01	4.5E-01
	Arsenic, dissolved	ug/l	2	1	1	2.3E-01	2.6E-01		Fewer than 5 detects		2.3E-01	2.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	1	0	7.0E-02	1.4E-01		Fewer than 5 detects		7.0E-02	1.4E-01
	Benzo(a)pyrene	ug/l	2	1	0	5.1E-02	9.7E-02		Fewer than 5 detects		5.1E-02	9.7E-02
	Benzo(b)fluoranthene	ug/l	2	1	0	3.6E-02	6.7E-02		Fewer than 5 detects		3.6E-02	6.7E-02
	Dibenzo(a,h)anthracene	ug/l	2	1	0	8.7E-03	1.4E-02		Fewer than 5 detects		8.7E-03	1.4E-02
	Indeno(1,2,3-cd)pyrene	ug/l	2	1	0	3.2E-02	6.2E-02		Fewer than 5 detects		3.2E-02	6.2E-02
	Pesticides	ug/l										
	Aldrin	ug/l	2	0	1	1.6E-06	2.1E-06		Fewer than 5 detects		1.6E-06	2.1E-06
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
RM 6.7	**Metals**											
W032	Arsenic, total	ug/l	2	0	0	3.3E-01	3.4E-01		Fewer than 5 detects		3.3E-01	3.4E-01
	Arsenic, dissolved	ug/l	2	0	0	3.1E-01	3.9E-01		Fewer than 5 detects		3.1E-01	3.9E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	4	3	3	1.8E-03	3.2E-04		Fewer than 5 detects		1.8E-03	3.2E-04
	Benzo(a)pyrene	ug/l	4	2	2	2.0E-03	3.3E-04		Fewer than 5 detects		2.0E-03	3.3E-04
	Benzo(b)fluoranthene	ug/l	4	2	2	2.2E-03	4.9E-04		Fewer than 5 detects		2.2E-03	4.9E-04
	Dibenzo(a,h)anthracene	ug/l	4	2	2	1.8E-03	8.8E-04		Fewer than 5 detects		1.8E-03	8.8E-04
	Indeno(1,2,3-cd)pyrene	ug/l	4	3	3	1.6E-03	2.6E-04		Fewer than 5 detects		1.6E-03	2.6E-04
	Pesticides	ug/l										
	Aldrin	ug/l	2	0	0	2.3E-06	2.4E-06		Fewer than 5 detects		2.3E-06	2.4E-06
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
RM 7.0	**Metals**											
W033	Arsenic, total	ug/l	4	2	2	2.8E-01	3.4E-01		Fewer than 5 detects		2.8E-01	3.4E-01
	Arsenic, dissolved	ug/l	4	2	2	2.3E-01	2.6E-01		Fewer than 5 detects		2.3E-01	2.6E-01
	Chromium hexavalent	ug/l	4	2	0	5.0E-01	8.5E-01		Fewer than 5 detects		5.0E-01	8.5E-01
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	7	3	3	3.1E-03	7.0E-03		Fewer than 5 detects		3.1E-03	7.0E-03
	Benzo(a)pyrene	ug/l	7	3	3	3.4E-03	6.6E-03		Fewer than 5 detects		3.4E-03	6.6E-03
	Benzo(b)fluoranthene	ug/l	7	4	4	3.1E-03	2.0E-03		Fewer than 5 detects		3.1E-03	2.0E-03
	Dibenzo(a,h)anthracene	ug/l	7	5	4	2.2E-03	4.6E-04		Fewer than 5 detects		2.2E-03	4.6E-04
	Indeno(1,2,3-cd)pyrene	ug/l	7	4	4	2.2E-03	1.5E-03		Fewer than 5 detects		2.2E-03	1.5E-03
	Pesticides	ug/l										
	Aldrin	ug/l	3	0	0	3.5E-06	4.0E-06		Fewer than 5 detects		3.5E-06	4.0E-06
	Herbicides	ug/l										
	MCPP	ug/l	4	3	3	4.2E+00	6.2E+00		Fewer than 5 detects		4.2E+00	6.2E+00

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 7.5	**Metals**											
W034	Arsenic, total	ug/l	2	0	0	4.7E-01	4.9E-01		Fewer than 5 detects		4.7E-01	4.9E-01
	Arsenic, dissolved	ug/l	2	0	0	3.1E-01	3.1E-01		Fewer than 5 detects		3.1E-01	3.1E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	2	1	1	1.3E-06	8.7E-07		Fewer than 5 detects		1.3E-06	8.7E-07
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
RM 8.5	**Metals**											
W035	Arsenic, total	ug/l	2	0	0	4.1E-01	4.6E-01		Fewer than 5 detects		4.1E-01	4.6E-01
	Arsenic, dissolved	ug/l	2	1	1	2.5E-01	2.9E-01		Fewer than 5 detects		2.5E-01	2.9E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	4	1	0	5.0E-03	1.1E-02		Fewer than 5 detects		5.0E-03	1.1E-02
	Benzo(a)pyrene	ug/l	4	3	2	3.4E-03	4.8E-03		Fewer than 5 detects		3.4E-03	4.8E-03
	Benzo(b)fluoranthene	ug/l	4	2	2	3.5E-03	3.8E-03		Fewer than 5 detects		3.5E-03	3.8E-03
	Dibenzo(a,h)anthracene	ug/l	4	3	2	2.1E-03	7.8E-04		Fewer than 5 detects		2.1E-03	7.8E-04
	Indeno(1,2,3-cd)pyrene	ug/l	4	2	2	2.5E-03	2.9E-03		Fewer than 5 detects		2.5E-03	2.9E-03
	Pesticides	ug/l										
	Aldrin	ug/l	2	0	0	4.1E-06	4.9E-06		Fewer than 5 detects		4.1E-06	4.9E-06
	Herbicides	ug/l										
	MCPP	ug/l	2	1	0	1.1E+01	1.9E+01		Fewer than 5 detects		1.1E+01	1.9E+01
RM 8.6	**Metals**											
W036	Arsenic, total	ug/l	2	0	0	4.1E-01	4.5E-01		Fewer than 5 detects		4.1E-01	4.5E-01
	Arsenic, dissolved	ug/l	2	1	1	2.0E-01	2.0E-01		Fewer than 5 detects		2.0E-01	2.0E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	1	1	4.2E-03	5.1E-03		Fewer than 5 detects		4.2E-03	5.1E-03
	Pesticides	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 9.6	**Metals**											
W037	Arsenic, total	ug/l	2	0	0	4.1E-01	4.8E-01		Fewer than 5 detects		4.1E-01	4.8E-01
	Arsenic, dissolved	ug/l	2	0	0	2.6E-01	3.1E-01		Fewer than 5 detects		2.6E-01	3.1E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
RM 9.9	**Metals**											
W038	Arsenic, total	ug/l	2	0	0	4.1E-01	5.2E-01		Fewer than 5 detects		4.1E-01	5.2E-01
	Arsenic, dissolved	ug/l	2	0	0	2.8E-01	3.6E-01		Fewer than 5 detects		2.8E-01	3.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Pesticides	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Herbicides	ug/l										
	MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
Study Area-wide	**Metals**											
	Arsenic, total	ug/l	64	6	0	4.0E-01	6.0E-01	normal	95% KM (t) UCL	4.3E-01	4.0E-01	4.3E-01
	Arsenic, dissolved	ug/l	64	15	NA	2.8E-01	5.7E-01	nonparametric	95% KM (BCA) UCL	3.2E-01	2.8E-01	3.2E-01
	Chromium hexavalent	ug/l	7	3	1	9.0E-01	9.0E-01	5.3E-01	Fewer than 5 detects		9.0E-01	9.0E-01
	Polynuclear Aromatic Hydrocarbons	ug/l										
	Benzo(a)anthracene	ug/l	99	58	0	4.0E-03	1.4E-01	nonparametric	95% KM (Chebyshev) UCL	9.1E-03	4.0E-03	9.1E-03
	Benzo(a)pyrene	ug/l	99	63	0	3.4E-03	9.7E-02	lognormal	95% KM (Chebyshev) UCL	6.5E-03	3.4E-03	6.5E-03
	Benzo(b)fluoranthene	ug/l	99	61	0	3.4E-03	6.7E-02	nonparametric	95% KM (BCA) UCL	3.0E-03	3.4E-03	3.0E-03
	Dibenzo(a,h)anthracene	ug/l	99	81	0	2.1E-03	1.4E-02	lognormal	95% KM (BCA) UCL	6.7E-04	2.1E-03	6.7E-04
	Indeno(1,2,3-cd)pyrene	ug/l	99	69	0	2.8E-03	6.2E-02	nonparametric	95% KM (BCA) UCL	2.6E-03	2.8E-03	2.6E-03
	Pesticides	ug/l										
	Aldrin	ug/l	64	27	0	1.6E-04	4.1E-03	nonparametric	95% KM (Chebyshev) UCL	3.6E-04	1.6E-04	3.6E-04

TABLE 3-9.
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects[a]	Non-Detects greater than Maximum Detected Concentration[b]	Arithmetic Mean[c]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Herbicides	ug/l										
	MCPP	ug/l	61	55	6	7.7E+00	1.9E+01	normal	95% KM (t) UCL	6.4E+00	7.7E+00	6.4E+00

Notes:

a Total number of non-detects in the dataset.
b Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
c Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
d Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
e 95% UCL not calculated for analytes with fewer than five detects.
f Study Area-wide data set includes samples from all individual exposure points within the Study Area.

Abbreviations:

-- = Not Applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
ND = Not detected. Chemical not detected in given exposure area.
ug/l = Micrograms per liter.

TABLE 3-10
Exposure Point Concentration Summary - Groundwater Seep

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater Seep

Exposure Point	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[d]	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Outfall 22B	**Metals**											
	Arsenic, total	ug/l	2	0	0	6.9E+00	8.1E+00		Fewer than 5 detects[e]		6.9E+00	8.1E+00
	Arsenic, dissolved	ug/l	1	0	0	5.5E+00	5.5E+00				5.5E+00	5.5E+00
	Boron	ug/l	1	0	0	1.4E+03	1.4E+03				1.4E+03	1.4E+03
	Iron	ug/l	1	0	0	1.6E+04	1.6E+04				1.6E+04	1.6E+04
	Manganese	ug/l	1	0	0	2.4E+03	2.4E+03				2.4E+03	2.4E+03
	Molybdenum	ug/l	1	0	0	6.9E+02	2.4E+03				6.9E+02	2.4E+03
	Vanadium, total	ug/l	2	0	0	7.5E+00	8.9E+00				7.5E+00	8.9E+00
	Vanadium, dissolved	ug/l	1	0	0	2.3E+00	2.3E+00				2.3E+00	2.3E+00
	SVOCs											
	1,4-Dichlorobenzene	ug/l	2	0	0	1.1E+00	1.2E+00				1.1E+00	1.2E+00
	Phenols											
	2,4-Dichlorophenol	ug/l	2	0	0	1.3E+01	1.6E+01				1.3E+01	1.6E+01
	4-Nitrophenol	ug/l	2	1	1	5.7E-01	5.7E-01				5.7E-01	5.7E-01
	Pesticides											
	Aldrin	ug/l	2	1	1	4.1E-03	4.1E-03				4.1E-03	4.1E-03
	VOCs											
	Chlorobenzene	ug/l	2	0	0	8.8E+00	9.2E+00				8.8E+00	9.2E+00
	Tetrachloroethene	ug/l	2	1	0	4.5E-01	6.4E-01				4.5E-01	6.4E-01
	Trichloroethene	ug/l	2	1	1	3.4E-01	3.4E-01				3.4E-01	3.4E-01

Notes:

a When available, both total and dissolved fractions of each metal are provided. The total fraction is quoted if no further definition is provided.

b Total number of non-detects in the dataset.

c Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.

d Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.

e 95% UCLs not calculated for analytes with fewer than 5 detects.

Abbreviations:

95% UCL = 95% Upper confidence limit on the mean.
SVOCs = Semi-volatile organic compounds.
ug/l = Micrograms per liter.
VOCs = Volatile organic compounds.

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
RM 2	F	**Metals**										
		Aluminum	mg/kg	1	0	0	1.6E+00	1.6E+00		Fewer than 5 detects[g]		1.6E+00
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	1	1	ND	ND	ND				ND
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01
		Lead	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Manganese	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Mercury	mg/kg	1	0	0	6.3E-02	6.3E-02				6.3E-02
		Nickel	mg/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		Selenium	mg/kg	1	1	ND	ND	ND				ND
		Silver	mg/kg	1	0	0	2.0E-03	2.0E-03				2.0E-03
		Thallium	mg/kg	1	0	0	6.8E-03	6.8E-03				6.8E-03
		Zinc	mg/kg	1	0	0	7.8E+00	7.8E+00				7.8E+00
		Butyltins										
		Dibutyltin ion	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Acenaphthene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthylene	ug/kg	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Anthracene	ug/kg	1	0	0	5.8E-01	5.8E-01				5.8E-01
		Benzo(a)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Fluoranthene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Fluorene	ug/kg	1	1	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01
		Phenanthrene	ug/kg	1	1	ND	ND	ND				ND
		Pyrene	ug/kg	1	1	ND	ND	ND				ND
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	1	1	ND	ND	ND				ND

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	1	1	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	2.0E+05	2.0E+05				2.0E+05
		Total PCBs, Adjusted[h]	pg/g	1	0	0	1.8E+05	1.8E+05				1.8E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Total PCB TEQ	pg/g	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Pesticides										
		Aldrin	ug/kg	1	0	0	6.9E-03	6.9E-03				6.9E-03
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	5.2E-03	5.2E-03				5.2E-03
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	4.2E-01	4.2E-01				4.2E-01
		Endrin	ug/kg	1	0	0	7.1E-03	7.1E-03				7.1E-03
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Total Chlordanes	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Total DDD	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Total DDE	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Total DDT	ug/kg	1	0	0	7.2E-01	7.2E-01				7.2E-01
		Total Endosulfan	ug/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
RM 3	F	**Metals**										
		Aluminum	mg/kg	3	0	0	1.8E+00	3.4E+00		Fewer than 5 detects		3.4E+00
		Antimony	mg/kg	3	3	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	3	0	0	2.8E-02	2.9E-02				2.9E-02
		Cadmium	mg/kg	3	3	ND	ND	ND				ND
		Chromium	mg/kg	3	3	ND	ND	ND				ND
		Copper	mg/kg	3	0	0	5.3E-01	9.4E-01				9.4E-01
		Lead	mg/kg	3	1	0	1.9E-01	5.2E-01				5.2E-01
		Manganese	mg/kg	3	0	0	2.9E-01	4.1E-01				4.1E-01
		Mercury	mg/kg	3	0	0	1.6E-01	1.8E-01				1.8E-01
		Nickel	mg/kg	3	0	0	7.7E-02	1.2E-01				1.2E-01
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	7.9E-03	1.0E-02				1.0E-02
		Zinc	mg/kg	3	0	0	8.7E+00	9.0E+00				9.0E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	0	0	4.1E-01	4.1E-01				4.1E-01
		Tributyltin ion	ug/kg	2	1	0	3.8E-01	5.8E-01				5.8E-01

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	2	0	0	2.0E+00	2.4E+00				2.4E+00
		2-Methylnaphthalene	ug/kg	2	0	0	2.3E+00	2.9E+00				2.9E+00
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	1	0	9.7E-02	1.6E-01				1.6E-01
		Anthracene	ug/kg	2	1	0	4.1E-01	6.8E-01				6.8E-01
		Benzo(a)anthracene	ug/kg	2	1	0	4.6E-01	8.8E-01				8.8E-01
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Chrysene	ug/kg	2	1	0	3.1E+00	6.2E+00				6.2E+00
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	0	0	2.7E-01	4.0E-01				4.0E-01
		Fluoranthene	ug/kg	2	1	0	3.0E+00	5.5E+00				5.5E+00
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Naphthalene	ug/kg	2	0	0	8.5E-01	9.5E-01				9.5E-01
		Phenanthrene	ug/kg	2	1	0	1.7E+00	2.7E+00				2.7E+00
		Pyrene	ug/kg	2	1	0	2.2E+00	4.2E+00				4.2E+00
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	3	1	1	3.7E-01	4.3E-01				4.3E-01
		Hexachlorobutadiene	ug/kg	3	1	1	1.4E-02	2.2E-02				2.2E-02
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	6.0E+01	6.0E+01				6.0E+01
		Total PCB Congeners	pg/g	2	0	0	3.4E+04	4.1E+04				4.1E+04
		Total PCBs, Adjusted	pg/g	2	0	0	3.1E+04	3.8E+04				3.8E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	2.2E-01	2.6E-01				2.6E-01
		Total PCB TEQ	pg/g	2	0	0	3.7E-01	4.9E-01				4.9E-01
		Pesticides										
		Aldrin	ug/kg	3	2	2	5.2E-03	5.2E-03				5.2E-03
		alpha-Hexachlorocyclohexane	ug/kg	3	2	1	3.2E-03	4.3E-03				4.3E-03
		beta-Hexachlorocyclohexane	ug/kg	3	2	0	1.5E+00	4.5E+00				4.5E+00
		Dieldrin	ug/kg	3	0	0	1.4E+00	3.3E+00				3.3E+00

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Endrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	3	2	0	6.7E-01	2.0E+00				2.0E+00
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	2.2E-02	2.4E-02				2.4E-02
		Total Chlordanes	ug/kg	3	0	0	3.6E+00	7.8E+00				7.8E+00
		Total DDD	ug/kg	3	0	0	3.5E+00	4.7E+00				4.7E+00
		Total DDE	ug/kg	3	0	0	1.5E+01	2.6E+01				2.6E+01
		Total DDT	ug/kg	3	0	0	5.0E+00	1.3E+01				1.3E+01
		Total Endosulfan	ug/kg	3	3	ND	ND	ND				ND
RM 4	F	**Metals**										
		Aluminum	mg/kg	2	0	0	1.1E+00	1.4E+00		Fewer than 5 detects		1.4E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.9E-02	2.2E-02				2.2E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	3.1E-01	3.3E-01				3.3E-01
		Lead	mg/kg	2	0	0	5.1E-02	5.6E-02				5.6E-02
		Manganese	mg/kg	2	0	0	4.5E-01	5.3E-01				5.3E-01
		Mercury	mg/kg	2	0	0	2.0E-01	2.4E-01				2.4E-01
		Nickel	mg/kg	2	0	0	6.4E-02	7.1E-02				7.1E-02
		Selenium	mg/kg	2	2	ND	ND	ND				ND
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	4.1E-03	4.4E-03				4.4E-03
		Zinc	mg/kg	2	0	0	8.6E+00	8.6E+00				8.6E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	0	0	5.5E-01	7.2E-01				7.2E-01
		Tributyltin ion	ug/kg	2	1	0	5.5E-01	9.2E-01				9.2E-01
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	2	0	0	5.4E-01	5.9E-01				5.9E-01
		2-Methylnaphthalene	ug/kg	2	0	0	7.3E-01	8.2E-01				8.2E-01
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	0	0	2.8E-01	2.9E-01				2.9E-01
		Anthracene	ug/kg	2	0	0	5.5E-01	6.3E-01				6.3E-01
		Benzo(a)anthracene	ug/kg	2	0	0	2.5E-01	3.6E-01				3.6E-01
		Benzo(a)pyrene	ug/kg	2	1	0	1.4E-01	2.3E-01				2.3E-01
		Benzo(b)fluoranthene	ug/kg	2	1	0	5.2E-01	1.0E+00				1.0E+00
		Benzo(g,h,i)perylene	ug/kg	2	1	0	1.9E-01	3.4E-01				3.4E-01
		Benzo(k)fluoranthene	ug/kg	2	1	0	2.0E-01	3.7E-01				3.7E-01
		Chrysene	ug/kg	2	0	0	4.1E-01	6.1E-01				6.1E-01
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	9.0E-02	1.5E-01				1.5E-01
		Dibenzothiophene	ug/kg	2	0	0	4.5E-01	5.9E-01				5.9E-01
		Fluoranthene	ug/kg	2	0	0	2.2E+00	2.5E+00				2.5E+00
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	1.9E-01	3.5E-01				3.5E-01
		Naphthalene	ug/kg	2	0	0	1.1E+00	1.2E+00				1.2E+00
		Phenanthrene	ug/kg	2	1	0	2.8E+00	4.3E+00				4.3E+00
		Pyrene	ug/kg	2	2	ND	ND	ND				ND

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	1	0	3.1E+01	4.3E+01				4.3E+01
		Diethyl phthalate	ug/kg	2	1	0	1.1E+01	1.7E+01				1.7E+01
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	0	0	2.4E+01	2.4E+01				2.4E+01
		Hexachlorobenzene	ug/kg	2	0	0	4.4E-01	4.6E-01				4.6E-01
		Hexachlorobutadiene	ug/kg	2	1	0	9.7E-03	1.3E-02				1.3E-02
		Phenols										
		4-Nitrophenol	ug/kg	2	1	0	9.0E+00	1.3E+01				1.3E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	1.4E+05	2.4E+05				2.4E+05
		Total PCBs, Adjusted	pg/g	2	0	0	1.3E+05	2.2E+05				2.2E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.5E-01	3.6E-01				3.6E-01
		Total PCB TEQ	pg/g	2	0	0	8.0E-01	1.3E+00				1.3E+00
		Pesticides										
		Aldrin	ug/kg	2	1	0	3.7E-03	5.8E-03				5.8E-03
		alpha-Hexachlorocyclohexane	ug/kg	2	1	0	2.9E-03	3.9E-03				3.9E-03
		beta-Hexachlorocyclohexane	ug/kg	2	1	0	2.0E-03	2.8E-03				2.8E-03
		Dieldrin	ug/kg	2	0	0	3.8E-01	3.8E-01				3.8E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	0	0	2.0E-02	2.2E-02				2.2E-02
		Total Chlordanes	ug/kg	2	0	0	2.1E+00	2.3E+00				2.3E+00
		Total DDD	ug/kg	2	0	0	3.8E+00	4.4E+00				4.4E+00
		Total DDE	ug/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01
		Total DDT	ug/kg	2	0	0	1.6E+00	2.0E+00				2.0E+00
		Total Endosulfan	ug/kg	2	1	1	9.2E-02	9.2E-02				9.2E-02
RM 5	F	**Metals**										
		Aluminum	mg/kg	2	0	0	2.8E+00	3.8E+00		Fewer than 5 detects		3.8E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	2.0E-02	2.0E-02				2.0E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	7.2E-01	1.1E+00				1.1E+00
		Lead	mg/kg	2	0	0	1.7E-02	2.2E-02				2.2E-02
		Manganese	mg/kg	2	0	0	2.3E-01	3.9E-01				3.9E-01
		Mercury	mg/kg	2	0	0	1.5E-01	2.1E-01				2.1E-01
		Nickel	mg/kg	2	0	0	1.4E-01	2.2E-01				2.2E-01
		Selenium	mg/kg	2	2	ND	ND	ND				ND
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	3.4E-03	3.5E-03				3.5E-03
		Zinc	mg/kg	2	0	0	9.5E+00	1.1E+01				1.1E+01

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Butyltins										
		Dibutyltin ion	ug/kg	1	0	0	7.7E-01	7.7E-01				7.7E-01
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		2-Methylnaphthalene	ug/kg	1	0	0	9.1E-01	9.1E-01				9.1E-01
		Acenaphthene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthylene	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Anthracene	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Benzo(a)anthracene	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Benzo(a)pyrene	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Chrysene	ug/kg	1	0	0	2.3E+00	2.3E+00				2.3E+00
		Dibenzo(a,h)anthracene	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Dibenzothiophene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Fluoranthene	ug/kg	1	0	0	8.0E+00	8.0E+00				8.0E+00
		Fluorene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Naphthalene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Phenanthrene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Pyrene	ug/kg	1	0	0	8.6E+00	8.6E+00				8.6E+00
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	1	0	0	2.3E+01	2.3E+01				2.3E+01
		Hexachlorobenzene	ug/kg	2	1	1	3.9E-01	3.9E-01				3.9E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	4.6E+01	4.6E+01				4.6E+01
		Total PCB Congeners	pg/g	1	0	0	3.4E+04	3.4E+04				3.4E+04
		Total PCBs, Adjusted	pg/g	1	0	0	3.1E+04	3.1E+04				3.1E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.5E-01	2.5E-01				2.5E-01
		Total PCB TEQ	pg/g	1	0	0	3.2E-01	3.2E-01				3.2E-01

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Pesticides										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	1	1	3.7E-01	3.7E-01				3.7E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	1	0	7.5E-01	1.5E+00				1.5E+00
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	9.0E-03	9.0E-03				9.0E-03
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	1	1	2.0E-02	2.0E-02				2.0E-02
		Total Chlordanes	ug/kg	2	1	1	1.7E+00	1.7E+00				1.7E+00
		Total DDD	ug/kg	2	0	0	4.4E+00	4.8E+00				4.8E+00
		Total DDE	ug/kg	2	0	0	1.2E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	2	0	0	6.1E+00	9.5E+00				9.5E+00
		Total Endosulfan	ug/kg	2	1	1	1.1E-01	1.1E-01				1.1E-01
RM 6	F	**Metals**										
		Aluminum	mg/kg	3	0	0	3.1E+00	7.2E+00		Fewer than 5 detects		7.2E+00
		Antimony	mg/kg	3	3	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	3	0	0	1.8E-02	2.0E-02				2.0E-02
		Cadmium	mg/kg	3	2	2	1.0E-03	1.0E-03				1.0E-03
		Chromium	mg/kg	3	3	ND	ND	ND				ND
		Copper	mg/kg	3	0	0	3.3E-01	3.8E-01				3.8E-01
		Lead	mg/kg	3	1	0	2.3E-02	4.3E-02				4.3E-02
		Manganese	mg/kg	3	0	0	3.2E-01	5.0E-01				5.0E-01
		Mercury	mg/kg	3	0	0	1.1E-01	1.5E-01				1.5E-01
		Nickel	mg/kg	3	0	0	3.4E-02	5.6E-02				5.6E-02
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	3.4E-03	3.9E-03				3.9E-03
		Zinc	mg/kg	3	0	0	8.9E+00	9.6E+00				9.6E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	0	0	7.3E-01	9.2E-01				9.2E-01
		Tributyltin ion	ug/kg	2	1	0	4.6E-01	7.4E-01				7.4E-01
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	2	0	0	8.0E-01	1.2E+00				1.2E+00
		2-Methylnaphthalene	ug/kg	2	0	0	9.6E-01	1.4E+00				1.4E+00
		Acenaphthene	ug/kg	2	1	0	3.0E+00	5.4E+00				5.4E+00
		Acenaphthylene	ug/kg	2	0	0	2.9E-01	4.0E-01				4.0E-01
		Anthracene	ug/kg	2	1	0	6.9E-01	1.2E+00				1.2E+00
		Benzo(a)anthracene	ug/kg	2	1	0	1.2E-01	2.0E-01				2.0E-01
		Benzo(a)pyrene	ug/kg	2	1	0	6.6E-02	9.1E-02				9.1E-02
		Benzo(b)fluoranthene	ug/kg	2	1	0	9.3E-02	1.5E-01				1.5E-01
		Benzo(g,h,i)perylene	ug/kg	2	1	0	6.0E-02	8.4E-02				8.4E-02
		Benzo(k)fluoranthene	ug/kg	2	1	0	6.2E-02	9.6E-02				9.6E-02
		Chrysene	ug/kg	2	0	0	2.0E-01	3.0E-01				3.0E-01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	0	0	1.0E+00	1.7E+00				1.7E+00

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	2	1	0	1.0E+00	1.4E+00				1.4E+00
		Fluorene	ug/kg	2	1	0	1.6E+00	2.8E+00				2.8E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	8.0E-02	8.0E-02				8.0E-02
		Naphthalene	ug/kg	2	0	0	1.8E+00	2.7E+00				2.7E+00
		Phenanthrene	ug/kg	2	1	0	4.0E+00	7.0E+00				7.0E+00
		Pyrene	ug/kg	2	2	ND	ND	ND				ND
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	6.3E+01	9.3E+01				9.3E+01
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	3	1	1	3.0E-01	3.6E-01				3.6E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	3.9E+01	3.9E+01				3.9E+01
		Total PCB Congeners	pg/g	2	0	0	5.6E+04	8.2E+04				8.2E+04
		Total PCBs, Adjusted	pg/g	2	0	0	5.2E+04	7.8E+04				7.8E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	2.9E-01	3.5E-01				3.5E-01
		Total PCB TEQ	pg/g	2	0	0	3.3E-01	3.9E-01				3.9E-01
		Pesticides										
		Aldrin	ug/kg	3	3	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	1	1	2.8E-01	3.6E-01				3.6E-01
		Endrin	ug/kg	3	2	1	2.3E-03	3.0E-03				3.0E-03
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	2	2	4.0E-03	4.0E-03				4.0E-03
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	1.4E-02	1.8E-02				1.8E-02
		Total Chlordanes	ug/kg	3	0	0	2.3E+00	4.5E+00				4.5E+00
		Total DDD	ug/kg	3	0	0	5.7E+00	8.5E+00				8.5E+00
		Total DDE	ug/kg	3	0	0	9.6E+00	1.3E+01				1.3E+01
		Total DDT	ug/kg	3	0	0	4.1E+00	7.6E+00				7.6E+00
		Total Endosulfan	ug/kg	3	2	1	6.4E-02	8.5E-02				8.5E-02
RM 7	F	**Metals**										
		Aluminum	mg/kg	2	0	0	1.2E+00	1.3E+00		Fewer than 5 detects		1.3E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.8E-02	1.9E-02				1.9E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	4.0E-01	4.9E-01				4.9E-01
		Lead	mg/kg	2	0	0	9.5E-03	1.0E-02				1.0E-02

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	2	0	0	4.2E-01	5.5E-01				5.5E-01
		Mercury	mg/kg	2	0	0	2.2E-01	2.5E-01				2.5E-01
		Nickel	mg/kg	2	0	0	4.6E-02	5.8E-02				5.8E-02
		Selenium	mg/kg	2	2	ND	ND	ND				ND
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	3.3E-03	3.4E-03				3.4E-03
		Zinc	mg/kg	2	0	0	8.6E+00	9.3E+00				9.3E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	1	0	4.8E-01	8.8E-01				8.8E-01
		Tributyltin ion	ug/kg	2	1	0	3.3E-01	4.8E-01				4.8E-01
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	4	0	0	4.9E-01	6.6E-01				6.6E-01
		2-Methylnaphthalene	ug/kg	2	1	0	5.0E-01	7.7E-01				7.7E-01
		Acenaphthene	ug/kg	2	1	0	1.5E+00	2.6E+00				2.6E+00
		Acenaphthylene	ug/kg	2	1	0	1.6E-01	2.9E-01				2.9E-01
		Anthracene	ug/kg	2	1	0	4.7E-01	8.2E-01				8.2E-01
		Benzo(a)anthracene	ug/kg	2	1	0	1.1E-01	1.9E-01				1.9E-01
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	1	0	8.3E-02	1.3E-01				1.3E-01
		Benzo(g,h,i)perylene	ug/kg	2	1	0	6.5E-02	9.3E-02				9.3E-02
		Benzo(k)fluoranthene	ug/kg	2	1	0	6.4E-02	1.0E-01				1.0E-01
		Chrysene	ug/kg	2	1	0	1.5E-01	2.7E-01				2.7E-01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	1	0	5.2E-01	1.0E+00				1.0E+00
		Fluoranthene	ug/kg	2	1	0	9.5E-01	1.6E+00				1.6E+00
		Fluorene	ug/kg	2	1	0	9.5E-01	1.6E+00				1.6E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	7.1E-02	1.1E-01				1.1E-01
		Naphthalene	ug/kg	2	0	0	1.1E+00	1.4E+00				1.4E+00
		Phenanthrene	ug/kg	2	1	0	2.7E+00	5.2E+00				5.2E+00
		Pyrene	ug/kg	2	2	ND	ND	ND				ND
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	0	0	2.9E+01	2.9E+01				2.9E+01
		Hexachlorobenzene	ug/kg	2	0	0	6.0E-01	8.8E-01				8.8E-01
		Hexachlorobutadiene	ug/kg	2	1	0	8.5E-02	1.7E-01				1.7E-01
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	1.4E+05	2.1E+05				2.1E+05
		Total PCBs, Adjusted	pg/g	2	0	0	1.3E+05	2.0E+05				2.0E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.5E+00	8.7E+00				8.7E+00
		Total PCB TEQ	pg/g	2	0	0	6.2E-01	7.0E-01				7.0E-01
		Pesticides										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		Dieldrin	ug/kg	2	0	0	2.9E-01	3.1E-01				3.1E-01
		Endrin	ug/kg	2	1	0	2.8E-03	4.0E-03				4.0E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	1	0	1.0E-02	1.4E-02				1.4E-02
		Total Chlordanes	ug/kg	2	0	0	1.5E+00	1.5E+00				1.5E+00
		Total DDD	ug/kg	2	0	0	3.2E+01	6.3E+01				6.3E+01
		Total DDE	ug/kg	2	0	0	3.4E+01	5.9E+01				5.9E+01
		Total DDT	ug/kg	2	0	0	3.0E+01	5.9E+01				5.9E+01
		Total Endosulfan	ug/kg	2	2	ND	ND	ND				ND
RM 8	F	**Metals**										
		Aluminum	mg/kg	3	0	0	2.3E+00	3.5E+00		Fewer than 5 detects		3.5E+00
		Antimony	mg/kg	3	3	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	3	0	0	1.7E-02	1.8E-02				1.8E-02
		Cadmium	mg/kg	3	2	2	1.0E-03	1.0E-03				1.0E-03
		Chromium	mg/kg	3	3	ND	ND	ND				ND
		Copper	mg/kg	3	0	0	3.0E-01	3.6E-01				3.6E-01
		Lead	mg/kg	3	1	0	5.3E-03	7.0E-03				7.0E-03
		Manganese	mg/kg	3	0	0	2.7E-01	3.8E-01				3.8E-01
		Mercury	mg/kg	3	0	0	9.0E-02	1.1E-01				1.1E-01
		Nickel	mg/kg	3	0	0	3.7E-02	6.4E-02				6.4E-02
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	3.0E-03	3.9E-03				3.9E-03
		Zinc	mg/kg	3	0	0	8.8E+00	9.2E+00				9.2E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	1	0	2.9E-01	5.0E-01				5.0E-01
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	2	1	0	5.8E-01	1.0E+00				1.0E+00
		2-Methylnaphthalene	ug/kg	2	0	0	1.2E+00	1.8E+00				1.8E+00
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	1	0	1.3E+00	2.5E+00				2.5E+00

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Anthracene	ug/kg	2	1	0	1.9E+00	3.6E+00				3.6E+00
		Benzo(a)anthracene	ug/kg	2	1	0	1.3E+00	2.6E+00				2.6E+00
		Benzo(a)pyrene	ug/kg	2	1	0	1.3E+00	2.5E+00				2.5E+00
		Benzo(b)fluoranthene	ug/kg	2	1	0	8.7E-01	1.7E+00				1.7E+00
		Benzo(g,h,i)perylene	ug/kg	2	1	0	1.0E+00	2.0E+00				2.0E+00
		Benzo(k)fluoranthene	ug/kg	2	1	0	7.1E-01	1.4E+00				1.4E+00
		Chrysene	ug/kg	2	1	0	1.5E+00	2.9E+00				2.9E+00
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	1.3E-01	2.4E-01				2.4E-01
		Dibenzothiophene	ug/kg	2	1	0	1.1E+00	2.1E+00				2.1E+00
		Fluoranthene	ug/kg	2	1	0	6.2E+00	1.2E+01				1.2E+01
		Fluorene	ug/kg	2	1	0	1.4E+00	2.5E+00				2.5E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	9.7E-01	1.9E+00				1.9E+00
		Naphthalene	ug/kg	2	0	0	5.8E+00	1.1E+01				1.1E+01
		Phenanthrene	ug/kg	2	1	0	1.1E+01	2.2E+01				2.2E+01
		Pyrene	ug/kg	2	1	0	6.6E+00	1.3E+01				1.3E+01
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	0	0	2.6E+01	2.6E+01				2.6E+01
		Hexachlorobenzene	ug/kg	3	1	1	3.4E-01	3.5E-01				3.5E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	9.3E+01	9.3E+01				9.3E+01
		Total PCB Congeners	pg/g	2	0	0	4.7E+04	5.2E+04				5.2E+04
		Total PCBs, Adjusted	pg/g	2	0	0	4.4E+04	4.7E+04				4.7E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.4E-01	6.2E-01				6.2E-01
		Total PCB TEQ	pg/g	2	0	0	3.6E-01	4.0E-01				4.0E-01
		Pesticides										
		Aldrin	ug/kg	3	2	2	5.0E-03	5.0E-03				5.0E-03
		alpha-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	6.6E-01	1.4E+00				1.4E+00
		Endrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	2	2	3.0E-03	3.0E-03				3.0E-03
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	1.4E-02	1.6E-02				1.6E-02
		Total Chlordanes	ug/kg	3	0	0	2.8E+00	5.4E+00				5.4E+00
		Total DDD	ug/kg	3	0	0	5.7E+00	1.3E+01				1.3E+01
		Total DDE	ug/kg	3	0	0	1.5E+01	2.2E+01				2.2E+01
		Total DDT	ug/kg	3	0	0	1.0E+01	1.5E+01				1.5E+01
		Total Endosulfan	ug/kg	3	1	1	6.9E-02	7.7E-02				7.7E-02

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
RM 8	F[i]	**Metals**										
Swan Island Lagoon		Aluminum	mg/kg									3.0E+00
		Antimony	mg/kg									ND
		Arsenic, inorganic	mg/kg									1.6E-02
		Cadmium	mg/kg									5.6E-04
		Chromium	mg/kg									3.6E-01
		Copper	mg/kg									4.7E-01
		Lead	mg/kg									3.4E-04
		Manganese	mg/kg									3.7E-01
		Mercury	mg/kg									1.3E-01
		Nickel	mg/kg									ND
		Selenium	mg/kg									ND
		Silver	mg/kg									ND
		Thallium	mg/kg									2.8E-03
		Zinc	mg/kg									9.5E+00
		Butyltins										
		Dibutyltin ion	ug/kg									NA
		Tributyltin ion	ug/kg									NA
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg									NA
		2-Methylnaphthalene	ug/kg									3.3E+00
		Acenaphthene	ug/kg									1.9E+00
		Acenaphthylene	ug/kg									ND
		Anthracene	ug/kg									ND
		Benzo(a)anthracene	ug/kg									ND
		Benzo(a)pyrene	ug/kg									ND
		Benzo(b)fluoranthene	ug/kg									ND
		Benzo(g,h,i)perylene	ug/kg									ND
		Benzo(k)fluoranthene	ug/kg									ND
		Chrysene	ug/kg									ND
		Dibenzo(a,h)anthracene	ug/kg									ND
		Dibenzothiophene	ug/kg									NA
		Fluoranthene	ug/kg									ND
		Fluorene	ug/kg									ND
		Indeno(1,2,3-cd)pyrene	ug/kg									ND
		Naphthalene	ug/kg									ND
		Phenanthrene	ug/kg									ND
		Pyrene	ug/kg									ND

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg									ND
		Dibutyl phthalate	ug/kg									ND
		Diethyl phthalate	ug/kg									ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg									ND
		Hexachlorobenzene	ug/kg									ND
		Hexachlorobutadiene	ug/kg									ND
		Phenols										
		4-Nitrophenol	ug/kg									ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg									2.6E+02
		Total PCB Congeners	pg/g									7.2E+05
		Total PCBs, Adjusted	pg/g									7.0E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g									7.5E-01
		Total PCB TEQ	pg/g									1.2E+00
		Pesticides										
		Aldrin	ug/kg									ND
		alpha-Hexachlorocyclohexane	ug/kg									ND
		beta-Hexachlorocyclohexane	ug/kg									ND
		Dieldrin	ug/kg									ND
		Endrin	ug/kg									ND
		Endrin aldehyde	ug/kg									ND
		Endrin ketone	ug/kg									ND
		gamma-Hexachlorocyclohexane	ug/kg									ND
		Heptachlor	ug/kg									ND
		Heptachlor epoxide	ug/kg									ND
		Total Chlordanes	ug/kg									ND
		Total DDD	ug/kg									3.5E+00
		Total DDE	ug/kg									1.1E+01
		Total DDT	ug/kg									1.9E+00
		Total Endosulfan	ug/kg									8.8E-01

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
RM 8	WB	**Metals**										
Swan Island Lagoon		Aluminum	mg/kg	3	0	0	6.4E+00	7.7E+00		Fewer than 5 detects		7.7E+00
		Antimony	mg/kg	3	3	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	3	0	0	1.8E-02	2.0E-02				2.0E-02
		Cadmium	mg/kg	3	0	0	5.3E-03	9.0E-03				9.0E-03
		Chromium	mg/kg	3	1	0	7.4E-01	1.1E+00				1.1E+00
		Copper	mg/kg	3	0	0	8.2E-01	9.5E-01				9.5E-01
		Lead	mg/kg	3	0	0	1.5E-01	3.0E-01				3.0E-01
		Manganese	mg/kg	3	0	0	1.3E+00	1.8E+00				1.8E+00
		Mercury	mg/kg	3	0	0	6.0E-02	7.6E-02				7.6E-02
		Nickel	mg/kg	3	3	ND	ND	ND				ND
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	2.7E-03	3.0E-03				3.0E-03
		Zinc	mg/kg	3	0	0	1.4E+01	1.5E+01				1.5E+01
		Butyltins										
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	3	2	0	2.6E+01	4.5E+01				4.5E+01
		Acenaphthene	ug/kg	3	2	0	2.4E+01	4.0E+01				4.0E+01
		Acenaphthylene	ug/kg	3	3	ND	ND	ND				ND
		Anthracene	ug/kg	3	3	ND	ND	ND				ND
		Benzo(a)anthracene	ug/kg	3	3	ND	ND	ND				ND
		Benzo(a)pyrene	ug/kg	3	3	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	3	3	ND	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	3	3	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	3	3	ND	ND	ND				ND
		Chrysene	ug/kg	3	3	ND	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	3	3	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	3	3	ND	ND	ND				ND
		Fluorene	ug/kg	3	3	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	3	3	ND	ND	ND				ND
		Naphthalene	ug/kg	3	3	ND	ND	ND				ND
		Phenanthrene	ug/kg	3	3	ND	ND	ND				ND
		Pyrene	ug/kg	3	3	ND	ND	ND				ND
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	3	3	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		Di-n-octyl phthalate	ug/kg	3	3	ND	ND	ND				ND

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Semi-Volatile Organic Compounds										
		Benzoic acid	ug/kg	3	3	ND	ND	ND				ND
		Benzyl alcohol	ug/kg	3	3	ND	ND	ND				ND
		Bis(2-chloroethoxy) methane	ug/kg	3	3	ND	ND	ND				ND
		Dibenzofuran	ug/kg	3	3	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	3	3	ND	ND	ND				ND
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	3	3	ND	ND	ND				ND
		4-Nitrophenol	ug/kg	3	3	ND	ND	ND				ND
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	3	0	0	3.2E+03	4.9E+03				4.9E+03
		Total PCB Congeners	pg/g	3	0	0	3.0E+06	4.5E+06				4.5E+06
		Total PCBs, Adjusted	pg/g	3	0	0	2.9E+06	4.4E+06				4.4E+06
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	3.3E+00	3.9E+00				3.9E+00
		Total PCB TEQ	pg/g	3	0	0	1.1E+01	1.4E+01				1.4E+01
		Pesticides										
		Aldrin	ug/kg	3	3	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	3	ND	ND	ND				ND
		Total DDD	ug/kg	3	0	0	2.0E+01	3.0E+01				3.0E+01
		Total DDE	ug/kg	3	0	0	7.9E+01	9.6E+01				9.6E+01
		Total DDT	ug/kg	3	2	0	5.9E+00	1.1E+01				1.1E+01
		Total Endosulfan	ug/kg	3	2	0	1.4E+01	2.8E+01				2.8E+01
RM 9	F	**Metals**										
		Aluminum	mg/kg	3	0	0	2.3E+00	3.4E+00		Fewer than 5 detects		3.4E+00
		Antimony	mg/kg	3	2	0	2.8E-03	5.0E-03				5.0E-03
		Arsenic, inorganic	mg/kg	3	0	0	1.7E-02	1.9E-02				1.9E-02
		Cadmium	mg/kg	3	3	ND	ND	ND				ND
		Chromium	mg/kg	3	2	0	3.3E-01	9.0E-01				9.0E-01
		Copper	mg/kg	3	0	0	3.2E-01	3.9E-01				3.9E-01
		Lead	mg/kg	3	1	0	5.8E-03	9.0E-03				9.0E-03

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	3	0	0	2.9E-01	4.6E-01				4.6E-01
		Mercury	mg/kg	3	0	0	1.9E-01	3.5E-01				3.5E-01
		Nickel	mg/kg	3	0	0	4.0E-02	7.4E-02				7.4E-02
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	2.6E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	3	0	0	8.9E+00	9.6E+00				9.6E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	0	0	5.0E-01	5.6E-01				5.6E-01
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	2	1	0	2.5E-01	3.5E-01				3.5E-01
		2-Methylnaphthalene	ug/kg	2	0	0	7.0E-01	9.5E-01				9.5E-01
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	0	0	3.7E-01	5.3E-01				5.3E-01
		Anthracene	ug/kg	2	0	0	5.0E-01	5.5E-01				5.5E-01
		Benzo(a)anthracene	ug/kg	2	1	0	3.8E-01	7.3E-01				7.3E-01
		Benzo(a)pyrene	ug/kg	2	1	0	2.6E-01	4.8E-01				4.8E-01
		Benzo(b)fluoranthene	ug/kg	2	1	0	1.7E-01	3.0E-01				3.0E-01
		Benzo(g,h,i)perylene	ug/kg	2	1	0	3.8E-01	7.2E-01				7.2E-01
		Benzo(k)fluoranthene	ug/kg	2	1	0	2.5E-01	4.7E-01				4.7E-01
		Chrysene	ug/kg	2	1	0	3.8E-01	7.2E-01				7.2E-01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	1	0	2.3E-01	4.3E-01				4.3E-01
		Fluoranthene	ug/kg	2	0	0	2.0E+00	2.5E+00				2.5E+00
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	4.5E-01	8.7E-01				8.7E-01
		Naphthalene	ug/kg	2	0	0	1.3E+00	1.8E+00				1.8E+00
		Phenanthrene	ug/kg	2	0	0	3.7E+00	4.4E+00				4.4E+00
		Pyrene	ug/kg	2	1	0	1.7E+00	2.8E+00				2.8E+00
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	8.2E+01	1.3E+02				1.3E+02
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	0	0	2.6E+01	2.8E+01				2.8E+01
		Hexachlorobenzene	ug/kg	3	1	1	4.2E-01	5.2E-01				5.2E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	7.2E+01	7.2E+01				7.2E+01
		Total PCB Congeners	pg/g	2	0	0	7.9E+04	1.0E+05				1.0E+05
		Total PCBs, Adjusted	pg/g	2	0	0	7.3E+04	9.6E+04				9.6E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.2E-01	4.5E-01				4.5E-01
		Total PCB TEQ	pg/g	2	0	0	7.1E-01	1.0E+00				1.0E+00
		Pesticides										
		Aldrin	ug/kg	3	1	1	8.5E-03	1.1E-02				1.1E-02
		alpha-Hexachlorocyclohexane	ug/kg	3	2	1	4.5E-03	6.0E-03				6.0E-03
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	6.3E-01	1.0E+00				1.0E+00
		Endrin	ug/kg	3	2	1	3.5E-03	5.0E-03				5.0E-03
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	2	2	5.0E-03	5.0E-03				5.0E-03
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	1.9E-02	2.4E-02				2.4E-02
		Total Chlordanes	ug/kg	3	1	0	1.6E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	3	0	0	2.3E+00	3.2E+00				3.2E+00
		Total DDE	ug/kg	3	0	0	1.3E+01	1.6E+01				1.6E+01
		Total DDT	ug/kg	3	0	0	3.7E+00	9.3E+00				9.3E+00
		Total Endosulfan	ug/kg	3	1	1	8.4E-02	9.8E-02				9.8E-02
RM 10	F	**Metals**										
		Aluminum	mg/kg	2	0	0	2.4E+00	4.1E+00		Fewer than 5 detects		4.1E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.5E-02	1.5E-02				1.5E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	3.4E-01	3.5E-01				3.5E-01
		Lead	mg/kg	2	0	0	1.7E-02	2.2E-02				2.2E-02
		Manganese	mg/kg	2	0	0	3.8E-01	4.7E-01				4.7E-01
		Mercury	mg/kg	2	0	0	1.7E-01	2.4E-01				2.4E-01
		Nickel	mg/kg	2	0	0	4.0E-02	4.5E-02				4.5E-02
		Selenium	mg/kg	2	2	ND	ND	ND				ND
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	2.3E-03	2.6E-03				2.6E-03
		Zinc	mg/kg	2	0	0	7.5E+00	7.9E+00				7.9E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	0	0	3.5E-01	4.4E-01				4.4E-01
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	2	0	0	5.5E-01	7.3E-01				7.3E-01
		2-Methylnaphthalene	ug/kg	2	0	0	5.7E-01	6.5E-01				6.5E-01
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	1	0	1.1E-01	1.8E-01				1.8E-01

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Anthracene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Chrysene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	2	ND	ND	ND				ND
		Fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Naphthalene	ug/kg	2	0	0	6.3E-01	6.7E-01				6.7E-01
		Phenanthrene	ug/kg	2	2	ND	ND	ND				ND
		Pyrene	ug/kg	2	2	ND	ND	ND				ND
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	5.1E+01	6.9E+01				6.9E+01
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	0	0	3.2E-01	3.3E-01				3.3E-01
		Hexachlorobutadiene	ug/kg	2	1	1	6.0E-03	6.0E-03				6.0E-03
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	1.0E+05	1.2E+05				1.2E+05
		Total PCBs, Adjusted	pg/g	2	0	0	9.7E+04	1.2E+05				1.2E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.4E-01	4.3E-01				4.3E-01
		Total PCB TEQ	pg/g	2	0	0	4.9E-01	6.1E-01				6.1E-01
		Pesticides										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	2.7E-01	2.8E-01				2.8E-01
		Endrin	ug/kg	2	1	0	3.3E-03	4.5E-03				4.5E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	0	0	1.5E-02	1.6E-02				1.6E-02
		Total Chlordanes	ug/kg	2	0	0	1.3E+00	1.3E+00				1.3E+00
		Total DDD	ug/kg	2	0	0	1.9E+00	3.0E+00				3.0E+00
		Total DDE	ug/kg	2	0	0	7.5E+00	8.6E+00				8.6E+00
		Total DDT	ug/kg	2	0	0	2.3E+00	3.9E+00				3.9E+00
		Total Endosulfan	ug/kg	2	0	0	6.5E-02	6.6E-02				6.6E-02

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
RM 11	F	**Metals**										
		Aluminum	mg/kg	2	0	0	1.1E+00	1.3E+00		Fewer than 5 detects		1.3E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.6E-02	1.6E-02				1.6E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	3.6E-01	4.0E-01				4.0E-01
		Lead	mg/kg	2	0	0	1.8E-02	2.3E-02				2.3E-02
		Manganese	mg/kg	2	0	0	4.1E-01	4.4E-01				4.4E-01
		Mercury	mg/kg	2	0	0	1.9E-01	1.9E-01				1.9E-01
		Nickel	mg/kg	2	0	0	5.3E-02	5.5E-02				5.5E-02
		Selenium	mg/kg	2	1	0	2.3E+00	4.5E+00				4.5E+00
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	2.7E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	2	0	0	8.5E+00	9.2E+00				9.2E+00
		Butyltins										
		Dibutyltin ion	ug/kg	2	0	0	2.8E-01	2.8E-01				2.8E-01
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	2	1	0	2.8E-01	4.1E-01				4.1E-01
		2-Methylnaphthalene	ug/kg	2	1	0	3.7E-01	5.2E-01				5.2E-01
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	1	0	8.7E-02	1.4E-01				1.4E-01
		Anthracene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Chrysene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	1	0	9.4E-02	1.5E-01				1.5E-01
		Fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Naphthalene	ug/kg	2	0	0	6.9E-01	7.9E-01				7.9E-01
		Phenanthrene	ug/kg	2	2	ND	ND	ND				ND
		Pyrene	ug/kg	2	2	ND	ND	ND				ND
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	0	0	3.9E+01	3.9E+01				3.9E+01
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND

TABLE 3-11
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Semi-Volatile Organic Compounds										
		Benzyl alcohol	ug/kg	2	1	0	1.8E+01	2.5E+01				2.5E+01
		Hexachlorobenzene	ug/kg	2	0	0	3.4E-01	3.7E-01				3.7E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	7.8E+05	1.5E+06				1.5E+06
		Total PCBs, Adjusted	pg/g	2	0	0	7.7E+05	1.5E+06				1.5E+06
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.4E-01	4.7E-01				4.7E-01
		Total PCB TEQ	pg/g	2	0	0	1.2E+00	2.1E+00				2.1E+00
		Pesticides										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		Dieldrin	ug/kg	2	0	0	2.5E-01	3.3E-01				3.3E-01
		Endrin	ug/kg	2	1	0	6.8E-03	1.1E-02				1.1E-02
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	5.5E-03	6.0E-03				6.0E-03
		Heptachlor	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		Heptachlor epoxide	ug/kg	2	0	0	1.4E-02	1.8E-02				1.8E-02
		Total Chlordanes	ug/kg	2	0	0	1.3E+00	1.4E+00				1.4E+00
		Total DDD	ug/kg	2	0	0	7.5E-01	7.5E-01				7.5E-01
		Total DDE	ug/kg	2	0	0	5.4E+00	5.8E+00				5.8E+00
		Total DDT	ug/kg	2	0	0	7.4E-01	8.1E-01				8.1E-01
		Total Endosulfan	ug/kg	2	0	0	6.2E-02	7.6E-02				7.6E-02

Notes:

a Exposure areas for smallmouth bass tissue are on a RM basis, such that samples collected from RM 1.5 - 2.5 are included in exposure area RM 2, samples collected from RM 2.5-3.5 are included in exposure area RM 3, etc. Swan Island Lagoon is its own exposure area.
b Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f Exposure point concentration is the lesser value of maximum or 95%UCL.
g 95% UCL not calculated for analytes with fewer than five detects.
h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.
i Swan Island Lagoon EPCs for fillet tissue calculated by applying ratio of Study-area Wide Fillet mean concentration/Study-are Wide Whole Body mean concentration to the Swan Island Lagoon Whole Body EPC.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
F = Fillet tissue. All smallmouth bass fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin.
mg/kg = Milligrams per kilogram.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected in the given exposure area.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.
WB= Whole body.

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
Study Area-wide	Smallmouth Bass	F	**Metals**										
			Aluminum	mg/kg	23	0	0	2.1E+00	7.2E+00	lognormal	95% H-UCL	2.7E+00	2.7E+00
			Antimony	mg/kg	23	22	0	2.2E-03	5.0E-03	--	Fewer than 5 detects[f]	--	5.0E-03
			Arsenic, inorganic	mg/kg	23	0	0	1.9E-02	3.4E-02	non-parametric	95% Student's-t UCL	2.1E-02	2.1E-02
			Cadmium	mg/kg	23	21	18	7.0E-04	1.0E-03	--	Fewer than 5 detects	--	1.0E-03
			Chromium	mg/kg	23	21	0	9.0E-02	9.0E-01	--	Fewer than 5 detects	--	9.0E-01
			Copper	mg/kg	23	0	0	3.9E-01	1.1E+00	non-parametric	95% Student's-t UCL	4.7E-01	4.7E-01
			Lead	mg/kg	23	4	0	3.9E-02	5.2E-01	non-parametric	97.5% KM (Chebyshev) UCL	1.8E-01	1.8E-01
			Manganese	mg/kg	23	0	0	3.4E-01	5.5E-01	non-parametric	95% Chebyshev (Mean, Sd) UCL	4.8E-01	4.8E-01
			Mercury	mg/kg	23	0	0	1.5E-01	3.5E-01	normal	95% KM (t) UCL	2.0E-01	2.0E-01
			Nickel	mg/kg	23	0	0	6.0E-02	2.2E-01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.0E-01	1.0E-01
			Selenium	mg/kg	23	22	0	2.7E-01	4.5E+00	--	Fewer than 5 detects	--	4.5E+00
			Silver	mg/kg	23	22	0	5.7E-04	2.0E-03	--	Fewer than 5 detects	--	2.0E-03
			Thallium	mg/kg	23	0	0	3.9E-03	1.0E-02	non-parametric	95% Student's-t UCL	4.6E-03	4.6E-03
			Zinc	mg/kg	23	0	0	8.7E+00	1.1E+01	normal	95% Student's-t UCL	8.9E+00	8.9E+00
			Butyltins										
			Dibutyltin ion	ug/kg	18	2	0	4.6E-01	9.2E-01	normal	95% KM (t) UCL	5.7E-01	5.7E-01
			Tributyltin ion	ug/kg	18	14	0	2.9E-01	9.2E-01	--	Fewer than 5 detects	--	9.2E-01
			Polynuclear Aromatic Hydrocarbons										
			1-Methylnaphthalene	ug/kg	18	3	0	7.0E-01	2.4E+00	gamma	95% KM (BCA) UCL	9.8E-01	9.8E-01
			2-Methylnaphthalene	ug/kg	18	2	0	9.3E-01	2.9E+00	gamma	95% KM (BCA) UCL	1.3E+00	1.3E+00
			Acenaphthene	ug/kg	18	16	0	8.3E-01	5.4E+00	--	Fewer than 5 detects	--	5.4E+00
			Acenaphthylene	ug/kg	18	5	0	3.9E-01	2.5E+00	non-parametric	95% KM (BCA) UCL	6.7E-01	6.7E-01
			Anthracene	ug/kg	18	8	0	6.6E-01	3.6E+00	approx. gamma	95% KM (t) UCL	1.1E+00	1.1E+00
			Benzo(a)anthracene	ug/kg	18	10	0	4.1E-01	2.6E+00	gamma	95% KM (t) UCL	7.6E-01	7.6E-01
			Benzo(a)pyrene	ug/kg	18	13	0	3.3E-01	2.5E+00	normal	95% KM (t) UCL	7.0E-01	7.0E-01
			Benzo(b)fluoranthene	ug/kg	18	12	0	2.8E-01	1.7E+00	normal	95% KM (t) UCL	5.6E-01	5.6E-01
			Benzo(g,h,i)perylene	ug/kg	18	12	0	3.2E-01	2.0E+00	normal	95% KM (t) UCL	6.2E-01	6.2E-01
			Benzo(k)fluoranthene	ug/kg	18	12	0	2.2E-01	1.4E+00	normal	95% KM (t) UCL	4.4E-01	4.4E-01
			Chrysene	ug/kg	18	9	0	7.7E-01	6.2E+00	gamma	95% KM (t) UCL	1.5E+00	1.5E+00
			Dibenzo(a,h)anthracene	ug/kg	18	15	0	5.6E-02	2.4E-01	--	Fewer than 5 detects	--	2.4E-01
			Dibenzothiophene	ug/kg	18	6	0	5.1E-01	2.1E+00	gamma	95% KM (Percentile Bootstrap) UCL	8.0E-01	8.0E-01
			Fluoranthene	ug/kg	18	8	0	2.3E+00	1.2E+01	non-parametric	95% KM (t) UCL	4.0E+00	4.0E+00
			Fluorene	ug/kg	18	14	0	8.1E-01	2.8E+00	--	Fewer than 5 detects	--	2.8E+00
			Indeno(1,2,3-cd)pyrene	ug/kg	18	11	0	3.0E-01	1.9E+00	normal	95% KM (t) UCL	5.8E-01	5.8E-01
			Naphthalene	ug/kg	18	0	0	1.7E+00	1.1E+01	non-parametric	95% KM (Chebyshev) UCL	4.2E+00	4.2E+00
			Phenanthrene	ug/kg	18	10	0	3.8E+00	2.2E+01	gamma	95% KM (t) UCL	6.9E+00	6.9E+00
			Pyrene	ug/kg	18	14	0	1.8E+00	1.3E+01	--	Fewer than 5 detects	--	1.3E+01
			Phthalates										
			Bis(2-ethylhexyl) phthalate	ug/kg	18	15	0	4.4E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
			Dibutyl phthalate	ug/kg	18	15	11	2.8E+01	4.3E+01	--	Fewer than 5 detects	--	4.3E+01
			Diethyl phthalate	ug/kg	18	17	4	6.8E+00	1.7E+01	--	Fewer than 5 detects	--	1.7E+01

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Semi-Volatile Organic Compounds										
			Benzyl alcohol	ug/kg	18	8	0	1.9E+01	2.9E+01	normal	95% KM (t) UCL	2.5E+01	2.5E+01
			Hexachlorobenzene	ug/kg	23	5	5	3.9E-01	8.8E-01	approx. gamma	95% KM (BCA) UCL	4.5E-01	4.5E-01
			Hexachlorobutadiene	ug/kg	23	18	5	1.7E-02	1.7E-01	gamma	95% KM (t) UCL	3.4E-02	3.4E-02
			Phenols										
			4-Nitrophenol	ug/kg	18	17	5	6.4E+00	1.3E+01	--	Fewer than 5 detects	--	1.3E+01
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	5	0	0	6.2E+01	9.3E+01	normal	95% KM (t) UCL	8.3E+01	8.3E+01
			Total PCB Congeners	pg/g	18	0	0	1.7E+05	1.5E+06	non-parametric	95% KM (Chebyshev) UCL	5.1E+05	5.1E+05
			Total PCBs, Adjusted[g]	pg/g	18	0	0	1.6E+05	1.5E+06	non-parametric	95% KM (Chebyshev) UCL	5.0E+05	5.0E+05
			Dioxin/Furans										
			Total Dioxin/Furan TEQ	pg/g	18	0	0	9.3E-01	8.7E+00	non-parametric	95% KM (Chebyshev) UCL	3.0E+00	3.0E+00
			Total PCB TEQ	pg/g	18	0	0	6.7E-01	2.1E+00	non-parametric	95% KM (Chebyshev) UCL	1.2E+00	1.2E+00
			Pesticides										
			Aldrin	ug/kg	23	17	15	5.6E-03	1.1E-02	gamma	95% KM (Percentile Bootstrap) UCL	7.6E-03	7.6E-03
			alpha-Hexachlorocyclohexane	ug/kg	23	18	9	3.4E-03	6.0E-03	normal	95% KM (t) UCL	4.8E-03	4.8E-03
			beta-Hexachlorocyclohexane	ug/kg	23	19	0	2.9E-01	4.5E+00	--	Fewer than 5 detects	--	4.5E+00
			Dieldrin	ug/kg	23	2	0	5.5E-01	3.3E+00	non-parametric	95% KM (Chebyshev) UCL	1.1E+00	1.1E+00
			Endrin	ug/kg	23	17	5	3.3E-03	1.1E-02	normal	95% KM (t) UCL	4.9E-03	4.9E-03
			Endrin aldehyde	ug/kg	23	21	0	2.2E-01	2.0E+00	--	Fewer than 5 detects	--	2.0E+00
			Endrin ketone	ug/kg	23	22	21	5.7E-03	1.1E-02	--	Fewer than 5 detects	--	1.1E-02
			gamma-Hexachlorocyclohexane	ug/kg	23	16	6	4.1E-03	1.1E-02	normal	95% KM (t) UCL	5.6E-03	5.6E-03
			Heptachlor	ug/kg	23	22	16	2.6E-03	5.0E-03	--	Fewer than 5 detects	--	5.0E-03
			Heptachlor epoxide	ug/kg	23	6	5	1.7E-02	2.7E-02	normal	95% KM (t) UCL	1.9E-02	1.9E-02
			Total Chlordanes	ug/kg	23	2	0	2.1E+00	7.8E+00	non-parametric	95% KM (Chebyshev) UCL	3.6E+00	3.6E+00
			Total DDD	ug/kg	23	0	0	6.1E+00	6.3E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.8E+01	1.8E+01
			Total DDE	ug/kg	23	0	0	1.3E+01	5.9E+01	approx. gamma	95% Approximate Gamma UCL	1.7E+01	1.7E+01
			Total DDT	ug/kg	23	0	0	6.6E+00	5.9E+01	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.2E+01	3.2E+01
			Total Endosulfan	ug/kg	23	11	6	6.8E-02	1.1E-01	normal	95% KM (t) UCL	8.3E-02	8.3E-02
Study Area-wide	Smallmouth Bass	WB	**Metals**										
			Aluminum	mg/kg	32	0	0	5.3E+00	1.1E+01	gamma	95% Approximate Gamma UCL	6.0E+00	6.0E+00
			Antimony	mg/kg	32	27	0	1.9E-01	5.9E+00	gamma	95% KM (t) UCL	5.3E-01	5.3E-01
			Arsenic, inorganic	mg/kg	32	0	0	2.5E-02	3.9E-02	normal	95% Student's-t UCL	2.7E-02	2.7E-02
			Cadmium	mg/kg	32	6	0	1.1E-02	2.0E-01	non-parametric	95% KM (Chebyshev) UCL	3.8E-02	3.8E-02
			Chromium	mg/kg	32	11	0	2.8E-01	1.1E+00	non-parametric	95% KM (BCA) UCL	4.2E-01	4.2E-01
			Copper	mg/kg	32	0	0	8.1E-01	1.9E+00	gamma	95% Approximate Gamma UCL	9.2E-01	9.2E-01
			Lead	mg/kg	32	0	0	3.5E+01	1.1E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.8E+02	3.8E+02
			Manganese	mg/kg	32	0	0	1.7E+00	3.1E+00	normal	95% Student's-t UCL	1.9E+00	1.9E+00
			Mercury	mg/kg	32	0	0	9.3E-02	1.7E-01	normal	95% Student's-t UCL	1.0E-01	1.0E-01
			Nickel	mg/kg	32	7	0	9.6E-02	2.0E-01	non-parametric	95% KM (BCA) UCL	1.2E-01	1.2E-01
			Selenium	mg/kg	32	28	0	1.7E-01	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
			Silver	mg/kg	32	23	0	3.6E-03	6.4E-02	non-parametric	95% KM (BCA) UCL	7.9E-03	7.9E-03
			Thallium	mg/kg	32	0	0	4.1E-03	8.5E-03	lognormal	95% Student's-t UCL	4.6E-03	4.6E-03
			Zinc	mg/kg	32	0	0	1.3E+01	1.6E+01	normal	95% Student's-t UCL	1.4E+01	1.4E+01

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Butyltins										
			Dibutyltin ion	ug/kg	18	2	0	5.0E-01	1.1E+00	non-parametric	95% KM (Chebyshev) UCL	7.1E-01	7.1E-01
			Tributyltin ion	ug/kg	18	14	2	7.8E-01	1.6E+00	--	Fewer than 5 detects	--	1.6E+00
			Polynuclear Aromatic Hydrocarbons										
			1-Methylnaphthalene	ug/kg	18	3	0	2.6E+00	1.0E+01	gamma	95% KM (BCA) UCL	3.5E+00	3.5E+00
			2-Methylnaphthalene	ug/kg	32	11	0	1.3E+01	5.9E+01	non-parametric	97.5% KM (Chebyshev) UCL	2.6E+01	2.6E+01
			Acenaphthene	ug/kg	32	10	0	1.7E+01	9.5E+01	lognormal	97.5% KM (Chebyshev) UCL	3.7E+01	3.7E+01
			Acenaphthylene	ug/kg	32	18	14	7.0E-01	2.9E+00	gamma	95% KM (BCA) UCL	1.0E+00	1.0E+00
			Anthracene	ug/kg	32	15	14	1.6E+00	6.8E+00	lognormal	95% KM (Chebyshev) UCL	3.2E+00	3.2E+00
			Benzo(a)anthracene	ug/kg	32	24	14	2.9E-01	1.1E+00	normal	95% KM (t) UCL	4.2E-01	4.2E-01
			Benzo(a)pyrene	ug/kg	32	27	14	3.1E-01	1.3E+00	normal	95% KM (t) UCL	4.4E-01	4.4E-01
			Benzo(b)fluoranthene	ug/kg	32	26	14	2.6E-01	1.0E+00	normal	95% KM (t) UCL	3.6E-01	3.6E-01
			Benzo(g,h,i)perylene	ug/kg	32	26	14	3.8E-01	2.5E+00	normal	95% KM (t) UCL	6.3E-01	6.3E-01
			Benzo(k)fluoranthene	ug/kg	32	26	14	2.1E-01	9.2E-01	normal	95% KM (t) UCL	3.0E-01	3.0E-01
			Chrysene	ug/kg	32	23	14	4.2E-01	2.0E+00	gamma	95% KM (t) UCL	6.4E-01	6.4E-01
			Dibenzo(a,h)anthracene	ug/kg	32	29	29	1.4E-01	1.6E-01	--	Fewer than 5 detects	--	1.6E-01
			Dibenzothiophene	ug/kg	18	6	0	1.8E+00	1.1E+01	gamma	95% KM (BCA) UCL	3.1E+00	3.1E+00
			Fluoranthene	ug/kg	32	21	0	9.7E+00	3.6E+01	gamma	95% KM (t) UCL	7.9E+00	7.9E+00
			Fluorene	ug/kg	32	12	0	1.3E+01	6.9E+01	non-parametric	95% KM (BCA) UCL	1.5E+01	1.5E+01
			Indeno(1,2,3-cd)pyrene	ug/kg	32	25	14	3.2E-01	1.8E+00	gamma	95% KM (t) UCL	5.1E-01	5.1E-01
			Naphthalene	ug/kg	32	12	0	1.2E+01	8.6E+01	non-parametric	97.5% KM (Chebyshev) UCL	2.7E+01	2.7E+01
			Phenanthrene	ug/kg	32	12	0	1.8E+01	8.5E+01	lognormal	95% KM (BCA) UCL	2.2E+01	2.2E+01
			Pyrene	ug/kg	32	25	0	1.0E+01	4.9E+01	gamma	95% KM (t) UCL	9.3E+00	9.3E+00
			Phthalates										
			Bis(2-ethylhexyl) phthalate	ug/kg	31	25	0	4.1E+03	8.7E+04	gamma	95% KM (t) UCL	9.5E+03	9.5E+03
			Dibutyl phthalate	ug/kg	32	29	19	1.8E+01	3.7E+01	--	Fewer than 5 detects	--	3.7E+01
			Diethyl phthalate	ug/kg	32	31	31	1.0E+01	1.0E+01	--	Fewer than 5 detects	--	1.0E+01
			Di-n-octyl phthalate	ug/kg	32	29	0	1.7E+02	2.1E+03	--	Fewer than 5 detects	--	2.1E+03
			Semi-Volatile Organic Compounds										
			Benzoic acid	ug/kg	32	16	14	4.4E+02	6.1E+02	normal	95% KM (t) UCL	4.9E+02	4.9E+02
			Benzyl alcohol	ug/kg	32	16	14	2.5E+01	3.3E+01	normal	95% KM (t) UCL	2.8E+01	2.8E+01
			Bis(2-chloroethoxy) methane	ug/kg	32	16	14	1.2E+01	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	1.6E+01	1.6E+01
			Dibenzofuran	ug/kg	32	13	0	1.0E+01	5.2E+01	non-parametric	97.5% KM (Chebyshev) UCL	1.8E+01	1.8E+01
			Hexachlorobenzene	ug/kg	32	14	12	2.1E+00	4.8E+00	non-parametric	95% KM (Chebyshev) UCL	2.8E+00	2.8E+00
			Hexachlorobutadiene	ug/kg	32	21	13	1.4E-01	1.4E+00	approx. gamma	95% KM (BCA) UCL	2.7E-01	2.7E-01
			Phenols										
			4-Methylphenol	ug/kg	32	29	14	5.3E+00	1.3E+01	--	Fewer than 5 detects	--	1.3E+01
			4-Nitrophenol	ug/kg	32	26	14	7.5E+00	1.4E+01	non-parametric	95% KM (t) UCL	9.8E+00	9.8E+00
			Phenol	ug/kg	32	31	13	4.5E+01	2.7E+02	--	Fewer than 5 detects	--	2.7E+02
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	14	0	0	1.2E+03	4.9E+03	gamma	95% KM (Chebyshev) UCL	2.7E+03	2.7E+03
			Total PCB Congeners	pg/g	32	0	0	1.1E+06	6.6E+06	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.1E+06	2.1E+06
			Total PCBs, Adjusted	pg/g	32	0	0	1.0E+06	6.4E+06	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.0E+06	2.0E+06

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Dioxin/Furans										
			Total Dioxin/Furan TEQ	pg/g	32	0	0	4.8E+00	5.2E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.2E+01	1.2E+01
			Total PCB TEQ	pg/g	32	0	0	7.8E+00	3.6E+01	gamma	95% Approximate Gamma UCL	9.7E+00	9.7E+00
			Pesticides										
			Aldrin	ug/kg	32	17	14	2.0E-02	4.0E-02	normal	95% KM (t) UCL	2.5E-02	2.5E-02
			alpha-Hexachlorocyclohexane	ug/kg	32	17	14	2.6E-02	4.2E-02	normal	95% KM (t) UCL	3.1E-02	3.1E-02
			beta-Hexachlorocyclohexane	ug/kg	32	24	15	1.3E-02	3.6E-02	normal	95% KM (t) UCL	1.7E-02	1.7E-02
			Dieldrin	ug/kg	32	13	10	2.4E+00	7.3E+00	non-parametric	95% KM (Chebyshev) UCL	3.5E+00	3.5E+00
			Endrin	ug/kg	32	17	14	2.0E-02	5.4E-02	non-parametric	95% KM (Chebyshev) UCL	3.2E-02	3.2E-02
			Endrin aldehyde	ug/kg	32	30	29	4.6E-03	6.2E-03	--	Fewer than 5 detects	--	6.2E-03
			Endrin ketone	ug/kg	32	28	19	4.5E-03	1.5E-02	--	Fewer than 5 detects	--	1.5E-02
			gamma-Hexachlorocyclohexane	ug/kg	32	20	14	2.0E-02	3.5E-02	normal	95% KM (t) UCL	2.5E-02	2.5E-02
			Heptachlor	ug/kg	32	23	15	9.2E-03	2.7E-02	gamma	95% KM (t) UCL	1.2E-02	1.2E-02
			Heptachlor epoxide	ug/kg	32	14	14	1.1E-01	1.8E-01	normal	95% Student's-t UCL	1.3E-01	1.3E-01
			Total Chlordanes	ug/kg	32	12	1	1.0E+01	2.2E+01	gamma	95% KM (Percentile Bootstrap) UCL	1.2E+01	1.2E+01
			Total DDD	ug/kg	32	0	0	5.2E+01	5.2E+02	lognormal	95% H-UCL	7.1E+01	7.1E+01
			Total DDE	ug/kg	32	0	0	1.2E+02	4.7E+02	gamma	95% Approximate Gamma UCL	1.4E+02	1.4E+02
			Total DDT	ug/kg	32	5	0	3.8E+01	4.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.3E+02	1.3E+02
			Total Endosulfan	ug/kg	32	13	0	2.2E+00	2.8E+01	non-parametric	95% KM (t) UCL	2.9E+00	2.9E+00
Study Area-wide	Carp	F	**Metals**										
			Aluminum	mg/kg	15	0	0	1.7E+00	2.8E+00	normal	95% KM (t) UCL	2.0E+00	2.0E+00
			Arsenic, inorganic	mg/kg	15	0	0	9.7E-03	2.1E-02	gamma	95% KM (BCA) UCL	1.2E-02	1.2E-02
			Cadmium	mg/kg	15	4	0	3.7E-03	9.0E-03	normal	95% KM (t) UCL	4.8E-03	4.8E-03
			Chromium	mg/kg	15	11	0	2.0E-01	1.5E+00	--	Fewer than 5 detectsf	--	1.5E+00
			Copper	mg/kg	15	0	0	4.6E-01	6.9E-01	normal	95% KM (t) UCL	5.1E-01	5.1E-01
			Lead	mg/kg	15	4	0	5.7E-02	3.6E-01	non-parametric	95% KM (BCA) UCL	1.1E-01	1.1E-01
			Manganese	mg/kg	15	0	0	1.4E+00	2.8E+00	non-parametric	97.5% KM (Chebyshev) UCL	3.1E+00	2.8E+00
			Mercury	mg/kg	15	0	0	8.7E-02	1.9E-01	lognormal	95% KM (Chebyshev) UCL	1.5E-01	1.5E-01
			Nickel	mg/kg	15	1	0	6.6E-02	4.0E-01	lognormal	95% KM (Chebyshev) UCL	1.7E-01	1.7E-01
			Selenium	mg/kg	15	6	2	2.0E-01	3.0E-01	non-parametric	95% KM (BCA) UCL	N/A	3.0E-01
			Thallium	mg/kg	15	4	0	1.9E-03	6.2E-03	normal	95% KM (t) UCL	2.7E-03	2.7E-03
			Zinc	mg/kg	15	0	0	2.6E+01	3.1E+01	normal	95% KM (t) UCL	2.8E+01	2.8E+01
			Butyltins										
			Butyltin ion	ug/kg	9	7	1	4.0E-01	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
			Dibutyltin ion	ug/kg	9	5	0	1.5E+00	7.3E+00	--	Fewer than 5 detects	--	7.3E+00
			Tributyltin ion	ug/kg	9	1	0	4.9E+00	1.1E+01	normal	95% KM (t) UCL	6.8E+00	6.8E+00
			Polynuclear Aromatic Hydrocarbons										
			1-Methylnaphthalene	ug/kg	9	0	0	3.4E+00	5.9E+00	normal	95% Student's-t UCL	4.3E+00	4.3E+00
			2-Methylnaphthalene	ug/kg	9	0	0	2.5E+00	3.7E+00	normal	95% Student's-t UCL	3.0E+00	3.0E+00
			Acenaphthene	ug/kg	9	0	0	2.1E+01	8.4E+01	gamma	95% Approximate Gamma UCL	4.3E+01	4.3E+01
			Acenaphthylene	ug/kg	9	0	0	2.0E+00	4.1E+00	gamma	95% Approximate Gamma UCL	2.7E+00	2.7E+00
			Anthracene	ug/kg	9	0	0	3.7E+00	9.0E+00	gamma	95% Approximate Gamma UCL	5.8E+00	5.8E+00
			Benzo(a)anthracene	ug/kg	9	8	0	6.0E-02	2.8E-01	--	Fewer than 5 detects	--	2.8E-01
			Benzo(b)fluoranthene	ug/kg	9	8	0	6.7E-02	3.2E-01	--	Fewer than 5 detects	--	3.2E-01
			Benzo(g,h,i)perylene	ug/kg	9	8	0	5.1E-02	1.7E-01	--	Fewer than 5 detects	--	1.7E-01
			Benzo(k)fluoranthene	ug/kg	9	8	0	4.5E-02	1.8E-01	--	Fewer than 5 detects	--	1.8E-01
			Dibenzo(a,h)anthracene	ug/kg	9	8	0	3.5E-02	7.5E-02	--	Fewer than 5 detects	--	7.5E-02

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Dibenzothiophene	ug/kg	9	1	0	1.1E+00	3.0E+00	normal	95% KM (t) UCL	1.7E+00	1.7E+00
			Fluoranthene	ug/kg	9	3	0	2.7E+00	5.4E+00	normal	95% KM (t) UCL	4.0E+00	4.0E+00
			Fluorene	ug/kg	9	0	0	5.4E+00	1.3E+01	normal	95% Student's-t UCL	7.8E+00	7.8E+00
			Indeno(1,2,3-cd)pyrene	ug/kg	9	8	0	4.2E-02	1.2E-01	--	Fewer than 5 detects	--	1.2E-01
			Naphthalene	ug/kg	9	5	0	2.7E+00	6.8E+00	--	Fewer than 5 detects	--	6.8E+00
			Phenanthrene	ug/kg	9	4	0	5.5E+00	1.3E+01	normal	95% KM (t) UCL	9.2E+00	9.2E+00
			Pyrene	ug/kg	9	0	0	2.4E+00	4.5E+00	normal	95% Student's-t UCL	3.3E+00	3.3E+00
			Semi-Volatile Organic Compounds										
			Benzyl alcohol	ug/kg	9	4	0	2.2E+01	3.7E+01	normal	95% KM (t) UCL	3.1E+01	3.1E+01
			Dibenzofuran	ug/kg	9	0	0	1.7E+00	3.6E+00	normal	95% Student's-t UCL	2.4E+00	2.4E+00
			Hexachlorobenzene	ug/kg	15	4	0	1.2E+01	1.4E+02	non-parametric	97.5% KM (Chebyshev) UCL	7.0E+01	7.0E+01
			Hexachlorobutadiene	ug/kg	15	7	6	5.5E-02	1.7E-01	gamma	95% KM (Chebyshev) UCL	1.5E-01	1.5E-01
			Isophorone	ug/kg	9	6	0	6.2E+00	9.8E+00	--	Fewer than 5 detects	--	9.8E+00
			Phenols										
			4-Nitrophenol	ug/kg	9	1	0	1.3E+01	1.9E+01	normal	95% KM (t) UCL	1.5E+01	1.5E+01
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	6	0	0	8.4E+02	1.3E+03	normal	95% KM (t) UCL	1.2E+03	1.2E+03
			Total PCB Congeners	pg/g	9	0	0	2.5E+06	2.0E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.4E+07	2.0E+07
			Total PCBs, Adjustedg	pg/g	9	0	0	2.5E+06	1.9E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.4E+07	1.9E+07
			Dioxin/Furans										
			Total Dioxin/Furan TEQ	pg/g	9	0	0	2.8E+00	4.4E+00	gamma	95% Approximate Gamma UCL	3.5E+00	3.5E+00
			Total PCB TEQ	pg/g	9	0	0	3.3E+00	1.6E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.1E+01	1.1E+01
			Pesticides										
			Aldrin	ug/kg	15	6	6	8.4E-02	1.2E-01	normal	95% Student's-t UCL	1.0E-01	1.0E-01
			alpha-Hexachlorocyclohexane	ug/kg	15	9	6	2.2E-02	4.0E-02	normal	95% KM (t) UCL	2.9E-02	2.9E-02
			beta-Hexachlorocyclohexane	ug/kg	15	9	6	1.1E-02	2.3E-02	normal	95% KM (t) UCL	1.6E-02	1.6E-02
			Dieldrin	ug/kg	15	6	6	1.7E+00	2.3E+00	normal	95% Student's-t UCL	1.9E+00	1.9E+00
			Endrin	ug/kg	15	9	8	1.6E-02	2.2E-02	normal	95% KM (t) UCL	2.1E-02	2.1E-02
			Endrin aldehyde	ug/kg	15	13	8	1.3E-03	3.4E-03	--	Fewer than 5 detects	--	3.4E-03
			Endrin ketone	ug/kg	15	13	10	2.0E-03	6.7E-03	--	Fewer than 5 detects	--	6.7E-03
			gamma-Hexachlorocyclohexane	ug/kg	15	7	6	2.4E-02	3.6E-02	normal	95% KM (t) UCL	2.9E-02	2.9E-02
			Heptachlor epoxide	ug/kg	15	6	6	1.0E-01	1.5E-01	normal	95% Student's-t UCL	1.3E-01	1.3E-01
			Methoxychlor	ug/kg	15	13	0	1.2E+00	7.2E+00	--	Fewer than 5 detects	--	7.2E+00
			Total Chlordanes	ug/kg	15	5	2	8.9E+00	1.5E+01	normal	95% KM (t) UCL	1.1E+01	1.1E+01
			Total DDD	ug/kg	15	0	0	5.0E+01	2.0E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	1.1E+02
			Total DDE	ug/kg	15	0	0	9.4E+01	2.5E+02	gamma	95% KM (BCA) UCL	1.2E+02	1.2E+02
			Total DDT	ug/kg	15	5	0	1.0E+01	6.3E+01	gamma	95% KM (BCA) UCL	1.8E+01	1.8E+01
			Total Endosulfan	ug/kg	15	5	2	1.5E+00	8.1E+00	non-parametric	95% KM (BCA) UCL	2.3E+00	2.3E+00
Study Area-wide	Carp	WB	**Metals**										
			Aluminum	mg/kg	15	0	0	7.7E+01	1.3E+02	normal	95% Student's-t UCL	9.1E+01	9.1E+01
			Antimony	mg/kg	15	12	0	2.2E-03	6.4E-03	--	Fewer than 5 detects	--	6.4E-03
			Arsenic, inorganic	mg/kg	15	0	0	1.3E-02	2.3E-02	normal	95% Student's-t UCL	1.6E-02	1.6E-02
			Cadmium	mg/kg	15	0	0	6.0E-02	1.1E-01	normal	95% Student's-t UCL	6.9E-02	6.9E-02
			Chromium	mg/kg	15	0	0	8.4E-01	2.0E+00	normal	95% Student's-t UCL	1.1E+00	1.1E+00
			Copper	mg/kg	15	0	0	1.1E+00	1.4E+00	normal	95% Student's-t UCL	1.2E+00	1.2E+00
			Lead	mg/kg	15	0	0	2.0E-01	1.1E+00	non-parametric	95% Chebyshev (Mean, Sd) UCL	4.8E-01	4.8E-01
			Manganese	mg/kg	15	0	0	6.4E+00	8.5E+00	normal	95% Student's-t UCL	6.8E+00	6.8E+00

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Mercury	mg/kg	15	0	0	4.5E-02	5.7E-02	normal	95% Student's-t UCL	4.9E-02	4.9E-02
			Nickel	mg/kg	15	0	0	5.6E-01	1.4E+00	gamma	95% Approximate Gamma UCL	6.9E-01	6.9E-01
			Selenium	mg/kg	15	0	0	3.2E-01	4.0E-01	non-parametric	95% Student's-t UCL	3.4E-01	3.4E-01
			Silver	mg/kg	15	2	0	6.8E-03	1.7E-02	gamma	95% KM (BCA) UCL	9.0E-03	9.0E-03
			Thallium	mg/kg	15	0	0	2.5E-03	5.4E-03	approx. gamma	95% Approximate Gamma UCL	3.6E-03	3.6E-03
			Zinc	mg/kg	15	0	0	9.2E+01	1.1E+02	normal	95% Student's-t UCL	9.8E+01	9.8E+01
			Butyltins										
			Butyltin ion	ug/kg	9	1	0	4.7E+00	2.7E+01	non-parametric	97.5% KM (Chebyshev) UCL	2.2E+01	2.2E+01
			Dibutyltin ion	ug/kg	9	0	0	1.9E+00	5.1E+00	gamma	95% KM (Chebyshev) UCL	4.0E+00	4.0E+00
			Tributyltin ion	ug/kg	9	0	0	5.6E+00	8.6E+00	normal	95% KM (t) UCL	6.9E+00	6.9E+00
			Polynuclear Aromatic Hydrocarbons										
			1-Methylnaphthalene	ug/kg	9	0	0	5.4E+00	1.2E+01	normal	95% Student's-t UCL	7.3E+00	7.3E+00
			2-Methylnaphthalene	ug/kg	15	5	0	1.0E+01	3.8E+01	non-parametric	95% KM (BCA) UCL	1.1E+01	1.1E+01
			Acenaphthene	ug/kg	15	4	0	3.3E+01	1.2E+02	normal	95% KM (t) UCL	4.8E+01	4.8E+01
			Acenaphthylene	ug/kg	15	6	6	1.6E+00	4.2E+00	gamma	95% KM (Chebyshev) UCL	3.2E+00	3.2E+00
			Anthracene	ug/kg	15	6	6	2.7E+00	7.6E+00	normal	95% KM (t) UCL	4.1E+00	4.1E+00
			Benzo(a)anthracene	ug/kg	15	14	10	1.5E-01	3.2E-01	--	Fewer than 5 detects	--	3.2E-01
			Benzo(a)pyrene	ug/kg	15	14	11	2.2E-01	5.4E-01	--	Fewer than 5 detects	--	5.4E-01
			Benzo(b)fluoranthene	ug/kg	15	13	8	3.1E-01	1.0E+00	--	Fewer than 5 detects	--	1.0E+00
			Benzo(g,h,i)perylene	ug/kg	15	13	8	2.5E-01	5.6E-01	--	Fewer than 5 detects	--	5.6E-01
			Benzo(k)fluoranthene	ug/kg	14	12	9	1.8E-01	4.1E-01	--	Fewer than 5 detects	--	4.1E-01
			Dibenzo(a,h)anthracene	ug/kg	15	13	10	1.5E-01	2.5E-01	--	Fewer than 5 detects	--	2.5E-01
			Dibenzothiophene	ug/kg	9	0	0	3.7E+00	2.1E+01	gamma	95% KM (Chebyshev) UCL	1.3E+01	1.3E+01
			Fluoranthene	ug/kg	15	9	6	5.7E+00	2.4E+01	normal	95% KM (t) UCL	1.1E+01	1.1E+01
			Fluorene	ug/kg	15	5	0	1.4E+01	5.3E+01	gamma	95% KM (BCA) UCL	1.9E+01	1.9E+01
			Indeno(1,2,3-cd)pyrene	ug/kg	15	13	8	2.3E-01	6.0E-01	--	Fewer than 5 detects	--	6.0E-01
			Naphthalene	ug/kg	15	8	0	1.4E+01	5.6E+01	gamma	95% KM (t) UCL	1.9E+01	1.9E+01
			Phenanthrene	ug/kg	15	10	6	6.7E+00	1.6E+01	normal	95% KM (t) UCL	1.0E+01	1.0E+01
			Pyrene	ug/kg	15	6	6	2.0E+00	7.3E+00	gamma	95% KM (Chebyshev) UCL	5.1E+00	5.1E+00
			Semi-Volatile Organic Compounds										
			Benzoic acid	ug/kg	15	8	6	3.7E+02	4.7E+02	normal	95% KM (t) UCL	4.3E+02	4.3E+02
			Benzyl alcohol	ug/kg	15	10	9	3.7E+01	8.0E+01	non-parametric	95% KM (Chebyshev) UCL	7.6E+01	7.6E+01
			Bis(2-chloroethoxy) methane	ug/kg	15	10	6	1.3E+01	3.0E+01	normal	95% KM (t) UCL	2.1E+01	2.1E+01
			Dibenzofuran	ug/kg	15	6	6	2.6E+00	6.0E+00	approx. gamma	95% KM (Chebyshev) UCL	5.7E+00	5.7E+00
			Hexachlorobenzene	ug/kg	15	6	5	2.9E+00	4.5E+00	normal	95% KM (t) UCL	3.4E+00	3.4E+00
			Hexachlorobutadiene	ug/kg	15	6	6	7.9E-02	2.6E-01	gamma	95% KM (Chebyshev) UCL	2.1E-01	2.1E-01
			Isophorone	ug/kg	15	12	12	5.9E+00	5.9E+00	--	Fewer than 5 detects	--	5.9E+00
			Phenols										
			4-Nitrophenol	ug/kg	15	7	7	8.1E+00	9.5E+00	normal	95% KM (t) UCL	8.6E+00	8.6E+00
			Phenol	ug/kg	15	14	14	4.3E+01	4.3E+01	--	Fewer than 5 detects	--	4.3E+01
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	6	0	0	1.7E+03	6.9E+03	gamma	95% KM (Chebyshev) UCL	6.3E+03	6.3E+03
			Total PCB Congeners	pg/g	15	0	0	2.8E+06	2.5E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.9E+07	1.9E+07
			Total PCBs, Adjusted	pg/g	15	0	0	2.7E+06	2.5E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.9E+07	1.9E+07
			Dioxin/Furans										
			Total Dioxin/Furan TEQ	pg/g	15	0	0	4.1E+00	8.5E+00	approx. gamma	95% Approximate Gamma UCL	5.0E+00	5.0E+00
			Total PCB TEQ	pg/g	15	0	0	1.2E+01	1.1E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.5E+01	2.5E+01

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Pesticides										
			Aldrin	ug/kg	15	6	6	1.2E-01	1.6E-01	normal	95% KM (t) UCL	1.5E-01	1.5E-01
			alpha-Hexachlorocyclohexane	ug/kg	15	6	6	3.5E-02	5.0E-02	normal	95% KM (t) UCL	3.9E-02	3.9E-02
			beta-Hexachlorocyclohexane	ug/kg	15	6	6	1.9E-02	4.2E-02	non-parametric	95% KM (Chebyshev) UCL	3.3E-02	3.3E-02
			delta-Hexachlorocyclohexane	ug/kg	15	10	6	2.3E-03	4.0E-03	normal	95% KM (t) UCL	3.1E-03	3.1E-03
			Dieldrin	ug/kg	15	6	5	2.1E+00	3.0E+00	normal	95% KM (t) UCL	2.5E+00	2.5E+00
			Endrin	ug/kg	15	6	6	2.3E-02	2.9E-02	normal	95% KM (t) UCL	2.7E-02	2.7E-02
			Endrin aldehyde	ug/kg	15	13	11	3.5E-03	7.4E-03	--	Fewer than 5 detects	--	7.4E-03
			Endrin ketone	ug/kg	15	12	9	4.3E-03	1.5E-02	--	Fewer than 5 detects	--	1.5E-02
			gamma-Hexachlorocyclohexane	ug/kg	15	6	6	3.1E-02	4.6E-02	normal	95% KM (t) UCL	3.7E-02	3.7E-02
			Heptachlor	ug/kg	15	10	8	4.1E-03	7.1E-03	normal	95% KM (t) UCL	5.9E-03	5.9E-03
			Heptachlor epoxide	ug/kg	15	6	6	1.5E-01	2.1E-01	normal	95% KM (t) UCL	1.7E-01	1.7E-01
			Methoxychlor	ug/kg	15	13	4	5.7E-01	4.2E+00	--	Fewer than 5 detects	--	4.2E+00
			Total Chlordanes	ug/kg	15	3	0	1.3E+01	2.4E+01	approx. gamma	95% KM (BCA) UCL	1.6E+01	1.6E+01
			Total DDD	ug/kg	15	0	0	7.5E+01	2.9E+02	approx. gamma	95% Approximate Gamma UCL	1.2E+02	1.2E+02
			Total DDE	ug/kg	15	0	0	1.3E+02	3.2E+02	gamma	95% Approximate Gamma UCL	1.7E+02	1.7E+02
			Total DDT	ug/kg	15	5	0	6.0E+00	4.7E+01	lognormal	99% KM (Chebyshev) UCL	3.7E+01	3.7E+01
			Total Endosulfan	ug/kg	15	5	2	2.4E+00	1.4E+01	non-parametric	95% KM (BCA) UCL	3.7E+00	3.7E+00
Study Area-wide	Brown Bullhead	F	**Metals**										
			Aluminum	mg/kg	6	0	0	5.5E+00	1.1E+01	normal	95% Student's t-UCL	8.3E+00	8.3E+00
			Arsenic, inorganic	mg/kg	6	0	0	2.0E-03	2.0E-03	--	--	--	2.0E-03
			Cadmium	mg/kg	6	1	1	1.0E-03	1.0E-03	--	--	--	1.0E-03
			Chromium	mg/kg	6	3	0	7.3E-02	2.3E-01	--	Fewer than 5 detectsf	--	2.3E-01
			Copper	mg/kg	6	0	0	2.5E-01	2.9E-01	normal	95% Student's t-UCL	2.7E-01	2.7E-01
			Manganese	mg/kg	6	0	0	1.1E-01	1.8E-01	approx. gamma	95% Approximate Gamma UCL	1.4E-01	1.4E-01
			Mercury	mg/kg	6	0	0	6.1E-02	9.4E-02	normal	95% Student's t-UCL	7.8E-02	7.8E-02
			Nickel	mg/kg	6	0	0	2.1E-02	5.5E-02	normal	95% Student's t-UCL	3.6E-02	3.6E-02
			Thallium	mg/kg	6	0	0	2.1E-03	3.0E-03	approx. gamma	95% Approximate Gamma UCL	3.2E-03	3.0E-03
			Zinc	mg/kg	6	0	0	5.2E+00	6.5E+00	normal	95% Student's t-UCL	5.9E+00	5.9E+00
			Polynuclear Aromatic Hydrocarbons										
			Fluoranthene	ug/kg	6	5	0	4.4E+01	1.1E+02	--	Fewer than 5 detects	--	1.1E+02
			Phenanthrene	ug/kg	6	4	0	5.8E+01	1.4E+02	--	Fewer than 5 detects	--	1.4E+02
			Phthalates										
			Bis(2-ethylhexyl) phthalate	ug/kg	6	5	1	6.0E+01	1.0E+02	--	Fewer than 5 detects	--	1.0E+02
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	6	0	0	3.6E+02	1.3E+03	gamma	95% Approximate Gamma UCL	1.5E+03	1.3E+03
			Pesticides										
			Dieldrin	ug/kg	6	5	2	9.0E-01	2.1E+00	--	Fewer than 5 detects	--	2.1E+00
			Total Chlordanes	ug/kg	6	2	2	1.4E+00	1.6E+00	--	Fewer than 5 detects	--	1.6E+00
			Total DDD	ug/kg	6	2	2	3.4E+00	4.3E+00	--	Fewer than 5 detects	--	4.3E+00
			Total DDE	ug/kg	6	0	0	1.4E+01	2.7E+01	normal	95% Student's t-UCL	1.9E+01	1.9E+01
			Total DDT	ug/kg	6	2	0	6.4E+00	1.2E+01	--	Less than 5 detects	--	1.2E+01
Study Area-wide	Brown Bullhead	WB	**Metals**										
			Aluminum	mg/kg	6	0	0	9.8E+00	3.2E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.9E+01	2.9E+01
			Arsenic, inorganic	mg/kg	6	0	0	5.6E-03	8.0E-03	normal	95% Student's t-UCL	6.8E-03	6.8E-03
			Cadmium	mg/kg	6	0	0	1.2E-02	1.4E-02	normal	95% Student's t-UCL	1.4E-02	1.4E-02
			Chromium	mg/kg	6	0	0	7.3E-01	1.3E+00	normal	95% Student's t-UCL	1.0E+00	1.0E+00
			Copper	mg/kg	6	0	0	6.9E-01	8.0E-01	normal	95% Student's t-UCL	7.6E-01	7.6E-01
			Lead	mg/kg	6	1	0	2.5E-02	4.4E-02	non-parametric	95% KM (Chebyshev) UCL	4.2E-02	4.2E-02

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Manganese	mg/kg	6	0	0	5.1E+00	1.1E+01	gamma	95% Approximate Gamma UCL	8.2E+00	8.2E+00
			Mercury	mg/kg	6	0	0	3.7E-02	5.4E-02	normal	95% Student's t-UCL	4.6E-02	4.6E-02
			Nickel	mg/kg	6	1	1	2.6E-01	3.2E-01	normal	95% Student's t-UCL	3.1E-01	3.1E-01
			Selenium	mg/kg	6	4	0	1.8E-01	3.0E-01	--	Fewer than 5 detects	--	3.0E-01
			Silver	mg/kg	6	5	0	1.6E-03	4.1E-03	--	Fewer than 5 detects	--	4.1E-03
			Thallium	mg/kg	6	2	0	2.3E-03	3.9E-03	--	Fewer than 5 detects	--	3.9E-03
			Zinc	mg/kg	6	0	0	1.4E+01	1.6E+01	normal	95% Student's t-UCL	1.5E+01	1.5E+01
			Polynuclear Aromatic Hydrocarbons										
			Fluoranthene	ug/kg	6	5	0	2.0E+01	4.0E+01	--	Fewer than 5 detects	--	4.0E+01
			Phenanthrene	ug/kg	6	5	0	2.4E+01	6.0E+01	--	Fewer than 5 detects	--	6.0E+01
			Phthalates										
			Bis(2-ethylhexyl) phthalate	ug/kg	6	5	0	4.9E+02	2.7E+03	--	Fewer than 5 detects	--	2.7E+03
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	6	0	0	4.2E+02	1.7E+03	approx. gamma	95% Approximate Gamma UCL	1.4E+03	1.4E+03
			Total PCB Congeners	pg/g	6	0	0	5.1E+05	2.0E+06	gamma	95% Approximate Gamma UCL	1.6E+06	1.6E+06
			Total PCBs, Adjusted	pg/g	6	0	0	4.9E+05	1.9E+06	gamma	95% Approximate Gamma UCL	1.5E+06	1.5E+06
			Dioxin/Furans										
			Total Dioxin/Furan TEQ	pg/g	6	0	0	1.6E+00	2.1E+00	normal	95% Student's t-UCL	1.8E+00	1.8E+00
			Total PCB TEQ	pg/g	6	0	0	3.5E+00	6.0E+00	normal	95% Student's t-UCL	4.8E+00	4.8E+00
			Pesticides										
			Dieldrin	ug/kg	6	4	2	1.5E+00	2.6E+00	--	Fewer than 5 detects	--	2.6E+00
			gamma-Hexachlorocyclohexane	ug/kg	6	3	2	1.3E+00	1.9E+00	--	Fewer than 5 detects	--	1.9E+00
			Methoxychlor	ug/kg	6	5	2	6.6E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00
			Total Chlordanes	ug/kg	6	2	0	1.6E+01	6.7E+01	--	Fewer than 5 detects	--	6.7E+01
			Total DDD	ug/kg	6	0	0	1.3E+01	2.5E+01	normal	95% Student's t-UCL	1.8E+01	1.8E+01
			Total DDE	ug/kg	6	0	0	4.7E+01	7.0E+01	normal	95% Student's t-UCL	6.0E+01	6.0E+01
			Total DDT	ug/kg	6	1	0	2.7E+01	5.8E+01	normal	95% KM (t) UCL	4.4E+01	4.4E+01
			Total Endosulfan	ug/kg	6	4	1	3.2E+00	8.6E+00	--	Fewer than 5 detects	--	8.6E+00
Study Area-wide	Black Crappie	F	**Metals**										
			Aluminum	mg/kg	4	0	0	5.2E+00	7.0E+00		Fewer than 5 detects		7.0E+00
			Arsenic, inorganic	mg/kg	4	0	0	1.4E-02	1.8E-02				1.8E-02
			Cadmium	mg/kg	4	2	0	7.5E-04	1.0E-03				1.0E-03
			Chromium	mg/kg	4	2	0	1.2E-01	2.8E-01				2.8E-01
			Copper	mg/kg	4	0	0	1.8E-01	1.8E-01				1.8E-01
			Manganese	mg/kg	4	0	0	1.3E-01	1.7E-01				1.7E-01
			Mercury	mg/kg	4	0	0	8.6E-02	1.0E-01				1.0E-01
			Nickel	mg/kg	4	2	0	3.1E-02	6.4E-02				6.4E-02
			Thallium	mg/kg	4	0	0	7.1E-03	9.9E-03				9.9E-03
			Zinc	mg/kg	4	0	0	8.2E+00	9.0E+00				9.0E+00
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	4	0	0	2.4E+01	3.2E+01				3.2E+01
			Pesticides										
			Total Chlordanes	ug/kg	4	3	0	6.5E-01	1.1E+00				1.1E+00
			Total DDD	ug/kg	4	0	0	2.2E+00	2.7E+00				2.7E+00
			Total DDE	ug/kg	4	0	0	6.7E+00	7.8E+00				7.8E+00
			Total DDT	ug/kg	4	0	0	2.7E+00	3.4E+00				3.4E+00
Study Area-wide	Black Crappie	WB	**Metals**										
			Aluminum	mg/kg	4	0	0	2.2E+01	6.9E+01		Fewer than 5 detects		6.9E+01
			Arsenic, inorganic	mg/kg	4	0	0	2.8E-02	4.2E-02				4.2E-02

TABLE 3-12
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[e]
										Distribution	95% UCL Method	Value	
			Cadmium	mg/kg	4	0	0	3.9E-03	6.0E-03				6.0E-03
			Copper	mg/kg	4	0	0	8.2E-01	9.5E-01				9.5E-01
			Lead	mg/kg	4	3	0	6.6E-03	1.9E-02				1.9E-02
			Manganese	mg/kg	4	0	0	3.1E+00	3.4E+00				3.4E+00
			Mercury	mg/kg	4	0	0	3.9E-02	4.4E-02				4.4E-02
			Nickel	mg/kg	4	0	0	3.4E-01	3.6E-01				3.6E-01
			Thallium	mg/kg	4	0	0	1.1E-02	1.7E-02				1.7E-02
			Zinc	mg/kg	4	0	0	1.5E+01	1.7E+01				1.7E+01
			Semi-Volatile Organic Compounds										
			Hexachlorobenzene	ug/kg	4	2	0	3.7E+00	8.1E+00				8.1E+00
			Hexachlorobutadiene	ug/kg	4	1	0	1.4E+00	2.3E+00				2.3E+00
			Polychlorinated Biphenyls										
			Total Aroclors	ug/kg	4	0	0	1.3E+02	2.5E+02				2.5E+02
			Total PCB Congeners	pg/g	4	0	0	1.6E+05	3.0E+05				3.0E+05
			Total PCBs, Adjustedg	pg/g	4	0	0	1.5E+05	2.8E+05				2.8E+05
			Dioxin/Furans										
			Total Dioxin/Furan TEQ	pg/g	4	0	0	1.2E+00	1.3E+00				1.3E+00
			Total PCB TEQ	pg/g	4	0	0	2.2E+00	3.2E+00				3.2E+00
			Pesticides										
			alpha-Hexachlorocyclohexane	ug/kg	4	3	0	7.3E-01	1.4E+00				1.4E+00
			Dieldrin	ug/kg	4	3	1	1.5E+00	2.5E+00				2.5E+00
			Heptachlor	ug/kg	4	3	0	8.6E-01	1.8E+00				1.8E+00
			Total Chlordanes	ug/kg	4	0	0	7.5E+00	9.7E+00				9.7E+00
			Total DDD	ug/kg	4	0	0	1.2E+01	1.9E+01				1.9E+01
			Total DDE	ug/kg	4	0	0	5.6E+01	8.1E+01				8.1E+01
			Total DDT	ug/kg	4	1	0	1.3E+01	2.2E+01				2.2E+01
			Total Endosulfan	ug/kg	4	3	1	7.0E-01	1.1E+00				1.1E+00

Notes:

a Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
b Total number of non-detects in the dataset.
c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
e Exposure point concentration is the lesser value of maximum or 95%UCL.
f 95% UCL not calculated for analytes with fewer than five detects.
g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
F = Fillet tissue. All smallmouth bass, carp, and crapppie fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin. All brown bullhead fillet tissue was analyzed as fillet without skin.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.
WB= Whole body.

TABLE 3-13
Exposure Point Concentration Summary - Pacific Lamprey Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Pacific Lamprey Tissue

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
Study Area-wide	WB	**Metals**										
		Antimony	mg/kg	4	2	0	8.9E-01	2.1E+00		Fewer than 5 detects[g]		2.1E+00
		Arsenic, inorganic	mg/kg	4	0	0	2.4E-02	2.7E-02				2.7E-02
		Cadmium	mg/kg	4	0	0	6.0E-02	6.5E-02				6.5E-02
		Chromium	mg/kg	4	0	0	3.0E-01	4.5E-01				4.5E-01
		Cobalt	mg/kg	4	0	0	5.7E-02	7.2E-02				7.2E-02
		Copper	mg/kg	4	0	0	4.4E+00	4.8E+00				4.8E+00
		Iron	mg/kg	4	0	0	7.3E+01	8.2E+01				8.2E+01
		Lead	mg/kg	4	3	0	3.8E-02	1.3E-01				1.3E-01
		Manganese	mg/kg	4	0	0	1.6E+00	5.2E+00				5.2E+00
		Mercury	mg/kg	4	0	0	1.4E-01	1.7E-01				1.7E-01
		Nickel	mg/kg	4	3	0	3.1E-02	5.5E-02				5.5E-02
		Selenium	mg/kg	4	0	0	4.2E-01	4.8E-01				4.8E-01
		Silver	mg/kg	4	0	0	8.1E-02	8.9E-02				8.9E-02
		Zinc	mg/kg	4	0	0	1.9E+01	2.0E+01				2.0E+01
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	4	2	0	9.3E+00	1.5E+01				1.5E+01
		2-Methylnaphthalene	ug/kg	4	2	0	1.6E+01	2.6E+01				2.6E+01
		Acenaphthene	ug/kg	4	3	3	2.5E+00	2.5E+00				2.5E+00
		Acenaphthylene	ug/kg	4	3	3	1.0E+00	1.0E+00				1.0E+00
		Anthracene	ug/kg	4	3	3	1.7E+00	1.7E+00				1.7E+00
		Fluoranthene	ug/kg	4	2	0	5.9E+00	1.1E+01				1.1E+01
		Fluorene	ug/kg	4	2	0	3.2E+00	4.8E+00				4.8E+00
		Naphthalene	ug/kg	4	2	0	6.4E+00	1.1E+01				1.1E+01
		Phenanthrene	ug/kg	4	2	1	4.8E+00	8.2E+00				8.2E+00
		Pyrene	ug/kg	4	2	2	1.7E+00	2.0E+00				2.0E+00
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	4	3	3	2.9E+00	2.9E+00				2.9E+00
		Hexachlorobenzene	ug/kg	4	0	0	9.1E+00	1.1E+01				1.1E+01
		Retene	ug/kg	4	3	0	3.5E+00	7.8E+00				7.8E+00
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	4	0	0	4.4E+01	5.0E+01				5.0E+01
		Total PCB Congeners	pg/g	4	0	0	4.5E+04	4.9E+04				4.9E+04
		Total PCBs, Adjusted[h]	pg/g	4	0	0	4.1E+04	4.5E+04				4.5E+04

TABLE 3-13
Exposure Point Concentration Summary - Pacific Lamprey Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Pacific Lamprey Tissue

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	4	0	0	2.8E-01	3.1E-01				3.1E-01
		Total PCB TEQ	pg/g	4	0	0	9.0E-01	9.7E-01				9.7E-01

Notes:

a Lamprey samples were taken at Willamette Falls, outside of initial study area; samples represent EPCs for Study Area locations.
b Chemicals listed are analytes detected at least once within the BHHRA data set for this species.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f Exposure point concentration is lesser value of the 95% UCL or maximum.
g 95% UCL not calculated for analytes with fewer than five detects.
h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

95% UCL = 95% Upper confidence limit on the mean.
BHHRA = Baseline human health risk assessment.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated biphenyl.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.
WB = Whole body tissue.

TABLE 3-14
Exposure Point Concentration Summary - Sturgeon Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Sturgeon Tissue

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
Study Area-wide	FNS	**Metals**										
		Aluminum	mg/kg	5	4	0	1.2E+00	2.2E+00	--	Fewer than 5 detects[g]	--	2.2E+00
		Arsenic, inorganic	mg/kg	5	0	0	3.4E-02	5.4E-02	normal	95% Student's-t UCL	4.8E-02	4.8E-02
		Barium	mg/kg	5	1	0	6.5E-02	9.5E-02	--	Fewer than 5 detects	--	9.5E-02
		Chromium	mg/kg	5	0	0	1.5E+00	3.3E+00	normal	95% Student's-t UCL	2.7E+00	2.7E+00
		Cobalt	mg/kg	5	0	0	2.8E-01	4.0E-01	normal	95% Student's-t UCL	4.1E-01	4.0E-01
		Copper	mg/kg	5	0	0	1.9E-01	2.5E-01	normal	95% Student's-t UCL	2.4E-01	2.4E-01
		Iron	mg/kg	5	0	0	8.2E+00	1.6E+01	normal	95% Student's-t UCL	1.3E+01	1.3E+01
		Lead	mg/kg	5	4	0	7.3E-03	1.7E-02	--	Fewer than 5 detects	--	1.7E-02
		Manganese	mg/kg	5	0	0	5.2E-01	1.1E+00	gamma	95% Approximate Gamma UCL	9.7E-01	9.7E-01
		Mercury	mg/kg	5	0	0	2.4E-01	3.2E-01	normal	95% Student's-t UCL	3.3E-01	3.2E-01
		Nickel	mg/kg	5	0	0	7.3E-01	1.7E+00	normal	95% Student's-t UCL	1.4E+00	1.4E+00
		Selenium	mg/kg	5	0	0	4.2E-01	5.3E-01	normal	95% Student's-t UCL	5.2E-01	5.2E-01
		Zinc	mg/kg	5	0	0	2.6E+00	2.9E+00	normal	95% Student's-t UCL	2.9E+00	2.9E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	5	2	0	2.9E+00	3.9E+00	--	Fewer than 5 detects	--	3.9E+00
		2-Methylnaphthalene	ug/kg	5	4	0	2.4E+00	4.4E+00	--	Fewer than 5 detects	--	4.4E+00
		Acenaphthene	ug/kg	5	2	0	3.6E+00	8.4E+00	--	Fewer than 5 detects	--	8.4E+00
		Acenaphthylene	ug/kg	5	4	4	1.0E+00	1.0E+00	--	Fewer than 5 detects	--	1.0E+00
		Anthracene	ug/kg	5	4	0	2.6E+00	5.1E+00	--	Fewer than 5 detects	--	5.1E+00
		Fluoranthene	ug/kg	5	3	3	1.1E+00	1.3E+00	--	Fewer than 5 detects	--	1.3E+00
		Fluorene	ug/kg	5	4	0	2.6E+00	5.2E+00	--	Fewer than 5 detects	--	5.2E+00
		Pyrene	ug/kg	5	4	4	1.2E+00	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	5	2	2	1.8E+00	3.6E+00	--	Fewer than 5 detects	--	3.6E+00
		Hexachlorobenzene	ug/kg	5	2	2	1.6E+00	1.6E+00	--	Fewer than 5 detects	--	1.6E+00
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	5	0	0	1.3E+02	4.3E+02	gamma	95% Approximate Gamma UCL	4.7E+02	4.3E+02
		Total PCB Congeners	pg/g	5	0	0	2.9E+05	9.6E+05	gamma	95% Approximate Gamma UCL	1.1E+06	9.6E+05
		Total PCBs, Adjusted[h]	pg/g	5	0	0	2.8E+05	9.5E+05	gamma	95% Approximate Gamma UCL	1.1E+06	9.5E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	5	0	0	5.8E-01	1.3E+00	normal	95% Student's-t UCL	1.0E+00	1.0E+00
		Total PCB TEQ	pg/g	5	0	0	5.2E-01	8.7E-01	normal	95% Student's-t UCL	7.6E-01	7.6E-01
		Pesticides										
		Dieldrin	ug/kg	5	3	0	7.0E-01	1.4E+00	--	Fewer than 5 detects	--	1.4E+00
		Methoxychlor	ug/kg	5	4	0	2.4E+00	4.4E+00	--	Fewer than 5 detects	--	4.4E+00
		Total Chlordanes	ug/kg	5	1	0	3.6E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00

TABLE 3-14
Exposure Point Concentration Summary - Sturgeon Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Sturgeon Tissue

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	5	0	0	5.0E+01	9.4E+01	normal	95% Student's-t UCL	7.6E+01	7.6E+01
		Total DDT	ug/kg	5	0	0	2.7E+01	7.4E+01	gamma	95% Approximate Gamma UCL	7.8E+01	7.4E+01
		Total Endosulfan	ug/kg	5	4	0	6.0E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00

Notes:

a Sturgeon samples were taken between Willamette River miles 3.5 and 9.2.
b Chemicals listed are analytes detected at least once within the BHHRA data set for this species.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f Exposure point concentration is lesser value of the 95% UCL or maximum.
g 95% UCL not calculated for analytes with fewer than five detects.
h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
FNS = Fillet tissue without skin.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated biphenyl.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 3-15
Exposure Point Concentration Summary - Adult Chinook Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Adult Chinook Tissue

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
Study Area-wide	FS	**Metals**										
		Arsenic, inorganic	mg/kg	3	0	0	1.0E-01	1.3E-01		Fewer than 5 detects[g]		1.3E-01
		Chromium	mg/kg	3	0	0	3.1E-01	3.3E-01				3.3E-01
		Cobalt	mg/kg	3	0	0	1.5E-01	2.7E-01				2.7E-01
		Copper	mg/kg	3	0	0	5.2E-01	5.3E-01				5.3E-01
		Iron	mg/kg	3	0	0	4.0E+00	4.3E+00				4.3E+00
		Manganese	mg/kg	3	0	0	9.1E-02	9.5E-02				9.5E-02
		Selenium	mg/kg	3	0	0	3.1E-01	3.4E-01				3.4E-01
		Zinc	mg/kg	3	0	0	4.6E+00	4.6E+00				4.6E+00
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	3	2	0	3.1E+00	5.4E+00				5.4E+00
		Fluorene	ug/kg	3	2	2	1.8E+00	1.8E+00				1.8E+00
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	3	0	0	1.5E+01	2.0E+01				2.0E+01
		Total PCB Congeners	pg/g	3	0	0	1.3E+04	1.5E+04				1.5E+04
		Total PCBs, Adjusted[h]	pg/g	3	0	0	1.2E+04	1.4E+04				1.4E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	1.7E-01	1.9E-01				1.9E-01
		Total PCB TEQ	pg/g	3	0	0	1.7E-01	2.0E-01				2.0E-01
		Pesticides										
		Dieldrin	ug/kg	3	2	1	1.4E+00	2.0E+00				2.0E+00
		Total DDE	ug/kg	3	1	0	7.2E+00	1.1E+01				1.1E+01
		Total DDT	ug/kg	3	1	0	1.2E+00	2.0E+00				2.0E+00
		Total Endosulfan	ug/kg	3	2	1	8.3E-01	1.2E+00				1.2E+00
	FNS	**Metals**										
		Mercury	mg/kg	3	0	0	8.1E-02	1.0E-01		Fewer than 5 detects		1.0E-01
		Polychlorinated Biphenyls										
		Total PCB Congeners	pg/g	3	0	0	1.0E+04	1.2E+04				1.2E+04
		Total PCBs, Adjusted	pg/g	3	0	0	9.5E+03	1.2E+04				1.2E+04
		Dioxins/Furans										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	1.4E-01	1.7E-01				1.7E-01
		Total PCB TEQ	pg/g	3	0	0	1.5E-01	1.8E-01				1.8E-01

TABLE 3-15
Exposure Point Concentration Summary - Adult Chinook Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Adult Chinook Tissue

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
	WB	**Metals**										
		Aluminum	mg/kg	4	0	0	4.9E+00	5.6E+00		Fewer than 5 detects		5.6E+00
		Antimony	mg/kg	4	3	0	1.2E-01	2.8E-01				2.8E-01
		Arsenic, inorganic	mg/kg	4	0	0	9.0E-02	9.8E-02				9.8E-02
		Chromium	mg/kg	4	0	0	3.1E-01	4.0E-01				4.0E-01
		Cobalt	mg/kg	4	0	0	6.8E-02	8.4E-02				8.4E-02
		Copper	mg/kg	4	0	0	1.4E+00	1.5E+00				1.5E+00
		Iron	mg/kg	4	0	0	2.0E+01	2.1E+01				2.1E+01
		Manganese	mg/kg	4	0	0	3.0E-01	3.4E-01				3.4E-01
		Mercury	mg/kg	4	0	0	5.7E-02	6.2E-02				6.2E-02
		Nickel	mg/kg	4	0	0	1.3E-01	2.2E-01				2.2E-01
		Selenium	mg/kg	4	0	0	4.7E-01	5.1E-01				5.1E-01
		Silver	mg/kg	4	3	0	1.0E-02	1.7E-02				1.7E-02
		Zinc	mg/kg	4	0	0	2.8E+01	3.8E+01				3.8E+01
		Polynuclear Aromatic Hydrocarbons										
		1-Methyl-naphthalene	ug/kg	4	1	1	2.6E+00	2.8E+00				2.8E+00
		2-Methyl-naphthalene	ug/kg	4	1	0	4.6E+00	5.7E+00				5.7E+00
		Fluoranthene	ug/kg	4	3	3	1.0E+00	1.0E+00				1.0E+00
		Fluorene	ug/kg	4	3	3	8.0E-01	8.0E-01				8.0E-01
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	4	3	3	7.0E-01	7.0E-01				7.0E-01
		Hexachlorobenzene	ug/kg	4	1	1	2.2E+00	2.6E+00				2.6E+00
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	4	0	0	1.7E+01	1.9E+01				1.9E+01
		Total PCB Congeners	pg/g	4	0	0	1.5E+04	1.7E+04				1.7E+04
		Total PCBs, Adjusted	pg/g	4	0	0	1.4E+04	1.6E+04				1.6E+04
		Dioxins/Furans										
		Total Dioxin/Furan TEQ	pg/g	4	0	0	2.1E-01	2.6E-01				2.6E-01
		Total PCB TEQ	pg/g	4	0	0	2.2E-01	2.5E-01				2.5E-01
		Pesticides										
		Dieldrin	ug/kg	4	0	0	1.4E+00	1.6E+00				1.6E+00
		Heptachlor	ug/kg	4	3	0	7.8E-01	1.7E+00				1.7E+00
		Methoxychlor	ug/kg	4	3	2	2.8E+00	3.7E+00				3.7E+00
		Total Chlordane	ug/kg	4	3	2	8.4E-01	1.2E+00				1.2E+00

TABLE 3-15
Exposure Point Concentration Summary - Adult Chinook Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Adult Chinook Tissue

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration[f]
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	4	0	0	6.4E+00	7.9E+00				7.9E+00
		Total DDT	ug/kg	4	3	3	1.4E+00	1.4E+00				1.4E+00
		Total Endosulfan	ug/kg	4	3	2	7.3E-01	9.9E-01				9.9E-01

Notes:

a Chinook salmon samples were taken at Clackamas fish hatchery, outside of initial study area; samples represent EPCs for Study Area locations.
b Chemicals listed are analytes detected in each tissue type at least once within the BHHRA data set for this species.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f Exposure point concentration is lesser value of the 95% UCL or maximum.
g 95% UCL not calculated for analytes with fewer than five detects.
h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

95% UCL = 95% Upper confidence limit on the mean.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
FNS = Fillet tissue without skin.
FS = Fillet tissue with skin.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated biphenyl.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.
WB = Whole body tissue.

TABLE 3-16
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Recreational and Subsistence Fishers[b]					Tribal Fishers[b]							
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC[c,d]	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon[e]	Lamprey[f]	Sturgeon[g]	Multi-Species EPC[h,i,j]
Study Area-wide	F	**Metals**														
		Aluminum	mg/kg	6.7E-01	4.9E-01	2.1E+00	1.8E+00	5.0E+00	3.3E-01	2.4E-01	1.0E+00	8.7E-01	ND	ND	1.1E-01	2.6E+00
		Antimony	mg/kg	1.3E-03	ND	ND	ND	1.3E-03	6.2E-04	ND	ND	ND	ND	1.4E-01	ND	1.4E-01
		Arsenic, inorganic	mg/kg	5.4E-03	3.0E-03	5.0E-04	4.5E-03	1.3E-02	2.7E-03	1.5E-03	2.5E-04	2.2E-03	4.8E-02	1.9E-03	2.4E-03	5.9E-02
		Cadmium	mg/kg	2.5E-04	1.2E-03	2.5E-04	2.5E-04	2.0E-03	1.2E-04	6.0E-04	1.2E-04	1.2E-04	ND	4.6E-03	ND	5.5E-03
		Chromium	mg/kg	2.3E-01	3.7E-01	5.8E-02	7.0E-02	7.3E-01	1.1E-01	1.8E-01	2.9E-02	3.5E-02	1.3E-01	3.1E-02	1.3E-01	6.5E-01
		Copper	mg/kg	1.2E-01	1.3E-01	6.9E-02	4.6E-02	3.6E-01	5.8E-02	6.3E-02	3.4E-02	2.3E-02	2.0E-01	3.4E-01	1.2E-02	7.3E-01
		Lead	mg/kg	4.5E-02	2.8E-02	ND	ND	7.3E-02	2.2E-02	1.4E-02	ND	ND	ND	9.0E-03	8.1E-04	4.6E-02
		Manganese	mg/kg	1.2E-01	7.0E-01	3.5E-02	4.2E-02	9.0E-01	6.0E-02	3.5E-01	1.7E-02	2.1E-02	3.7E-02	3.6E-01	4.8E-02	8.9E-01
		Mercury	mg/kg	5.0E-02	3.8E-02	2.0E-02	2.5E-02	1.3E-01	2.5E-02	1.9E-02	9.7E-03	1.3E-02	ND	1.2E-02	1.6E-02	9.4E-02
		Nickel	mg/kg	2.6E-02	4.3E-02	9.1E-03	1.6E-02	9.4E-02	1.3E-02	2.1E-02	4.5E-03	7.9E-03	ND	3.8E-03	7.0E-02	1.2E-01
		Selenium	mg/kg	1.1E+00	7.5E-02	ND	ND	1.2E+00	5.6E-01	3.7E-02	ND	ND	1.3E-01	3.4E-02	2.6E-02	7.9E-01
		Silver	mg/kg	5.0E-04	ND	ND	ND	5.0E-04	2.5E-04	ND	ND	ND	ND	6.2E-03	ND	6.4E-03
		Thallium	mg/kg	1.1E-03	6.8E-04	7.5E-04	2.5E-03	5.1E-03	5.7E-04	3.4E-04	3.7E-04	1.2E-03	ND	ND	ND	2.5E-03
		Zinc	mg/kg	2.2E+00	6.9E+00	1.5E+00	2.3E+00	1.3E+01	1.1E+00	3.4E+00	7.3E-01	1.1E+00	1.8E+00	1.4E+00	1.4E-01	9.7E+00
		Butyltins														
		Butyltin ion	ug/kg	ND	3.0E-01	NA	NA	3.0E-01	ND	1.5E-01	NA	NA	ND	ND	NA	1.5E-01
		Dibutyltin ion	ug/kg	1.4E-01	1.8E+00	NA	NA	2.0E+00	7.0E-02	9.1E-01	NA	NA	ND	ND	NA	9.8E-01
		Tributyltin ion	ug/kg	2.3E-01	1.7E+00	NA	NA	1.9E+00	1.1E-01	8.4E-01	NA	NA	ND	ND	NA	9.6E-01
		Polynuclear Aromatic Hydrocarbons														
		1-Methylnaphthalene	ug/kg	2.5E-01	1.1E+00	NA	NA	1.3E+00	1.2E-01	5.4E-01	NA	NA	ND	1.1E+00	1.9E-01	1.9E+00
		2-Methylnaphthalene	ug/kg	3.2E-01	7.6E-01	ND	NA	1.1E+00	1.6E-01	3.7E-01	ND	NA	2.1E+00	1.8E+00	2.2E-01	4.6E+00
		Acenaphthene	ug/kg	1.4E+00	1.1E+01	ND	NA	1.2E+01	6.7E-01	5.3E+00	ND	NA	ND	1.8E-01	4.1E-01	6.6E+00
		Acenaphthylene	ug/kg	1.7E-01	6.9E-01	ND	NA	8.5E-01	8.3E-02	3.4E-01	ND	NA	ND	7.0E-02	4.9E-02	5.4E-01
		Anthracene	ug/kg	2.9E-01	1.4E+00	ND	NA	1.7E+00	1.4E-01	7.1E-01	ND	NA	ND	1.2E-01	2.5E-01	1.2E+00
		Benzo(a)anthracene	ug/kg	1.9E-01	7.0E-02	ND	NA	2.6E-01	9.4E-02	3.5E-02	ND	NA	ND	ND	ND	1.3E-01
		Benzo(a)pyrene	ug/kg	1.7E-01	ND	ND	NA	1.7E-01	8.6E-02	ND	ND	NA	ND	ND	ND	8.6E-02
		Benzo(b)fluoranthene	ug/kg	1.4E-01	8.0E-02	ND	NA	2.2E-01	6.9E-02	4.0E-02	ND	NA	ND	ND	ND	1.1E-01
		Benzo(g,h,i)perylene	ug/kg	1.5E-01	4.3E-02	ND	NA	2.0E-01	7.7E-02	2.1E-02	ND	NA	ND	ND	ND	9.8E-02
		Benzo(k)fluoranthene	ug/kg	1.1E-01	4.5E-02	ND	NA	1.5E-01	5.4E-02	2.2E-02	ND	NA	ND	ND	ND	7.7E-02
		Chrysene	ug/kg	3.7E-01	ND	ND	NA	3.7E-01	1.8E-01	ND	ND	NA	ND	ND	ND	1.8E-01
		Dibenzo(a,h)anthracene	ug/kg	6.0E-02	1.9E-02	ND	NA	7.9E-02	3.0E-02	9.3E-03	ND	NA	ND	ND	ND	3.9E-02
		Dibenzothiophene	ug/kg	2.0E-01	4.2E-01	NA	NA	6.2E-01	9.9E-02	2.1E-01	NA	NA	NA	NA	NA	3.1E-01
		Fluoranthene	ug/kg	9.9E-01	1.0E+00	2.8E+01	NA	3.0E+01	4.9E-01	5.0E-01	1.4E+01	NA	ND	7.7E-01	6.4E-02	1.5E+01
		Fluorene	ug/kg	7.0E-01	2.0E+00	ND	NA	2.7E+00	3.5E-01	9.7E-01	ND	NA	6.9E-01	3.4E-01	2.5E-01	2.6E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1.4E-01	3.0E-02	ND	NA	1.7E-01	7.1E-02	1.5E-02	ND	NA	ND	ND	ND	8.6E-02
		Naphthalene	ug/kg	1.0E+00	1.7E+00	ND	NA	2.7E+00	5.2E-01	8.4E-01	ND	NA	ND	7.7E-01	ND	2.1E+00
		Phenanthrene	ug/kg	1.7E+00	2.3E+00	3.5E+01	NA	3.9E+01	8.6E-01	1.1E+00	1.7E+01	NA	ND	5.7E-01	ND	2.0E+01
		Pyrene	ug/kg	3.3E+00	8.3E-01	ND	NA	4.1E+00	1.6E+00	4.1E-01	ND	NA	ND	1.4E-01	5.9E-02	2.2E+00
		Phthalates														
		Bis(2-ethylhexyl) phthalate	ug/kg	3.3E+01	ND	2.5E+01	NA	5.8E+01	1.6E+01	ND	1.2E+01	NA	ND	ND	NA	2.9E+01
		Dibutyl phthalate	ug/kg	1.1E+01	ND	ND	NA	1.1E+01	5.3E+00	ND	ND	NA	ND	NA	NA	5.3E+00
		Diethyl phthalate	ug/kg	4.3E+00	ND	ND	NA	4.3E+00	2.1E+00	ND	ND	NA	ND	ND	NA	2.1E+00
		Semi-Volatile Organic Compounds	ug/kg													
		Benzyl alcohol	ug/kg	6.3E+00	7.7E+00	ND	NA	1.4E+01	3.1E+00	3.8E+00	ND	NA	ND	ND	NA	6.9E+00
		Dibenzofuran	ug/kg	ND	6.1E-01	ND	NA	6.1E-01	ND	3.0E-01	ND	NA	ND	2.0E-01	1.8E-01	6.8E-01
		Hexachlorobenzene	ug/kg	1.1E-01	1.7E+01	ND	ND	1.8E+01	5.6E-02	8.6E+00	ND	ND	ND	7.7E-01	7.8E-02	9.5E+00
		Hexachlorobutadiene	ug/kg	8.4E-03	3.7E-02	ND	ND	4.5E-02	4.2E-03	1.8E-02	ND	ND	ND	ND	ND	2.2E-02
		Isophorone	ug/kg	ND	2.5E+00	ND	NA	2.5E+00	ND	1.2E+00	ND	NA	NA	NA	NA	1.2E+00
		Phenols														
		4-Nitrophenol	ug/kg	3.3E+00	3.8E+00	ND	NA	7.1E+00	1.6E+00	1.9E+00	ND	NA	ND	NA	NA	3.5E+00
		Polychlorinated Biphenyls														
		Total Aroclors	ug/kg	2.1E+01	3.0E+02	3.3E+02	8.0E+00	6.6E+02	1.0E+01	1.5E+02	1.7E+02	4.0E+00	7.7E+00	3.5E+00	2.1E+01	3.6E+02
		Total PCB Congeners	pg/g	1.3E+05	4.9E+06	NA	NA	5.1E+06	6.3E+04	2.4E+06	NA	NA	5.9E+03	3.4E+03	4.7E+04	2.6E+06
		Total PCBs, Adjusted[k]	pg/g	1.2E+05	4.9E+06	NA	NA	5.0E+06	6.1E+04	2.4E+06	NA	NA	5.5E+03	3.1E+03	4.7E+04	2.5E+06

TABLE 3-16
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Recreational and Subsistence Fishers[b]					Tribal Fishers[b]							
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC[c,d]	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon[e]	Lamprey[f]	Sturgeon[g]	Multi-Species EPC[h,i,j]
		Dioxin/Furans														
		Total Dioxin/Furan TEQ	pg/g	7.5E-01	8.8E-01	NA	NA	1.6E+00	3.7E-01	4.4E-01	NA	NA	7.3E-02	2.2E-02	4.9E-02	9.5E-01
		Total PCB TEQ	pg/g	3.1E-01	2.6E+00	NA	NA	2.9E+00	1.5E-01	1.3E+00	NA	NA	7.7E-02	6.8E-02	3.7E-02	1.6E+00
		Pesticides														
		Aldrin	ug/kg	1.9E-03	2.5E-02	ND	ND	2.7E-02	9.4E-04	1.3E-02	ND	ND	ND	ND	ND	1.3E-02
		alpha-Hexachlorocyclohexane	ug/kg	1.2E-03	7.2E-03	ND	ND	8.4E-03	6.0E-04	3.6E-03	ND	ND	ND	ND	ND	4.2E-03
		beta-Hexachlorocyclohexane	ug/kg	1.1E+00	4.0E-03	ND	ND	1.1E+00	5.6E-01	2.0E-03	ND	ND	ND	ND	ND	5.6E-01
		Dieldrin	ug/kg	2.8E-01	4.7E-01	5.3E-01	ND	1.3E+00	1.4E-01	2.3E-01	2.6E-01	ND	7.7E-01	ND	6.9E-02	1.5E+00
		Endrin	ug/kg	1.2E-03	5.2E-03	ND	ND	6.4E-03	6.1E-04	2.6E-03	ND	ND	ND	ND	ND	3.2E-03
		Endrin aldehyde	ug/kg	5.0E-01	8.5E-04	ND	ND	5.0E-01	2.5E-01	4.2E-04	ND	ND	ND	ND	ND	2.5E-01
		Endrin ketone	ug/kg	2.7E-03	1.7E-03	ND	ND	4.4E-03	1.3E-03	8.3E-04	ND	ND	ND	ND	ND	2.2E-03
		gamma-Hexachlorocyclohexane	ug/kg	1.4E-03	7.2E-03	ND	ND	8.6E-03	6.9E-04	3.6E-03	ND	ND	ND	ND	ND	4.3E-03
		Heptachlor	ug/kg	1.3E-03	ND	ND	ND	1.3E-03	6.2E-04	ND	ND	ND	ND	ND	ND	6.2E-04
		Heptachlor epoxide	ug/kg	4.8E-03	3.1E-02	ND	ND	3.6E-02	2.4E-03	1.6E-02	ND	ND	ND	ND	ND	1.8E-02
		Methoxychlor	ug/kg	ND	1.8E+00	ND	ND	1.8E+00	ND	8.9E-01	ND	ND	ND	ND	2.2E-01	1.1E+00
		Total Chlordanes	ug/kg	9.0E-01	2.7E+00	4.0E-01	2.8E-01	4.3E+00	4.4E-01	1.3E+00	2.0E-01	1.4E-01	ND	ND	2.7E-01	2.4E+00
		Total DDD	ug/kg	4.4E+00	2.7E+01	1.1E+00	6.8E-01	3.3E+01	2.2E+00	1.3E+01	5.3E-01	3.3E-01	ND	ND	ND	1.6E+01
		Total DDE	ug/kg	4.2E+00	2.9E+01	4.8E+00	2.0E+00	4.0E+01	2.1E+00	1.5E+01	2.4E+00	9.7E-01	4.2E+00	ND	3.7E+00	2.8E+01
		Total DDT	ug/kg	8.1E+00	4.5E+00	2.9E+00	8.5E-01	1.6E+01	4.0E+00	2.2E+00	1.4E+00	4.2E-01	7.7E-01	ND	3.6E+00	1.2E+01
		Total Endosulfan	ug/kg	2.1E-02	5.9E-01	ND	ND	6.1E-01	1.0E-02	2.9E-01	ND	ND	4.6E-01	ND	5.4E-02	8.2E-01
Study Area-wide	WB	**Metals**														
		Aluminum	mg/kg	NC	NC	NC	NC	NC	7.4E-01	1.1E+01	3.6E+00	8.5E+00	2.2E+00	ND	1.1E-01	2.6E+01
		Antimony	mg/kg	NC	NC	NC	NC	NC	6.6E-02	7.9E-04	ND	ND	1.1E-01	1.4E-01	ND	3.2E-01
		Arsenic, inorganic	mg/kg	NC	NC	NC	NC	NC	3.3E-03	2.0E-03	8.4E-04	5.2E-03	3.8E-02	1.9E-03	2.4E-03	5.3E-02
		Cadmium	mg/kg	NC	NC	NC	NC	NC	4.7E-03	8.6E-03	1.7E-03	7.4E-04	ND	4.6E-03	ND	2.0E-02
		Chromium	mg/kg	NC	NC	NC	NC	NC	5.2E-02	1.3E-01	1.3E-01	ND	1.5E-01	3.1E-02	1.3E-01	6.3E-01
		Copper	mg/kg	NC	NC	NC	NC	NC	1.1E-01	1.5E-01	9.4E-02	1.2E-01	5.8E-01	3.4E-01	1.2E-02	1.4E+00
		Lead	mg/kg	NC	NC	NC	NC	NC	4.7E+01	6.0E-02	5.2E-03	2.3E-03	ND	9.0E-03	8.1E-04	4.7E+01
		Manganese	mg/kg	NC	NC	NC	NC	NC	2.4E-01	8.5E-01	1.0E+00	4.2E-01	1.3E-01	3.6E-01	4.8E-02	3.1E+00
		Mercury	mg/kg	NC	NC	NC	NC	NC	1.3E-02	6.0E-03	5.7E-03	5.5E-03	2.4E-02	1.2E-02	1.6E-02	8.1E-02
		Nickel	mg/kg	NC	NC	NC	NC	NC	1.5E-02	8.6E-02	3.8E-02	4.4E-02	8.4E-02	3.8E-03	7.0E-02	3.4E-01
		Selenium	mg/kg	NC	NC	NC	NC	NC	1.5E-01	4.2E-02	3.7E-02	ND	1.9E-01	3.4E-02	2.6E-02	4.8E-01
		Silver	mg/kg	NC	NC	NC	NC	NC	9.8E-04	1.1E-03	5.0E-04	ND	6.6E-03	6.2E-03	ND	1.5E-02
		Thallium	mg/kg	NC	NC	NC	NC	NC	5.8E-04	4.5E-04	4.8E-04	2.1E-03	ND	ND	ND	3.6E-03
		Zinc	mg/kg	NC	NC	NC	NC	NC	1.7E+00	1.2E+01	1.9E+00	2.1E+00	1.4E+01	1.4E+00	1.4E-01	3.4E+01
		Butyltins														
		Butyltin ion	ug/kg	NC	NC	NC	NC	NC	ND	2.8E+00	NA	NA	ND	ND	NA	2.8E+00
		Dibutyltin ion	ug/kg	NC	NC	NC	NC	NC	8.8E-02	4.9E-01	NA	NA	ND	ND	NA	5.8E-01
		Tributyltin ion	ug/kg	NC	NC	NC	NC	NC	2.0E-01	8.6E-01	NA	NA	ND	ND	NA	1.1E+00
		Polynuclear Aromatic Hydrocarbons														
		1-Methylnaphthalene	ug/kg	NC	NC	NC	NC	NC	4.3E-01	9.0E-01	ND	NA	1.1E+00	1.1E+00	1.9E-01	3.7E+00
		2-Methylnaphthalene	ug/kg	NC	NC	NC	NC	NC	3.2E+00	1.4E+00	ND	NA	2.2E+00	1.8E+00	2.2E-01	8.9E+00
		Acenaphthene	ug/kg	NC	NC	NC	NC	NC	4.6E+00	6.0E+00	ND	NA	ND	1.8E-01	4.1E-01	1.1E+01
		Acenaphthylene	ug/kg	NC	NC	NC	NC	NC	1.3E-01	4.0E-01	ND	NA	ND	7.0E-02	4.9E-02	6.5E-01
		Anthracene	ug/kg	NC	NC	NC	NC	NC	3.9E-01	5.1E-01	ND	NA	ND	1.2E-01	2.5E-01	1.3E+00
		Benzo(a)anthracene	ug/kg	NC	NC	NC	NC	NC	5.2E-02	4.0E-02	ND	NA	ND	ND	ND	9.2E-02
		Benzo(a)pyrene	ug/kg	NC	NC	NC	NC	NC	5.5E-02	6.7E-02	ND	NA	ND	ND	ND	1.2E-01
		Benzo(b)fluoranthene	ug/kg	NC	NC	NC	NC	NC	4.5E-02	1.2E-01	ND	NA	ND	ND	ND	1.7E-01
		Benzo(g,h,i)perylene	ug/kg	NC	NC	NC	NC	NC	7.8E-02	6.9E-02	ND	NA	ND	ND	ND	1.5E-01
		Benzo(k)fluoranthene	ug/kg	NC	NC	NC	NC	NC	3.8E-02	5.1E-02	ND	NA	ND	ND	ND	8.8E-02
		Chrysene	ug/kg	NC	NC	NC	NC	NC	8.0E-02	0.0E+00	ND	NA	ND	ND	ND	8.0E-02
		Dibenzo(a,h)anthracene	ug/kg	NC	NC	NC	NC	NC	2.0E-02	3.1E-02	ND	NA	ND	ND	ND	5.1E-02
		Dibenzothiophene	ug/kg	NC	NC	NC	NC	NC	3.9E-01	1.6E+00	NA	NA	NA	NA	NA	2.0E+00

TABLE 3-16
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Recreational and Subsistence Fishers[b]					Tribal Fishers[b]							
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC[c,d]	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon[e]	Lamprey[f]	Sturgeon[g]	Multi-Species EPC[h,i,j]
		Fluoranthene	ug/kg	NC	NC	NC	NC	NC	9.8E-01	1.3E+00	5.0E+00	NA	3.8E-01	7.7E-01	6.4E-02	8.5E+00
		Fluorene	ug/kg	NC	NC	NC	NC	NC	1.9E+00	2.4E+00	ND	NA	3.1E-01	3.4E-01	2.5E-01	5.2E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	NC	NC	NC	NC	NC	6.3E-02	7.4E-02	ND	NA	ND	NA	ND	1.4E-01
		Naphthalene	ug/kg	NC	NC	NC	NC	NC	3.4E+00	2.4E+00	ND	NA	ND	7.7E-01	ND	6.5E+00
		Phenanthrene	ug/kg	NC	NC	NC	NC	NC	2.8E+00	1.3E+00	7.4E+00	NA	ND	5.7E-01	ND	1.2E+01
		Pyrene	ug/kg	NC	NC	NC	NC	NC	1.1E+00	6.3E-01	ND	NA	ND	1.4E-01	5.9E-02	2.0E+00
		Phthalates														
		Bis(2-ethylhexyl) phthalate	ug/kg	NC	NC	NC	NC	NC	1.2E+03	ND	3.3E+02	NA	ND	ND	NA	1.5E+03
		Dibutyl phthalate	ug/kg	NC	NC	NC	NC	NC	4.6E+00	ND	ND	NA	ND	NA	NA	4.6E+00
		Diethyl phthalate	ug/kg	NC	NC	NC	NC	NC	1.2E+00	ND	ND	NA	ND	ND	NA	1.2E+00
		Di-n-octyl phthalate	ug/kg	NC	NC	NC	NC	NC	2.6E+02	ND	ND	NA	ND	ND	NA	2.6E+02
		Semi-Volatile Organic Compounds														
		Benzoic acid	ug/kg	NC	NC	NC	NC	NC	6.1E+01	5.3E+01	ND	NA	NA	NA	NA	1.1E+02
		Benzyl alcohol	ug/kg	NC	NC	NC	NC	NC	3.4E+00	9.4E+00	ND	NA	ND	ND	NA	1.3E+01
		Bis(2-chloroethoxy) methane	ug/kg	NC	NC	NC	NC	NC	2.0E+00	2.6E+00	ND	NA	ND	ND	ND	4.6E+00
		Dibenzofuran	ug/kg	NC	NC	NC	NC	NC	2.3E+00	7.1E-01	ND	NA	2.7E-01	2.0E-01	1.8E-01	3.6E+00
		Hexachlorobenzene	ug/kg	NC	NC	NC	NC	NC	3.5E-01	4.2E-01	ND	1.0E+00	1.0E+00	7.7E-01	7.8E-02	3.6E+00
		Hexachlorobutadiene	ug/kg	NC	NC	NC	NC	NC	3.3E-02	2.6E-02	ND	2.9E-01	ND	ND	ND	3.4E-01
		Isophorone	ug/kg	NC	NC	NC	NC	NC	ND	7.3E-01	ND	NA	NA	NA	NA	7.3E-01
		Phenols														
		4-Methylphenol	ug/kg	NC	NC	NC	NC	NC	1.6E+00	ND	ND	NA	ND	ND	NA	1.6E+00
		4-Nitrophenol	ug/kg	NC	NC	NC	NC	NC	1.2E+00	1.1E+00	ND	NA	ND	NA	NA	2.3E+00
		Phenol	ug/kg	NC	NC	NC	NC	NC	3.3E+01	5.3E+00	ND	NA	ND	ND	ND	3.9E+01
		Polychlorinated Biphenyls														
		Total Aroclors	ug/kg	NC	NC	NC	NC	NC	3.4E+02	7.8E+02	1.8E+02	3.1E+01	7.3E+00	3.5E+00	2.1E+01	1.4E+03
		Total PCB Congeners	pg/g	NC	NC	NC	NC	NC	2.6E+05	2.4E+06	1.9E+05	3.7E+04	6.6E+03	3.4E+03	4.7E+04	3.0E+06
		Total PCBs, Adjusted	pg/g	NC	NC	NC	NC	NC	2.5E+05	2.4E+06	1.9E+05	3.5E+04	6.2E+03	3.1E+03	4.7E+04	2.9E+06
		Dioxin/Furans														
		Total Dioxin/Furan TEQ	pg/g	NC	NC	NC	NC	NC	1.5E+00	6.2E-01	2.3E-01	1.6E-01	1.0E-01	2.2E-02	4.9E-02	2.6E+00
		Total PCB TEQ	pg/g	NC	NC	NC	NC	NC	1.2E+00	3.2E+00	6.0E-01	4.0E-01	9.5E-02	6.8E-02	3.7E-02	5.6E+00
		Pesticides														
		Aldrin	ug/kg	NC	NC	NC	NC	NC	3.1E-03	1.8E-02	ND	ND	ND	ND	ND	2.1E-02
		alpha-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	3.8E-03	4.9E-03	ND	1.7E-01	ND	ND	ND	1.8E-01
		beta-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	2.1E-03	4.1E-03	ND	ND	ND	ND	ND	6.2E-03
		delta-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	ND	3.8E-04	ND	ND	ND	ND	ND	3.8E-04
		Dieldrin	ug/kg	NC	NC	NC	NC	NC	4.4E-01	3.1E-01	3.2E-01	3.1E-01	6.1E-01	ND	6.9E-02	2.1E+00
		Endrin	ug/kg	NC	NC	NC	NC	NC	4.0E-03	3.3E-03	ND	ND	ND	ND	ND	7.2E-03
		Endrin aldehyde	ug/kg	NC	NC	NC	NC	NC	7.7E-04	9.2E-04	ND	ND	ND	ND	ND	1.7E-03
		Endrin ketone	ug/kg	NC	NC	NC	NC	NC	1.9E-03	1.9E-03	ND	ND	ND	ND	ND	3.8E-03
		gamma-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	3.1E-03	4.6E-03	2.4E-01	ND	ND	ND	ND	2.4E-01
		Heptachlor	ug/kg	NC	NC	NC	NC	NC	1.5E-03	7.3E-04	ND	2.2E-01	6.5E-01	ND	ND	8.8E-01
		Heptachlor epoxide	ug/kg	NC	NC	NC	NC	NC	1.6E-02	2.1E-02	ND	ND	ND	ND	ND	3.6E-02
		Methoxychlor	ug/kg	NC	NC	NC	NC	NC	ND	5.2E-01	1.4E-01	ND	1.4E+00	ND	2.2E-01	2.3E+00
		Total Chlordanes	ug/kg	NC	NC	NC	NC	NC	1.5E+00	2.0E+00	8.3E+00	1.2E+00	4.6E-01	ND	2.7E-01	1.4E+01
		Total DDD	ug/kg	NC	NC	NC	NC	NC	8.8E+00	1.5E+01	2.2E+00	2.3E+00	ND	ND	ND	2.8E+01
		Total DDE	ug/kg	NC	NC	NC	NC	NC	1.7E+01	2.1E+01	7.5E+00	1.0E+01	3.0E+00	ND	3.7E+00	6.2E+01

TABLE 3-16
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Recreational and Subsistence Fishers[b]					Tribal Fishers[b]							
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC[c,d]	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon[e]	Lamprey[f]	Sturgeon[g]	Multi-Species EPC[h,i,j]
		Total DDT	ug/kg	NC	NC	NC	NC	NC	1.6E+01	4.6E+00	5.5E+00	2.7E+00	5.2E-01	ND	3.6E+00	3.3E+01
		Total Endosulfan	ug/kg	NC	NC	NC	NC	NC	3.6E-01	4.6E-01	1.1E+00	1.4E-01	3.8E-01	ND	5.4E-02	2.5E+00

Notes:

a Chemicals listed for fillet exposure are analytes detected in Study Area-wide fillet tissue samples of resident species. Chemicals listed for whole body exposure are analytes detected Study Area-wide in whole body tissue samples resident species (smallmouth bass, black crappie, common carp, brown bullhead).

b EPC values represent the lower value of the calculated maximum or 95% Upper confidence limit on the mean.

c For recreational and subsistence non-tribal fishers, EPCs for the multi-species diet were calculated assuming each of the four target fish species (smallmouth bass, black crappie, common carp, and brown bullhead) represent 1/4 of a person's diet, according to the Portland Harbor RI/FS Programmatic Work Plan.

d Numbers presented are rounded values. Sums calculated before rounding.

e Chinook salmon samples were taken at Clackamas fish hatchery, outside of initial study area; samples represent EPCs for Study Area locations.

f Lamprey samples were taken at Willamette Falls, outside of initial study area; samples represent EPCs for Study Area locations.

g Sturgeon samples were taken between Willamette River miles 3.5 and 9.2.

h The Tribal multi-species fish diet EPCs were calculated assuming different ingestion rates for each of seven fish species, which can also be represented by that species' percent of total fish diet. The EPCs shown in the table are the weighted sums of the EPCs for the individual species based on the following percentages:
(38.4% x Salmon EPC)
+ (7.0% x Lamprey EPC)
+ (4.9% x Sturgeon EPC)
+ (12.4% x Smallmouth Bass EPC)
+ (12.4% x Black Crappie EPC)
+ (12.4% x Common Carp EPC)
+ (12.4% x Brown Bullhead EPC)
100% Tribal fish tissue diet EPC

i Fillet Tissue EPCs are based on Study Area-wide fillet tissue EPCs for each of the target resident species (smallmouth bass, black crappie, common carp, brown bullhead), and the available tissue data from the ODHS sampling effort, which are: fillet (with skin) Chinook salmon, whole body lamprey, and fillet (no skin) sturgeon.

j Whole Body Tissue EPCs are based on Study Area-wide whole body EPCs for each of the target resident species (smallmouth bass, black crappie, common carp, brown bullhead), and the available tissue data from the ODHS sampling effort, which are: whole body Chinook salmon, whole body lamprey, and fillet tissue (no skin) sturgeon.

k "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
F = Fillet tissue. All resident fish fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin.
mg/kg = Milligrams per kilogram.
NA = Not analyzed.
NC = Not calculated. Multi-species EPCs based on resident fish WB EPCs calculated for tribal fisher scenarios only.
ND = Not detected in the given species and tissue type.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.
WB= Whole body.

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 1, Station: CR01EA	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	5.0E+01	5.0E+01		Fewer than 5 detects[f]		5.0E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Lead	mg/kg	1	0	0	4.7E-02	4.7E-02				4.7E-02
		Manganese	mg/kg	1	0	0	2.5E+01	2.5E+01				2.5E+01
		Mercury	mg/kg	1	0	0	1.9E-02	1.9E-02				1.9E-02
		Nickel	mg/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	0	0	7.0E-03	7.0E-03				7.0E-03
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Dibutyltin ion	ug/kg	1	0	0	9.2E-01	9.2E-01				9.2E-01
		Tributyltin ion	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Acenaphthene	ug/kg	1	0	0	9.4E-01	9.4E-01				9.4E-01
		Acenaphthylene	ug/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Anthracene	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	6.7E-01	6.7E-01				6.7E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	6.4E-01	6.4E-01				6.4E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Hexachlorobenzene	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Hexachlorobutadiene	ug/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	5.0E+01	5.0E+01				5.0E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	7.2E+03	7.2E+03				7.2E+03
		Total PCBs, Adjusted[g]	pg/g	1	0	0	6.2E+03	6.2E+03				6.2E+03
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.5E-01	2.5E-01				2.5E-01
		Total PCB TEQ	pg/g	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	8.4E-04	8.4E-04				8.4E-04
		Total DDD	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Total DDE	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM 1, Station: CR01W	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	8.0E+01	8.0E+01		Fewer than 5 detects		8.0E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	4.0E-02	4.0E-02				4.0E-02
		Cadmium	mg/kg	1	0	0	1.8E-02	1.8E-02				1.8E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Lead	mg/kg	1	0	0	4.6E-02	4.6E-02				4.6E-02
		Manganese	mg/kg	1	0	0	3.1E+01	3.1E+01				3.1E+01
		Mercury	mg/kg	1	0	0	2.1E-02	2.1E-02				2.1E-02
		Nickel	mg/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	0	0	5.4E-03	5.4E-03				5.4E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	0	ND	ND				ND
		Dibutyltin ion	ug/kg	1	1	0	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	9.5E-02	9.5E-02				9.5E-02
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	1.6E-01	1.6E-01				1.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.9E-02	4.9E-02				4.9E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	7.4E+01	7.4E+01				7.4E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	7.1E+03	7.1E+03				7.1E+03
		Total PCBs, Adjusted	pg/g	1	0	0	6.1E+03	6.1E+03				6.1E+03
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.3E-01	3.3E-01				3.3E-01
		Total PCB TEQ	pg/g	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.3E-02	1.3E-02				1.3E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Total Endosulfan	ug/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
RM 2, Station: 02R001	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	1.0E+02	1.0E+02		Fewer than 5 detects		1.0E+02
		Antimony	mg/kg	1	0	0	7.0E-03	7.0E-03				7.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Cadmium	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	5.9E-02	5.9E-02				5.9E-02
		Manganese	mg/kg	1	0	0	1.5E+02	1.5E+02				1.5E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Thallium	mg/kg	1	0	0	7.9E-03	7.9E-03				7.9E-03
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	2.1E+01	2.1E+01				2.1E+01
		Total PCB Congeners	pg/g	1	0	0	6.1E+04	6.1E+04				6.1E+04
		Total PCBs, Adjusted	pg/g	1	0	0	4.6E+04	4.6E+04				4.6E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.2E-01	4.2E-01				4.2E-01
		Total PCB TEQ	pg/g	1	0	0	3.1E+00	3.1E+00				3.1E+00
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Total DDT	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Total Chlordane	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM 2, Station: 02R015	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	9.0E+01	9.0E+01		Fewer than 5 detects		9.0E+01
		Antimony	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	4.0E-02	4.0E-02				4.0E-02
		Cadmium	mg/kg	1	0	0	1.7E-02	1.7E-02				1.7E-02
		Chromium	mg/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Copper	mg/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Lead	mg/kg	1	0	0	7.8E-02	7.8E-02				7.8E-02
		Manganese	mg/kg	1	0	0	1.8E+02	1.8E+02				1.8E+02
		Mercury	mg/kg	1	0	0	2.3E-02	2.3E-02				2.3E-02
		Nickel	mg/kg	1	0	0	4.7E-01	4.7E-01				4.7E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.6E-02	2.6E-02				2.6E-02
		Thallium	mg/kg	1	0	0	6.8E-03	6.8E-03				6.8E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	2.8E+01	2.8E+01				2.8E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		Total DDT	ug/kg	1	0	0	1.0E+01	1.0E+01				1.0E+01
		Total Chlordane	ug/kg	1	0	0	3.3E+00	3.3E+00				3.3E+00
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 3, Station: 03R001	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	1.0E+02	1.0E+02		Fewer than 5 detects		1.0E+02
		Antimony	mg/kg	1	0	0	7.0E-03	7.0E-03				7.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Lead	mg/kg	1	0	0	6.9E-02	6.9E-02				6.9E-02
		Manganese	mg/kg	1	0	0	1.4E+02	1.4E+02				1.4E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Thallium	mg/kg	1	0	0	5.4E-03	5.4E-03				5.4E-03
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Total DDT	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00
RM: 3, Station: 03R002	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	9.3E+01	9.3E+01		Fewer than 5 detects		9.3E+01
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	4.1E-02	4.1E-02				4.1E-02
		Cadmium	mg/kg	1	0	0	1.8E-02	1.8E-02				1.8E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	4.4E-02	4.4E-02				4.4E-02
		Manganese	mg/kg	1	0	0	1.6E+02	1.6E+02				1.6E+02
		Mercury	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Nickel	mg/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Thallium	mg/kg	1	0	0	5.2E-03	5.2E-03				5.2E-03
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.3E+00	4.3E+00				4.3E+00
		Total DDT	ug/kg	1	0	0	2.6E+00	2.6E+00				2.6E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
RM: 3, Station: 03R003	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	1.5E+02	1.5E+02		Fewer than 5 detects		1.5E+02
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.8E-02	3.8E-02				3.8E-02
		Cadmium	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	8.8E-02	8.8E-02				8.8E-02
		Manganese	mg/kg	1	0	0	1.6E+02	1.6E+02				1.6E+02
		Mercury	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Nickel	mg/kg	1	0	0	4.2E-01	4.2E-01				4.2E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	4.2E-02	4.2E-02				4.2E-02
		Thallium	mg/kg	1	0	0	5.1E-03	5.1E-03				5.1E-03
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	1	0	0	7.6E+04	7.6E+04				7.6E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.0E+04	7.0E+04				7.0E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.0E+00	4.0E+00				4.0E+00
		Total DDT	ug/kg	1	0	0	6.9E+00	6.9E+00				6.9E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
RM: 3, Station: 03R004	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02		Fewer than 5 detects		1.1E+02
		Antimony	mg/kg	1	0	0	1.4E-02	1.4E-02				1.4E-02
		Arsenic, inorganic	mg/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Cadmium	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Chromium	mg/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
		Copper	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Lead	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	1	0	0	9.0E+01	9.0E+01				9.0E+01
		Mercury	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Nickel	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	4.6E-02	4.6E-02				4.6E-02
		Thallium	mg/kg	1	0	0	3.0E-03	3.0E-03				3.0E-03
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	5.2E+02	5.2E+02				5.2E+02
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	1	0	0	3.2E+04	3.2E+04				3.2E+04
		Total PCBs, Adjusted	pg/g	1	0	0	2.7E+04	2.7E+04				2.7E+04

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Total DDT	ug/kg	1	0	0	5.2E+00	5.2E+00				5.2E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
RM: 3, Station: 03R005	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	6.6E+01	6.6E+01		Fewer than 5 detects		6.6E+01
		Antimony	mg/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Arsenic, inorganic	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Cadmium	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Chromium	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Copper	mg/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Lead	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Manganese	mg/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Thallium	mg/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	2.8E+02	2.8E+02				2.8E+02
		Total PCB Congeners	pg/g	1	0	0	2.1E+05	2.1E+05				2.1E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.9E+05	1.9E+05				1.9E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.9E-01	5.9E-01				5.9E-01
		Total PCB TEQ	pg/g	1	0	0	2.7E+00	2.7E+00				2.7E+00
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	2.8E+00	2.8E+00				2.8E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.0E+00	4.0E+00				4.0E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total Endosulfan	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
RM: 3, Station: 03R032	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	5.9E+01	5.9E+01		Fewer than 5 detects		5.9E+01
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	4.5E-02	4.5E-02				4.5E-02
		Cadmium	mg/kg	1	0	0	1.2E-02	1.2E-02				1.2E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	4.1E-02	4.1E-02				4.1E-02
		Manganese	mg/kg	1	0	0	1.3E+02	1.3E+02				1.3E+02
		Mercury	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Nickel	mg/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Thallium	mg/kg	1	0	0	4.0E-03	4.0E-03				4.0E-03
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		Total DDT	ug/kg	1	0	0	3.6E+00	3.6E+00				3.6E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 4, Station: 04R002	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	8.6E+01	8.6E+01		Fewer than 5 detects		8.6E+01
		Antimony	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Cadmium	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02				1.2E+02
		Mercury	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Nickel	mg/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	4.3E-02	4.3E-02				4.3E-02
		Thallium	mg/kg	1	0	0	2.5E-03	2.5E-03				2.5E-03
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.5E+00	4.5E+00				4.5E+00
		Total DDT	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM: 4, Station: 04R003	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	6.3E+01	6.3E+01		Fewer than 5 detects		6.3E+01
		Antimony	mg/kg	1	0	0	1.0E-02	1.0E-02				1.0E-02
		Arsenic, inorganic	mg/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Cadmium	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01
		Manganese	mg/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	1	0	ND	ND				ND
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	4.7E-02	4.7E-02				4.7E-02
		Thallium	mg/kg	1	0	0	2.4E-03	2.4E-03				2.4E-03
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	9.3E+01	9.3E+01				9.3E+01
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDE	ug/kg	1	0	0	7.2E+00	7.2E+00				7.2E+00
		Total DDT	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
RM: 4, Station: 04R004	WB	**Metals**										
		Aluminum	mg/kg	2	0	0	1.1E+02	1.3E+02		Fewer than 5 detects		1.3E+02
		Antimony	mg/kg	2	0	0	8.0E-03	1.0E-02				1.0E-02
		Arsenic, inorganic	mg/kg	2	0	0	3.7E-02	3.9E-02				3.9E-02
		Cadmium	mg/kg	2	0	0	1.3E-02	1.3E-02				1.3E-02
		Chromium	mg/kg	2	0	0	3.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	2	0	0	1.2E+01	1.2E+01				1.2E+01
		Lead	mg/kg	2	0	0	1.0E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	2	0	0	1.6E+02	1.7E+02				1.7E+02
		Mercury	mg/kg	2	0	0	3.1E-02	3.7E-02				3.7E-02
		Nickel	mg/kg	2	0	0	3.1E-01	3.9E-01				3.9E-01
		Selenium	mg/kg	2	2	0	ND	ND				ND
		Silver	mg/kg	2	0	0	2.8E-02	3.2E-02				3.2E-02
		Thallium	mg/kg	2	0	0	2.8E-03	3.1E-03				3.1E-03
		Zinc	mg/kg	2	0	0	1.5E+01	1.6E+01				1.6E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthylene	ug/kg	2	2	0	ND	ND				ND
		Anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	2	2	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Chrysene	ug/kg	2	2	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	2	2	0	ND	ND				ND
		Fluoranthene	ug/kg	2	1	0	7.8E+01	1.1E+02				1.1E+02
		Fluorene	ug/kg	2	2	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	0	ND	ND				ND
		Naphthalene	ug/kg	2	2	0	ND	ND				ND
		Phenanthrene	ug/kg	2	2	0	ND	ND				ND
		Pyrene	ug/kg	2	1	0	4.3E+01	6.0E+01				6.0E+01
		Phthalates										
		Butylbenzyl phthalate	ug/kg	2	2	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	2	2	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	2	2	0	ND	ND				ND
		Pentachlorophenol	ug/kg	2	2	0	ND	ND				ND
		Phenol	ug/kg	2	2	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	2	2	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	2	2	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	0	ND	ND				ND
		Dieldrin	ug/kg	2	2	0	ND	ND				ND
		Endrin	ug/kg	2	2	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	2	0	ND	ND				ND
		Total DDD	ug/kg	2	2	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	2	0	0	5.0E+00	7.4E+00				7.4E+00
		Total DDT	ug/kg	2	1	0	1.6E+00	2.6E+00				2.6E+00
		Total Chlordane	ug/kg	2	1	0	2.6E+00	4.7E+00				4.7E+00
		Total Endosulfan	ug/kg	2	2	0	ND	ND				ND
RM: 5, Station: 05R001	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	8.9E+01	8.9E+01		Fewer than 5 detects		8.9E+01
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	8.3E-02	8.3E-02				8.3E-02
		Manganese	mg/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Mercury	mg/kg	1	0	0	3.1E-02	3.1E-02				3.1E-02
		Nickel	mg/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Thallium	mg/kg	1	0	0	2.5E-03	2.5E-03				2.5E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	5.7E+00	5.7E+00				5.7E+00
		Total DDT	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00
		Total Chlordane	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		Total Endosulfan	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
RM: 5, Station: 05R003	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	9.7E+01	9.7E+01		Fewer than 5 detects		9.7E+01
		Antimony	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Mercury	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Nickel	mg/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Thallium	mg/kg	1	0	0	3.3E-03	3.3E-03				3.3E-03
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	2.7E+01	2.7E+01				2.7E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	8.0E+00	8.0E+00				8.0E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
RM: 5, Station: CR05W	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	8.1E+01	8.1E+01		Fewer than 5 detects		8.1E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Cadmium	mg/kg	1	0	0	1.9E-02	1.9E-02				1.9E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Lead	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	1	0	0	9.3E+01	9.3E+01				9.3E+01
		Mercury	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Nickel	mg/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Selenium	mg/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Dibutyltin ion	ug/kg	1	0	0	3.9E-01	3.9E-01				3.9E-01
		Tributyltin ion	ug/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Naphthalene	ug/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.2E-02	4.2E-02				4.2E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	4.5E+01	4.5E+01				4.5E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.0E+04	1.0E+04				1.0E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.4E+03	7.4E+03				7.4E+03
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Total PCB TEQ	pg/g	1	0	0	3.3E-01	3.3E-01				3.3E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.4E-02	1.4E-02				1.4E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Total DDE	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 6, Station: 06R001	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02		Fewer than 5 detects		1.1E+02
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	7.1E-02	7.1E-02				7.1E-02
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02				1.2E+02
		Mercury	mg/kg	1	0	0	4.1E-02	4.1E-02				4.1E-02
		Nickel	mg/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Thallium	mg/kg	1	0	0	2.0E-03	2.0E-03				2.0E-03
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	5.1E+00	5.1E+00				5.1E+00
		Total DDT	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
RM: 6, Station: 06R004	WB	**Metals**										
		Aluminum	mg/kg	2	0	0	1.4E+02	1.5E+02		Fewer than 5 detects		1.5E+02
		Antimony	mg/kg	2	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	3.7E-02	3.8E-02				3.8E-02
		Cadmium	mg/kg	2	0	0	1.9E-02	2.0E-02				2.0E-02
		Chromium	mg/kg	2	0	0	6.5E-01	8.0E-01				8.0E-01
		Copper	mg/kg	2	0	0	1.5E+01	1.6E+01				1.6E+01
		Lead	mg/kg	2	0	0	8.5E-02	8.8E-02				8.8E-02
		Manganese	mg/kg	2	0	0	2.0E+02	2.1E+02				2.1E+02
		Mercury	mg/kg	2	0	0	3.2E-02	3.4E-02				3.4E-02
		Nickel	mg/kg	2	0	0	4.6E-01	5.0E-01				5.0E-01
		Selenium	mg/kg	2	2	0	ND	ND				ND
		Silver	mg/kg	2	0	0	3.0E-02	3.1E-02				3.1E-02
		Thallium	mg/kg	2	0	0	3.5E-03	3.7E-03				3.7E-03
		Zinc	mg/kg	2	0	0	1.9E+01	2.0E+01				2.0E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthylene	ug/kg	2	2	0	ND	ND				ND
		Anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	1	0	4.8E+01	8.0E+01				8.0E+01
		Benzo(a)pyrene	ug/kg	2	2	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Chrysene	ug/kg	2	1	0	5.2E+01	8.7E+01				8.7E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	2	1	0	7.3E+01	1.3E+02				1.3E+02
		Fluorene	ug/kg	2	2	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	0	ND	ND				ND
		Naphthalene	ug/kg	2	2	0	ND	ND				ND
		Phenanthrene	ug/kg	2	1	0	5.7E+01	9.7E+01				9.7E+01
		Pyrene	ug/kg	2	1	0	5.4E+01	8.3E+01				8.3E+01
		Phthalates										
		Butylbenzyl phthalate	ug/kg	2	2	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	2	2	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	2	2	0	ND	ND				ND
		Pentachlorophenol	ug/kg	2	2	0	ND	ND				ND
		Phenol	ug/kg	2	2	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	2	2	0	ND	ND				ND
		Total PCB Congeners	pg/g	2	0	0	1.6E+04	1.7E+04				1.7E+04
		Total PCBs, Adjusted	pg/g	2	0	0	1.4E+04	1.5E+04				1.5E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.3E+00	1.4E+00				1.4E+00
		Total PCB TEQ	pg/g	2	0	0	3.0E-01	3.5E-01				3.5E-01
		Pesticides										
		Aldrin	ug/kg	2	2	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	0	ND	ND				ND
		Dieldrin	ug/kg	2	2	0	ND	ND				ND
		Endrin	ug/kg	2	2	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	2	0	ND	ND				ND
		Total DDD	ug/kg	2	0	0	6.8E+00	1.0E+01				1.0E+01
		Total DDE	ug/kg	2	0	0	6.6E+00	9.3E+00				9.3E+00
		Total DDT	ug/kg	2	0	0	2.4E+00	3.1E+00				3.1E+00
		Total Chlordane	ug/kg	2	2	0	ND	ND				ND
		Total Endosulfan	ug/kg	2	2	0	ND	ND				ND
RM: 6, Station: CR06W	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	1.4E+02	1.4E+02		Fewer than 5 detects		1.4E+02
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	9.8E-02	9.8E-02				9.8E-02

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	1	0	0	1.7E+02	1.7E+02				1.7E+02
		Mercury	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Nickel	mg/kg	1	0	0	4.8E-01	4.8E-01				4.8E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		Dibutyltin ion	ug/kg	1	0	0	3.3E+02	3.3E+02				3.3E+02
		Tributyltin ion	ug/kg	1	0	0	2.3E+00	2.3E+00				2.3E+00
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Acenaphthene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Acenaphthylene	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Anthracene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Benzo(a)anthracene	ug/kg	1	0	0	7.5E+00	7.5E+00				7.5E+00
		Benzo(a)pyrene	ug/kg	1	0	0	7.5E+00	7.5E+00				7.5E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	5.6E+00	5.6E+00				5.6E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	5.0E+00	5.0E+00				5.0E+00
		Chrysene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Dibenzo(a,h)anthracene	ug/kg	1	0	0	7.1E-01	7.1E-01				7.1E-01
		Fluoranthene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Fluorene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Naphthalene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Phenanthrene	ug/kg	1	0	0	7.6E+00	7.6E+00				7.6E+00
		Pyrene	ug/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	3.5E-01	3.5E-01				3.5E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.1E-02	5.1E-02				5.1E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	6.1E+01	6.1E+01				6.1E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	4.4E+04	4.4E+04				4.4E+04
		Total PCBs, Adjusted	pg/g	1	0	0	4.2E+04	4.2E+04				4.2E+04

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Total PCB TEQ	pg/g	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	7.4E-01	7.4E-01				7.4E-01
		Total DDE	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
		Total DDT	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Total Chlordane	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 7, Station: 07R003	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	9.8E+01	9.8E+01		Fewer than 5 detects		9.8E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Cadmium	mg/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Chromium	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Copper	mg/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Lead	mg/kg	1	0	0	9.1E-02	9.1E-02				9.1E-02
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02				1.2E+02
		Mercury	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Nickel	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	1.9E-02	1.9E-02				1.9E-02
		Thallium	mg/kg	1	0	0	2.4E-03	2.4E-03				2.4E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	3.9E+01	3.9E+01				3.9E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Total DDE	ug/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Total DDT	ug/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 7, Station: 07R004	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	2.0E+02	2.0E+02		Fewer than 5 detects		2.0E+02
		Antimony	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	5.0E-02	5.0E-02				5.0E-02
		Cadmium	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Lead	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Manganese	mg/kg	1	0	0	1.7E+02	1.7E+02				1.7E+02
		Mercury	mg/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Nickel	mg/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Thallium	mg/kg	1	0	0	3.2E-03	3.2E-03				3.2E-03
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	6.9E+00	6.9E+00				6.9E+00
		Total DDT	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00
RM: 7, Station: 07R006	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	5.9E+01	5.9E+01		Fewer than 5 detects		5.9E+01
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Cadmium	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Chromium	mg/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01
		Manganese	mg/kg	1	0	0	1.3E+02	1.3E+02				1.3E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	8.3E-01	8.3E-01				8.3E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Thallium	mg/kg	1	0	0	2.2E-03	2.2E-03				2.2E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	4.5E+01	4.5E+01				4.5E+01
		Total PCB Congeners	pg/g	1	0	0	2.8E+04	2.8E+04				2.8E+04
		Total PCBs, Adjusted	pg/g	1	0	0	2.5E+04	2.5E+04				2.5E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Total PCB TEQ	pg/g	1	0	0	7.5E-01	7.5E-01				7.5E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	2.1E+01	2.1E+01				2.1E+01
		Total DDE	ug/kg	1	0	0	5.2E+01	5.2E+01				5.2E+01
		Total DDT	ug/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM: 8, Station: 08R001	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	6.8E+01	6.8E+01		Fewer than 5 detects		6.8E+01
		Antimony	mg/kg	1	0	0	7.0E-03	7.0E-03				7.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	1.3E-02	1.3E-02				1.3E-02
		Chromium	mg/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	7.6E-02	7.6E-02				7.6E-02
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02				1.2E+02
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Thallium	mg/kg	1	0	0	2.4E-03	2.4E-03				2.4E-03
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phenols										
		4-Methylphenol	ug/kg	1	0	0	3.3E+01	3.3E+01				3.3E+01
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	5.9E+01	5.9E+01				5.9E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	6.8E+00	6.8E+00				6.8E+00
		Total DDT	ug/kg	1	0	0	8.7E+00	8.7E+00				8.7E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 8, Station: 08R002	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	8.7E+01	8.7E+01		Fewer than 5 detects		8.7E+01
		Antimony	mg/kg	1	0	0	5.0E-03	5.0E-03				5.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Cadmium	mg/kg	1	0	0	1.3E-02	1.3E-02				1.3E-02
		Chromium	mg/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01
		Copper	mg/kg	1	0	0	1.0E+01	1.0E+01				1.0E+01
		Lead	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Manganese	mg/kg	1	0	0	1.6E+02	1.6E+02				1.6E+02
		Mercury	mg/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Nickel	mg/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03
		Zinc	mg/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.5E+00	3.5E+00				3.5E+00

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total DDT	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 8, Station: 08R003	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	6.7E+01	6.7E+01		Fewer than 5 detects		6.7E+01
		Antimony	mg/kg	1	0	0	5.0E-03	5.0E-03				5.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Cadmium	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Chromium	mg/kg	1	0	0	4.1E-01	4.1E-01				4.1E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	7.6E-02	7.6E-02				7.6E-02
		Manganese	mg/kg	1	0	0	7.2E+01	7.2E+01				7.2E+01
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	2.7E-01	2.7E-01				2.7E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Thallium	mg/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	0	0	1.3E+02	1.3E+02				1.3E+02
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	4.3E+01	4.3E+01				4.3E+01
		Total PCB Congeners	pg/g	1	0	0	3.9E+04	3.9E+04				3.9E+04
		Total PCBs, Adjusted	pg/g	1	0	0	3.6E+04	3.6E+04				3.6E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	9.6E-01	9.6E-01				9.6E-01
		Total PCB TEQ	pg/g	1	0	0	6.9E-01	6.9E-01				6.9E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 8, Station: CR08W	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	1.4E+02	1.4E+02		Fewer than 5 detects		1.4E+02
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	1	0	ND	ND				ND
		Cadmium	mg/kg	1	0	0	1.2E-02	1.2E-02				1.2E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Lead	mg/kg	1	0	0	1.6E-01	1.6E-01				1.6E-01
		Manganese	mg/kg	1	0	0	1.4E+02	1.4E+02				1.4E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	3.7E-01	3.7E-01				3.7E-01
		Selenium	mg/kg	1	0	0	3.9E-01	3.9E-01				3.9E-01
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Dibutyltin ion	ug/kg	1	0	0	3.3E-01	3.3E-01				3.3E-01
		Tributyltin ion	ug/kg	1	0	0	5.6E-01	5.6E-01				5.6E-01
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	0	0	4.7E-01	4.7E-01				4.7E-01
		Acenaphthene	ug/kg	1	0	0	9.9E-01	9.9E-01				9.9E-01
		Acenaphthylene	ug/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Anthracene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	4.8E-01	4.8E-01				4.8E-01
		Hexachlorobenzene	ug/kg	1	0	0	6.6E-02	6.6E-02				6.6E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	9.4E+01	9.4E+01				9.4E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	3.0E+04	3.0E+04				3.0E+04
		Total PCBs, Adjusted	pg/g	1	0	0	2.7E+04	2.7E+04				2.7E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.9E-01	4.9E-01				4.9E-01
		Total PCB TEQ	pg/g	1	0	0	4.6E-01	4.6E-01				4.6E-01
		Pesticides										
		Aldrin	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	2.5E-03	2.5E-03				2.5E-03

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	1	0	0	4.7E-02	4.7E-02				4.7E-02
		Endrin	ug/kg	1	0	0	1.2E-03	1.2E-03				1.2E-03
		Heptachlor epoxide	ug/kg	1	0	0	1.8E-03	1.8E-03				1.8E-03
		Total DDD	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Total DDE	ug/kg	1	0	0	4.4E+00	4.4E+00				4.4E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	5.6E-01	5.6E-01				5.6E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 9, Station: 09R001	WB	**Metals**										
		Aluminum	mg/kg	2	0	0	5.1E+01	6.8E+01		Fewer than 5 detects		6.8E+01
		Antimony	mg/kg	2	0	0	5.5E-03	7.0E-03				7.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	3.0E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	2	0	0	2.2E-02	2.3E-02				2.3E-02
		Chromium	mg/kg	2	0	0	1.3E-01	1.6E-01				1.6E-01
		Copper	mg/kg	2	0	0	1.6E+01	1.8E+01				1.8E+01
		Lead	mg/kg	2	0	0	1.0E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	2	0	0	6.0E+01	6.1E+01				6.1E+01
		Mercury	mg/kg	2	0	0	2.2E-02	2.3E-02				2.3E-02
		Nickel	mg/kg	2	0	0	2.0E-01	2.2E-01				2.2E-01
		Selenium	mg/kg	2	2	0	ND	ND				ND
		Silver	mg/kg	2	1	0	2.0E-02	3.1E-02				3.1E-02
		Thallium	mg/kg	2	0	0	1.6E-03	1.7E-03				1.7E-03
		Zinc	mg/kg	2	0	0	1.6E+01	1.7E+01				1.7E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthylene	ug/kg	2	2	0	ND	ND				ND
		Anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	2	2	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Chrysene	ug/kg	2	2	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	2	2	0	ND	ND				ND
		Fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Fluorene	ug/kg	2	2	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Naphthalene	ug/kg	2	2	0	ND	ND				ND
		Phenanthrene	ug/kg	2	2	0	ND	ND				ND
		Pyrene	ug/kg	2	2	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	2	2	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	2	2	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	2	2	0	ND	ND				ND
		Pentachlorophenol	ug/kg	2	2	0	ND	ND				ND
		Phenol	ug/kg	2	2	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	2	0	0	4.8E+01	4.9E+01				4.9E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Pesticides										
		Aldrin	ug/kg	2	2	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	0	ND	ND				ND
		Dieldrin	ug/kg	2	2	0	ND	ND				ND
		Endrin	ug/kg	2	2	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	2	0	ND	ND				ND
		Total DDD	ug/kg	2	2	0	ND	ND				ND
		Total DDE	ug/kg	2	0	0	2.3E+00	2.4E+00				2.4E+00
		Total DDT	ug/kg	2	2	0	ND	ND				ND
		Total Chlordane	ug/kg	2	2	0	ND	ND				ND
		Total Endosulfan	ug/kg	2	2	0	ND	ND				ND
RM: 9, Station: 09R002	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	6.6E+01	6.6E+01		Fewer than 5 detects		6.6E+01
		Antimony	mg/kg	1	0	0	8.0E-03	8.0E-03				8.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Chromium	mg/kg	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Copper	mg/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Lead	mg/kg	1	0	0	9.8E-02	9.8E-02				9.8E-02
		Manganese	mg/kg	1	0	0	1.5E+02	1.5E+02				1.5E+02
		Mercury	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Nickel	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Thallium	mg/kg	1	0	0	2.7E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Total PCB Congeners	pg/g	1	0	0	8.3E+04	8.3E+04				8.3E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.9E+04	7.9E+04				7.9E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	7.5E-01	7.5E-01				7.5E-01
		Total PCB TEQ	pg/g	1	0	0	9.1E-01	9.1E-01				9.1E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 10, Station: CR10W	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	7.2E+01	7.2E+01		Fewer than 5 detects		7.2E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Manganese	mg/kg	1	0	0	9.9E+01	9.9E+01				9.9E+01
		Mercury	mg/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Nickel	mg/kg	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Dibutyltin ion	ug/kg	1	1	0	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	0	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	3.5E-01	3.5E-01				3.5E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	2.5E-01	2.5E-01				2.5E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Hexachlorobenzene	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Hexachlorobutadiene	ug/kg	1	0	0	1.9E-03	1.9E-03				1.9E-03
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	5.6E+01	5.6E+01				5.6E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	5.1E+04	5.1E+04				5.1E+04
		Total PCBs, Adjusted	pg/g	1	0	0	4.2E+04	4.2E+04				4.2E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.3E-01	2.3E-01				2.3E-01
		Total PCB TEQ	pg/g	1	0	0	7.1E-01	7.1E-01				7.1E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	2.8E-03	2.8E-03				2.8E-03
		Dieldrin	ug/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	6.5E-02	6.5E-02				6.5E-02
		Total DDE	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 11, Station: CR11E	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	4.1E+01	4.1E+01		Fewer than 5 detects		4.1E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Cadmium	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Chromium	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Copper	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		Lead	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	1	0	0	3.9E+01	3.9E+01				3.9E+01
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Dibutyltin ion	ug/kg	1	0	0	3.5E-01	3.5E-01				3.5E-01
		Tributyltin ion	ug/kg	1	1	0	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	4.7E-01	4.7E-01				4.7E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	0	0	7.1E+01	7.1E+01				7.1E+01
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.7E-02	5.7E-02				5.7E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	4.7E+01	4.7E+01				4.7E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.2E+06	1.2E+06				1.2E+06
		Total PCBs, Adjusted	pg/g	1	0	0	1.1E+06	1.1E+06				1.1E+06

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	1	0	0	5.1E+00	5.1E+00				5.1E+00
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	9.4E-03	9.4E-03				9.4E-03
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	5.9E-04	5.9E-04				5.9E-04
		Total DDD	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Total DDE	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 12, Station: CR12W	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	6.9E+01	6.9E+01		Fewer than 5 detects		6.9E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Cadmium	mg/kg	1	0	0	1.0E-02	1.0E-02				1.0E-02
		Chromium	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Copper	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Lead	mg/kg	1	0	0	7.9E-02	7.9E-02				7.9E-02
		Manganese	mg/kg	1	0	0	6.9E+01	6.9E+01				6.9E+01
		Mercury	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Nickel	mg/kg	1	0	0	2.7E-01	2.7E-01				2.7E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Dibutyltin ion	ug/kg	1	1	0	5.6E-01	5.6E-01				5.6E-01
		Tributyltin ion	ug/kg	1	1	0	1.6E+00	1.6E+00				1.6E+00
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	2.3E-01	2.3E-01				2.3E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(k)fluoranthene	ug/kg	1	0	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	0	0	ND	ND				ND
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	1	0	1.3E-01	1.3E-01				1.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	9.1E-02	9.1E-02				9.1E-02
		Hexachlorobutadiene	ug/kg	1	1	0	1.7E-03	1.7E-03				1.7E-03
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	7.4E+03	7.4E+03				7.4E+03
		Total PCBs, Adjusted	pg/g	1	0	0	6.5E+03	6.5E+03				6.5E+03
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Total PCB TEQ	pg/g	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	2.0E-03	2.0E-03				2.0E-03
		Dieldrin	ug/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	1.5E-03	1.5E-03				1.5E-03
		Total DDD	ug/kg	1	0	0	6.3E-02	6.3E-02				6.3E-02
		Total DDE	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 12, Station: CR12E	WB	**Metals**										
		Aluminum	mg/kg	1	0	0	5.6E+01	5.6E+01		Fewer than 5 detects		5.6E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Manganese	mg/kg	1	0	0	8.2E+01	8.2E+01				8.2E+01
		Mercury	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Nickel	mg/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Dibutyltin ion	ug/kg	1	0	0	ND	ND				ND
		Tributyltin ion	ug/kg	1	0	0	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	5.7E-01	5.7E-01				5.7E-01
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	1.6E-01	1.6E-01				1.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	5.2E-01	5.2E-01				5.2E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		Phthalates										
		Butylbenzyl phthalate	ug/kg	1	1	0	2.7E+01	2.7E+01				2.7E+01
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	1	0	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	0	0	8.5E-02	8.5E-02				8.5E-02
		Hexachlorobutadiene	ug/kg	1	0	0	ND	ND				ND
		Phenols										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	7.4E+01	7.4E+01				7.4E+01
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA

TABLE 3-17
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total PCB Congeners	pg/g	1	0	0	1.9E+04	1.9E+04				1.9E+04
		Total PCBs, Adjusted[f]	pg/g	1	0	0	1.8E+04	1.8E+04				1.8E+04
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.9E-01	4.9E-01				4.9E-01
		Total PCB TEQ	pg/g	1	0	0	5.1E-01	5.1E-01				5.1E-01
		Pesticides										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	5.5E-02	5.5E-02				5.5E-02
		Total DDE	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND

Notes:

a Each crayfish sampling location is its own exposure area.
b Chemicals listed are analytes detected at least once within the Study Area.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f 95% UCL not calculated for analytes with fewer than five detects.
g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

95% UCL = 95% Upper confidence limit on the mean.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
mg/kg = Milligrams per kilogram.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected in the given exposure area.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
RM = River mile.
SIL = Swan Island Lagoon.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.
WB= Whole body.

TABLE 3-18
Exposure Point Concentration Summary - Crayfish, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
Study Area-wide	WB	**Metals**										
		Aluminum	mg/kg	31	0	0	9.4E+01	2.0E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02
		Antimony	mg/kg	31	6	0	6.9E-03	2.0E-02	non-parametric	95% KM (Chebyshev) UCL	1.0E-02	1.0E-02
		Arsenic, inorganic	mg/kg	31	1	0	3.4E-02	5.0E-02	normal	95% KM (t) UCL	3.6E-02	3.6E-02
		Cadmium	mg/kg	31	0	0	1.8E-02	3.6E-02	gamma	95% Approximate Gamma UCL	2.0E-02	2.0E-02
		Chromium	mg/kg	31	0	0	4.3E-01	9.0E-01	gamma	95% Approximate Gamma UCL	5.2E-01	5.2E-01
		Copper	mg/kg	31	0	0	1.5E+01	2.0E+01	normal	95% Student's-t UCL	1.5E+01	1.5E+01
		Lead	mg/kg	31	0	0	1.5E-01	1.3E+00	non-parametric	95% Chebyshev(Mean, Sd) UCL	3.2E-01	3.2E-01
		Manganese	mg/kg	31	0	0	1.3E+02	2.1E+02	normal	95% Student's-t UCL	1.4E+02	1.4E+02
		Mercury	mg/kg	31	0	0	2.9E-02	4.1E-02	lognormal	95% Student's-t UCL	3.1E-02	3.1E-02
		Nickel	mg/kg	31	1	0	3.7E-01	8.3E-01	gamma	95% KM (BCA) UCL	4.2E-01	4.2E-01
		Selenium	mg/kg	31	29	0	1.4E-01	3.9E-01	--	Fewer than 5 detects[e]	--	3.9E-01
		Silver	mg/kg	31	7	0	2.7E-02	4.7E-02	normal	95% KM (t) UCL	3.2E-02	3.2E-02
		Thallium	mg/kg	31	5	0	3.0E-03	7.9E-03	lognormal	95% KM (Chebyshev) UCL	4.3E-03	4.3E-03
		Zinc	mg/kg	31	0	0	1.7E+01	2.0E+01	normal	95% Student's-t UCL	1.8E+01	1.8E+01
		Butyltins										
		Butyltin ion	ug/kg	5	0	0	1.1E+00	4.6E+00	non-parametric	99% Chebyshev (Mean, Sd) UCL	9.8E+00	4.6E+00
		Dibutyltin ion	ug/kg	5	1	0	6.6E+01	3.3E+02	--	Fewer than 5 detects	--	3.3E+02
		Tributyltin ion	ug/kg	5	2	0	7.8E-01	2.3E+00	--	Fewer than 5 detects	--	2.3E+00
		Polynuclear Aromatic Hydrocarbons										
		2-Methylnaphthalene	ug/kg	31	29	26	4.5E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00
		Acenaphthene	ug/kg	31	26	26	1.2E+00	4.2E+00	gamma	95% Approximate Gamma UCL	5.6E+00	4.2E+00
		Acenaphthylene	ug/kg	31	29	26	2.8E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00
		Anthracene	ug/kg	31	26	26	7.5E-01	2.9E+00	gamma	95% Approximate Gamma UCL	3.9E+00	2.9E+00
		Benzo(a)anthracene	ug/kg	31	29	0	1.6E+01	8.0E+01	--	Fewer than 5 detects	--	8.0E+01
		Benzo(a)pyrene	ug/kg	31	26	26	1.8E+00	7.5E+00	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.6E+01	7.5E+00
		Benzo(b)fluoranthene	ug/kg	31	30	26	1.2E+00	5.3E+00	--	Fewer than 5 detects	--	5.3E+00
		Benzo(g,h,i)perylene	ug/kg	31	30	26	1.3E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00
		Benzo(k)fluoranthene	ug/kg	31	30	26	1.1E+00	5.0E+00	--	Fewer than 5 detects	--	5.0E+00
		Chrysene	ug/kg	31	29	0	1.6E+01	8.7E+01	--	Fewer than 5 detects	--	8.7E+01
		Dibenzo(a,h)anthracene	ug/kg	31	30	26	1.7E-01	7.1E-01	--	Fewer than 5 detects	--	7.1E-01
		Fluoranthene	ug/kg	31	27	0	2.9E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
		Fluorene	ug/kg	31	26	26	6.8E-01	1.8E+00	normal	95% Student's-t UCL	1.3E+00	1.3E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	31	30	26	1.2E+00	5.3E+00	--	Fewer than 5 detects	--	5.3E+00
		Naphthalene	ug/kg	31	26	26	1.0E+00	2.9E+00	non-parametric	95% Chebyshev (Mean, Sd) UCL	3.1E+00	2.9E+00
		Phenanthrene	ug/kg	31	29	0	1.8E+01	9.7E+01	--	Fewer than 5 detects	--	9.7E+01
		Pyrene	ug/kg	31	28	0	2.1E+01	8.3E+01	--	Fewer than 5 detects	--	8.3E+01
		Phthalates										
		Butylbenzyl phthalate	ug/kg	31	29	26	1.9E+01	7.1E+01	--	Fewer than 5 detects	--	7.1E+01
		Semi-Volatile Organic Compounds										
		Dibenzofuran	ug/kg	31	26	26	2.7E-01	4.8E-01	normal	95% Student's-t UCL	4.1E-01	4.1E-01
		Hexachlorobenzene	ug/kg	31	26	26	5.0E-02	6.6E-02	normal	95% Student's-t UCL	6.2E-02	6.2E-02
		Hexachlorobutadiene	ug/kg	31	30	30	1.9E-03	1.9E-03	--	Fewer than 5 detects	--	1.9E-03

TABLE 3-18
Exposure Point Concentration Summary - Crayfish, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phenols										
		4-Methylphenol	ug/kg	31	29	0	3.3E+01	1.9E+02	--	Fewer than 5 detects	--	1.9E+02
		Pentachlorophenol	ug/kg	31	30	25	3.4E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
		Phenol	ug/kg	31	25	0	1.6E+02	5.2E+02	non-parametric	95% KM (t) UCL	1.1E+02	1.1E+02
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	26	14	0	3.0E+01	2.8E+02	lognormal	95% KM (t) UCL	5.6E+01	5.6E+01
		Total PCB Congeners	pg/g	14	0	0	1.3E+05	1.2E+06	lognormal	97.5% KM (Chebyshev) UCL	6.5E+05	6.5E+05
		Total PCBs, Adjusted[f]	pg/g	14	0	0	1.3E+05	1.1E+06	lognormal	97.5% KM (Chebyshev) UCL	6.2E+05	6.2E+05
		Dioxin/Furans										
		Total Dioxin/Furan TEQ	pg/g	14	0	0	1.9E+00	1.8E+01	non-parametric	97.5% KM (Chebyshev) UCL	9.8E+00	9.8E+00
		Total PCB TEQ	pg/g	14	0	0	1.3E+00	5.1E+00	gamma	95% KM (Chebyshev) UCL	2.9E+00	2.9E+00
		Pesticides										
		Aldrin	ug/kg	31	30	26	8.5E-03	3.7E-02	--	Fewer than 5 detects	--	3.7E-02
		alpha-Hexachlorocyclohexane	ug/kg	31	29	27	1.7E-03	2.8E-03	--	Fewer than 5 detects	--	2.8E-03
		Dieldrin	ug/kg	31	26	26	2.0E-02	4.7E-02	lognormal	95% H-UCL	5.5E-02	4.7E-02
		Endrin	ug/kg	31	25	0	6.3E-01	2.8E+00	normal	95% KM (t) UCL	5.0E-01	5.0E-01
		Heptachlor epoxide	ug/kg	31	29	27	8.4E-04	1.8E-03	--	Fewer than 5 detects	--	1.8E-03
		Total DDD	ug/kg	31	21	0	1.7E+00	2.1E+01	gamma	95% KM (t) UCL	2.9E+00	2.9E+00
		Total DDE	ug/kg	31	0	0	6.3E+00	5.2E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.3E+01	1.3E+01
		Total DDT	ug/kg	31	11	0	3.9E+00	1.8E+01	gamma	95% KM (Percentile Bootstrap) UCL	5.3E+00	5.3E+00
		Total Chlordane	ug/kg	31	21	0	1.0E+00	4.7E+00	non-parametric	95% KM (BCA) UCL	1.3E+00	1.3E+00
		Total Endosulfan	ug/kg	31	21	0	8.4E-01	3.1E+00	normal	95% KM (t) UCL	1.4E+00	1.4E+00

Notes:

a Chemicals listed are analytes detected in each tissue type at least once within the Study Area.

b Total number of non-detects in the dataset.

c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.

d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.

e 95% UCL not calculated for analytes with fewer than five detects.

f "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

95% UCL = 95% Upper confidence limit on the mean.
-- = Not applicable. A 95% UCL could not be computed for the given data set.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 1 East	D	**Metals**										
		Aluminum	mg/kg	1	0	0	2.1E+01	2.1E+01		Fewer than 5 detects[f]		2.1E+01
		Arsenic, inorganic	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Cadmium	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	7.6E+00	7.6E+00				7.6E+00
		Lead	mg/kg	1	0	0	2.3E-02	2.3E-02				2.3E-02
		Manganese	mg/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Mercury	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Nickel	mg/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Selenium	mg/kg	1	0	0	1.6E-01	1.6E-01				1.6E-01
		Silver	mg/kg	1	0	0	2.1E-02	2.1E-02				2.1E-02
		Thallium	mg/kg	1	0	0	2.0E-03	2.0E-03				2.0E-03
		Zinc	mg/kg	1	0	0	2.1E+01	2.1E+01				2.1E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.8E+00	2.8E+00				2.8E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		2-Methylnaphthalene	ug/kg	1	0	0	9.7E-01	9.7E-01				9.7E-01
		Acenaphthene	ug/kg	1	0	0	6.8E-01	6.8E-01				6.8E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Benzo(a)anthracene	ug/kg	1	0	0	4.3E+00	4.3E+00				4.3E+00
		Benzo(a)pyrene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Benzo(b)fluoranthene	ug/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Benzo(e)pyrene	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	2.8E+01	2.8E+01				2.8E+01
		Fluorene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	7.6E+00	7.6E+00				7.6E+00
		Pyrene	ug/kg	1	0	0	2.2E+01	2.2E+01				2.2E+01
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	3.0E+03	3.0E+03				3.0E+03
		Dibenzofuran	ug/kg	1	0	0	6.6E-01	6.6E-01				6.6E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.8E-01	4.8E-01				4.8E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	2.9E+02	2.9E+02				2.9E+02
		Phenols										
		2-Methylphenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total PCB Congeners	pg/g	1	0	0	1.1E+05	1.1E+05				1.1E+05
		Total PCBs, Adjusted[g]	pg/g	1	0	0	1.0E+05	1.0E+05				1.0E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Total PCB TEQ	pg/g	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Pesticides										
		Aldrin	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Dieldrin	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Heptachlor epoxide	ug/kg	1	0	0	4.3E-02	4.3E-02				4.3E-02
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Total DDE	ug/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Total DDT	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Total Endosulfan	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
RM 1 East	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	7.6E+01	7.6E+01		Fewer than 5 detects		7.6E+01
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Cadmium	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Lead	mg/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Manganese	mg/kg	1	0	0	5.2E+00	5.2E+00				5.2E+00
		Mercury	mg/kg	1	0	0	1.2E-02	1.2E-02				1.2E-02
		Nickel	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Selenium	mg/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Silver	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Thallium	mg/kg	1	0	0	2.2E-03	2.2E-03				2.2E-03
		Zinc	mg/kg	1	0	0	2.5E+01	2.5E+01				2.5E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Dibutyltin ion	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	8.2E-01	8.2E-01				8.2E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Acenaphthene	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Acenaphthylene	ug/kg	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Anthracene	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Benzo(a)anthracene	ug/kg	1	0	0	5.5E+00	5.5E+00				5.5E+00
		Benzo(a)pyrene	ug/kg	1	0	0	8.8E-01	8.8E-01				8.8E-01
		Benzo(b)fluoranthene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Benzo(e)pyrene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	9.7E-01	9.7E-01				9.7E-01
		Chrysene	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Dibenzo(a,h)anthracene	ug/kg	1	0	0	8.7E-01	8.7E-01				8.7E-01
		Dibenzothiophene	ug/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Fluoranthene	ug/kg	1	0	0	3.1E+01	3.1E+01				3.1E+01
		Fluorene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	0	0	2.7E-01	2.7E-01				2.7E-01
		Phenanthrene	ug/kg	1	0	0	8.5E+00	8.5E+00				8.5E+00
		Pyrene	ug/kg	1	0	0	2.7E+01	2.7E+01				2.7E+01
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	2.8E+03	2.8E+03				2.8E+03
		Benzyl alcohol	ug/kg	1	0	0	2.6E+01	2.6E+01				2.6E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.8E-01	5.8E-01				5.8E-01
		Hexachlorobutadiene	ug/kg	1	0	0	9.3E-03	9.3E-03				9.3E-03
		Nitrobenzene	ug/kg	1	0	0	3.2E+02	3.2E+02				3.2E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.3E+05	1.3E+05				1.3E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.2E+05	1.2E+05				1.2E+05

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.1E-01	5.1E-01				5.1E-01
		Total PCB TEQ	pg/g	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Pesticides										
		Aldrin	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	4.9E-02	4.9E-02				4.9E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total DDD	ug/kg	1	0	0	1.0E+01	1.0E+01				1.0E+01
		Total DDE	ug/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Total DDT	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total Endosulfan	ug/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
RM 2 East	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	4.0E+01	4.8E+01		Fewer than 5 detects		4.8E+01
		Antimony	mg/kg	2	1	0	1.3E-03	2.0E-03				2.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	1.2E-01	1.3E-01				1.3E-01
		Cadmium	mg/kg	2	0	0	1.7E-01	2.2E-01				2.2E-01
		Chromium	mg/kg	2	0	0	7.5E-01	7.9E-01				7.9E-01
		Copper	mg/kg	2	0	0	1.0E+01	1.1E+01				1.1E+01
		Lead	mg/kg	2	0	0	5.4E-02	7.1E-02				7.1E-02
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	2	0	0	7.0E-03	8.0E-03				8.0E-03
		Nickel	mg/kg	2	0	0	2.6E-01	2.9E-01				2.9E-01
		Selenium	mg/kg	2	0	0	1.4E-01	1.7E-01				1.7E-01
		Silver	mg/kg	2	0	0	4.5E-02	5.2E-02				5.2E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	2	0	0	3.7E+01	4.0E+01				4.0E+01
		Butyltins										
		Butyltin ion	ug/kg	2	0	0	3.1E+00	4.5E+00				4.5E+00
		Dibutyltin ion	ug/kg	2	0	0	4.5E+00	5.4E+00				5.4E+00
		Tributyltin ion	ug/kg	2	0	0	5.9E+00	6.7E+00				6.7E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	2	0	0	1.5E+00	1.5E+00				1.5E+00
		Acenaphthene	ug/kg	2	0	0	9.9E-01	1.3E+00				1.3E+00
		Acenaphthylene	ug/kg	2	0	0	1.6E+00	2.0E+00				2.0E+00
		Anthracene	ug/kg	2	0	0	6.7E+00	7.0E+00				7.0E+00
		Benzo(a)anthracene	ug/kg	2	0	0	4.0E+01	4.8E+01				4.8E+01
		Benzo(a)pyrene	ug/kg	2	0	0	6.2E+00	7.7E+00				7.7E+00
		Benzo(b)fluoranthene	ug/kg	2	0	0	8.5E+00	1.1E+01				1.1E+01
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	2	0	0	2.8E+00	3.2E+00				3.2E+00
		Benzo(k)fluoranthene	ug/kg	2	0	0	4.2E+00	5.4E+00				5.4E+00
		Chrysene	ug/kg	2	0	0	4.6E+01	5.4E+01				5.4E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	2	0	0	8.3E+01	8.3E+01				8.3E+01
		Fluorene	ug/kg	2	0	0	2.2E+00	2.4E+00				2.4E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	1.9E+00	2.0E+00				2.0E+00
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	2	0	0	2.1E+01	2.1E+01				2.1E+01
		Pyrene	ug/kg	2	0	0	1.0E+02	1.0E+02				1.0E+02
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	0	0	1.0E+01	1.1E+01				1.1E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	0	0	5.6E-01	6.3E-01				6.3E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	2.4E+05	3.3E+05				3.3E+05
		Total PCBs, Adjusted	pg/g	2	0	0	2.2E+05	3.0E+05				3.0E+05

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.2E-01	5.9E-01				5.9E-01
		Total PCB TEQ	pg/g	2	0	0	2.5E+00	3.3E+00				3.3E+00
		Pesticides										
		Aldrin	ug/kg	2	0	0	2.0E-01	2.2E-01				2.2E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	8.2E-01	9.4E-01				9.4E-01
		Endrin	ug/kg	2	1	0	6.0E-03	8.2E-03				8.2E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	6.6E-02	6.6E-02				6.6E-02
		Heptachlor	ug/kg	2	0	0	9.9E-03	1.2E-02				1.2E-02
		Heptachlor epoxide	ug/kg	2	0	0	6.0E-02	6.7E-02				6.7E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	3.2E+00	3.5E+00				3.5E+00
		Total DDD	ug/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01
		Total DDE	ug/kg	2	0	0	1.3E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	2	0	0	1.9E+00	2.2E+00				2.2E+00
		Total Endosulfan	ug/kg	2	0	0	9.8E-01	1.1E+00				1.1E+00
RM 2 West	D	**Metals**										
		Aluminum	mg/kg	1	0	0	2.1E+01	2.1E+01		Fewer than 5 detects		2.1E+01
		Arsenic, inorganic	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Cadmium	mg/kg	1	0	0	9.0E-02	9.0E-02				9.0E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	9.0E+00	9.0E+00				9.0E+00
		Lead	mg/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Manganese	mg/kg	1	0	0	4.3E+00	4.3E+00				4.3E+00
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Selenium	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Silver	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Thallium	mg/kg	1	0	0	2.7E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	1	0	0	2.2E+01	2.2E+01				2.2E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00
		2-Methylnaphthalene	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Acenaphthene	ug/kg	1	0	0	4.8E+00	4.8E+00				4.8E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Acenaphthylene	ug/kg	1	0	0	6.2E-01	6.2E-01				6.2E-01
		Anthracene	ug/kg	1	0	0	4.4E+00	4.4E+00				4.4E+00
		Benzo(a)anthracene	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Benzo(e)pyrene	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	8.6E-01	8.6E-01				8.6E-01
		Chrysene	ug/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Dibenzothiophene	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
		Fluoranthene	ug/kg	1	0	0	8.4E+01	8.4E+01				8.4E+01
		Fluorene	ug/kg	1	0	0	4.7E+00	4.7E+00				4.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Perylene	ug/kg	1	0	0	9.1E-01	9.1E-01				9.1E-01
		Phenanthrene	ug/kg	1	0	0	2.5E+01	2.5E+01				2.5E+01
		Pyrene	ug/kg	1	0	0	6.8E+01	6.8E+01				6.8E+01
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	3.2E+03	3.2E+03				3.2E+03
		Dibenzofuran	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Hexachlorobenzene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobutadiene	ug/kg	1	0	0	9.8E-03	9.8E-03				9.8E-03
		Nitrobenzene	ug/kg	1	0	0	6.0E+01	6.0E+01				6.0E+01
		Phenols										
		2-Methylphenol	ug/kg	1	0	0	9.7E+00	9.7E+00				9.7E+00
		Polychlorinated Biphenyls										
		Total PCB Congeners	pg/g	1	0	0	8.3E+04	8.3E+04				8.3E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.7E+04	7.7E+04				7.7E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.7E-01	3.7E-01				3.7E-01
		Total PCB TEQ	pg/g	1	0	0	8.6E-01	8.6E-01				8.6E-01
		Pesticides										
		Aldrin	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Dieldrin	ug/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Heptachlor epoxide	ug/kg	1	0	0	4.5E-02	4.5E-02				4.5E-02
		Total Chlordanes	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
		Total DDD	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Total DDE	ug/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total Endosulfan	ug/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 2 West	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	4.3E+01	6.5E+01		Fewer than 5 detects		6.5E+01
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	9.7E-02	1.0E-01				1.0E-01
		Cadmium	mg/kg	2	0	0	8.5E-02	1.0E-01				1.0E-01
		Chromium	mg/kg	2	0	0	5.1E-01	6.2E-01				6.2E-01
		Copper	mg/kg	2	0	0	7.7E+00	9.4E+00				9.4E+00
		Lead	mg/kg	2	0	0	3.1E-02	3.8E-02				3.8E-02
		Manganese	mg/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		Mercury	mg/kg	2	0	0	9.2E-03	1.0E-02				1.0E-02
		Nickel	mg/kg	2	0	0	2.1E-01	2.6E-01				2.6E-01
		Selenium	mg/kg	2	0	0	1.5E-01	1.9E-01				1.9E-01
		Silver	mg/kg	2	0	0	3.5E-02	5.0E-02				5.0E-02
		Thallium	mg/kg	1	0	0	2.0E-03	2.0E-03				2.0E-03
		Zinc	mg/kg	2	0	0	2.9E+01	3.1E+01				3.1E+01
		Butyltins										
		Butyltin ion	ug/kg	2	1	0	1.0E+00	1.4E+00				1.4E+00
		Dibutyltin ion	ug/kg	2	0	0	3.4E+00	3.7E+00				3.7E+00
		Tributyltin ion	ug/kg	2	1	0	3.4E+00	4.7E+00				4.7E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		2-Methylnaphthalene	ug/kg	2	0	0	1.6E+00	1.8E+00				1.8E+00
		Acenaphthene	ug/kg	2	0	0	2.2E+00	3.3E+00				3.3E+00
		Acenaphthylene	ug/kg	2	0	0	1.2E+00	1.8E+00				1.8E+00
		Anthracene	ug/kg	2	0	0	1.0E+01	1.7E+01				1.7E+01
		Benzo(a)anthracene	ug/kg	2	0	0	3.3E+01	6.0E+01				6.0E+01
		Benzo(a)pyrene	ug/kg	2	0	0	6.9E+00	1.3E+01				1.3E+01
		Benzo(b)fluoranthene	ug/kg	2	0	0	8.3E+00	1.5E+01				1.5E+01
		Benzo(e)pyrene	ug/kg	1	0	0	3.5E+00	3.5E+00				3.5E+00
		Benzo(g,h,i)perylene	ug/kg	2	0	0	3.4E+00	6.1E+00				6.1E+00
		Benzo(k)fluoranthene	ug/kg	2	1	0	4.0E+00	7.7E+00				7.7E+00
		Chrysene	ug/kg	2	0	0	3.7E+01	6.1E+01				6.1E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Fluoranthene	ug/kg	2	0	0	1.0E+02	1.5E+02				1.5E+02
		Fluorene	ug/kg	2	0	0	3.6E+00	3.9E+00				3.9E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	2.1E+00	3.9E+00				3.9E+00
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
		Phenanthrene	ug/kg	2	0	0	3.8E+01	5.9E+01				5.9E+01
		Pyrene	ug/kg	2	0	0	9.8E+01	1.5E+02				1.5E+02

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	1.9E+03	1.9E+03				1.9E+03
		Benzyl alcohol	ug/kg	2	1	1	1.2E+01	1.2E+01				1.2E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	0	0	1.0E+00	1.1E+00				1.1E+00
		Hexachlorobenzene	ug/kg	2	0	0	5.2E-01	6.1E-01				6.1E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	2.8E+02	2.8E+02				2.8E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	7.7E+04	8.3E+04				8.3E+04
		Total PCBs, Adjusted	pg/g	2	0	0	7.2E+04	7.8E+04				7.8E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.8E-01	5.6E-01				5.6E-01
		Total PCB TEQ	pg/g	2	0	0	7.8E-01	9.0E-01				9.0E-01
		Pesticides										
		Aldrin	ug/kg	2	0	0	2.2E-01	2.9E-01				2.9E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	6.3E-01	6.5E-01				6.5E-01
		Endrin	ug/kg	2	1	1	5.7E-03	5.7E-03				5.7E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	5.0E-02	5.5E-02				5.5E-02
		Heptachlor	ug/kg	2	1	1	7.3E-03	7.3E-03				7.3E-03
		Heptachlor epoxide	ug/kg	2	0	0	4.7E-02	5.0E-02				5.0E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	2.8E+00	3.3E+00				3.3E+00
		Total DDD	ug/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01
		Total DDE	ug/kg	2	0	0	1.3E+01	1.6E+01				1.6E+01
		Total DDT	ug/kg	2	0	0	1.8E+00	1.9E+00				1.9E+00
		Total Endosulfan	ug/kg	2	0	0	6.7E-01	7.2E-01				7.2E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 3 East	UD	**Metals**										
		Aluminum	mg/kg	3	0	0	5.5E+01	8.0E+01		Fewer than 5 detects		8.0E+01
		Antimony	mg/kg	3	1	0	1.8E-03	2.8E-03				2.8E-03
		Arsenic, inorganic	mg/kg	3	0	0	8.8E-02	9.6E-02				9.6E-02
		Cadmium	mg/kg	3	0	0	1.4E-01	1.7E-01				1.7E-01
		Chromium	mg/kg	3	0	0	7.8E-01	1.1E+00				1.1E+00
		Copper	mg/kg	3	0	0	9.8E+00	1.0E+01				1.0E+01
		Lead	mg/kg	3	0	0	7.9E-02	1.1E-01				1.1E-01
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	3	0	0	7.0E-03	8.0E-03				8.0E-03
		Nickel	mg/kg	3	0	0	3.0E-01	3.1E-01				3.1E-01
		Selenium	mg/kg	3	0	0	1.0E-01	1.2E-01				1.2E-01
		Silver	mg/kg	3	0	0	3.9E-02	5.6E-02				5.6E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	3	0	0	4.2E+01	4.8E+01				4.8E+01
		Butyltins										
		Butyltin ion	ug/kg	3	1	0	1.8E+00	3.7E+00				3.7E+00
		Dibutyltin ion	ug/kg	3	0	0	2.3E+01	5.4E+01				5.4E+01
		Tributyltin ion	ug/kg	3	0	0	2.5E+01	6.3E+01				6.3E+01
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	3	0	0	1.6E+00	2.0E+00				2.0E+00
		Acenaphthene	ug/kg	3	0	0	1.2E+00	1.7E+00				1.7E+00
		Acenaphthylene	ug/kg	3	0	0	1.4E+00	1.8E+00				1.8E+00
		Anthracene	ug/kg	3	0	0	8.3E+00	1.0E+01				1.0E+01
		Benzo(a)anthracene	ug/kg	3	0	0	5.6E+01	6.7E+01				6.7E+01
		Benzo(a)pyrene	ug/kg	3	0	0	1.3E+01	1.6E+01				1.6E+01
		Benzo(b)fluoranthene	ug/kg	3	0	0	2.6E+01	3.9E+01				3.9E+01
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	3	0	0	6.9E+00	9.6E+00				9.6E+00
		Benzo(k)fluoranthene	ug/kg	3	0	0	1.1E+01	1.5E+01				1.5E+01
		Chrysene	ug/kg	3	0	0	8.6E+01	1.1E+02				1.1E+02
		Dibenzo(a,h)anthracene	ug/kg	3	2	0	9.7E-01	2.8E+00				2.8E+00
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	3	0	0	8.3E+01	9.3E+01				9.3E+01
		Fluorene	ug/kg	3	0	0	3.5E+00	4.7E+00				4.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	3	0	0	4.5E+00	5.7E+00				5.7E+00
		Naphthalene	ug/kg	3	3	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	3	0	0	2.4E+01	3.0E+01				3.0E+01
		Pyrene	ug/kg	3	0	0	1.1E+02	1.5E+02				1.5E+02

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	3	3	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	3	1	0	1.1E+01	1.7E+01				1.7E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	3	0	0	1.4E+00	2.1E+00				2.1E+00
		Hexachlorobenzene	ug/kg	3	0	0	5.0E-01	5.6E-01				5.6E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	3.1E+05	5.1E+05				5.1E+05
		Total PCBs, Adjusted	pg/g	3	0	0	2.9E+05	4.7E+05				4.7E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	6.4E-01	8.4E-01				8.4E-01
		Total PCB TEQ	pg/g	3	0	0	3.0E+00	5.4E+00				5.4E+00
		Pesticides										
		Aldrin	ug/kg	3	0	0	1.6E-01	1.9E-01				1.9E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	2	2	5.7E-03	5.7E-03				5.7E-03
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	7.5E-01	8.9E-01				8.9E-01
		Endrin	ug/kg	3	2	0	6.0E-03	1.0E-02				1.0E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	2	1	2.1E-03	3.0E-03				3.0E-03
		gamma-Hexachlorocyclohexane	ug/kg	3	1	1	4.7E-02	5.4E-02				5.4E-02
		Heptachlor	ug/kg	3	0	0	1.4E-02	2.0E-02				2.0E-02
		Heptachlor epoxide	ug/kg	3	0	0	5.2E-02	6.1E-02				6.1E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	2.8E+00	3.1E+00				3.1E+00
		Total DDD	ug/kg	3	0	0	1.0E+01	1.1E+01				1.1E+01
		Total DDE	ug/kg	3	0	0	1.1E+01	1.2E+01				1.2E+01
		Total DDT	ug/kg	3	0	0	2.5E+00	3.4E+00				3.4E+00
		Total Endosulfan	ug/kg	3	0	0	8.3E-01	9.3E-01				9.3E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 3 West	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	2.0E+02	2.0E+02		Fewer than 5 detects		2.0E+02
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	8.9E-02	8.9E-02				8.9E-02
		Cadmium	mg/kg	1	0	0	6.1E-02	6.1E-02				6.1E-02
		Chromium	mg/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
		Copper	mg/kg	1	0	0	7.7E+00	7.7E+00				7.7E+00
		Lead	mg/kg	1	0	0	8.9E-02	8.9E-02				8.9E-02
		Manganese	mg/kg	1	0	0	7.8E+00	7.8E+00				7.8E+00
		Mercury	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Nickel	mg/kg	1	0	0	2.5E-01	2.5E-01				2.5E-01
		Selenium	mg/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Silver	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Thallium	mg/kg	1	0	0	1.8E-03	1.8E-03				1.8E-03
		Zinc	mg/kg	1	0	0	3.3E+01	3.3E+01				3.3E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		2-Methylnaphthalene	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Acenaphthene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Acenaphthylene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Anthracene	ug/kg	1	0	0	3.2E+00	3.2E+00				3.2E+00
		Benzo(a)anthracene	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Benzo(a)pyrene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Benzo(e)pyrene	ug/kg	1	0	0	6.0E+00	6.0E+00				6.0E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	9.6E-01	9.6E-01				9.6E-01
		Chrysene	ug/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Fluoranthene	ug/kg	1	0	0	4.2E+01	4.2E+01				4.2E+01
		Fluorene	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		Phenanthrene	ug/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Pyrene	ug/kg	1	0	0	4.7E+01	4.7E+01				4.7E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	0	0	9.9E+01	9.9E+01				9.9E+01
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	5.9E+03	5.9E+03				5.9E+03
		Benzyl alcohol	ug/kg	1	0	0	2.9E+01	2.9E+01				2.9E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	0	0	4.6E+01	4.6E+01				4.6E+01
		Dibenzofuran	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00
		Hexachlorobenzene	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	5.2E+02	5.2E+02				5.2E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.0E+05	1.0E+05				1.0E+05
		Total PCBs, Adjusted	pg/g	1	0	0	9.4E+04	9.4E+04				9.4E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	8.6E-01	8.6E-01				8.6E-01
		Total PCB TEQ	pg/g	1	0	0	9.8E-01	9.8E-01				9.8E-01
		Pesticides										
		Aldrin	ug/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	6.7E-01	6.7E-01				6.7E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	ND	ND	ND				ND
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	3.8E+00	3.8E+00				3.8E+00
		Total DDD	ug/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Total DDE	ug/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Total DDT	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total Endosulfan	ug/kg	1	0	0	6.9E-01	6.9E-01				6.9E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 4 East	UD	**Metals**										
		Aluminum	mg/kg	4	0	0	4.9E+01	7.3E+01		Fewer than 5 detects		7.3E+01
		Antimony	mg/kg	4	2	0	1.0E-03	2.0E-03				2.0E-03
		Arsenic, inorganic	mg/kg	4	0	0	9.0E-02	9.5E-02				9.5E-02
		Cadmium	mg/kg	4	0	0	1.1E-01	1.5E-01				1.5E-01
		Chromium	mg/kg	4	0	0	5.6E-01	7.3E-01				7.3E-01
		Copper	mg/kg	4	0	0	9.3E+00	1.1E+01				1.1E+01
		Lead	mg/kg	4	0	0	1.2E-01	2.6E-01				2.6E-01
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	4	0	0	9.4E-03	1.1E-02				1.1E-02
		Nickel	mg/kg	4	0	0	3.3E-01	4.6E-01				4.6E-01
		Selenium	mg/kg	4	0	0	8.6E-02	9.8E-02				9.8E-02
		Silver	mg/kg	4	0	0	5.3E-02	5.8E-02				5.8E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	4	0	0	3.0E+01	3.4E+01				3.4E+01
		Butyltins										
		Butyltin ion	ug/kg	4	0	0	4.4E+00	5.7E+00				5.7E+00
		Dibutyltin ion	ug/kg	4	0	0	5.4E+00	5.9E+00				5.9E+00
		Tributyltin ion	ug/kg	4	0	0	7.6E+00	8.7E+00				8.7E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	4	0	0	1.5E+00	1.8E+00				1.8E+00
		Acenaphthene	ug/kg	4	0	0	1.8E+00	3.0E+00				3.0E+00
		Acenaphthylene	ug/kg	4	0	0	1.6E+00	1.9E+00				1.9E+00
		Anthracene	ug/kg	4	0	0	6.3E+00	8.9E+00				8.9E+00
		Benzo(a)anthracene	ug/kg	4	0	0	3.8E+01	4.4E+01				4.4E+01
		Benzo(a)pyrene	ug/kg	4	0	0	8.0E+00	9.8E+00				9.8E+00
		Benzo(b)fluoranthene	ug/kg	4	0	0	1.2E+01	2.0E+01				2.0E+01
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	4	0	0	3.6E+00	4.1E+00				4.1E+00
		Benzo(k)fluoranthene	ug/kg	4	0	0	6.3E+00	8.7E+00				8.7E+00
		Chrysene	ug/kg	4	0	0	4.2E+01	5.4E+01				5.4E+01
		Dibenzo(a,h)anthracene	ug/kg	4	1	0	7.9E-01	1.3E+00				1.3E+00
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	4	0	0	5.8E+01	6.7E+01				6.7E+01
		Fluorene	ug/kg	4	0	0	2.1E+00	2.4E+00				2.4E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	4	0	0	2.6E+00	3.3E+00				3.3E+00
		Naphthalene	ug/kg	4	4	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	4	0	0	1.7E+01	2.4E+01				2.4E+01
		Pyrene	ug/kg	4	0	0	6.0E+01	6.9E+01				6.9E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	4	4	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	4	4	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	4	1	1	9.9E+00	1.1E+01				1.1E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	4	0	0	8.5E-01	1.1E+00				1.1E+00
		Hexachlorobenzene	ug/kg	4	1	1	4.2E-01	4.7E-01				4.7E-01
		Hexachlorobutadiene	ug/kg	4	4	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	4	4	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	9.6E+04	1.1E+05				1.1E+05
		Total PCBs, Adjusted	pg/g	3	0	0	9.0E+04	1.0E+05				1.0E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	4	0	0	1.2E+00	3.3E+00				3.3E+00
		Total PCB TEQ	pg/g	3	0	0	1.0E+00	1.4E+00				1.4E+00
		Pesticides										
		Aldrin	ug/kg	3	0	0	1.5E-01	1.7E-01				1.7E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	2	2	6.1E-03	6.1E-03				6.1E-03
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	6.7E-01	6.9E-01				6.9E-01
		Endrin	ug/kg	3	1	0	4.7E-03	6.9E-03				6.9E-03
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	4.5E-02	6.4E-02				6.4E-02
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	4.7E-02	4.8E-02				4.8E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	2.6E+00	2.7E+00				2.7E+00
		Total DDD	ug/kg	3	0	0	6.8E+00	7.4E+00				7.4E+00
		Total DDE	ug/kg	3	0	0	9.3E+00	9.7E+00				9.7E+00
		Total DDT	ug/kg	3	0	0	2.1E+00	2.2E+00				2.2E+00
		Total Endosulfan	ug/kg	3	0	0	7.8E-01	8.0E-01				8.0E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 4 West	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	7.1E+01	7.2E+01		Fewer than 5 detects		7.2E+01
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	8.8E-02	1.0E-01				1.0E-01
		Cadmium	mg/kg	2	0	0	6.6E-02	7.6E-02				7.6E-02
		Chromium	mg/kg	2	0	0	5.2E-01	6.3E-01				6.3E-01
		Copper	mg/kg	2	0	0	8.0E+00	9.5E+00				9.5E+00
		Lead	mg/kg	2	0	0	5.7E-02	6.6E-02				6.6E-02
		Manganese	mg/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Mercury	mg/kg	2	0	0	1.1E-02	1.3E-02				1.3E-02
		Nickel	mg/kg	2	0	0	2.3E-01	2.9E-01				2.9E-01
		Selenium	mg/kg	2	0	0	1.3E-01	1.8E-01				1.8E-01
		Silver	mg/kg	2	0	0	4.9E-02	6.7E-02				6.7E-02
		Thallium	mg/kg	1	0	0	1.0E-03	1.0E-03				1.0E-03
		Zinc	mg/kg	2	0	0	3.3E+01	3.8E+01				3.8E+01
		Butyltins										
		Butyltin ion	ug/kg	2	1	0	9.8E-01	1.3E+00				1.3E+00
		Dibutyltin ion	ug/kg	2	1	0	1.7E+00	2.4E+00				2.4E+00
		Tributyltin ion	ug/kg	2	1	0	3.0E+00	4.0E+00				4.0E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		2-Methylnaphthalene	ug/kg	2	0	0	2.4E+00	2.4E+00				2.4E+00
		Acenaphthene	ug/kg	2	1	0	2.3E+00	4.6E+00				4.6E+00
		Acenaphthylene	ug/kg	2	0	0	2.6E+00	3.8E+00				3.8E+00
		Anthracene	ug/kg	2	0	0	1.7E+01	3.0E+01				3.0E+01
		Benzo(a)anthracene	ug/kg	2	0	0	8.4E+01	1.5E+02				1.5E+02
		Benzo(a)pyrene	ug/kg	2	0	0	2.2E+01	3.9E+01				3.9E+01
		Benzo(b)fluoranthene	ug/kg	2	0	0	2.4E+01	4.3E+01				4.3E+01
		Benzo(e)pyrene	ug/kg	1	0	0	9.1E+00	9.1E+00				9.1E+00
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.1E+01	1.6E+01				1.6E+01
		Benzo(k)fluoranthene	ug/kg	2	0	0	1.6E+01	2.8E+01				2.8E+01
		Chrysene	ug/kg	2	0	0	8.6E+01	1.5E+02				1.5E+02
		Dibenzo(a,h)anthracene	ug/kg	2	0	0	2.3E+00	3.8E+00				3.8E+00
		Dibenzothiophene	ug/kg	1	0	0	3.2E+00	3.2E+00				3.2E+00
		Fluoranthene	ug/kg	2	0	0	1.3E+02	2.2E+02				2.2E+02
		Fluorene	ug/kg	2	0	0	6.9E+00	9.2E+00				9.2E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	6.9E+00	9.6E+00				9.6E+00
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Phenanthrene	ug/kg	2	0	0	4.8E+01	6.6E+01				6.6E+01
		Pyrene	ug/kg	2	0	0	1.5E+02	2.4E+02				2.4E+02

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	3	2	1	5.6E+01	8.5E+01				8.5E+01
		Dibutyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	3.7E+03	3.7E+03				3.7E+03
		Benzyl alcohol	ug/kg	3	1	0	4.5E+01	1.1E+02				1.1E+02
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	0	0	8.3E-01	1.2E+00				1.2E+00
		Hexachlorobenzene	ug/kg	3	0	0	6.3E-01	6.4E-01				6.4E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	9.7E+04	1.3E+05				1.3E+05
		Total PCBs, Adjusted	pg/g	3	0	0	9.1E+04	1.2E+05				1.2E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	8.2E-01	9.5E-01				9.5E-01
		Total PCB TEQ	pg/g	3	0	0	1.1E+00	1.6E+00				1.6E+00
		Pesticides										
		Aldrin	ug/kg	3	0	0	2.3E-01	2.5E-01				2.5E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	2	1	8.7E-03	1.4E-02				1.4E-02
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	7.7E-01	9.4E-01				9.4E-01
		Endrin	ug/kg	3	2	0	8.6E-03	1.7E-02				1.7E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	5.4E-02	6.8E-02				6.8E-02
		Heptachlor	ug/kg	3	2	1	9.4E-03	1.4E-02				1.4E-02
		Heptachlor epoxide	ug/kg	3	0	0	5.4E-02	6.7E-02				6.7E-02
		Methoxychlor	ug/kg	3	2	0	1.2E-01	3.2E-01				3.2E-01
		Total Chlordanes	ug/kg	3	0	0	3.2E+00	3.4E+00				3.4E+00
		Total DDD	ug/kg	3	0	0	1.6E+01	1.8E+01				1.8E+01
		Total DDE	ug/kg	3	0	0	1.4E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	3	0	0	3.5E+00	4.1E+00				4.1E+00
		Total Endosulfan	ug/kg	3	0	0	9.1E-01	1.2E+00				1.2E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 5 East	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	1.1E+02	1.2E+02		Fewer than 5 detects		1.2E+02
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	8.0E-02	8.3E-02				8.3E-02
		Cadmium	mg/kg	2	0	0	6.0E-02	6.9E-02				6.9E-02
		Chromium	mg/kg	2	0	0	4.5E-01	5.1E-01				5.1E-01
		Copper	mg/kg	2	0	0	8.2E+00	9.1E+00				9.1E+00
		Lead	mg/kg	2	0	0	6.4E-02	6.9E-02				6.9E-02
		Manganese	mg/kg	1	0	0	6.6E+00	6.6E+00				6.6E+00
		Mercury	mg/kg	2	0	0	1.4E-02	1.9E-02				1.9E-02
		Nickel	mg/kg	2	0	0	2.7E-01	3.6E-01				3.6E-01
		Selenium	mg/kg	2	0	0	1.6E-01	1.7E-01				1.7E-01
		Silver	mg/kg	2	0	0	4.8E-02	6.2E-02				6.2E-02
		Thallium	mg/kg	1	0	0	1.2E-03	1.2E-03				1.2E-03
		Zinc	mg/kg	2	0	0	3.1E+01	3.2E+01				3.2E+01
		Butyltins										
		Butyltin ion	ug/kg	2	0	0	2.2E+00	2.4E+00				2.4E+00
		Dibutyltin ion	ug/kg	2	0	0	3.6E+00	3.6E+00				3.6E+00
		Tributyltin ion	ug/kg	2	0	0	7.2E+00	8.9E+00				8.9E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		2-Methylnaphthalene	ug/kg	2	0	0	2.1E+00	2.3E+00				2.3E+00
		Acenaphthene	ug/kg	2	0	0	1.2E+00	1.3E+00				1.3E+00
		Acenaphthylene	ug/kg	2	0	0	9.3E-01	1.4E+00				1.4E+00
		Anthracene	ug/kg	2	0	0	4.2E+00	5.6E+00				5.6E+00
		Benzo(a)anthracene	ug/kg	2	0	0	1.5E+01	2.2E+01				2.2E+01
		Benzo(a)pyrene	ug/kg	2	0	0	2.7E+00	4.6E+00				4.6E+00
		Benzo(b)fluoranthene	ug/kg	2	0	0	3.1E+00	4.7E+00				4.7E+00
		Benzo(e)pyrene	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.3E+00	1.6E+00				1.6E+00
		Benzo(k)fluoranthene	ug/kg	2	1	0	1.8E+00	3.3E+00				3.3E+00
		Chrysene	ug/kg	2	0	0	1.8E+01	2.4E+01				2.4E+01
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	3.1E-01	5.0E-01				5.0E-01
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	2	0	0	3.1E+01	3.7E+01				3.7E+01
		Fluorene	ug/kg	2	0	0	2.5E+00	3.0E+00				3.0E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	7.1E-01	9.5E-01				9.5E-01
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Phenanthrene	ug/kg	2	0	0	1.3E+01	1.6E+01				1.6E+01
		Pyrene	ug/kg	2	0	0	2.9E+01	3.6E+01				3.6E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	1	7.7E+01	7.7E+01				7.7E+01
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	3.9E+03	3.9E+03				3.9E+03
		Benzyl alcohol	ug/kg	2	1	0	4.2E+01	7.2E+01				7.2E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	0	0	1.2E+00	1.4E+00				1.4E+00
		Hexachlorobenzene	ug/kg	2	0	0	5.9E-01	7.4E-01				7.4E-01
		Hexachlorobutadiene	ug/kg	2	1	1	5.3E-03	5.3E-03				5.3E-03
		Nitrobenzene	ug/kg	1	0	0	4.1E+02	4.1E+02				4.1E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	1.3E+05	1.5E+05				1.5E+05
		Total PCBs, Adjusted	pg/g	2	0	0	1.2E+05	1.5E+05				1.5E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.8E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	2	0	0	1.2E+00	1.5E+00				1.5E+00
		Pesticides										
		Aldrin	ug/kg	2	0	0	3.0E-01	3.8E-01				3.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	6.9E-01	7.2E-01				7.2E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	3.7E-02	3.8E-02				3.8E-02
		Heptachlor	ug/kg	2	1	0	7.2E-03	1.1E-02				1.1E-02
		Heptachlor epoxide	ug/kg	2	0	0	4.7E-02	5.1E-02				5.1E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	3.8E+00	4.6E+00				4.6E+00
		Total DDD	ug/kg	2	0	0	9.9E+00	1.1E+01				1.1E+01
		Total DDE	ug/kg	2	0	0	1.3E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	2	0	0	1.9E+00	2.3E+00				2.3E+00
		Total Endosulfan	ug/kg	2	0	0	5.9E-01	7.4E-01				7.4E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 5 West	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	9.2E+01	1.3E+02		Fewer than 5 detects		1.3E+02
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	9.8E-02	1.1E-01				1.1E-01
		Cadmium	mg/kg	2	0	0	7.2E-02	7.7E-02				7.7E-02
		Chromium	mg/kg	2	0	0	6.3E-01	7.5E-01				7.5E-01
		Copper	mg/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01
		Lead	mg/kg	2	0	0	6.0E-02	7.1E-02				7.1E-02
		Manganese	mg/kg	1	0	0	7.4E+00	7.4E+00				7.4E+00
		Mercury	mg/kg	2	0	0	2.1E-02	2.6E-02				2.6E-02
		Nickel	mg/kg	2	0	0	2.7E-01	3.1E-01				3.1E-01
		Selenium	mg/kg	2	0	0	1.5E-01	1.9E-01				1.9E-01
		Silver	mg/kg	2	0	0	6.5E-02	8.3E-02				8.3E-02
		Thallium	mg/kg	1	0	0	1.1E-03	1.1E-03				1.1E-03
		Zinc	mg/kg	2	0	0	3.0E+01	3.1E+01				3.1E+01
		Butyltins										
		Butyltin ion	ug/kg	2	1	0	1.5E+00	2.9E+00				2.9E+00
		Dibutyltin ion	ug/kg	2	1	0	1.7E+00	2.5E+00				2.5E+00
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		2-Methylnaphthalene	ug/kg	2	0	0	2.2E+00	2.3E+00				2.3E+00
		Acenaphthene	ug/kg	2	0	0	1.2E+01	2.1E+01				2.1E+01
		Acenaphthylene	ug/kg	2	0	0	7.6E+00	1.4E+01				1.4E+01
		Anthracene	ug/kg	2	0	0	3.6E+01	6.5E+01				6.5E+01
		Benzo(a)anthracene	ug/kg	2	0	0	3.5E+02	6.7E+02				6.7E+02
		Benzo(a)pyrene	ug/kg	2	0	0	2.3E+02	4.6E+02				4.6E+02
		Benzo(b)fluoranthene	ug/kg	2	0	0	2.2E+02	4.3E+02				4.3E+02
		Benzo(e)pyrene	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.2E+02	2.3E+02				2.3E+02
		Benzo(k)fluoranthene	ug/kg	2	0	0	1.4E+02	2.8E+02				2.8E+02
		Chrysene	ug/kg	2	0	0	2.9E+02	5.6E+02				5.6E+02
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	1.9E+01	3.7E+01				3.7E+01
		Dibenzothiophene	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Fluoranthene	ug/kg	2	0	0	4.2E+02	7.7E+02				7.7E+02
		Fluorene	ug/kg	2	0	0	1.0E+01	1.6E+01				1.6E+01
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	8.1E+01	1.6E+02				1.6E+02
		Naphthalene	ug/kg	2	1	0	2.2E+00	3.0E+00				3.0E+00
		Perylene	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00
		Phenanthrene	ug/kg	2	0	0	1.1E+02	1.9E+02				1.9E+02
		Pyrene	ug/kg	2	0	0	4.6E+02	8.5E+02				8.5E+02

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	8.8E+01	1.5E+02				1.5E+02
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	4.7E+03	4.7E+03				4.7E+03
		Benzyl alcohol	ug/kg	2	1	1	9.4E+00	9.4E+00				9.4E+00
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	1	0	6.7E-01	1.3E+00				1.3E+00
		Hexachlorobenzene	ug/kg	2	0	0	6.2E-01	6.8E-01				6.8E-01
		Hexachlorobutadiene	ug/kg	2	1	1	2.5E-02	2.5E-02				2.5E-02
		Nitrobenzene	ug/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	7.5E+04	8.0E+04				8.0E+04
		Total PCBs, Adjusted	pg/g	2	0	0	7.1E+04	7.5E+04				7.5E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.3E+00	1.5E+00				1.5E+00
		Total PCB TEQ	pg/g	2	0	0	8.7E-01	9.6E-01				9.6E-01
		Pesticides										
		Aldrin	ug/kg	2	0	0	2.4E-01	2.5E-01				2.5E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	7.2E-01	8.7E-01				8.7E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	4.8E-02	6.5E-02				6.5E-02
		Heptachlor	ug/kg	2	1	0	2.1E-02	3.8E-02				3.8E-02
		Heptachlor epoxide	ug/kg	2	0	0	5.2E-02	6.1E-02				6.1E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	3.0E+00	3.3E+00				3.3E+00
		Total DDD	ug/kg	2	0	0	2.3E+01	2.4E+01				2.4E+01
		Total DDE	ug/kg	2	0	0	1.6E+01	1.7E+01				1.7E+01
		Total DDT	ug/kg	2	0	0	5.6E+00	6.8E+00				6.8E+00
		Total Endosulfan	ug/kg	2	0	0	6.3E-01	8.9E-01				8.9E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 6 East	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	7.5E+01	9.7E+01		Fewer than 5 detects		9.7E+01
		Antimony	mg/kg	2	1	1	1.0E-03	1.0E-03				1.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	9.0E-02	9.7E-02				9.7E-02
		Cadmium	mg/kg	2	0	0	5.6E-02	5.8E-02				5.8E-02
		Chromium	mg/kg	2	0	0	5.1E-01	5.9E-01				5.9E-01
		Copper	mg/kg	2	0	0	9.5E+00	1.1E+01				1.1E+01
		Lead	mg/kg	2	0	0	9.3E-02	1.2E-01				1.2E-01
		Manganese	mg/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Mercury	mg/kg	2	0	0	1.2E-02	1.2E-02				1.2E-02
		Nickel	mg/kg	2	0	0	2.3E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	2	0	0	1.1E-01	1.2E-01				1.2E-01
		Silver	mg/kg	2	0	0	4.9E-02	5.0E-02				5.0E-02
		Thallium	mg/kg	1	0	0	3.5E-04	3.5E-04				3.5E-04
		Zinc	mg/kg	2	0	0	2.5E+01	2.7E+01				2.7E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00
		Dibutyltin ion	ug/kg	1	0	0	7.9E+00	7.9E+00				7.9E+00
		Tributyltin ion	ug/kg	1	0	0	7.6E+00	7.6E+00				7.6E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	2	1	1	1.8E+00	1.8E+00				1.8E+00
		Acenaphthene	ug/kg	2	1	1	9.7E-01	9.7E-01				9.7E-01
		Acenaphthylene	ug/kg	2	1	1	1.2E+00	1.2E+00				1.2E+00
		Anthracene	ug/kg	2	1	1	5.5E+00	5.5E+00				5.5E+00
		Benzo(a)anthracene	ug/kg	2	1	1	1.8E+01	1.8E+01				1.8E+01
		Benzo(a)pyrene	ug/kg	2	1	1	3.8E+00	3.8E+00				3.8E+00
		Benzo(b)fluoranthene	ug/kg	2	1	1	4.2E+00	4.2E+00				4.2E+00
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	2	1	1	1.5E+00	1.5E+00				1.5E+00
		Benzo(k)fluoranthene	ug/kg	2	1	1	2.8E+00	2.8E+00				2.8E+00
		Chrysene	ug/kg	2	1	1	2.2E+01	2.2E+01				2.2E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	2	0	0	4.2E+01	4.2E+01				4.2E+01
		Fluorene	ug/kg	2	1	1	2.4E+00	2.4E+00				2.4E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	1	1.2E+00	1.2E+00				1.2E+00
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	2	1	1	1.6E+01	1.6E+01				1.6E+01
		Pyrene	ug/kg	2	0	0	4.0E+01	4.2E+01				4.2E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	1	1	2.7E+01	2.7E+01				2.7E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	1	1	1.1E+00	1.1E+00				1.1E+00
		Hexachlorobenzene	ug/kg	2	1	1	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	1	ND	ND	ND				ND
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	1	0	0	9.8E+01	9.8E+01				9.8E+01
		Total PCB Congeners	pg/g	1	0	0	2.7E+06	2.7E+06				2.7E+06
		Total PCBs, Adjusted	pg/g	1	0	0	2.6E+06	2.6E+06				2.6E+06
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Total PCB TEQ	pg/g	1	0	0	8.6E+00	8.6E+00				8.6E+00
		Pesticides										
		Aldrin	ug/kg	2	1	1	2.1E-01	2.1E-01				2.1E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		beta-Hexachlorocyclohexane	ug/kg	2	1	0	6.1E-01	1.2E+00				1.2E+00
		Dieldrin	ug/kg	2	1	1	7.7E-01	7.7E-01				7.7E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	7.1E-02	7.1E-02				7.1E-02
		Heptachlor	ug/kg	2	1	1	8.3E-03	8.3E-03				8.3E-03
		Heptachlor epoxide	ug/kg	2	0	0	1.1E+00	2.1E+00				2.1E+00
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	4.5E+00	6.1E+00				6.1E+00
		Total DDD	ug/kg	2	0	0	5.6E+00	6.4E+00				6.4E+00
		Total DDE	ug/kg	2	0	0	8.7E+00	9.4E+00				9.4E+00
		Total DDT	ug/kg	2	1	1	1.6E+00	1.6E+00				1.6E+00
		Total Endosulfan	ug/kg	2	1	0	7.6E-01	1.0E+00				1.0E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 6 West	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	7.5E+01	8.0E+01		Fewer than 5 detects		8.0E+01
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.0E-01	1.1E-01				1.1E-01
		Cadmium	mg/kg	2	0	0	7.7E-02	7.8E-02				7.8E-02
		Chromium	mg/kg	2	0	0	7.0E-01	7.3E-01				7.3E-01
		Copper	mg/kg	2	0	0	1.2E+01	1.2E+01				1.2E+01
		Lead	mg/kg	2	0	0	6.3E-02	7.2E-02				7.2E-02
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	1	0	0	1.3E-02	1.3E-02				1.3E-02
		Nickel	mg/kg	2	0	0	4.4E-01	4.4E-01				4.4E-01
		Selenium	mg/kg	2	0	0	1.2E-01	1.4E-01				1.4E-01
		Silver	mg/kg	2	0	0	7.3E-02	7.5E-02				7.5E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	2	0	0	3.7E+01	3.8E+01				3.8E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	3.5E+00	3.5E+00				3.5E+00
		Dibutyltin ion	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	2	0	0	1.1E+01	2.0E+01				2.0E+01
		Acenaphthene	ug/kg	2	0	0	3.2E+01	6.1E+01				6.1E+01
		Acenaphthylene	ug/kg	2	0	0	9.3E+00	1.4E+01				1.4E+01
		Anthracene	ug/kg	2	0	0	5.1E+01	7.8E+01				7.8E+01
		Benzo(a)anthracene	ug/kg	2	0	0	4.0E+02	6.3E+02				6.3E+02
		Benzo(a)pyrene	ug/kg	2	0	0	2.8E+02	4.9E+02				4.9E+02
		Benzo(b)fluoranthene	ug/kg	2	0	0	2.6E+02	4.6E+02				4.6E+02
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.3E+02	2.3E+02				2.3E+02
		Benzo(k)fluoranthene	ug/kg	2	0	0	1.8E+02	3.1E+02				3.1E+02
		Chrysene	ug/kg	2	0	0	3.6E+02	5.6E+02				5.6E+02
		Dibenzo(a,h)anthracene	ug/kg	2	0	0	2.5E+01	4.3E+01				4.3E+01
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	2	0	0	4.9E+02	7.2E+02				7.2E+02
		Fluorene	ug/kg	2	0	0	2.1E+01	3.6E+01				3.6E+01
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	9.3E+01	1.7E+02				1.7E+02
		Naphthalene	ug/kg	2	1	0	1.7E+01	3.3E+01				3.3E+01
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	2	0	0	1.9E+02	3.0E+02				3.0E+02
		Pyrene	ug/kg	2	0	0	5.5E+02	8.2E+02				8.2E+02

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	0	0	2.4E+01	3.5E+01				3.5E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	0	0	3.4E+00	5.2E+00				5.2E+00
		Hexachlorobenzene	ug/kg	2	0	0	8.6E-01	1.1E+00				1.1E+00
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	9.5E+04	1.1E+05				1.1E+05
		Total PCBs, Adjusted	pg/g	2	0	0	8.9E+04	1.0E+05				1.0E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.2E+00	4.0E+00				4.0E+00
		Total PCB TEQ	pg/g	2	0	0	1.3E+00	1.4E+00				1.4E+00
		Pesticides										
		Aldrin	ug/kg	2	0	0	3.1E-01	3.6E-01				3.6E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	1.1E+00	1.3E+00				1.3E+00
		Endrin	ug/kg	2	1	1	4.4E-02	4.4E-02				4.4E-02
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	0	0	6.2E-03	8.6E-03				8.6E-03
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	7.3E-02	8.4E-02				8.4E-02
		Heptachlor	ug/kg	2	0	0	2.4E-01	4.2E-01				4.2E-01
		Heptachlor epoxide	ug/kg	2	0	0	8.7E-02	1.1E-01				1.1E-01
		Methoxychlor	ug/kg	2	1	0	5.4E-02	9.4E-02				9.4E-02
		Total Chlordanes	ug/kg	2	0	0	6.8E+00	9.9E+00				9.9E+00
		Total DDD	ug/kg	2	0	0	1.2E+02	2.0E+02				2.0E+02
		Total DDE	ug/kg	2	0	0	4.1E+01	6.3E+01				6.3E+01
		Total DDT	ug/kg	2	0	0	2.6E+01	4.4E+01				4.4E+01
		Total Endosulfan	ug/kg	2	0	0	1.2E+00	1.4E+00				1.4E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 7 East	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02		Fewer than 5 detects		1.1E+02
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	9.1E-02	9.1E-02				9.1E-02
		Cadmium	mg/kg	1	0	0	7.5E-02	7.5E-02				7.5E-02
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.0E+01	1.0E+01				1.0E+01
		Lead	mg/kg	1	0	0	7.3E-02	7.3E-02				7.3E-02
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Nickel	mg/kg	1	0	0	4.4E-01	4.4E-01				4.4E-01
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Silver	mg/kg	1	0	0	5.9E-02	5.9E-02				5.9E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	1	0	0	2.8E+01	2.8E+01				2.8E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	8.4E+00	8.4E+00				8.4E+00
		Dibutyltin ion	ug/kg	1	0	0	8.1E+00	8.1E+00				8.1E+00
		Tributyltin ion	ug/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
		Acenaphthene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Acenaphthylene	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01
		Anthracene	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Benzo(a)anthracene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Benzo(a)pyrene	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	3.6E+00	3.6E+00				3.6E+00
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Chrysene	ug/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	1	0	0	4.1E+01	4.1E+01				4.1E+01
		Fluorene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Pyrene	ug/kg	1	0	0	3.3E+01	3.3E+01				3.3E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	9.5E+01	9.5E+01				9.5E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Hexachlorobenzene	ug/kg	1	0	0	5.2E-01	5.2E-01				5.2E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	9.7E+04	9.7E+04				9.7E+04
		Total PCBs, Adjusted	pg/g	1	0	0	9.2E+04	9.2E+04				9.2E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	1.0E+00	1.0E+00				1.0E+00
		Total PCB TEQ	pg/g	1	0	0	8.7E-01	8.7E-01				8.7E-01
		Pesticides										
		Aldrin	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	0	0	2.4E-03	2.4E-03				2.4E-03
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	6.5E-02	6.5E-02				6.5E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	5.2E-02	5.2E-02				5.2E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Total DDD	ug/kg	1	0	0	4.5E+00	4.5E+00				4.5E+00
		Total DDE	ug/kg	1	0	0	8.5E+00	8.5E+00				8.5E+00
		Total DDT	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Total Endosulfan	ug/kg	1	0	0	9.5E-01	9.5E-01				9.5E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 7 West	UD	**Metals**										
		Aluminum	mg/kg	4	0	0	9.1E+01	1.7E+02	--	Fewer than 5 detects	--	1.7E+02
		Antimony	mg/kg	4	1	0	1.1E-03	2.0E-03	--	Fewer than 5 detects	--	2.0E-03
		Arsenic, inorganic	mg/kg	4	0	0	8.9E-02	9.5E-02	--	Fewer than 5 detects	--	9.5E-02
		Cadmium	mg/kg	4	0	0	6.7E-02	7.6E-02	--	Fewer than 5 detects	--	7.6E-02
		Chromium	mg/kg	4	0	0	5.7E-01	6.5E-01	--	Fewer than 5 detects	--	6.5E-01
		Copper	mg/kg	4	0	0	8.5E+00	9.5E+00	--	Fewer than 5 detects	--	9.5E+00
		Lead	mg/kg	4	0	0	1.4E-01	3.2E-01	--	Fewer than 5 detects	--	3.2E-01
		Manganese	mg/kg	2	0	0	6.2E+00	7.6E+00	--	Fewer than 5 detects	--	7.6E+00
		Mercury	mg/kg	4	0	0	8.5E-03	1.1E-02	--	Fewer than 5 detects	--	1.1E-02
		Nickel	mg/kg	4	0	0	2.6E-01	3.4E-01	--	Fewer than 5 detects	--	3.4E-01
		Selenium	mg/kg	4	2	0	8.9E-02	1.7E-01	--	Fewer than 5 detects	--	1.7E-01
		Silver	mg/kg	4	0	0	4.7E-02	5.6E-02	--	Fewer than 5 detects	--	5.6E-02
		Thallium	mg/kg	2	0	0	5.5E-04	7.0E-04	--	Fewer than 5 detects	--	7.0E-04
		Zinc	mg/kg	4	0	0	2.9E+01	4.0E+01	--	Fewer than 5 detects	--	4.0E+01
		Butyltins										
		Butyltin ion	ug/kg	3	1	0	1.4E+00	2.9E+00	--	Fewer than 5 detects	--	2.9E+00
		Dibutyltin ion	ug/kg	3	0	0	3.2E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00
		Tributyltin ion	ug/kg	3	0	0	3.5E+00	4.4E+00	--	Fewer than 5 detects	--	4.4E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
		2-Methylnaphthalene	ug/kg	5	2	2	2.3E+00	3.3E+00	--	Fewer than 5 detects	--	3.3E+00
		Acenaphthene	ug/kg	5	2	2	2.7E+00	4.7E+00	--	Fewer than 5 detects	--	4.7E+00
		Acenaphthylene	ug/kg	5	2	2	1.9E+00	2.4E+00	--	Fewer than 5 detects	--	2.4E+00
		Anthracene	ug/kg	5	2	2	6.1E+00	8.6E+00	--	Fewer than 5 detects	--	8.6E+00
		Benzo(a)anthracene	ug/kg	5	1	0	3.6E+01	8.2E+01	--	Fewer than 5 detects	--	8.2E+01
		Benzo(a)pyrene	ug/kg	5	2	2	8.3E+00	1.9E+01	--	Fewer than 5 detects	--	1.9E+01
		Benzo(b)fluoranthene	ug/kg	5	2	2	1.3E+01	3.0E+01	--	Fewer than 5 detects	--	3.0E+01
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
		Benzo(g,h,i)perylene	ug/kg	5	2	2	3.5E+00	7.3E+00	--	Fewer than 5 detects	--	7.3E+00
		Benzo(k)fluoranthene	ug/kg	5	2	2	8.0E+00	2.0E+01	--	Fewer than 5 detects	--	2.0E+01
		Chrysene	ug/kg	5	1	0	3.6E+01	6.6E+01	--	Fewer than 5 detects	--	6.6E+01
		Dibenzo(a,h)anthracene	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
		Fluoranthene	ug/kg	5	0	0	7.4E+01	1.4E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02
		Fluorene	ug/kg	5	2	2	3.7E+00	5.2E+00	--	Fewer than 5 detects	--	5.2E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	5	3	2	2.8E+00	6.8E+00	--	Fewer than 5 detects	--	6.8E+00
		Naphthalene	ug/kg	5	4	2	1.4E+00	2.6E+00	--	Fewer than 5 detects	--	2.6E+00
		Perylene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
		Phenanthrene	ug/kg	5	2	0	2.0E+01	3.6E+01	--	Fewer than 5 detects	--	3.6E+01
		Pyrene	ug/kg	5	0	0	7.8E+01	1.4E+02	normal	95% Student's-t UCL	1.2E+02	1.2E+02

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Dibutyl phthalate	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
		Benzyl alcohol	ug/kg	4	1	0	3.7E+02	1.3E+03	--	Fewer than 5 detects	--	1.3E+03
		Bis(2-chloroethoxy) methane	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Dibenzofuran	ug/kg	5	2	2	1.8E+00	2.5E+00	--	Fewer than 5 detects	--	2.5E+00
		Hexachlorobenzene	ug/kg	5	2	2	6.5E-01	7.9E-01	--	Fewer than 5 detects	--	7.9E-01
		Hexachlorobutadiene	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Nitrobenzene	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Phenols										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Phenol	ug/kg	4	3	0	6.9E+02	2.6E+03	--	Fewer than 5 detects	--	2.6E+03
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	2	0	0	9.7E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
		Total PCB Congeners	pg/g	3	0	0	9.3E+04	9.9E+04	--	Fewer than 5 detects	--	9.9E+04
		Total PCBs, Adjusted	pg/g	3	0	0	8.7E+04	9.3E+04	--	Fewer than 5 detects	--	9.3E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.3E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00
		Total PCB TEQ	pg/g	3	0	0	1.1E+00	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
		Pesticides										
		Aldrin	ug/kg	5	2	2	3.0E-01	4.0E-01	--	Fewer than 5 detects	--	4.0E-01
		alpha-Hexachlorocyclohexane	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
		beta-Hexachlorocyclohexane	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Dieldrin	ug/kg	5	2	0	7.7E-01	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
		Endrin	ug/kg	5	2	2	2.3E-02	4.9E-02	--	Fewer than 5 detects	--	4.9E-02
		Endrin aldehyde	ug/kg	5	4	1	1.0E-01	3.9E-01	--	Fewer than 5 detects	--	3.9E-01
		Endrin ketone	ug/kg	5	2	2	6.7E-03	1.4E-02	--	Fewer than 5 detects	--	1.4E-02
		gamma-Hexachlorocyclohexane	ug/kg	5	3	2	5.0E-02	6.4E-02	--	Fewer than 5 detects	--	6.4E-02
		Heptachlor	ug/kg	5	3	3	1.8E-02	2.4E-02	--	Fewer than 5 detects	--	2.4E-02
		Heptachlor epoxide	ug/kg	5	1	1	3.8E-01	1.3E+00	--	Fewer than 5 detects	--	1.3E+00
		Methoxychlor	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Total Chlordanes	ug/kg	5	0	0	5.5E+00	8.6E+00	normal	95% Student's-t UCL	7.8E+00	7.8E+00
		Total DDD	ug/kg	5	0	0	8.9E+01	2.4E+02	normal	95% Student's-t UCL	1.8E+02	1.8E+02
		Total DDE	ug/kg	5	0	0	4.3E+01	1.1E+02	normal	95% Student's-t UCL	7.8E+01	7.8E+01
		Total DDT	ug/kg	5	0	0	4.5E+01	1.1E+02	normal	95% Student's-t UCL	8.9E+01	8.9E+01
		Total Endosulfan	ug/kg	5	2	1	9.6E-01	1.4E+00	--	Fewer than 5 detects	--	1.4E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 8 East	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	1.1E+02	1.5E+02		Fewer than 5 detects		1.5E+02
		Antimony	mg/kg	2	1	1	1.0E-03	1.0E-03				1.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	7.8E-02	8.7E-02				8.7E-02
		Cadmium	mg/kg	2	0	0	7.3E-02	8.4E-02				8.4E-02
		Chromium	mg/kg	2	0	0	6.7E-01	7.1E-01				7.1E-01
		Copper	mg/kg	2	0	0	1.1E+01	1.4E+01				1.4E+01
		Lead	mg/kg	2	0	0	8.5E-02	1.2E-01				1.2E-01
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	1	0	0	8.0E-03	8.0E-03				8.0E-03
		Nickel	mg/kg	2	0	0	3.5E-01	3.9E-01				3.9E-01
		Selenium	mg/kg	2	0	0	1.4E-01	1.9E-01				1.9E-01
		Silver	mg/kg	2	0	0	5.6E-02	7.9E-02				7.9E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	2	0	0	4.3E+01	5.4E+01				5.4E+01
		Butyltins										
		Butyltin ion	ug/kg	2	0	0	5.0E+01	9.7E+01				9.7E+01
		Dibutyltin ion	ug/kg	2	0	0	2.8E+02	5.6E+02				5.6E+02
		Tributyltin ion	ug/kg	2	0	0	2.7E+02	5.3E+02				5.3E+02
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Acenaphthene	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Acenaphthylene	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Anthracene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Benzo(a)anthracene	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Benzo(a)pyrene	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	9.6E-01	9.6E-01				9.6E-01
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	1	0	0	4.9E-01	4.9E-01				4.9E-01
		Benzo(k)fluoranthene	ug/kg	1	0	0	4.7E-01	4.7E-01				4.7E-01
		Chrysene	ug/kg	1	0	0	5.1E+00	5.1E+00				5.1E+00
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	1	0	0	7.9E+00	7.9E+00				7.9E+00
		Fluorene	ug/kg	1	0	0	9.7E-01	9.7E-01				9.7E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Pyrene	ug/kg	1	0	0	6.9E+00	6.9E+00				6.9E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.4E-01	4.4E-01				4.4E-01
		Hexachlorobutadiene	ug/kg	1	0	0	3.4E-03	3.4E-03				3.4E-03
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	8.5E+04	8.5E+04				8.5E+04
		Total PCBs, Adjusted	pg/g	1	0	0	8.2E+04	8.2E+04				8.2E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Total PCB TEQ	pg/g	1	0	0	6.3E-01	6.3E-01				6.3E-01
		Pesticides										
		Aldrin	ug/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	6.8E-03	6.8E-03				6.8E-03
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	6.2E-01	6.2E-01				6.2E-01
		Endrin	ug/kg	1	0	0	6.5E-03	6.5E-03				6.5E-03
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	0	0	1.8E-03	1.8E-03				1.8E-03
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	5.0E-02	5.0E-02				5.0E-02
		Heptachlor	ug/kg	1	0	0	9.3E-03	9.3E-03				9.3E-03
		Heptachlor epoxide	ug/kg	1	0	0	4.5E-02	4.5E-02				4.5E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00
		Total DDE	ug/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Total DDT	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		Total Endosulfan	ug/kg	1	0	0	8.3E-01	8.3E-01				8.3E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 8 West	UD	**Metals**										
		Aluminum	mg/kg	3	0	0	7.2E+01	1.2E+02		Fewer than 5 detects		1.2E+02
		Antimony	mg/kg	3	0	0	2.0E-03	3.0E-03				3.0E-03
		Arsenic, inorganic	mg/kg	3	0	0	9.4E-02	9.6E-02				9.6E-02
		Cadmium	mg/kg	3	0	0	9.3E-02	1.1E-01				1.1E-01
		Chromium	mg/kg	3	0	0	5.8E-01	6.7E-01				6.7E-01
		Copper	mg/kg	3	0	0	9.1E+00	9.3E+00				9.3E+00
		Lead	mg/kg	3	0	0	1.0E-01	1.5E-01				1.5E-01
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	3	0	0	9.0E-03	1.1E-02				1.1E-02
		Nickel	mg/kg	3	0	0	2.9E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	3	0	0	1.2E-01	1.5E-01				1.5E-01
		Silver	mg/kg	3	0	0	6.0E-02	7.8E-02				7.8E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	3	0	0	4.1E+01	4.7E+01				4.7E+01
		Butyltins										
		Butyltin ion	ug/kg	3	2	0	7.5E-01	1.4E+00				1.4E+00
		Dibutyltin ion	ug/kg	3	0	0	2.0E+00	2.3E+00				2.3E+00
		Tributyltin ion	ug/kg	3	2	1	2.2E+00	3.1E+00				3.1E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	3	0	0	8.6E+00	2.2E+01				2.2E+01
		Acenaphthene	ug/kg	3	0	0	7.8E+00	2.1E+01				2.1E+01
		Acenaphthylene	ug/kg	3	0	0	1.9E+00	3.1E+00				3.1E+00
		Anthracene	ug/kg	3	0	0	4.7E+00	5.0E+00				5.0E+00
		Benzo(a)anthracene	ug/kg	3	0	0	1.4E+01	1.7E+01				1.7E+01
		Benzo(a)pyrene	ug/kg	3	0	0	3.2E+00	5.0E+00				5.0E+00
		Benzo(b)fluoranthene	ug/kg	3	0	0	8.4E+00	1.8E+01				1.8E+01
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	3	0	0	1.9E+00	3.3E+00				3.3E+00
		Benzo(k)fluoranthene	ug/kg	3	0	0	5.4E+00	1.3E+01				1.3E+01
		Chrysene	ug/kg	3	0	0	2.8E+01	4.7E+01				4.7E+01
		Dibenzo(a,h)anthracene	ug/kg	3	3	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	3	0	0	1.1E+02	2.4E+02				2.4E+02
		Fluorene	ug/kg	3	0	0	8.8E+00	2.0E+01				2.0E+01
		Indeno(1,2,3-cd)pyrene	ug/kg	3	1	0	2.6E+00	6.8E+00				6.8E+00
		Naphthalene	ug/kg	3	2	0	3.5E+00	9.0E+00				9.0E+00
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	3	0	0	6.5E+01	1.6E+02				1.6E+02
		Pyrene	ug/kg	3	0	0	6.6E+01	1.3E+02				1.3E+02

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	3	3	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	3	0	0	1.8E+01	2.3E+01				2.3E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	3	1	0	6.2E+00	1.7E+01				1.7E+01
		Hexachlorobenzene	ug/kg	3	0	0	7.1E-01	8.4E-01				8.4E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	2.5E+05	4.2E+05				4.2E+05
		Total PCBs, Adjusted	pg/g	3	0	0	2.4E+05	4.0E+05				4.0E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.0E+00	1.4E+00				1.4E+00
		Total PCB TEQ	pg/g	3	0	0	2.3E+00	3.6E+00				3.6E+00
		Pesticides										
		Aldrin	ug/kg	3	0	0	2.0E+00	5.1E+00				5.1E+00
		alpha-Hexachlorocyclohexane	ug/kg	3	0	0	1.5E-02	1.8E-02				1.8E-02
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	1.5E+00	2.6E+00				2.6E+00
		Endrin	ug/kg	3	0	0	2.8E-02	6.4E-02				6.4E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	0	0	3.7E-03	4.6E-03				4.6E-03
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	7.8E-02	8.1E-02				8.1E-02
		Heptachlor	ug/kg	3	0	0	3.3E-02	5.3E-02				5.3E-02
		Heptachlor epoxide	ug/kg	3	0	0	7.0E-02	8.6E-02				8.6E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	8.6E+00	1.6E+01				1.6E+01
		Total DDD	ug/kg	3	0	0	1.7E+01	3.0E+01				3.0E+01
		Total DDE	ug/kg	3	0	0	3.3E+01	6.7E+01				6.7E+01
		Total DDT	ug/kg	3	0	0	1.6E+00	2.1E+00				2.1E+00
		Total Endosulfan	ug/kg	3	0	0	1.3E+00	1.5E+00				1.5E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 8 SIL	UD	**Metals**										
		Aluminum	mg/kg	2	0	0	1.9E+02	2.0E+02		Fewer than 5 detects		2.0E+02
		Antimony	mg/kg	2	1	1	4.0E-03	4.0E-03				4.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	8.7E-02	9.2E-02				9.2E-02
		Cadmium	mg/kg	2	0	0	1.2E-01	1.4E-01				1.4E-01
		Chromium	mg/kg	2	0	0	5.1E-01	5.7E-01				5.7E-01
		Copper	mg/kg	2	0	0	8.9E+00	9.4E+00				9.4E+00
		Lead	mg/kg	2	0	0	1.6E-01	1.9E-01				1.9E-01
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Nickel	mg/kg	2	0	0	3.7E-01	3.9E-01				3.9E-01
		Selenium	mg/kg	2	0	0	1.5E-01	2.1E-01				2.1E-01
		Silver	mg/kg	2	0	0	4.1E-02	4.4E-02				4.4E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	2	0	0	3.7E+01	4.2E+01				4.2E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	7.3E+00	7.3E+00				7.3E+00
		Dibutyltin ion	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Tributyltin ion	ug/kg	1	0	0	3.3E+01	3.3E+01				3.3E+01
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	2	0	0	2.4E+00	3.0E+00				3.0E+00
		Acenaphthene	ug/kg	2	0	0	9.9E-01	1.2E+00				1.2E+00
		Acenaphthylene	ug/kg	2	0	0	1.3E+00	1.4E+00				1.4E+00
		Anthracene	ug/kg	2	0	0	5.0E+00	6.8E+00				6.8E+00
		Benzo(a)anthracene	ug/kg	2	0	0	1.4E+01	2.0E+01				2.0E+01
		Benzo(a)pyrene	ug/kg	2	0	0	3.1E+00	3.9E+00				3.9E+00
		Benzo(b)fluoranthene	ug/kg	2	0	0	6.1E+00	8.8E+00				8.8E+00
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	2	0	0	2.1E+00	2.7E+00				2.7E+00
		Benzo(k)fluoranthene	ug/kg	2	0	0	2.9E+00	4.2E+00				4.2E+00
		Chrysene	ug/kg	2	0	0	3.1E+01	4.5E+01				4.5E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	2	0	0	4.0E+01	5.6E+01				5.6E+01
		Fluorene	ug/kg	2	0	0	2.8E+00	3.6E+00				3.6E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	1.6E+00	3.1E+00				3.1E+00
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	2	0	0	1.2E+01	1.6E+01				1.6E+01
		Pyrene	ug/kg	2	0	0	4.8E+01	7.1E+01				7.1E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	0	0	1.3E+02	1.4E+02				1.4E+02
		Dibutyl phthalate	ug/kg	2	1	0	6.6E+02	1.3E+03				1.3E+03
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	0	0	7.7E+01	1.2E+02				1.2E+02
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	0	0	1.3E+00	1.5E+00				1.5E+00
		Hexachlorobenzene	ug/kg	3	0	0	7.3E-01	7.6E-01				7.6E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	3.0E+05	3.9E+05				3.9E+05
		Total PCBs, Adjusted	pg/g	3	0	0	2.9E+05	3.7E+05				3.7E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.2E+00	1.3E+00				1.3E+00
		Total PCB TEQ	pg/g	3	0	0	2.6E+00	3.4E+00				3.4E+00
		Pesticides										
		Aldrin	ug/kg	3	0	0	3.2E-01	3.8E-01				3.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	1	0	1.6E-02	2.1E-02				2.1E-02
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	1.1E+00	1.1E+00				1.1E+00
		Endrin	ug/kg	3	1	1	1.3E-02	2.0E-02				2.0E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	2	1	2.5E-03	3.9E-03				3.9E-03
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	7.7E-02	7.8E-02				7.8E-02
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	0	0	8.0E-02	8.2E-02				8.2E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	5.1E+00	6.3E+00				6.3E+00
		Total DDD	ug/kg	3	0	0	7.6E+00	8.1E+00				8.1E+00
		Total DDE	ug/kg	3	0	0	1.1E+01	1.3E+01				1.3E+01
		Total DDT	ug/kg	3	0	0	1.8E+00	2.4E+00				2.4E+00
		Total Endosulfan	ug/kg	3	0	0	1.3E+00	1.4E+00				1.4E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 9 East	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	1.4E+02	1.4E+02		Fewer than 5 detects		1.4E+02
		Antimony	mg/kg	1	0	0	2.0E-03	2.0E-03				2.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Cadmium	mg/kg	1	0	0	6.6E-02	6.6E-02				6.6E-02
		Chromium	mg/kg	1	0	0	9.4E-01	9.4E-01				9.4E-01
		Copper	mg/kg	1	0	0	9.5E+00	9.5E+00				9.5E+00
		Lead	mg/kg	1	0	0	7.6E-02	7.6E-02				7.6E-02
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	1	0	0	1.2E-02	1.2E-02				1.2E-02
		Nickel	mg/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Selenium	mg/kg	1	0	0	8.8E-02	8.8E-02				8.8E-02
		Silver	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	1	0	0	3.8E+01	3.8E+01				3.8E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	2	0	0	1.7E+00	1.7E+00				1.7E+00
		Acenaphthene	ug/kg	2	0	0	8.6E-01	1.1E+00				1.1E+00
		Acenaphthylene	ug/kg	2	2	ND	ND	ND				ND
		Anthracene	ug/kg	2	0	0	1.5E+00	1.7E+00				1.7E+00
		Benzo(a)anthracene	ug/kg	2	0	0	5.3E+00	5.9E+00				5.9E+00
		Benzo(a)pyrene	ug/kg	2	0	0	1.8E+00	1.8E+00				1.8E+00
		Benzo(b)fluoranthene	ug/kg	2	0	0	1.9E+00	2.3E+00				2.3E+00
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	2	0	0	8.0E-01	8.0E-01				8.0E-01
		Benzo(k)fluoranthene	ug/kg	2	0	0	9.9E-01	1.3E+00				1.3E+00
		Chrysene	ug/kg	2	0	0	8.7E+00	1.0E+01				1.0E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	2	0	0	1.2E+01	1.3E+01				1.3E+01
		Fluorene	ug/kg	2	0	0	1.6E+00	1.7E+00				1.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	2	0	0	5.9E+00	6.0E+00				6.0E+00
		Pyrene	ug/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	0	0	8.7E-01	1.2E+00				1.2E+00
		Hexachlorobenzene	ug/kg	2	0	0	4.9E-01	6.0E-01				6.0E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	5.6E+04	6.1E+04				6.1E+04
		Total PCBs, Adjusted	pg/g	2	0	0	5.2E+04	5.7E+04				5.7E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.7E-01	5.4E-01				5.4E-01
		Total PCB TEQ	pg/g	2	0	0	6.6E-01	7.8E-01				7.8E-01
		Pesticides										
		Aldrin	ug/kg	2	0	0	1.5E-01	1.7E-01				1.7E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	7.4E-03	7.4E-03				7.4E-03
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	7.2E-01	8.8E-01				8.8E-01
		Endrin	ug/kg	2	1	0	5.4E-03	8.2E-03				8.2E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	6.1E-02	7.5E-02				7.5E-02
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	0	0	4.9E-02	6.1E-02				6.1E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	2.8E+00	3.2E+00				3.2E+00
		Total DDD	ug/kg	2	0	0	2.6E+00	3.0E+00				3.0E+00
		Total DDE	ug/kg	2	0	0	6.4E+00	8.0E+00				8.0E+00
		Total DDT	ug/kg	2	0	0	1.0E+00	1.3E+00				1.3E+00
		Total Endosulfan	ug/kg	2	0	0	9.7E-01	1.1E+00				1.1E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 9 West	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	1.7E+02	1.7E+02		Fewer than 5 detects		1.7E+02
		Antimony	mg/kg	1	0	0	3.0E-03	3.0E-03				3.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	9.0E-02	9.0E-02				9.0E-02
		Cadmium	mg/kg	1	0	0	6.4E-02	6.4E-02				6.4E-02
		Chromium	mg/kg	1	0	0	9.2E-01	9.2E-01				9.2E-01
		Copper	mg/kg	1	0	0	9.0E+00	9.0E+00				9.0E+00
		Lead	mg/kg	1	0	0	9.7E-02	9.7E-02				9.7E-02
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Nickel	mg/kg	1	0	0	4.9E-01	4.9E-01				4.9E-01
		Selenium	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Silver	mg/kg	1	0	0	6.8E-02	6.8E-02				6.8E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	1	0	0	4.0E+01	4.0E+01				4.0E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Acenaphthene	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Acenaphthylene	ug/kg	1	0	0	8.9E-01	8.9E-01				8.9E-01
		Anthracene	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Benzo(a)anthracene	ug/kg	1	0	0	8.4E+00	8.4E+00				8.4E+00
		Benzo(a)pyrene	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	1	0	0	7.1E-01	7.1E-01				7.1E-01
		Benzo(k)fluoranthene	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00
		Chrysene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	1	0	0	2.9E+01	2.9E+01				2.9E+01
		Fluorene	ug/kg	1	0	0	5.2E+00	5.2E+00				5.2E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Pyrene	ug/kg	1	0	0	2.1E+01	2.1E+01				2.1E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Hexachlorobenzene	ug/kg	2	0	0	7.6E-01	8.4E-01				8.4E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenols										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	3.1E+05	4.6E+05				4.6E+05
		Total PCBs, Adjusted	pg/g	2	0	0	3.0E+05	4.5E+05				4.5E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.7E+00	2.7E+00				2.7E+00
		Total PCB TEQ	pg/g	2	0	0	2.6E+00	3.9E+00				3.9E+00
		Pesticides										
		Aldrin	ug/kg	2	0	0	3.6E-01	3.7E-01				3.7E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	1.5E-02	1.5E-02				1.5E-02
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	1.0E+00	1.1E+00				1.1E+00
		Endrin	ug/kg	2	0	0	3.0E-02	5.5E-02				5.5E-02
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	6.6E-02	6.6E-02				6.6E-02
		Heptachlor	ug/kg	2	1	1	1.6E-02	1.6E-02				1.6E-02
		Heptachlor epoxide	ug/kg	2	0	0	7.7E-02	8.9E-02				8.9E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	5.3E+00	6.3E+00				6.3E+00
		Total DDD	ug/kg	2	0	0	5.3E+00	5.8E+00				5.8E+00
		Total DDE	ug/kg	2	0	0	1.1E+01	1.3E+01				1.3E+01
		Total DDT	ug/kg	2	0	0	1.7E+00	2.3E+00				2.3E+00
		Total Endosulfan	ug/kg	2	0	0	1.2E+00	1.4E+00				1.4E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 10 West	D	**Metals**										
		Aluminum	mg/kg	1	0	0	4.7E+01	4.7E+01		Fewer than 5 detects		4.7E+01
		Arsenic, inorganic	mg/kg	1	0	0	8.0E-02	8.0E-02				8.0E-02
		Cadmium	mg/kg	1	0	0	5.2E-02	5.2E-02				5.2E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	6.9E+00	6.9E+00				6.9E+00
		Lead	mg/kg	1	0	0	5.8E-02	5.8E-02				5.8E-02
		Manganese	mg/kg	1	0	0	5.1E+00	5.1E+00				5.1E+00
		Mercury	mg/kg	NA	NA	NA	NA	NA				NA
		Nickel	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Selenium	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Silver	mg/kg	1	0	0	5.6E-02	5.6E-02				5.6E-02
		Thallium	mg/kg	1	0	0	1.0E-03	1.0E-03				1.0E-03
		Zinc	mg/kg	1	0	0	2.8E+01	2.8E+01				2.8E+01
		Butyltins										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	7.7E-01	7.7E-01				7.7E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Acenaphthene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Acenaphthylene	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Anthracene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(a)anthracene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Dibenzothiophene	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Fluoranthene	ug/kg	1	0	0	8.4E+00	8.4E+00				8.4E+00
		Fluorene	ug/kg	1	0	0	8.0E-01	8.0E-01				8.0E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Pyrene	ug/kg	1	0	0	6.9E+00	6.9E+00				6.9E+00
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	1	0	0	5.7E-01	5.7E-01				5.7E-01
		Hexachlorobenzene	ug/kg	1	0	0	6.6E-01	6.6E-01				6.6E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phenols										
		2-Methylphenol	ug/kg	NA	NA	NA	NA	NA				NA
		Polychlorinated Biphenyls										
		Total PCB Congeners	pg/g	1	0	0	1.5E+05	1.5E+05				1.5E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.4E+05	1.4E+05				1.4E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Total PCB TEQ	pg/g	1	0	0	7.1E-01	7.1E-01				7.1E-01
		Pesticides										
		Aldrin	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Dieldrin	ug/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Heptachlor epoxide	ug/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDE	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Total DDT	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Total Endosulfan	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
RM 10 West	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	5.3E+01	5.3E+01		Fewer than 5 detects		5.3E+01
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	6.5E-02	6.5E-02				6.5E-02
		Cadmium	mg/kg	1	0	0	4.0E-02	4.0E-02				4.0E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Lead	mg/kg	1	0	0	5.0E-02	5.0E-02				5.0E-02
		Manganese	mg/kg	1	0	0	4.0E+00	4.0E+00				4.0E+00
		Mercury	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Nickel	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Selenium	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Silver	mg/kg	1	0	0	4.4E-02	4.4E-02				4.4E-02
		Thallium	mg/kg	1	0	0	9.0E-04	9.0E-04				9.0E-04
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Acenaphthene	ug/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Benzo(a)anthracene	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	8.5E+00	8.5E+00				8.5E+00
		Fluorene	ug/kg	1	0	0	7.6E-01	7.6E-01				7.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	3.8E+00	3.8E+00				3.8E+00
		Pyrene	ug/kg	1	0	0	7.4E+00	7.4E+00				7.4E+00
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	2.5E+03	2.5E+03				2.5E+03
		Benzyl alcohol	ug/kg	1	1	ND	ND	ND				ND
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.4E-01	4.4E-01				4.4E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	8.3E+01	8.3E+01				8.3E+01
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	8.5E+04	8.5E+04				8.5E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.8E+04	7.8E+04				7.8E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.9E-01	3.9E-01				3.9E-01
		Total PCB TEQ	pg/g	1	0	0	6.9E-01	6.9E-01				6.9E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Pesticides										
		Aldrin	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	ND	ND	ND				ND
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Total DDD	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDE	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Total DDT	ug/kg	1	0	0	4.6E-01	4.6E-01				4.6E-01
		Total Endosulfan	ug/kg	1	1	ND	ND	ND				ND
RM 11 East	D	**Metals**										
		Aluminum	mg/kg	1	0	0	3.2E+01	3.2E+01		Fewer than 5 detects		3.2E+01
		Arsenic, inorganic	mg/kg	1	0	0	8.2E-02	8.2E-02				8.2E-02
		Cadmium	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	7.1E+00	7.1E+00				7.1E+00
		Lead	mg/kg	1	0	0	5.4E-02	5.4E-02				5.4E-02
		Manganese	mg/kg	1	0	0	4.5E+00	4.5E+00				4.5E+00
		Mercury	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Nickel	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Selenium	mg/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Silver	mg/kg	1	0	0	6.2E-02	6.2E-02				6.2E-02
		Thallium	mg/kg	1	0	0	6.0E-04	6.0E-04				6.0E-04
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		2-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(a)anthracene	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Benzo(a)pyrene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Benzo(b)fluoranthene	ug/kg	1	0	0	9.7E-01	9.7E-01				9.7E-01
		Benzo(e)pyrene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00
		Dibenzothiophene	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Fluoranthene	ug/kg	1	0	0	9.9E+00	9.9E+00				9.9E+00
		Fluorene	ug/kg	1	0	0	8.2E-01	8.2E-01				8.2E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Pyrene	ug/kg	1	0	0	7.0E+00	7.0E+00				7.0E+00
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	1.9E+03	1.9E+03				1.9E+03
		Dibenzofuran	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	8.6E+01	8.6E+01				8.6E+01
		Phenols										
		2-Methylphenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total PCB Congeners	pg/g	1	0	0	4.8E+05	4.8E+05				4.8E+05
		Total PCBs, Adjusted	pg/g	1	0	0	4.7E+05	4.7E+05				4.7E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Total PCB TEQ	pg/g	1	0	0	6.5E-01	6.5E-01				6.5E-01
		Pesticides										
		Aldrin	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Total Chlordanes	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Total DDD	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Total DDE	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Total DDT	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01
		Total Endosulfan	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 11 East	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	2.0E+02	2.0E+02		Fewer than 5 detects		2.0E+02
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	7.7E-02	7.7E-02				7.7E-02
		Cadmium	mg/kg	1	0	0	7.8E-02	7.8E-02				7.8E-02
		Chromium	mg/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Copper	mg/kg	1	0	0	6.6E+00	6.6E+00				6.6E+00
		Lead	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Manganese	mg/kg	1	0	0	7.5E+00	7.5E+00				7.5E+00
		Mercury	mg/kg	1	0	0	2.6E-02	2.6E-02				2.6E-02
		Nickel	mg/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Silver	mg/kg	1	0	0	5.6E-02	5.6E-02				5.6E-02
		Thallium	mg/kg	1	0	0	1.1E-03	1.1E-03				1.1E-03
		Zinc	mg/kg	1	0	0	2.6E+01	2.6E+01				2.6E+01
		Butyltins										
		Butyltin ion	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	9.3E-01	9.3E-01				9.3E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Acenaphthene	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(a)anthracene	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	3.8E+00	3.8E+00				3.8E+00
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	5.5E+00	5.5E+00				5.5E+00
		Fluorene	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00
		Pyrene	ug/kg	1	0	0	5.5E+00	5.5E+00				5.5E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	4.0E+03	4.0E+03				4.0E+03
		Benzyl alcohol	ug/kg	1	0	0	2.3E+01	2.3E+01				2.3E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	7.8E+01	7.8E+01				7.8E+01
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	8.6E+05	8.6E+05				8.6E+05
		Total PCBs, Adjusted	pg/g	1	0	0	8.4E+05	8.4E+05				8.4E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.3E-01	5.3E-01				5.3E-01
		Total PCB TEQ	pg/g	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Pesticides										
		Aldrin	ug/kg	1	1	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	4.5E-01	4.5E-01				4.5E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	2.6E-02	2.6E-02				2.6E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total DDD	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDE	ug/kg	1	0	0	5.4E+00	5.4E+00				5.4E+00
		Total DDT	ug/kg	1	0	0	7.6E-01	7.6E-01				7.6E-01
		Total Endosulfan	ug/kg	1	0	0	4.5E-01	4.5E-01				4.5E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 11 West	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	1.5E+02	1.5E+02		Fewer than 5 detects		1.5E+02
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	6.2E-02	6.2E-02				6.2E-02
		Cadmium	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		Lead	mg/kg	1	0	0	7.0E-02	7.0E-02				7.0E-02
		Manganese	mg/kg	1	0	0	7.8E+00	7.8E+00				7.8E+00
		Mercury	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Nickel	mg/kg	1	0	0	2.5E-01	2.5E-01				2.5E-01
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Silver	mg/kg	1	0	0	4.4E-02	4.4E-02				4.4E-02
		Thallium	mg/kg	1	0	0	1.0E-03	1.0E-03				1.0E-03
		Zinc	mg/kg	1	0	0	2.8E+01	2.8E+01				2.8E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		2-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Benzo(a)anthracene	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
		Benzo(a)pyrene	ug/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	3.2E+00	3.2E+00				3.2E+00
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	5.6E+00	5.6E+00				5.6E+00
		Fluorene	ug/kg	1	0	0	8.2E-01	8.2E-01				8.2E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	3.6E+00	3.6E+00				3.6E+00
		Pyrene	ug/kg	1	0	0	4.9E+00	4.9E+00				4.9E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	5.2E+03	5.2E+03				5.2E+03
		Benzyl alcohol	ug/kg	1	0	0	2.3E+01	2.3E+01				2.3E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Hexachlorobenzene	ug/kg	1	0	0	6.7E-01	6.7E-01				6.7E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	2.3E+02	2.3E+02				2.3E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	3.9E+04	3.9E+04				3.9E+04
		Total PCBs, Adjusted	pg/g	1	0	0	3.6E+04	3.6E+04				3.6E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.8E-01	5.8E-01				5.8E-01
		Total PCB TEQ	pg/g	1	0	0	4.9E-01	4.9E-01				4.9E-01
		Pesticides										
		Aldrin	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	1.8E-02	1.8E-02				1.8E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	4.7E-02	4.7E-02				4.7E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Total DDD	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Total DDE	ug/kg	1	0	0	6.0E+00	6.0E+00				6.0E+00
		Total DDT	ug/kg	1	0	0	9.8E-01	9.8E-01				9.8E-01
		Total Endosulfan	ug/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 12 East	D	**Metals**										
		Aluminum	mg/kg	1	0	0	6.2E+01	6.2E+01		Fewer than 5 detects		6.2E+01
		Arsenic, inorganic	mg/kg	1	0	0	7.6E-02	7.6E-02				7.6E-02
		Cadmium	mg/kg	1	0	0	5.8E-02	5.8E-02				5.8E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	7.6E+00	7.6E+00				7.6E+00
		Lead	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	1	0	0	5.0E+00	5.0E+00				5.0E+00
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Selenium	mg/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Silver	mg/kg	1	0	0	7.5E-02	7.5E-02				7.5E-02
		Thallium	mg/kg	1	0	0	9.0E-04	9.0E-04				9.0E-04
		Zinc	mg/kg	1	0	0	2.4E+01	2.4E+01				2.4E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		2-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthylene	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01
		Anthracene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(a)anthracene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Benzo(a)pyrene	ug/kg	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	5.9E+00	5.9E+00				5.9E+00
		Fluorene	ug/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	2.6E+00	2.6E+00				2.6E+00
		Pyrene	ug/kg	1	0	0	5.9E+00	5.9E+00				5.9E+00
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	2.7E+03	2.7E+03				2.7E+03
		Dibenzofuran	ug/kg	1	0	0	4.6E-01	4.6E-01				4.6E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	9.6E+01	9.6E+01				9.6E+01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phenols										
		2-Methylphenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total PCB Congeners	pg/g	1	0	0	8.7E+04	8.7E+04				8.7E+04
		Total PCBs, Adjusted	pg/g	1	0	0	8.3E+04	8.3E+04				8.3E+04
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Total PCB TEQ	pg/g	1	0	0	5.2E-01	5.2E-01				5.2E-01
		Pesticides										
		Aldrin	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Heptachlor epoxide	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Total Chlordanes	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Total DDD	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Total DDE	ug/kg	1	0	0	4.8E+00	4.8E+00				4.8E+00
		Total DDT	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01
		Total Endosulfan	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
RM 12 East	UD	**Metals**										
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02		Fewer than 5 detects		1.1E+02
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	8.0E-02	8.0E-02				8.0E-02
		Cadmium	mg/kg	1	0	0	5.3E-02	5.3E-02				5.3E-02
		Chromium	mg/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Copper	mg/kg	1	0	0	7.0E+00	7.0E+00				7.0E+00
		Lead	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Manganese	mg/kg	1	0	0	6.5E+00	6.5E+00				6.5E+00
		Mercury	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Nickel	mg/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Silver	mg/kg	1	0	0	6.4E-02	6.4E-02				6.4E-02
		Thallium	mg/kg	1	0	0	1.1E-03	1.1E-03				1.1E-03
		Zinc	mg/kg	1	0	0	3.0E+01	3.0E+01				3.0E+01
		Butyltins										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Acenaphthene	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Benzo(a)anthracene	ug/kg	1	0	0	2.6E+00	2.6E+00				2.6E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	2.3E+00	2.3E+00				2.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	7.8E+00	7.8E+00				7.8E+00
		Fluorene	ug/kg	1	0	0	9.6E-01	9.6E-01				9.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	7.8E+01	7.8E+01				7.8E+01
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Pyrene	ug/kg	1	0	0	8.9E+00	8.9E+00				8.9E+00
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	0	0	1.5E+02	1.5E+02				1.5E+02
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	1	0	0	3.4E+03	3.4E+03				3.4E+03
		Benzyl alcohol	ug/kg	1	1	ND	ND	ND				ND
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	7.8E-01	7.8E-01				7.8E-01
		Hexachlorobutadiene	ug/kg	1	0	0	4.0E-03	4.0E-03				4.0E-03
		Nitrobenzene	ug/kg	1	0	0	1.7E+02	1.7E+02				1.7E+02
		Phenols										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.4E+05	1.4E+05				1.4E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.4E+05	1.4E+05				1.4E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.8E-01	6.8E-01				6.8E-01
		Total PCB TEQ	pg/g	1	0	0	9.2E-01	9.2E-01				9.2E-01

TABLE 3-19
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point[a]	Tissue Type	Chemical of Potential Concern[b]	Units	Total Samples	Total Non-Detects[c]	Non-Detects greater than Maximum Detected Concentration[d]	Arithmetic Mean[e]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Pesticides										
		Aldrin	ug/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	ND	ND	ND				ND
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Total DDE	ug/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Total DDT	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Total Endosulfan	ug/kg	1	0	0	4.4E-01	4.4E-01				4.4E-01

Notes:

a Exposure areas for clam tissue are on a RM basis per side of river, such that samples collected from RM 3.0 - 3.9 west of the navigation channel are included in exposure area RM 3 West, etc. Swan Island Lagoon is its own exposure area.
b Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
c Total number of non-detects in the dataset.
d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
f 95% UCL not calculated for analytes with fewer than five detects.
g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
D = Depurated tissue.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
mg/kg = Milligrams per kilogram.
NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
ND = Not detected in the given exposure area.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
UD = Undepurated tissue.
ug/kg = Micrograms per kilogram.

TABLE 3-20
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
Study Area-wide	D	**Metals**										
		Aluminum	mg/kg	3	0	0	3.4E+01	4.7E+01		Fewer than 5 detects[e]		4.7E+01
		Arsenic, inorganic	mg/kg	3	0	0	9.9E-02	1.4E-01				1.4E-01
		Cadmium	mg/kg	3	0	0	8.1E-02	1.0E-01				1.0E-01
		Chromium	mg/kg	3	0	0	4.7E-01	5.0E-01				5.0E-01
		Copper	mg/kg	3	0	0	7.6E+00	9.0E+00				9.0E+00
		Lead	mg/kg	3	0	0	4.8E-02	5.8E-02				5.8E-02
		Manganese	mg/kg	3	0	0	4.6E+00	5.1E+00				5.1E+00
		Mercury	mg/kg	2	0	0	2.1E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	3	0	0	1.9E-01	2.0E-01				2.0E-01
		Selenium	mg/kg	3	0	0	1.5E-01	1.8E-01				1.8E-01
		Silver	mg/kg	3	0	0	4.8E-02	6.2E-02				6.2E-02
		Thallium	mg/kg	3	0	0	1.4E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	3	0	0	2.3E+01	2.8E+01				2.8E+01
		Butyltins										
		Butyltin ion	ug/kg	2	1	1	1.5E+00	1.5E+00				1.5E+00
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	3	1	0	6.9E-01	1.0E+00				1.0E+00
		2-Methylnaphthalene	ug/kg	3	1	0	1.1E+00	1.6E+00				1.6E+00
		Acenaphthene	ug/kg	3	0	0	1.9E+00	4.8E+00				4.8E+00
		Acenaphthylene	ug/kg	3	1	0	2.9E-01	6.2E-01				6.2E-01
		Anthracene	ug/kg	3	0	0	2.3E+00	4.4E+00				4.4E+00
		Benzo(a)anthracene	ug/kg	3	0	0	4.2E+00	8.2E+00				8.2E+00
		Benzo(a)pyrene	ug/kg	3	2	0	2.1E-01	4.3E-01				4.3E-01
		Benzo(b)fluoranthene	ug/kg	3	1	0	1.0E+00	1.8E+00				1.8E+00
		Benzo(e)pyrene	ug/kg	3	0	0	2.4E+00	4.6E+00				4.6E+00
		Benzo(g,h,i)perylene	ug/kg	3	2	0	4.2E-01	8.6E-01				8.6E-01
		Chrysene	ug/kg	3	0	0	8.0E+00	1.6E+01				1.6E+01
		Dibenzothiophene	ug/kg	3	0	0	9.3E-01	2.1E+00				2.1E+00
		Fluoranthene	ug/kg	3	0	0	3.4E+01	8.4E+01				8.4E+01
		Fluorene	ug/kg	3	0	0	2.1E+00	4.7E+00				4.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	3	2	0	1.5E-01	3.0E-01				3.0E-01
		Perylene	ug/kg	3	2	0	3.5E-01	9.1E-01				9.1E-01
		Phenanthrene	ug/kg	3	0	0	1.1E+01	2.5E+01				2.5E+01
		Pyrene	ug/kg	3	0	0	2.7E+01	6.8E+01				6.8E+01
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	2	0	0	2.6E+03	3.2E+03				3.2E+03
		Dibenzofuran	ug/kg	3	0	0	7.7E-01	1.3E+00				1.3E+00
		Hexachlorobenzene	ug/kg	3	0	0	5.5E-01	6.6E-01				6.6E-01
		Hexachlorobutadiene	ug/kg	3	2	1	6.1E-03	9.8E-03				9.8E-03
		Nitrobenzene	ug/kg	2	0	0	7.3E+01	8.6E+01				8.6E+01

TABLE 3-20
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Phenols										
		2-Methylphenol	ug/kg	2	1	0	6.9E+00	9.7E+00				9.7E+00
		Polychlorinated Biphenyls										
		Total PCB Congeners	pg/g	3	0	0	2.4E+05	4.8E+05				4.8E+05
		Total PCBs, Adjusted[f]	pg/g	3	0	0	2.3E+05	4.7E+05				4.7E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	2.9E-01	3.7E-01				3.7E-01
		Total PCB TEQ	pg/g	3	0	0	7.4E-01	8.6E-01				8.6E-01
		Pesticides										
		Aldrin	ug/kg	3	1	0	1.6E-01	2.8E-01				2.8E-01
		Dieldrin	ug/kg	3	0	0	5.1E-01	5.9E-01				5.9E-01
		gamma-Hexachlorocyclohexane	ug/kg	3	1	0	2.6E-02	3.7E-02				3.7E-02
		Heptachlor epoxide	ug/kg	3	0	0	3.5E-02	4.5E-02				4.5E-02
		Total Chlordanes	ug/kg	3	0	0	2.3E+00	3.1E+00				3.1E+00
		Total DDD	ug/kg	3	0	0	4.9E+00	1.1E+01				1.1E+01
		Total DDE	ug/kg	3	0	0	9.2E+00	1.5E+01				1.5E+01
		Total DDT	ug/kg	3	0	0	1.0E+00	1.7E+00				1.7E+00
		Total Endosulfan	ug/kg	3	0	0	4.1E-01	5.1E-01				5.1E-01
Study Area-wide	UD	**Metals**										
		Aluminum	mg/kg	38	0	0	9.0E+01	2.0E+02	gamma	95% KM (BCA) UCL	1.0E+02	1.0E+02
		Antimony	mg/kg	38	22	1	1.4E-03	4.0E-03	non-parametric	95% KM (t) UCL	1.7E-03	1.7E-03
		Arsenic, inorganic	mg/kg	38	0	0	9.1E-02	1.3E-01	normal	95% KM (t) UCL	9.4E-02	9.4E-02
		Cadmium	mg/kg	38	0	0	8.8E-02	2.2E-01	lognormal	95% KM (Chebyshev) UCL	1.1E-01	1.1E-01
		Chromium	mg/kg	38	0	0	6.2E-01	1.1E+00	gamma	95% KM (BCA) UCL	6.6E-01	6.6E-01
		Copper	mg/kg	38	0	0	9.2E+00	1.4E+01	normal	95% KM (t) UCL	9.6E+00	9.6E+00
		Lead	mg/kg	38	0	0	9.1E-02	3.2E-01	lognormal	95% KM (Chebyshev) UCL	1.3E-01	1.3E-01
		Manganese	mg/kg	10	0	0	5.9E+00	7.8E+00	normal	95% KM (t) UCL	6.9E+00	6.9E+00
		Mercury	mg/kg	35	0	0	1.1E-02	2.6E-02	lognormal	95% KM (Chebyshev) UCL	1.5E-02	1.5E-02
		Nickel	mg/kg	38	0	0	3.0E-01	4.9E-01	normal	95% KM (t) UCL	3.2E-01	3.2E-01
		Selenium	mg/kg	38	2	0	1.2E-01	2.2E-01	lognormal	95% KM (Chebyshev) UCL	1.6E-01	1.6E-01
		Silver	mg/kg	38	0	0	5.2E-02	1.0E-01	normal	95% KM (t) UCL	5.7E-02	5.7E-02
		Thallium	mg/kg	10	0	0	1.1E-03	2.0E-03	normal	95% KM (t) UCL	1.4E-03	1.4E-03
		Zinc	mg/kg	38	0	0	3.4E+01	5.4E+01	normal	95% KM (t) UCL	3.6E+01	3.6E+01
		Butyltins										
		Butyltin ion	ug/kg	34	11	0	5.1E+00	9.7E+01	non-parametric	95% KM (BCA) UCL	1.1E+01	1.1E+01
		Dibutyltin ion	ug/kg	34	5	0	2.2E+01	5.6E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.2E+02	1.2E+02
		Tributyltin ion	ug/kg	34	12	0	2.3E+01	5.3E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.2E+02	1.2E+02
		Polynuclear Aromatic Hydrocarbons										
		1-Methylnaphthalene	ug/kg	7	0	0	1.3E+00	1.7E+00	normal	95% KM (t) UCL	1.6E+00	1.6E+00
		2-Methylnaphthalene	ug/kg	39	3	3	2.9E+00	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	6.2E+00	6.2E+00
		Acenaphthene	ug/kg	39	4	0	5.6E+00	6.1E+01	non-parametric	97.5% KM (Chebyshev) UCL	1.5E+01	1.5E+01
		Acenaphthylene	ug/kg	39	7	3	2.1E+00	1.4E+01	non-parametric	95% KM (Chebyshev) UCL	4.3E+00	4.3E+00

TABLE 3-20
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Anthracene	ug/kg	39	3	0	1.1E+01	7.8E+01	non-parametric	95% KM (Chebyshev) UCL	2.1E+01	2.1E+01
		Benzo(a)anthracene	ug/kg	39	2	0	6.3E+01	6.7E+02	lognormal	97.5% KM (Chebyshev) UCL	2.1E+02	2.1E+02
		Benzo(a)pyrene	ug/kg	39	5	0	3.2E+01	4.9E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.4E+02	1.4E+02
		Benzo(b)fluoranthene	ug/kg	39	5	0	3.4E+01	4.6E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.3E+02	1.3E+02
		Benzo(e)pyrene	ug/kg	7	0	0	5.0E+00	1.1E+01	normal	95% KM (t) UCL	7.8E+00	7.8E+00
		Benzo(g,h,i)perylene	ug/kg	39	5	0	1.9E+01	2.3E+02	non-parametric	97.5% KM (Chebyshev) UCL	6.6E+01	6.6E+01
		Benzo(k)fluoranthene	ug/kg	39	7	0	2.2E+01	3.1E+02	non-parametric	99% KM (Chebyshev) UCL	1.3E+02	1.3E+02
		Chrysene	ug/kg	39	2	0	6.5E+01	5.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.9E+02	1.9E+02
		Dibenzo(a,h)anthracene	ug/kg	39	29	0	3.8E+00	4.3E+01	approx. gamma	95% KM (t) UCL	5.4E+00	5.4E+00
		Dibenzothiophene	ug/kg	7	3	0	1.2E+00	3.2E+00	--	Fewer than 5 detects	--	3.2E+00
		Fluoranthene	ug/kg	39	0	0	1.0E+02	7.7E+02	lognormal	97.5% KM (Chebyshev) UCL	2.6E+02	2.6E+02
		Fluorene	ug/kg	39	3	0	5.6E+00	3.6E+01	non-parametric	95% KM (Chebyshev) UCL	9.3E+00	9.3E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	39	12	0	1.2E+01	1.7E+02	non-parametric	99% KM (Chebyshev) UCL	6.9E+01	6.9E+01
		Naphthalene	ug/kg	39	35	0	3.2E+00	3.3E+01	--	Fewer than 5 detects	--	3.3E+01
		Perylene	ug/kg	7	2	0	5.5E-01	1.3E+00	normal	95% KM (t) UCL	9.2E-01	9.2E-01
		Phenanthrene	ug/kg	39	3	0	3.6E+01	3.0E+02	lognormal	97.5% KM (Chebyshev) UCL	9.4E+01	9.4E+01
		Pyrene	ug/kg	39	0	0	1.1E+02	8.5E+02	lognormal	97.5% KM (Chebyshev) UCL	2.9E+02	2.9E+02
		Phthalates										
		Bis(2-ethylhexyl) phthalate	ug/kg	38	32	2	4.8E+01	1.5E+02	normal	95% KM (t) UCL	8.8E+01	8.8E+01
		Dibutyl phthalate	ug/kg	38	37	0	6.1E+01	1.3E+03	--	Fewer than 5 detects	--	1.3E+03
		Semivolatile Organic Compounds										
		Benzoic acid	ug/kg	7	0	0	3.8E+03	5.9E+03	normal	95% KM (t) UCL	4.8E+03	4.8E+03
		Benzyl alcohol	ug/kg	38	9	0	6.5E+01	1.3E+03	non-parametric	97.5% KM (Chebyshev) UCL	2.7E+02	2.7E+02
		Bis(2-chloroethoxy) methane	ug/kg	10	9	3	1.0E+01	4.6E+01	--	Fewer than 5 detects	--	4.6E+01
		Dibenzofuran	ug/kg	39	7	3	1.6E+00	1.7E+01	non-parametric	95% KM (Chebyshev) UCL	3.7E+00	3.7E+00
		Hexachlorobenzene	ug/kg	42	4	3	6.0E-01	1.1E+00	normal	95% KM (t) UCL	6.5E-01	6.5E-01
		Hexachlorobutadiene	ug/kg	38	35	29	7.6E-03	2.5E-02	--	Fewer than 5 detects	--	2.5E-02
		Nitrobenzene	ug/kg	10	3	0	1.8E+02	5.2E+02	normal	95% KM (t) UCL	2.9E+02	2.9E+02
		Phenols										
		4-Nitrophenol	ug/kg	10	9	3	7.0E+00	1.9E+01	--	Fewer than 5 detects	--	1.9E+01
		Phenol	ug/kg	38	37	0	9.0E+01	2.6E+03	--	Fewer than 5 detects	--	2.6E+03
		Polychlorinated Biphenyls										
		Total Aroclors	ug/kg	3	0	0	9.7E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
		Total PCB Congeners	pg/g	38	0	0	2.4E+05	2.7E+06	non-parametric	95% KM (Chebyshev) UCL	5.5E+05	5.5E+05
		Total PCBs, Adjusted	pg/g	38	0	0	2.3E+05	2.6E+06	non-parametric	95% KM (Chebyshev) UCL	5.4E+05	5.4E+05
		Dioxin/Furan										
		Total Dioxin/Furan TEQ	pg/g	36	0	0	1.1E+00	5.6E+00	non-parametric	95% KM (Chebyshev) UCL	1.9E+00	1.9E+00
		Total PCB TEQ	pg/g	38	0	0	1.8E+00	8.6E+00	non-parametric	95% KM (Chebyshev) UCL	2.9E+00	2.9E+00
		Pesticides										
		Aldrin	ug/kg	41	4	0	3.8E-01	5.1E+00	non-parametric	95% KM (Chebyshev) UCL	8.8E-01	8.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	41	28	7	8.1E-03	2.1E-02	normal	95% KM (t) UCL	1.0E-02	1.0E-02
		beta-Hexachlorocyclohexane	ug/kg	41	40	1	6.8E-02	1.2E+00	--	Fewer than 5 detects	--	1.2E+00

TABLE 3-20
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern[a]	Units	Total Samples	Total Non-Detects[b]	Non-Detects greater than Maximum Detected Concentration[c]	Arithmetic Mean[d]	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	41	3	0	8.2E-01	2.6E+00	lognormal	95% KM (Chebyshev) UCL	1.1E+00	1.1E+00
		Endrin	ug/kg	41	22	3	1.3E-02	6.4E-02	non-parametric	95% KM (t) UCL	1.7E-02	1.7E-02
		Endrin aldehyde	ug/kg	41	40	2	3.1E-02	3.9E-01	--	Fewer than 5 detects	--	3.9E-01
		Endrin ketone	ug/kg	41	29	14	2.9E-03	1.4E-02	lognormal	95% KM (t) UCL	4.0E-03	4.0E-03
		gamma-Hexachlorocyclohexane	ug/kg	41	8	4	5.4E-02	8.4E-02	non-parametric	95% KM (Chebyshev) UCL	6.9E-02	6.9E-02
		Heptachlor	ug/kg	41	22	3	2.4E-02	4.2E-01	non-parametric	95% KM (t) UCL	4.3E-02	4.3E-02
		Heptachlor epoxide	ug/kg	41	4	1	1.4E-01	2.1E+00	non-parametric	95% KM (Chebyshev) UCL	4.0E-01	4.0E-01
		Methoxychlor	ug/kg	41	39	3	2.6E-02	3.2E-01	--	Fewer than 5 detects	--	3.2E-01
		Total Chlordanes	ug/kg	41	0	0	4.2E+00	1.6E+01	non-parametric	95% KM (Chebyshev) UCL	5.9E+00	5.9E+00
		Total DDD	ug/kg	41	0	0	2.5E+01	2.4E+02	non-parametric	95% KM (Chebyshev) UCL	5.8E+01	5.8E+01
		Total DDE	ug/kg	41	0	0	1.8E+01	1.1E+02	non-parametric	95% KM (Chebyshev) UCL	3.1E+01	3.1E+01
		Total DDT	ug/kg	41	1	0	8.6E+00	1.1E+02	non-parametric	95% KM (Chebyshev) UCL	2.3E+01	2.3E+01
		Total Endosulfan	ug/kg	41	4	1	9.0E-01	1.5E+00	normal	95% KM (t) UCL	1.0E+00	1.0E+00

Notes:

a Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
b Total number of non-detects in the dataset.
c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
e 95% UCL not calculated for analytes with fewer than five detects.
f "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

-- = Not applicable. A 95% UCL could not be computed for the given data set.
95% UCL = 95% Upper confidence limit on the mean.
D = Depurated tissue.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
UD = Undepurated tissue.
ug/kg = Micrograms per kilogram.

Table 3-21
Values for Daily Intake Calculations
Beach Sediment Exposures

Exposure Route	Daily Intake Equation (mg/kg-day)	Parameter Code	Parameter Definition	Units	Dockside Worker				Transients				Adult Recreational Beach User				Child Recreational Beach User				Tribal Fisher				Fisher							
																									High frequency				Low frequency			
					RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source
		EPC	Exposure Point Concentration	mg/kg	CS, see Table 3-2				CS, see Table 3-3				CS, see Table 3-3				CS, see Table 3-3				CS, see Table 3-3				CS, see Table 3-3				CS, see Table 3-3			
General and Chemical-Specific Exposure Parameters		BW	Body weight	kg	70	a	70	a	70	a	70	a	70	a	70	a	15	b	15	b	70	a	70	a	70	a	70	a	70	a	70	a
		EF	Exposure frequency	days/year	50	c	44	d	365	e	183	f	94	g	38	h	94	g	38	h	260	i	104	j	156	k	52	l	104	j	26	m
		ED	Exposure duration	years	25	n	9	n	2	o	1	o	30	p	9	p	6	q	6	q	70	r	30	s	30	p	9	p	30	p	9	p
		ATc	Averaging time, cancer	days	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a
		ATnc	Averaging time, noncancer	days	9,125	a	3,285	a	730	a	365	a	10,950	a	3,285	a	2,190	a	2,190	a	25,550	a	10,950	a	10,950	a	3,285	a	10,950	a	3,285	a
		ABS	Absorption factor	--	CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS	
Beach Sediment - Ingestion	EPC x SIR x EF x ED x CF x 1/BW x 1/AT	SIR	Sediment ingestion rate	mg/day	200	t	50	t	200	u	50	v	100	v	50	v	200	w	100	w	100	v	50	v	100	v	50	v	100	v	50	v
		CF	Conversion Factor	kg/mg	1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06	
Beach Sediment - Dermal	EPC x SA x AF x ABS x EV x EF x ED x CF x 1/BW x 1/AT	SA	Skin surface area	cm2	3,300	x	3,300	x	5,700	v	5,700	v	5,700	v	5,700	v	2,800	w	2,800	w	5,700	v	5,700	v	5,700	v	5,700	v	5,700	v	5,700	v
		AF	Adherence factor	mg/cm2-event	0.2	x	0.02	x	0.3	y	0.07	z	0.3	y	0.07	z	3.3	aa	0.2	ab	0.3	y	0.07	z	0.3	y	0.07	z	0.3	y	0.07	z
		EV	Event Frequency	events/day	1		1		1		1		1		1		1		1		1		1		1		1		1		1	
		CF	Conversion Factor	kg/mg	1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06	

Notes:

a Recommended value (EPA 1989).
b Recommended value for children (EPA 1991).
c BPJ. Equivalent to 1 day /wk with direct sediment contact during 250 days/yr at facility, which is recommended for occupational exposure (EPA 1991).
d BPJ. Equivalent to 1 day /wk with direct sediment contact during 219 days/yr at facility, which is recommended for occupational exposure (EPA 1991).
e BPJ. Equivalent to every day during the entire year.
f BPJ. Equivalent to every day for half the year.
g BPJ. 5 days per week during summer (13 weeks), 1 day per week during spring/fall (26 weeks), 1 day per month during winter (3 months).
h BPJ. 2 days per week during summer (13 weeks), 2 days per month during spring/fall (6 months).
i Required by Region 10. 5 days per week for entire year.
j Required by Region 10. 2 days per week for entire year.
k Required by Region 10. 3 days per week for entire year.
l Required by Region 10. 1 day per week for entire year.
m Required by Region 10. 1 day every other week for entire year.
n Recommended value for occupational exposures (EPA 1991).
o BPJ.
p Recomennded value for residential occupancy (EPA 1997).
q Recommended value for children (EPA 1991).
r Conventional lifetime (EPA 1989).
s 95th percentile for time at one residence (same as recommended RME for resiential adults (EPA 1997)).
t Recommended value for occupational exposures (EPA 2000a).
u Required by EPA Region 10.
v Recommended value for residential adult exposures (EPA 2000a).
w Recommended value for residential child exposures (EPA 2000a).
x Recommended value for adult industrial scenario (EPA 2004a).
y Value for residential adults as gardeners (EPA 2004a).
z Value for residential adults as gardeners (same as recommende/d RME for residential adults) (EPA 2004a).
aa Value for children playing in wet soil (EPA 2004a).
bb Value for children playing in wet soil (same as recommended RME for residential children (EPA 2004a)).

Abbreviations:

-- = Not applicable.
BPJ = Best Professional Judgement.
cm2 = squared centimeter.
CS = Chemical-specific value.
CT = Central Tendency Exposure.
kg = kilogram.
mg = milligram.
RME = Reasonable Maximum Exposure.

Table 3-22
Values for Daily Intake Calculations
In-water Sediment Exposures

Exposure Route	Daily Intake Equation (mg/kg-day)	Parameter Code	Parameter Definition	Units	In-water Worker				Tribal Fisher				Fisher								Diver in Wet Suit				Diver in Dry Suit	
													High frequency				Low frequency									
					RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source
General and		EPC	Exposure Point Concentration	mg/kg	CS, see Table 3-4				CS, see Table 3-4				CS, see Table 3-4				CS, see Table 3-4				CS, see Table 3-4				CS, see Table 3-4	
Chemical-Specific		BW	Body weight	kg	70	a	70	a	70	a	70	a	70	a	70	a	70	a	70	a	70	a	70	a	70	a
Exposure		EF	Exposure frequency	days/year	10	b	10	b	260	c	104	d	156	e	52	f	104	d	26	g	5	h	2	h	5	h
Parameters		ED	Exposure duration	years	10	i	4	j	70	k	30	l	30	m	9	m	30	m	9	m	25	h	9	h	25	h
		ATc	Averaging time, cancer	days	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25550	a	25,550	a	25,550	a
		ATnc	Averaging time, noncancer	days	3,650	a	1,460	a	25,550	a	10,950	a	10,950	a	3,285	a	10,950	a	3,285	a	9,125	a	3,285	a	9,125	a
		ABS	Absorption factor	--	CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS	
		SF	Sediment contact frequency	percent	--		--		25%	n	25%	n	25%	n	25%	n	25%	n	25%	n	--		--		--	
Ingestion	EPC x SIR x EF x ED x CF x SF x 1/BW x 1/AT	SIR	Sediment ingestion rate	mg/day	200	o	50	o	50	p	25	p	50	p	25	p	50	p	25	p	50	p	25	p	50	p
		CF	Conversion Factor	kg/mg	1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06	
Dermal Contact	EPC x SA x AF x ABS x EV x EF x ED x SF x CF x 1/BW x 1/AT	SA	Skin surface area	cm2	3,300	q	3,300	q	1,980	r	1,980	r	1,980	r	1,980	r	1,980	r	1,980	r	18,150	h	18,150	h	2,510	h
		AF	Adherence factor	mg/cm2-event	0.2	q	0.02	q	0.3	s	0.07	t	0.3	s	0.07	t	0.3	s	0.07	t	0.3	h	0.07	h	0.3	h
		EV	Event frequency	events/day	1		1		1		1		1		1		1		1		1		1		1	
		CF	Conversion Factor	kg/mg	1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06		1.E-06	

Notes:

a Recommended value (EPA 1989).
b From interviews with workers at Terminal 4. Frequency for repair/removal of fender piles or maintenance dredging activities.
c Required by Region 10. 5 days per week for entire year.
d Required by Region 10. 2 days per week for entire year.
e Required by Region 10. 3 days per week for entire year.
f Required by Region 10. 1 day per week for entire year.
g Required by Region 10. 1 day every other week for entire year.
h Required by Region 10.
i Assumes frequency of every 2-3 years over an employment duration of 25 years.
j Assumes frequency of every 2-3 years over an employment duration of 9 years.
k Conventional lifetime (EPA 1989).
l 95th percentile for time at one residence (same as recommended RME for residential adults (EPA 1997)).
m Recommended value for residential occupancy (EPA 1997).
n Represents the percent of time spent fishing in a single area within the study area. Recommended by EPA Region 10.
o Recommended value for occupational exposures (EPA 2000a).
p Recommended by EPA Region 10. Assumed to be 50% of soil ingestion.
q Recommended value for adult industrial scenario (EPA 2004a).
r Average surface area for hands and forearms of men (EPA 1997).
s Value for residential adults as gardeners (EPA 2004a).
t Value for residential adults as gardeners (same as recommended RME for residential adults (EPA 2004a)).
CT exposure parameters are not listed for diver in dry suit, as required by EPA Region 10.

Abbreviations:

-- = Not applicable.
cm2 = squared centimeter.
CS = Chemical-specific value.
CT = Central Tendency Exposure.
kg = kilogram.
mg = milligram.
RME = Reasonable Maximum Exposure.

Table 3-23
Values for Daily Intake Calculations
Surface Water and Groundwater Seep Exposures

Exposure Route	Daily Intake Equation (mg/kg-day)	Parameter Code	Parameter Definition	Units	Transients				Adult Recreational Beach User				Child Recreational Beach User				Diver in Wet Suit				Diver in Dry Suit	
					RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source	RME Value	Source
General and Chemical-Specific		EPC	Exposure Point Concentration	mg/l	CS, see Table 3-6 and 3-10				CS, see Table 3-7				CS, see Table 3-7				CS, see Table 3-8				CS, see Table 3-8	
Exposure Parameters		BW	Body weight	kg	70	a	70	a	70	a	70	a	15	b	15	b	70	a	70	a	70	a
		ED	Exposure duration	years	2	c	1	c	30	d	9	d	6	b	6	b	25	e	9	e	25	e
		ATc	Averaging time, cancer	days	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a
		ATnc	Averaging time, noncancer	days	730	a	365	a	10,950	a	3,285	a	2,190	a	2,190	a	9,125	a	3,285	a	9,125	a
		DA	Absorbed dose per event	mg/cm2-event	CS		CS		CS		CS		CS		CS		CS		CS		CS	
Surface Water - Ingestion		WIR	Water ingestion rate, non-transients	mL/hour	--		--		50	f	50	f	50	f	50	f	50	f	50	f	50	f
	EPC x WIR x tev x EF x ED x CF x 1/BW x 1/AT	WIRt	Water ingestion rate - transients	L/day	2	g	1.4	g	--		--		--		--		--		--		--	
		EF	Exposure frequency, non-transients	events/yr	--		--		26	h	13	i	65	j	26	h	5	e	2	e	5	e
		EFt	Exposure frequency-transients	days/yr	365	k	183	l	--		--		--		--		--		--		--	
		t_{ev}	Event duration	hr/event	--		--		1	c	0.5	c	1	c	0.5	c	4	e	2	e	4	e
		CF	Conversion Factor	L/mL	--		--		1.00E-03		1.00E-03		1.00E-03		1.00E-03		1.E-03		1.E-03		1.E-03	
Surface Water - Dermal	DA x SA x EF x ED x 1/BW x 1/AT	t_{ev}	Event duration	hr/event	0.25	m	0.16	n	1	c	0.5	c	1	c	0.5	c	4	e	2	e	4	e
		EF	Exposure frequency	events/yr	104	o	52	p	26	h	13	i	65	j	26	h	5	e	2	e	5	e
		SA	Skin surface area	cm2	18,000	q	18,000	q	18,000	q	18,000	q	6,600	r	6,600	r	18,150	e	18,150	e	2,510	e
Groundwater Seep - Ingestion	EPC x WIR x tev x EF x ED x CF x 1/BW x 1/AT	WIR	Water ingestion rate	mL/hour	50	f	50	f														
		t_{ev}	Event duration	hr/event	0.08	s	0.02	t														
		EF	Exposure frequency	events/yr	26	h	26	h			--				--				--			--
		CF	Conversion Factor	L/mL	1.00E-03		1.00E-03															
Groundwater Seep - Dermal	DA x SA x EF x ED x 1/BW x 1/AT	t_{ev}	Event duration	hr/event	0.08	s	0.02	t														
		EF	Exposure frequency	events/yr	26	h	26	h			--				--				--			--
		SA	Skin surface area	cm2	5,700	u	5,700	u														

Notes:

a Recommended value (EPA 1989)
b Recommended value for children (EPA 1991).
c BPJ.
d Recommended value for residential occupancy (EPA 1997).
e Required by Region 10.
f Recommended value for ingestion while swimming (EPA 1989).
g Recommended for residential ingestion of drinking water (EPA 1989).
h BPJ. 2 days per week during summer (13 weeks).
i BPJ. 1 day per week during summer (13 weeks).
j BPJ. 5 days per week during summer (13 weeks).
k BPJ. Equivalent to every day during the entire year.
l BPJ. Equivalent to every day for half the year.
m BPJ. Bathing in river; equivalent to 15 minutes per bathing event (same as the CT value for residential showering/bathing (EPA 2004b)).
n BPJ. Bathing in river; equivalent to 9 minutes per bathing event.
o BPJ. Assumes 2 days per week during entire year.
p BPJ. Assumes 2 days per week during half the year.
q Recommended for adults while showering/bathing, and swimming (EPA 2004a).
r Recommended value for children while swimming (EPA 2004a).
s BPJ. 5 minutes
t BPJ. 1 minute.
u Recommended for residential adults (EPA 2004a).

Abbreviations:

-- = Not applicable.
BPJ = Best Professional Judgement.
cm2 = squared centimeter.
CS = Chemical-specific value.
CT = Central Tendency Exposure.
DA = DAw x EPC, where DAw = absorbed dose per event in l/cm^2-ev. DAw calculations are shown in Table 3-32.
hr = hour.
kg = kilogram.
L = liter.
mg = milligram.
mL = milliliter.
RME = Reasonable Maximum Exposure.
yr = year.

Table 3-24
Values for Daily Intake Calculations
Tissue Exposures

Exposure Route	Daily Intake Equation (mg/kg-day)	Parameter Code	Parameter Definition	Units	Tribal Fisher, Adult RME Value	Source	Tribal Fisher, Child RME Value	Source	Subsistence Fisher, Adult RME Value	Source	Recreational Fisher, Adult RME Value	Source	Recreational Fisher, Adult CT Value	Source	Subsistence Fisher, Child RME Value	Source	Recreational Fisher, Child RME Value	Source	Recreational Fisher, Child CT Value	Source
General and Chemical-Specific Exposure Parameters		EPC	Exposure Point Concentration	mg/kg	CS, see Tables 3-12 to 3-16		CS, see Tables 3-12 to 3-16		CS, see Tables 3-11, 3-12, 3-16 to 3-20						CS, see Tables 3-11, 3-12, 3-16					
		BW	Body weight	kg	70	a	15	b	70	a	70	a	70	a	15	b	15	b	15	b
		EF	Exposure frequency	days/year	365	c	365	c	365	c	365	c	365	c	365	c	365	c	365	c
		ED	Exposure duration	years	70	d	6	b	30	e	30	e	30	e	6	b	6	b	6	b
		ATc	Averaging time, cancer	days	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a	25,550	a
		ATnc	Averaging time, noncancer	days	25,550	a	2,190	a	10,950	a	10,950	a	10,950	a	2,190	a	2,190	a	2,190	a
		CF	Conversion Factor	kg/g	1.00E-03		1.00E-03		1.00E-03		1.00E-03		1.00E-03		1.00E-03		1.00E-03		1.00E-03	
Fish Tissue - Ingestion (multi-species diet):																				
[(EPCbb*IRbb)+ (EPCbc*IRbc)+ (EPCcp*IRcp)+ (EPCsmb*IRsmb)]+ (EPCsa*IRsa)+ (EPCla*IRla)+ (EPCst*IRst)] x EF x ED x CF x 1/BW x 1/AT		IRfish	Ingestion rate of fish (total)	g/day	175		73		142	f	48.9	g	17.5	h	60	i	20.5	i	7	i
		IRbb	Ingestion rate of brownbullhead, multi-species diet	g/day	21.7	j	9.1	k	35.5	l	12.2	l	4.4	l	15	m	5.1	m	1.8	m
		IRbc	Ingestion rate of black crappie, multi-species diet	g/day	21.7	j	9.1	k	35.5	l	12.2	l	4.4	l	15	m	5.1	m	1.8	m
		IRcp	Ingestion rate of carp, multi-species diet	g/day	21.7	j	9.1	k	35.5	l	12.2	l	4.4	l	15	m	5.1	m	1.8	m
		IRsmb	Ingestion rate of smallmouth bass, multi-species diet	g/day	21.7	j	9.1	k	35.5	l	12.2	l	4.4	l	15	m	5.1	m	1.8	m
		IRsa	Ingestion rate of salmon, Tribal multi-species diet	g/day	67	n	27.9	o	--		--		--		--		--		--	
		IRla	Ingestion rate of lamprey, Tribal multi-species diet	g/day	12.3	n	5.1	o	--		--		--		--		--		--	
		IRst	Ingestion rate of sturgeon, Tribal multi-species diet	g/day	8.6	n	3.6	o	--		--		--		--		--		--	
Shellfish - Ingestion[P]:																				
EPC x IRshell x EF x ED x CF x 1/BW x 1/AT		IRshell	Ingestion rate of crayfish or clam	g/day	--		--		18	p	--		3.3	q	--		--		--	

Notes:

a Recommended value (EPA 1989)
b Recommended value for children (EPA 1991).
c Basis of ingestion rates.
d Conventional lifetime (EPA 1989).
e Recommended value for residential occupancy (EPA 1997)
f 99th percentile (EPA 2002b).
g 95% UCL for ingestion of 50% of total fish (Adolfson 1996).
h 90th percentile (EPA 2002b)
i Adjusted from the adult ingestion rate using a factor of 0.42 (ratio of adult to child ingestion from CRITFC 1994).
j Ingestion rate for species that are not salmon, lamprey, or sturgeon, 86.9 g/day, divided by 4.
k Same dietary percentages as adult Tribal fisher but with total ingestion rate of 73 g/day.
l Adult Nontribal ingestion rate for single species divided by 4.
m Child Nontribal ingestion rate for single species divided by 4.
n CRITFC 1994.
o Same dietary percentages as adult Tribal fisher but with total ingestion rate of 73 g/day.
p 95th percentile (EPA 2002b).
q 50th percentile (EPA 2002b)

Abbreviations:

-- = Not applicable.
CS = Chemical-specific value.
g = gram.
kg = kilogram.
mg = milligram.
CT = Central Tendency Exposure.
RME = Reasonable Maximum Exposure.

Table 3-25
Values for Daily Intake Calculations
Potential Future Domestic Water Exposures

Exposure Route	Daily Intake Equation (mg/kg-day)	Parameter Code	Parameter Definition	Units	Adult Resident				Child Resident			
					RME Value	Source	CT Value	Source	RME Value	Source	CT Value	Source
General and Chemical-Specific Exposure Parameters		EPC	Exposure Point Concentration	mg/l	CS, see Table 3-9				CS, see Table 3-9			
		BW	Body weight	kg	70	a	70	a	15	b	15	b
		EF	Exposure frequency	days/yr	350	c	350	c	350	c	350	c
		ED	Exposure duration	years	30	d	9	e	6	b	6	b
		ATc	Averaging time, cancer	days	25,550	a	25,550	a	25,550	a	25,550	a
		ATnc	Averaging time, noncancer	days	10,950	a	3,285	a	2,190	a	2,190	a
Surface Water - Ingestion	EPC x WIR x EF x ED x 1/BW x 1/AT	WIR	Water ingestion rate	L/day	2	f	1.4	f	1.5	f	0.9	f
Surface Water - Dermal Contact	DA x SA x EF x ED x EV x 1/BW x 1/AT	t_{ev}	Event duration	hr/ev	0.58	g	0.25	g	1	h	0.33	h
		SA	Skin surface area	cm2	18,000	g	18,000	g	6,600	h	6,600	h
		EV	Event frequency	event/day	1	i	1	i	1	i	1	i
		DA^j	Absorbed dose per event	mg/cm2-ev	CS		CS		CS		CS	

Notes:

a Recommended value (EPA 1989)
b Recommended value for children (EPA 1991).
c EPA 1991b
d National upper-bound time (90th percentile) at one residence (EPA 1989).
e National median time (50th percentile) at one residence (EPA 1989).
f Recommended for residential ingestion of drinking water (EPA 1989).
g Recommended for adults while showering/bathing (EPA 2004a).
h Recommended value for children while showering/bathing (EPA 2004a).
i BPJ.
j DA = dermal absorbed dose for water (DAw, l/cm2-ev) multiplied by the EPC (mg/l). DAw calculations are shown in Table 3-33.

Abbreviations:

-- = Not applicable.
BPJ = Best Professional Judgement.
cm2 = squared centimeter.
CS = Chemical-specific value.
CT = Central Tendency Exposure.
ev = event.
hr = hour.
kg = kilogram.
L = liter.
mg = milligram.
mL = milliliter.
RME = Reasonable Maximum Exposure.
yr = year.

Table 3-26
Chemical-Specific Dermal Absorption Factors for Sediment Contact

Chemical	Absorption Factor (ABS)
Arsenic	0.03
Cadmium	0.001
Chlordane	0.04
2,4-Dichlorophenoxyacetic acid	0.05
DDT	0.03
TCDD and other dioxins	0.03
if soil organic content is > 10%	0.001
Lindane	0.04
Benzo(a)pyrene and other PAHs	0.13
Aroclors 1254/1242 and other PCBs	0.14
Pentachlorophenol	0.25
Semivolatile organic compounds	0.1

Source: EPA 2004a

Table 3-27
Chemical-Specific Parameters for Dermal Exposure to Surface Water and Groundwater Seeps

Chemical of Potential Concern	Kp (cm/hr)	B (unitless)	FA (unitless)	τ (hr/event)	t* (hr)	Adult Beach User, RME		Child Beach User, RME		Transients, RME		Diver[a], RME		Adult Beach User, CT		Child Beach User, CT		Transients, CT		Diver[a], CT	
						Tevent - (hr/event)	DAw[c] - (l/cm²-event)	Tevent - (hr/event)	DAw - (l/cm²-event)	Tevent - (hr/event)	DAw - (l/cm²-event)	Tevent - (hr/event)	DAw - (l/cm²-event)	Tevent - (hr/event)	DAw - (l/cm²-event)	Tevent - (hr/event)	DAw - (l/cm²-event)	Tevent - (hr/event)	DAw - (l/cm²-event)	Tevent - (hr/event)	DAw - (l/cm²-event)
Surface Water[b]																					
Metals																					
Arsenic	1.00E-03	--	--	--	--	1	1.00E-06	1	1.00E-06	0.25	2.50E-07	4	4.00E-06	0.5	5.00E-07	0.5	5.00E-07	0.16	1.60E-07	2	2.00E-06
Hexavalent chromium	1.00E-03	--	--	--	--	1	1.00E-06	1	1.00E-06	0.25	2.50E-07	4	4.00E-06	0.5	5.00E-07	0.5	5.00E-07	0.16	1.60E-07	2	2.00E-06
Polynuclear Aromatic Hydrocarbons																					
Benzo(a)anthracene	4.74E-01	2.8	1.0	2.03	8.53	--	--	--	--	--	--	4	3.73E-03	--	--	--	--	--	--	2	2.64E-03
Benzo(a)pyrene	7.02E-01	4.3	1.0	2.69	11.67	--	--	--	--	--	--	4	6.37E-03	--	--	--	--	--	--	2	4.50E-03
Benzo(b)fluoranthene	7.02E-01	4.3	1.0	2.77	12.03	--	--	--	--	--	--	4	6.46E-03	--	--	--	--	--	--	2	4.57E-03
Indeno(1,2,3-cd)pyrene	1.00E+00	6.7	0.6	3.78	16.83	--	--	--	--	--	--	4	6.45E-03	--	--	--	--	--	--	2	4.56E-03
Dibenzo(a,h)anthracene	1.51E+00	9.7	0.6	3.88	17.57	--	--	--	--	--	--	4	9.86E-03	--	--	--	--	--	--	2	6.97E-03
Naphthalene	4.66E-02	0.2	1.0	0.56	1.34	--	--	--	--	--	--	4	2.17E-04	--	--	--	--	--	--	2	1.40E-04
Pesticides																					
Aldrin	1.4E-03	0.0	1.0	11.89	28.54	--	--	--	--	--	--	4	2.67E-05	--	--	--	--	--	--	2	1.89E-05
Herbicides																					
MCPP	1.16E-02	0.1	1.0	1.67	4.01	1	4.14E-05	1	4.14E-05	0.25	2.07E-05	4	8.28E-05	0.5	2.93E-05	0.5	2.93E-05	0.16	1.66E-05	2	5.86E-05
Conventionals																					
Perchlorate	6.01E-08	0.0	1.0	0.39	0.93	--	--	--	--	--	--	4	2.87E-10	--	--	--	--	--	--	2	1.67E-10
Seep Water[b]																					
Metals																					
Arsenic	1.00E-03	--	--	--	--					0.08	8.00E-08							0.02	2.00E-08		
Boron	1.00E-03	--	--	--	--					0.08	8.00E-08							0.02	2.00E-08		
Iron	1.00E-03	--	--	--	--	Not a receptor population for groundwater seep exposure		Not a receptor population for groundwater seep exposure		0.08	8.00E-08	Not a receptor population for groundwater seep exposure		Not a receptor population for groundwater seep exposure		Not a receptor population for groundwater seep exposure		0.02	2.00E-08	Not a receptor population for groundwater seep exposure	
Manganese	1.00E-03	--	--	--	--					0.08	8.00E-08							0.02	2.00E-08		
Molybdenum	1.00E-03	--	--	--	--					0.08	8.00E-08							0.02	2.00E-08		
Vanadium	1.00E-03	--	--	--	--					0.08	8.00E-08							0.02	2.00E-08		
Semi-Volatile Organic Compounds																					
1,4-Dichlorobenzene	4.20E-02	0.2	1.0	0.71	1.71					0.08	2.77E-05							0.02	1.38E-05		
Phenols																					
2,4-Dichlorophenol	2.10E-02	0.1	1.0	0.87	2.10					0.08	1.54E-05							0.02	7.68E-06		
4-Nitrophenol	4.80E-03	0.0	1.0	0.64	1.54					0.08	3.01E-06							0.02	1.50E-06		
Pesticides																					
Aldrin	1.40E-03	0.0	1.0	11.89	28.54					0.08	3.77E-06							0.02	1.89E-06		
Volatile Organic Compounds																					
Chlorobenzene	2.82E-02	0.1	1.0	0.46	1.09					0.08	1.49E-05							0.02	7.45E-06		
Tetrachloroethene	3.28E-02	0.2	1.0	0.91	2.18					0.08	2.44E-05							0.02	1.22E-05		
Trichloroethene	1.15E-02	0.1	1.0	0.58	1.39					0.08	6.87E-06							0.02	3.43E-06		

Notes:

(a) DA_W for both wet suit diver exposure scenario and dry suit diver exposure scenario.

(b) Values for ABS_d, Kp, B, τ, and t* from Exhibit 3-3, Exhibit B-3 of EPA RAGS PART E (EPA 2004a), or calculated using equations from EPA RAGS PART E (EPA 2004a).

(c) DAw calculated as follows (EPA 2004a):

For organics, where Tevent ≤ t*: DAw = 2 x FA x Kp x [(6 x τ x Tevent)/π]^0.5 x 10^{-3} l/cm³

For organics, where Tevent > t*: DAw = FA x Kp x [(Tevent/(1 + B)) + 2 x τ x ((1 + 3B + 3B²)/(1 + B)²)] x 10^{-3} l/cm³

For inorganics: DAw = Kp x Tevent x 10^{-3} l/cm³

Abbreviations:

-- = Not applicable.
cm = Centimeters.
hr = Hours.
l = Liters.
Kp = Dermal permeability constant.
FA = Fraction absorbed water.
B = Relative contribution of permeability coefficients.
τ = Lag time.
t* = Time to reach steady state.
Tevent = Event time.
RAGS = Risk Assessment Guidance for Superfund.
EPA = United States Environmental Protection Agency.
RME = Reasonable Maximum Exposure.
CT = Central Tendency Exposure.

Table 3-28
Chemical-Specific Parameters for Dermal Exposure to Surface Water as a Potential Future Domestic Water Source

Chemical of Potential Concern	Kp (cm/hr)	B (unitless)	FA (unitless)	τ (hr)	t* (hr)	Adult Resident, RME		Child Resident, RME		Adult Resident, CT		Child Resident, CT	
						Tevent - (hr/event)	DAw[(a)] - (l/cm^2-event)	Tevent - (hr/event)	DAw - (l/cm^2-event)	Tevent - (hr/event)	DAw - (l/cm^2-event)	Tevent - (hr/event)	DAw - (l/cm^2-event)
Surface Water[(b)]													
Metals													
Arsenic	1.00E-03	--	--	--	--	0.58	5.80E-07	1	1.00E-06	0.25	2.50E-07	0.33	3.30E-07
Hexavalent chromium	1.00E-03	--	--	--	--	0.58	5.80E-07	1	1.00E-06	0.25	2.50E-07	0.33	3.30E-07
Polynuclear Aromatic Hydrocarbons													
Benzo(a)anthracene	4.74E-01	2.8	1.0	2.03	8.53	0.58	1.42E-03	1	1.87E-03	0.25	9.33E-04	0.33	1.07E-03
Benzo(a)pyrene	7.02E-01	4.3	1.0	2.69	11.67	0.58	2.42E-03	1	3.18E-03	0.25	1.59E-03	0.33	1.83E-03
Benzo(b)fluoranthene	7.02E-01	4.3	1.0	2.77	12.03	0.58	2.46E-03	1	3.23E-03	0.25	1.62E-03	0.33	1.86E-03
Indeno(1,2,3-cd)pyrene	1.00E+00	6.7	0.6	3.78	16.83	0.58	2.46E-03	1	3.22E-03	0.25	1.61E-03	0.33	1.85E-03
Dibenzo(a,h)anthracene	1.51E+00	9.7	0.6	3.88	17.57	0.58	3.75E-03	1	4.93E-03	0.25	2.46E-03	0.33	2.83E-03
Pesticides													
Aldrin	1.4E-03	0.0	1.0	11.89	28.54	0.58	1.02E-05	1	1.34E-05	0.25	6.69E-06	0.33	7.68E-06
Herbicides												0.33	
MCPP	1.16E-02	0.1	1.0	1.67	4.01	0.58	3.15E-05	1	4.14E-05	0.25	2.07E-05	0.33	2.38E-05

Notes:
(a) Values for ABS_d, Kp, B, τ, and t* from Exhibit 3-3, Exhibit B-3 of EPA RAGS PART E (EPA 2004a), or calculated using equations from EPA RAGS PART E (EPA 2004a).
(b) DAw calculated as follows (EPA 2004a):

For organics, where Tevent ≤ t*: $DAw = 2 \times FA \times Kp \times [(6 \times \tau \times Tevent)/\pi]^{0.5} \times 10^{-3}$ l/cm^3

For organics, where Tevent > t*: $DAw = FA \times Kp \times [(Tevent/(1 + B)) + 2 \times \tau \times ((1 + 3B + 3B^2)/(1 + B)^2)] \times 10^{-3}$ l/cm^3

For inorganics: $DAw = Kp \times Tevent \times 10^{-3}$ l/cm^3

Abbreviations:
-- = Not applicable.
B = Relative contribution of permeability coefficients.
cm = Centimeters.
CT = Central Tendency Exposure.
EPA = United States Environmental Protection Agency.
FA = Fraction absorbed water.
hr = Hours.
Kp = Dermal permeability constant.
l = Liters.
RAGS = Risk Assessment Guidance for Superfund.
RME = Reasonable Maximum Exposure.
t* = Time to reach steady state.
Tevent = Event time.
τ = Lag time.

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

SECTION 4 TABLES

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table 4-1
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day)-1	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day)-1	Oral CSF Source(s), Date[2]	Weight of Evidence for Carcinogenicity, listed under IRIS
	Metals						
7429-90-5	Aluminum		--	1	--	--	Not listed under IRIS program.
7440-36-0	Antimony		--	0.15	--	--	Not assessed under IRIS program.
7440-38-2	Arsenic		1.5E+00	1	1.5E+00	IRIS, Nov 2010	A, Human Carcinogen
7440-39-3	Barium		--	0.07	--	--	D, Not classifiable as to human carcinogenicity
7440-42-8	Boron		--	1	--	--	Not assessed under IRIS program.
7440-43-9	Cadmium	a	--	0.05	--	--	B1, Probable human carcinogen - based on limited evidence of carcinogenicity in humans
16065-83-1	Chromium, trivalent		--	0.013	--	--	D, Not classifiable as to human carcinogenicity
18540-29-9	Chromium, hexavalent		5.0E-01	0.025	1.3E-02	J, Nov 2010	D, Not classifiable as to human carcinogenicity (Oral route)
7440-48-4	Cobalt		--	1	--	--	Not listed under IRIS program.
7440-50-8	Copper		--	1	--	--	D, Not classifiable as to human carcinogenicity
7439-89-6	Iron		--	1	--	--	Not listed under IRIS program.
7439-92-1	Lead	b	NL	NL	NL	NL	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
7439-96-5	Manganese		--	0.04	--	--	D, Not classifiable as to human carcinogenicity
7439-97-6	Mercury (tissue)	c	--	1	--	--	C, Possible human carcinogen
7439-97-6	Mercury (sediment)	d	--	0.07	--	--	C, Possible human carcinogen
7439-98-7	Molybdenum		--	1	--	--	Not assessed under IRIS program.
7440-02-0	Nickel		--	0.04	--	--	Information reviewed but value not estimated.
7782-49-2	Selenium		--	1	--	--	D, Not classifiable as to human carcinogenicity
7440-22-4	Silver		--	0.04	--	--	D, Not classifiable as to human carcinogenicity
7440-28-0	Thallium	e	NL	1	NL	NL	Inadequate information to assess carcinogenic potential
7440-32-6	Titanium	e	NL	NL	NL	NL	Not listed under IRIS program.
7440-62-2	Vanadium		--	0.026	--	--	Not listed under IRIS program.
7440-66-6	Zinc		--	1	--	--	D, Not classifiable as to human carcinogenicity
	Butyltins						
78763-54-9	Butyltin ion	f	--	1	--	--	Not listed under IRIS program.
14488-53-0	Dibutyltin ion	f	--	1	--	--	Not listed under IRIS program.
36643-28-4	Tributyltin ion	f	--	1	--	--	D, Not classifiable as to human carcinogenicity
	Polynuclear Aromatic Hydrocarbons						
90-12-0	1-Methylnaphthalene		2.9E-02	1	2.9E-02	P, Nov 2010	Not listed under IRIS program.
91-57-6	2-Methylnaphthalene		--	1	--	--	Not assessed under IRIS program.
83-32-9	Acenaphthene		--	1	--	--	Not assessed under IRIS program.
208-96-8	Acenaphthylene	g	--	1	--	--	D, Not classifiable as to human carcinogenicity
120-12-7	Anthracene		--	1	--	--	D, Not classifiable as to human carcinogenicity
56-55-3	Benzo(a)anthracene		7.3E-01	1	7.3E-01	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
50-32-8	Benzo(a)pyrene		7.3E+00	1	7.3E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals

Table 4-1
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day)-1	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day)-1	Oral CSF Source(s), Date[2]	Weight of Evidence for Carcinogenicity, listed under IRIS
205-99-2	Benzo(b)fluoranthene		7.3E-01	1	7.3E-01	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
192-97-2	Benzo(e)pyrene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
191-24-2	Benzo(g,h,i)perylene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
207-08-9	Benzo(k)fluoranthene		7.3E-02	1	7.3E-02	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
218-01-9	Chrysene		7.3E-03	1	7.3E-03	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
53-70-3	Dibenzo(a,h)anthracene		7.3E+00	1	7.3E+00	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
132-65-0	Dibenzothiophene	i	--	1	--	--	D, Not classifiable as to human carcinogenicity
206-44-0	Fluoranthene		--	1	--	--	D, Not classifiable as to human carcinogenicity
86-73-7	Fluorene		--	1	--	--	D, Not classifiable as to human carcinogenicity
193-39-5	Indeno(1,2,3-cd)pyrene		7.3E-01	1	7.3E-01	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
91-20-3	Naphthalene		--	1	--	--	C, Possible human carcinogen
198-55-0	Perylene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
85-01-8	Phenanthrene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
129-00-0	Pyrene		--	1	--	--	D, Not classifiable as to human carcinogenicity
	Phthalates						
117-81-7	Bis(2-ethylhexyl) phthalate		1.4E-02	1	1.4E-02	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
85-68-7	Butylbenzyl phthalate		1.9E-03	1	1.9E-03	P, Nov 2010	C, Possible human carcinogen
84-74-2	Dibutyl phthalate		--	1	--	--	D, Not classifiable as to human carcinogenicity
84-66-2	Diethyl phthalate		--	1	--	--	D, Not classifiable as to human carcinogenicity
117-84-0	Di-n-octyl phthalate	j	--	1	--	--	Not listed under IRIS program.
	Semivolatile Organic Compounds						
106-46-7	1,4-Dichlorobenzene		5.4E-03	1	5.4E-03	C, Nov 2010	Not assessed under IRIS program.
65-85-0	Benzoic acid		--	1	--	--	D, Not classifiable as to human carcinogenicity
100-51-6	Benzyl alcohol		--	1	--	--	Not listed under IRIS program.
111-91-1	Bis(2-chloroethoxy) methane		--	2	--	--	Not listed under IRIS program.
132-64-9	Dibenzofuran		--	1	--	--	D, Not classifiable as to human carcinogenicity
118-74-1	Hexachlorobenzene		1.6E+00	1	1.6E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
87-68-3	Hexachlorobutadiene		7.8E-02	1	7.8E-02	IRIS, Nov 2010	C, Possible human carcinogen
78-59-1	Isophorone		9.5E-04	1	9.5E-04	IRIS, Nov 2010	C, Possible human carcinogen
98-95-3	Nitrobenzene		--	1	--	--	D, Not classifiable as to human carcinogenicity
483-65-8	Retene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
	Phenols						
120-83-2	2,4-Dichlorophenol		--	1	--	--	Not assessed under IRIS program.
105-67-9	2,4-Dimethylphenol		--	1	--	--	Not assessed under IRIS program.
95-48-7	2-Methylphenol		--	1	--	--	C, Possible human carcinogen
106-44-5	4-Methylphenol		--	1	--	--	C, Possible human carcinogen
100-02-7	4-Nitrophenol	k	--	1	--	--	Not assessed under IRIS program.

Table 4-1
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day)-1	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day)-1	Oral CSF Source(s), Date[2]	Weight of Evidence for Carcinogenicity, listed under IRIS
87-86-5	Pentachlorophenol		4.0E-01	1	4.0E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
108-95-2	Phenol		--	1	--	--	D, Not classifiable as to human carcinogenicity
	Polychlorinated Biphenyls Aroclors						
Total Aroclors	Total PCB Aroclors	m	2.0E+00	1	2.0E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
	Polychlorinated Biphenyls Congeners						
Total PCB_Congeners	Total PCB Congeners	l	NA	1	NA	IRIS, Nov 2010	NA
Total PCBs, Adjusted	Total PCB Congeners, adjusted	m	2.0E+00	1	2.0E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
	Dioxins/Furans						
Total Dioxin/Furan TE	Total Dioxin TEQ	n	1.3E+05	1	1.3E+05	C, Nov 2010	Not listed under IRIS program.
Total PCB TEQ	Total PCB TEQ	n	1.3E+05	1	1.3E+05	C, Nov 2010	Not listed under IRIS program.
	Pesticides						
309-00-2	Aldrin		1.7E+01	1	1.7E+01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
319-84-6	alpha-Hexachlorocyclohexane		6.3E+00	1	6.3E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
319-85-7	beta-Hexachlorocyclohexane		1.8E+00	1	1.8E+00	IRIS, Nov 2010	C, Possible human carcinogen
319-86-8	delta-Hexachlorocyclohexane	e	NL	1	NL	NL	D, Not classifiable as to human carcinogenicity
60-57-1	Dieldrin		1.6E+01	1	1.6E+01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
72-20-8	Endrin		--	1	--	--	D, Not classifiable as to human carcinogenicity
7421-93-4	Endrin aldehyde	o	--	1	--	--	D, Not classifiable as to human carcinogenicity
53494-70-5	Endrin ketone	o	--	1	--	--	D, Not classifiable as to human carcinogenicity
58-89-9	gamma-Hexachlorocyclohexane		1.1E+00	1	1.1E+00	C, Nov 2010	Not assessed under IRIS program.
76-44-8	Heptachlor		4.5E+00	1	4.5E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
1024-57-3	Heptachlor epoxide		9.1E+00	1	9.1E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
72-43-5	Methoxychlor		--	1	--	--	D, Not classifiable as to human carcinogenicity
12789-03-6	Total Chlordane		3.5E-01	1	3.5E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
Total DDD	Total DDD		2.4E-01	1	2.4E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
Total DDE	Total DDE	p	3.4E-01	1	3.4E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
Total DDT	Total DDT		3.4E-01	1	3.4E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
115-29-7	Total Endosulfan		--	1	--	--	Not assessed under IRIS program.
	Herbicides						
93-65-2	MCPP		--	1	--	--	Not assessed under IRIS program.
	Volatile Organic Compounds						
108-90-7	Chlorobenzene		--	1	--	--	D, Not classifiable as to human carcinogenicity
127-18-4	Tetrachloroethene		5.4E-01	1	5.4E-01	C, Nov 2010	Not assessed under IRIS program.

Table 4-1
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day)-1	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day)-1	Oral CSF Source(s), Date[2]	Weight of Evidence for Carcinogenicity, listed under IRIS
79-01-6	Trichloroethene	q	8.9E-02	1	8.9E-02	C, Nov 2010	Information reviewed but value not estimated.
	Conventionals						
14797-73-0	Perchlorate		--	1	--	--	Not assessed under IRIS program.

Footnotes:

1 Exhibit 4-1. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

2 Oral cancer slope factors were retrieved from the EPA Regional Screening Levels (RSL) Tables (November 2010), which uses the EPA recommended hierarchy for toxicity value sources. Sources listed above are those listed in the RSL table.

Acronyms:

-- Not evaluated as a carcinogen
A Agency for Toxic Substances and Disease Registry Minimum Risk Level
C California EPA Office of Environmental Health Hazard Assessment, as referenced in RSL table
CAS Chemical Abstracts Service
CSF cancer slope factor
E Environmental Criteria and Assessment Office, as referenced in RSL table
EPA United States Environmental Protection Agency
IRIS Integrated Risk Information System, Accessed online November 2010.
J New Jersey Department of Environmental Protection, as referenced in RSL table
mg/kg-day milligram per kilogram per day
NA Not applicable. Chemical is not assessed individually for cancer risk.
NL Not Listed
P Provisional Peer Reviewed Toxicity Value
TEQ Toxic equivalency quotient

Notes:

a EPA lists an oral absorption efficiency of 2.5% and 5% for water and diet dosing regimens, respectively. The higher value of 5% is listed.
b Lead not evaluated using cancer slope factor.
c Methylmercury toxicity value used for tissue evaluation.
d Toxicity value for mercuric chloride (and other Mercury salts) used for evaluation of mercury in sediment.
e A toxicity value was not available from the recommended hierarchy and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
f Surrogate: Tributyltin oxide
g Surrogate: Acenaphthene
h Surrogate: Pyrene
i Surrogate: Fluorene
j Surrogate: Dibutyl phthalate
k Surrogate: 4-Methylphenol
l Not applicable. PCB Congeners are not assessed as a total sum for cancer risk. Adjusted PCBs and PCB TEQ assessed for cancer risk.
m Toxicity value used for PCB congeners is the upper bound slope factor, based on high risk and persistence.
n TEQ approach based on 2,3,7,8-TCDD toxicity
o Surrogate: Endrin
p Cancer slope factor is for the 4,4' isomer
q Per an agreement with EPA, toxicity value for trichloroethene is based on EPA. 2001b. Trichloroethylene Health Risk Assessment: Synthesis and Characterization, August 2001, EPA/600/P-01/0002A – External Review Draft. The toxicity value for trichloroethene represents an older value that is superceded by more recent guidance. The use of the older toxicity value does not impact the conclusions of the risk assessment.

Table 4-2
Non-Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral RfD mg/kg-day	Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal mg/kg-day	Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	Oral RfD Source(s), Date[2]
	Metals							
7429-90-5	Aluminum		1.0E+00	1	1.0E+00	--	--	P, Nov 2010
7440-36-0	Antimony		4.0E-04	0.15	6.0E-05	blood	1000	IRIS, Nov 2010
7440-38-2	Arsenic		3.0E-04	1	3.0E-04	skin, blood	3	IRIS, Nov 2010
7440-39-3	Barium		2.0E-01	0.07	1.4E-02	kidney	300	IRIS, Nov 2010
7440-42-8	Boron		2.0E-01	1	2.0E-01	developmental	66	IRIS, Nov 2010
7440-43-9	Cadmium	a	1.0E-03	0.05	5.0E-05	kidney	10	IRIS, Nov 2010
16065-83-1	Chromium, trivalent		1.5E+00	0.013	2.0E-02	no effects observed	1000	IRIS, Nov 2010
18540-29-9	Chromium, hexavalent		3.0E-03	0.025	7.5E-05	none reported	900	IRIS, Nov 2010
7440-48-4	Cobalt		3.0E-04	1	3.0E-04	blood	100	P, Nov 2010
7440-50-8	Copper		4.0E-02	1	4.0E-02	--	NA	H, Nov 2010
7439-89-6	Iron		7.0E-01	1	7.0E-01	--	--	P, Nov 2010
7439-92-1	Lead	b	--	NL	--	NL	NL	NL
7439-96-5	Manganese		1.4E-01	0.04	5.6E-03	CNS	1	IRIS, Nov 2010
7439-97-6	Mercury (tissue)	c	1.0E-04	1	1.0E-04	CNS, developmental	10	IRIS, Nov 2010
7439-97-6	Mercury (sediment)	d	3.0E-04	0.07	2.1E-05	immunological	1000	IRIS, Nov 2010
7439-98-7	Molybdenum		5.0E-03	1	5.0E-03	increased uric acid levels	30	IRIS, Nov 2010
7440-02-0	Nickel		2.0E-02	0.04	8.0E-04	whole body	300	IRIS, Nov 2010
7782-49-2	Selenium		5.0E-03	1	5.0E-03	whole body	3	IRIS, Nov 2010
7440-22-4	Silver		5.0E-03	0.04	2.0E-04	skin	3	IRIS, Nov 2010
7440-28-0	Thallium	e	NL	1	NL	NL	NL	NL
7440-32-6	Titanium	e	NL	NL	NL	NL	NL	NL
7440-62-2	Vanadium	f	7.0E-05	0.026	1.8E-06	decreased hair cysteine	--	P, Nov 2010
7440-66-6	Zinc		3.0E-01	1	3.0E-01	blood	3	IRIS, Nov 2010
	Butyltins							
78763-54-9	Butyltin ion	g	3.0E-04	1	3.0E-04	immunological	1000	IRIS, Nov 2010
14488-53-0	Dibutyltin ion	g	3.0E-04	1	3.0E-04	immunological	1000	IRIS, Nov 2010
36643-28-4	Tributyltin ion	g	3.0E-04	1	3.0E-04	immunological	1000	IRIS, Nov 2010
	Polynuclear Aromatic Hydrocarbons							
90-12-0	1-Methylnaphthalene		7.0E-02	1	7.0E-02	lungs	--	A, Nov 2010
91-57-6	2-Methylnaphthalene		4.0E-03	1	4.0E-03	lungs	1000	IRIS, Nov 2010
83-32-9	Acenaphthene		6.0E-02	1	6.0E-02	liver	3000	IRIS, Nov 2010
208-96-8	Acenaphthylene	h	6.0E-02	1	6.0E-02	liver	3000	IRIS, Nov 2010
120-12-7	Anthracene		3.0E-01	1	3.0E-01	no effects observed	3000	IRIS, Nov 2010
56-55-3	Benzo(a)anthracene		--	1	--	--	--	--
50-32-8	Benzo(a)pyrene		--	1	--	--	--	--
205-99-2	Benzo(b)fluoranthene		--	1	--	--	--	--
192-97-2	Benzo(e)pyrene	i	3.0E-02	1	3.0E-02	kidney	3000	IRIS, Nov 2010
191-24-2	Benzo(g,h,i)perylene	i	3.0E-02	1	3.0E-02	kidney	3000	IRIS, Nov 2010
207-08-9	Benzo(k)fluoranthene		--	1	--	--	--	--
218-01-9	Chrysene		--	1	--	--	--	--
53-70-3	Dibenzo(a,h)anthracene		--	1	--	--	--	--
132-65-0	Dibenzothiophene	j	4.0E-02	1	4.0E-02	blood	3000	IRIS, Nov 2010
206-44-0	Fluoranthene		4.0E-02	1	4.0E-02	kidney, liver, blood	3000	IRIS, Nov 2010
86-73-7	Fluorene		4.0E-02	1	4.0E-02	blood	3000	IRIS, Nov 2010
193-39-5	Indeno(1,2,3-cd)pyrene		--	1	--	--	--	--
91-20-3	Naphthalene		2.0E-02	1	2.0E-02	whole body, body weight	3000	IRIS, Nov 2010
198-55-0	Perylene	i	3.0E-02	1	3.0E-02	kidney	3000	IRIS, Nov 2010
85-01-8	Phenanthrene	i	3.0E-02	1	3.0E-02	kidney	3000	IRIS, Nov 2010
129-00-0	Pyrene		3.0E-02	1	3.0E-02	kidney	3000	IRIS, Nov 2010
	Phthalates							
117-81-7	Bis(2-ethylhexyl) phthalate		2.0E-02	1	2.0E-02	liver	1000	IRIS, Nov 2010
85-68-7	Butylbenzyl phthalate		2.0E-01	1	2.0E-01	liver	1000	IRIS, Nov 2010
84-66-2	Diethyl phthalate		8.0E-01	1	8.0E-01	whole body, developmental	1000	IRIS, Nov 2010
84-74-2	Dibutyl phthalate		1.0E-01	1	1.0E-01	increased mortality	1000	IRIS, Nov 2010
117-84-0	Di-n-octyl phthalate	k	1.0E-01	1	1.0E-01	liver	1000	IRIS, Nov 2010
	Semivolatile Organic Compounds							
106-46-7	1,4-Dichlorobenzene		7.0E-02	1	7.0E-02	--	--	A, Nov 2010
65-85-0	Benzoic acid		4.0E+00	1	4.0E+00	no effects observed	1	IRIS, Nov 2010
100-51-6	Benzyl alcohol		1.0E-01	1	1.0E-01	forestomach	1000	P, Nov 2010
111-91-1	Bis(2-chloroethoxy) methane		3.0E-03	1	3.0E-03	liver	3000	P, Nov 2010
132-64-9	Dibenzofuran		1.0E-03	1	1.0E-03	blood	3000	X, Nov 2010
118-74-1	Hexachlorobenzene		8.0E-04	1	8.0E-04	liver	100	IRIS, Nov 2010
87-68-3	Hexachlorobutadiene		1.0E-03	1	1.0E-03	--	1000	P, Nov 2010
78-59-1	Isophorone		2.0E-01	1	2.0E-01	kidney	1000	IRIS, Nov 2010
98-95-3	Nitrobenzene		2.0E-03	1	2.0E-03	blood	1000	IRIS, Nov 2010
483-65-8	Retene	i	3.0E-02	1	3.0E-02	kidney	3000	IRIS, Nov 2010
	Phenols							
120-83-2	2,4-Dichlorophenol		3.0E-03	1	3.0E-03	decreased hypersensitivity response	100	IRIS, Nov 2010
105-67-9	2,4-Dimethylphenol		2.0E-02	1	2.0E-02	lethargy, prostration, ataxia, blood	3000	IRIS, Nov 2010
95-48-7	2-Methylphenol		5.0E-02	1	5.0E-02	decreased body weight, brain	1000	IRIS, Nov 2010
106-44-5	4-Methylphenol		5.0E-03	1	5.0E-03	whole body, CNS	1000	H, Nov 2010
100-02-7	4-Nitrophenol	l	5.0E-03	1	5.0E-03	whole body, CNS	1000	H, Nov 2010
87-86-5	Pentachlorophenol		5.0E-03	1	5.0E-03	liver, kidney	100	IRIS, Nov 2010
108-95-2	Phenol		3.0E-01	1	3.0E-01	whole body	300	IRIS, Nov 2010
	Polychlorinated Biphenyls Aroclors							
Total Aroclors	Total PCB Aroclors	m	2.0E-05	1	2.0E-05	immune system, dermal system	300	IRIS, Nov 2010
	Polychlorinated Biphenyls Congeners							
Total PCB_Congeners	Total PCB Congeners	n	NA	1	NA	NA	NA	IRIS, Nov 2010
Total PCBs, Adjusted	Total PCB Congeners, adjusted	m	2.0E-05	1	2.0E-05	immune system, dermal system	300	IRIS, Nov 2010
	Dioxins/Furans							
Total Dioxin/Furan TEQ	Total Dioxin TEQ	o	1.0E-09	1	1.0E-09	reproduction	1000	A, Nov 2010
Total PCB TEQ	Total PCB TEQ	o	1.0E-09	1	1.0E-09	reproduction	1000	A, Nov 2010
	Pesticides							
309-00-2	Aldrin		3.0E-05	1	3.0E-05	liver	1000	IRIS, Nov 2010
319-84-6	alpha-Hexachlorocyclohexane		8.0E-03	1	8.0E-03	liver	100	A, Nov 2010
319-85-7	beta-Hexachlorocyclohexane		6.0E-04	1	6.0E-04	liver	300	ATSDR MRL, Oct 2005

Table 4-2
Non-Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral RfD mg/kg-day	Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal mg/kg-day	Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	Oral RfD Source(s), Date[2]
319-86-8	delta-Hexachlorocyclohexane	e	NL	NL	NL	NL	NL	P, Nov 2010
60-57-1	Dieldrin		5.0E-05	1	5.0E-05	liver	100	IRIS, Nov 2010
72-20-8	Endrin		3.0E-04	1	3.0E-04	liver	100	IRIS, Nov 2010
7421-93-4	Endrin aldehyde	p	3.0E-04	1	3.0E-04	liver	100	IRIS, Nov 2010
53494-70-5	Endrin ketone	p	3.0E-04	1	3.0E-04	liver	100	IRIS, Nov 2010
58-89-9	gamma-Hexachlorocyclohexane		3.0E-04	1	3.0E-04	liver, kidney	1000	IRIS, Nov 2010
76-44-8	Heptachlor		5.0E-04	1	5.0E-04	liver	300	IRIS, Nov 2010
1024-57-3	Heptachlor epoxide		1.3E-05	1	1.3E-05	liver	1000	IRIS, Nov 2010
72-43-5	Methoxychlor		5.0E-03	1	5.0E-03	reproduction, endocrine	1000	IRIS, Nov 2010
12789-03-6	Total Chlordane		5.0E-04	1	5.0E-04	liver	300	IRIS, Nov 2010
Total DDD	Total DDD	q	5.0E-04	1	5.0E-04	liver	100	IRIS, Nov 2010
Total DDE	Total DDE	q	5.0E-04	1	5.0E-04	liver	100	IRIS, Nov 2010
Total DDT	Total DDT		5.0E-04	1	5.0E-04	liver	100	IRIS, Nov 2010
115-29-7	Total Endosulfan		6.0E-03	1	6.0E-03	whole body, CNS, blood vessels	100	IRIS, Nov 2010
	Herbicides							
93-65-2	MCPP		1.0E-03	1	1.0E-03	liver	3000	IRIS, Nov 2010
	Volatile Organic Compounds							
108-90-7	Chlorobenzene		2.0E-02	1	2.0E-02	liver	1000	IRIS, Nov 2010
127-18-4	Tetrachloroethene		1.0E-02	1	1.0E-02	liver, weight gain	1000	IRIS, Nov 2010
79-01-6	Trichloroethene	r	--	1	--	--	--	EPA, 2001b
	Conventionals							
14797-73-0	Perchlorate		7.0E-04	1	7.0E-04	thyroid (endocrine)	10	IRIS, Nov 2010

Footnotes:

1 Source: Exhibit 4-1. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

2 Oral RfD toxicity values were retrieved from the EPA Regional Screening Levels (RSLs) Table (November 2010), which uses the EPA recommended hierarchy for toxicity value sources. Sources listed above are those listed in the RSL table.

Acronyms:

-- Not available
A Agency for Toxic Substances and Disease Registry, as referenced in RSL table
ATSDR MRL Agency for Toxic Substances and Disease Registry Minimum Risk Level
CAS Chemical Abstracts Service
CNS Central Nervous System
EPA United States Environmental Protection Agency
H Health Effects Assessment Summary Table, July 1997
IRIS Integrated Risk Information System, Accessed online November 2010.
mg/kg-day milligram per kilogram per day
NA Not applicable. Chemical will not be assessed individually for noncancer risk.
NL Not Listed
P Provisional Peer Reviewed Toxicity Value
RfD Reference Dose
TEQ Toxic equivalency quotient
X Provisional Peer Reviewed Toxicity Value Appendix, as referenced in RSL table

Notes:

a EPA lists an oral absorption efficiency of 2.5% and 5% for water and diet dosing regimens, respectively. The higher value of 5% is listed.
b Lead not evaluated using reference dose.
c Methylmercury toxicity value used for tissue evaluation.
d Toxicity value for mercuric chloride (and other mercury salts) used for mercury in sediment evaluation.
e A toxicity value was not available from the recommended hierarchy and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
f Toxicity value calculated from vanadium pentoxide. Critical effect listed is for vanadium pentoxide.
g Surrogate: Tributyltin Oxide
h Surrogate: Acenaphthene
i Surrogate: Pyrene
j Surrogate: Fluorene
k Surrogate: Dibutyl phthalate
l Surrogate: 4-Methylphenol
m RfDo for Aroclor 1254
n Not applicable. Chemical will not be assessed individually for noncancer risk.
o TEQ approach based on 2,3,7,8-TCDD toxicity
p Surrogate: Endrin
q RfDo for DDT
r Per an agreement with EPA, toxicity value for trichloroethene is based on EPA. 2001b. Trichloroethylene Health Risk Assessment: Synthesis and Characterization, August 2001, EPA/600/P-01/0002A – External Review Draft. The toxicity value for trichloroethene represents an older value that is superceded by more recent guidance. The use of the older toxicity value does not impact the conclusions of the risk assessment.

Table 4-3: Toxic Equivalency Factors

Chemical Class	Compound	TEF[(1)]
Dioxins	2,3,7,8-TCDD	1
	1,2,3,7,8-PeCDD	1
	1,2,3,4,7,8-HxCDD	0.1
	1,2,3,7,8,9-HxCDD	0.1
	1,2,3,6,7,8-HxCDD	0.1
	1,2,3,4,6,7,8-HpCDD	0.01
	OCDD	0.0003
Furans	2,3,7,8-TCDF	0.1
	1,2,3,7,8-PeCDF	0.03
	2,3,4,7,8-PeCDF	0.3
	1,2,3,4,7,8-HxCDF	0.1
	1,2,3,7,8,9-HxCDF	0.1
	1,2,3,6,7,8-HxCDF	0.1
	2,3,4,6,7,8-HxCDF	0.1
	1,2,3,4,6,7,8-HpCDF	0.01
	1,2,3,4,7,8,9-HpCDF	0.01
	OCDF	0.0003
Coplanar PCBs	3,3',4,4'-TCB (77)	0.0001
	3,4,4',5-TCB (81)	0.0003
	2,3,3',4,4'-PeCB (105)	0.00003
	2,3,4,4',5-PeCB (114)	0.00003
	2,3',4,4',5-PeCB (118)	0.00003
	2',3,4,4',5-PeCB (123)	0.00003
	3,3',4,4',5-PeCB (126)	0.1
	2,3,3',4,4',5'-HxCB (156)	0.00003
	2,3,3',4,4',5-HxCB (157)	0.00003
	2,3',4,4',5,5'-HxCB (167)	0.00003
	3,3',4,4',5,5'-HxCB (169)	0.03
	2,3,3',4,4',5,5'-HpCB (189)	0.00003
	2,2',3,3',4,4',5-HpCB (170)	--
	2,2',3,4,4',5,5'-HpCB (180)	--

(1) World Health Organization 2005 toxicity equivalent factor (TEF).

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

SECTION 5 TABLES

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table 5-1.
Toxicity Endpoints for BHHRA COPCs[a]

Analyte	Toxicity Endpoint																
	Blood[b]	Skin[c]	Kidney[d]	Gastrointestinal[e]	CNS[f]	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change[g]	Fetus	Lethargy[h]	Endocrine[i]	No effects observed
Metals																
Aluminum					x											
Antimony	x															
Arsenic	x	x														
Barium			x													
Boron													x			
Cadmium			x													
Chromium, trivalent																x
Chromium, hexavalent																x
Cobalt	x															
Copper				x												
Manganese					x											
Mercury (tissue)					x											
Mercury (sediment)								x								
Molybdenum			x													
Nickel						x										
Selenium						x										
Silver		x														
Vanadium		x														
Zinc	x															
Butyltins																
Butyltin ion								x								
Dibutyltin ion								x								
Tributyltin ion								x								
Polynuclear Aromatic Hydrocarbons																
2-Methylnaphthalene									x							
Acenaphthene							x									
Acenaphthylene							x									
Anthracene																x
Benzo(e)pyrene			x													
Benzo(g,h,i)perylene			x													
Dibenzothiophene	x															
Fluoranthene	x		x				x									
Fluorene	x															
Naphthalene						x						x				
Perylene			x													
Phenanthrene			x													
Pyrene			x													
Phthalates																
Bis(2-ethylhexyl) phthalate							x									
Butylbenzyl phthalate							x									
Diethyl phthalate						x							x			
Dibutyl phthalate						x										
Di-n-octyl phthalate							x									
Semivolatile Organic Compounds																
Benzoic acid																x
Benzyl alcohol				x												
Bis(2-chloroethoxy) methane							x									
Dibenzofuran	x															
Hexachlorobenzene							x									
Hexachlorobutadiene			x													
Isophorone			x													
Nitrobenzene	x															
Retene			x													
Phenols																
2,4-Dichlorophenol										x						
2,4-Dimethylphenol	x				x									x		
2-Methylphenol					x							x				
4-Methylphenol					x	x										
4-Nitrophenol					x	x										
Pentachlorophenol			x				x									
Phenol						x										
Polychlorinated Biphenyls Aroclors																
Total PCB Aroclors		x						x								

Table 5-1.
Toxicity Endpoints for BHHRA COPCs[a]

Analyte	Toxicity Endpoint																
	Blood[b]	Skin[c]	Kidney[d]	Gastrointestinal[e]	CNS[f]	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change[g]	Fetus	Lethargy[h]	Endocrine[i]	No effects observed
Polychlorinated Biphenyls Congeners																
Total PCB Congeners[j]																
Total PCBs, Adjusted		x						x								
Dioxins/Furans																
Total Dioxin TEQ											x					
Total PCB TEQ											x					
Total TEQ											x					
Pesticides																
Aldrin							x									
alpha-Hexachlorocyclohexane							x									
beta-Hexachlorocyclohexane							x									
Dieldrin							x									
Endrin							x									
Endrin aldehyde							x									
Endrin ketone							x									
gamma-Hexachlorocyclohexane			x				x									
Heptachlor							x									
Heptachlor epoxide							x									
Methoxychlor											x				x	
Total Chlordane							x									
Total DDD							x									
Total DDE							x									
Total DDT							x									
Total Endosulfan	x				x	x										
Herbicides																
MCPP							x					x				
Volatile Organic Compounds																
Chlorobenzene							x									
Tetrachloroethene							x					x				
Trichloroethene			x				x						x			
Conventionals																
Perchlorate															x	

Notes:

a Chemical list includes chemicals of potential concern within the study area which have known toxicity endpoints.
b Blood vessels are included in the blood endpoint.
c Hair, nails, and sebaceous eyelid glands are included in skin endpoint.
d Adrenal and increased uric acid levels are included in the kidney endpoint.
e Forestomach is included in the gastrointestinal endpoint.
f Brain and ataxia are included in the CNS endpoint.
g Weight gain and weight loss are included in the weight change endpoint.
h Thyroid is included in the endocrine endpoint.
i Prostration is included in the lethargy endpoint.
j Noncancer hazard quotient for PCB congeners was evaluated separately as total PCB TEQ and total PCBs, adjusted ('total PCBs, adjusted' equals the difference of total PCB congeners and total dioxin-like PCB congeners).

Acronyms:

BHHRA = Baseline human health risk assessment.
CNS = Central Nervous System.
COPC = Chemical of Potential Concern.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.

TABLE 5-2.
Calculation of Cancer Risks and Noncancer Hazards - Dockside Worker, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
05B019	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	3.6E-08	3.6E-07	5.4E-08	5.5E-07	6.E-07	3.0E-04	3.0E-04	1.0E-07	1.0E-06	3.4E-04	3.4E-03	0.004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.4E+00	ug/kg	7.3E-01	7.3E-01	3.8E-10	8.9E-10	2.8E-10	6.5E-10	9.E-10	--	--	1.1E-09	2.5E-09	--	--	--
	Benzo(a)pyrene	4.2E+00	ug/kg	7.3E+00	7.3E+00	2.5E-10	5.9E-10	1.8E-09	4.3E-09	6.E-09	--	--	7.1E-10	1.6E-09	--	--	--
	Benzo(b)fluoranthene	7.3E+00	ug/kg	7.3E-01	7.3E-01	4.4E-10	1.0E-09	3.2E-10	7.4E-10	1.E-09	--	--	1.2E-09	2.9E-09	--	--	--
	Benzo(k)fluoranthene	7.5E+00	ug/kg	7.3E-02	7.3E-02	4.5E-10	1.0E-09	3.3E-11	7.7E-11	1.E-10	--	--	1.3E-09	2.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.2E+00	ug/kg	7.3E-01	7.3E-01	3.1E-10	7.3E-10	2.3E-10	5.3E-10	8.E-10	--	--	8.7E-10	2.0E-09	--	--	--
Exposure Point Total										6.E-07							0.004
06B025	**Metals**																
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	3.2E-08	3.2E-07	4.8E-08	4.8E-07	5.E-07	3.0E-04	3.0E-04	8.9E-08	9.0E-07	3.0E-04	3.0E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+04	ug/kg	7.3E-01	7.3E-01	1.7E-06	4.1E-06	1.3E-06	3.0E-06	4.E-06	--	--	4.9E-06	1.1E-05	--	--	--
	Benzo(a)pyrene	4.1E+04	ug/kg	7.3E+00	7.3E+00	2.5E-06	5.7E-06	1.8E-05	4.2E-05	6.E-05	--	--	6.9E-06	1.6E-05	--	--	--
	Benzo(b)fluoranthene	3.1E+04	ug/kg	7.3E-01	7.3E-01	1.9E-06	4.3E-06	1.4E-06	3.2E-06	5.E-06	--	--	5.2E-06	1.2E-05	--	--	--
	Benzo(k)fluoranthene	2.4E+04	ug/kg	7.3E-02	7.3E-02	1.4E-06	3.4E-06	1.1E-07	2.4E-07	3.E-07	--	--	4.0E-06	9.4E-06	--	--	--
	Dibenzo(a,h)anthracene	9.5E+03	ug/kg	7.3E+00	7.3E+00	5.7E-07	1.3E-06	4.2E-06	9.7E-06	1.E-05	--	--	1.6E-06	3.7E-06	--	--	--
	Indeno(1,2,3-cd)pyrene	3.1E+04	ug/kg	7.3E-01	7.3E-01	1.9E-06	4.3E-06	1.4E-06	3.2E-06	5.E-06	--	--	5.2E-06	1.2E-05	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+01	ug/kg	2.0E+00	2.0E+00	2.8E-09	6.1E-09	5.6E-09	1.2E-08	2.E-08	2.0E-05	2.0E-05	7.9E-09	1.7E-08	3.9E-04	8.5E-04	0.001
Exposure Point Total										9.E-05							0.005
06B029	**Metals**																
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	2.4E-08	2.4E-07	3.5E-08	3.6E-07	4.E-07	3.0E-04	3.0E-04	6.6E-08	6.7E-07	2.2E-04	2.2E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	8.4E-09	2.0E-08	6.1E-09	1.4E-08	2.E-08	--	--	2.4E-08	5.5E-08	--	--	--
	Benzo(a)pyrene	3.2E+02	ug/kg	7.3E+00	7.3E+00	1.9E-08	4.5E-08	1.4E-07	3.3E-07	5.E-07	--	--	5.4E-08	1.3E-07	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	3.5E-08	1.1E-08	2.6E-08	4.E-08	--	--	4.2E-08	9.8E-08	--	--	--
	Benzo(k)fluoranthene	2.2E+02	ug/kg	7.3E-02	7.3E-02	1.3E-08	3.1E-08	9.6E-10	2.2E-09	3.E-09	--	--	3.7E-08	8.6E-08	--	--	--
	Dibenzo(a,h)anthracene	5.9E+01	ug/kg	7.3E+00	7.3E+00	3.5E-09	8.2E-09	2.6E-08	6.0E-08	9.E-08	--	--	9.9E-09	2.3E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	3.6E-08	1.1E-08	2.7E-08	4.E-08	--	--	4.4E-08	1.0E-07	--	--	--
Exposure Point Total										1.E-06							0.002

[a] Cancer Risk Calculations and Noncancer Hazard Quotient Calculations

TABLE 5-2.
Calculation of Cancer Risks and Noncancer Hazards - Dockside Worker, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
07B022	**Metals**																
	Arsenic	2.0E+00	mg/kg	1.5E+00	1.5E+00	2.8E-08	2.8E-07	4.2E-08	4.2E-07	5.E-07	3.0E-04	3.0E-04	7.7E-08	7.8E-07	2.6E-04	2.6E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.5E+00	ug/kg	7.3E-01	7.3E-01	4.5E-10	1.0E-09	3.3E-10	7.7E-10	1.E-09	--	--	1.3E-09	2.9E-09	--	--	--
	Benzo(a)pyrene	7.1E+00	ug/kg	7.3E+00	7.3E+00	4.3E-10	9.9E-10	3.1E-09	7.2E-09	1.E-08	--	--	1.2E-09	2.8E-09	--	--	--
	Benzo(b)fluoranthene	6.3E+00	ug/kg	7.3E-01	7.3E-01	3.8E-10	8.8E-10	2.8E-10	6.4E-10	9.E-10	--	--	1.1E-09	2.5E-09	--	--	--
	Benzo(k)fluoranthene	7.1E+00	ug/kg	7.3E-02	7.3E-02	4.3E-10	9.9E-10	3.1E-11	7.2E-11	1.E-10	--	--	1.2E-09	2.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.3E+00	ug/kg	7.3E-01	7.3E-01	3.8E-10	8.8E-10	2.8E-10	6.4E-10	9.E-10	--	--	1.1E-09	2.5E-09	--	--	--
Exposure Point Total										5.E-07							0.003
08B032	**Metals**																
	Arsenic	2.2E+00	mg/kg	1.5E+00	1.5E+00	3.0E-08	3.1E-07	4.6E-08	4.6E-07	5.E-07	3.0E-04	3.0E-04	8.5E-08	8.6E-07	2.8E-04	2.9E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+01	ug/kg	7.3E-01	7.3E-01	7.8E-10	1.8E-09	5.7E-10	1.3E-09	2.E-09	--	--	2.2E-09	5.1E-09	--	--	--
	Benzo(a)pyrene	1.6E+01	ug/kg	7.3E+00	7.3E+00	9.6E-10	2.2E-09	7.0E-09	1.6E-08	2.E-08	--	--	2.7E-09	6.3E-09	--	--	--
	Benzo(b)fluoranthene	1.4E+01	ug/kg	7.3E-01	7.3E-01	8.4E-10	2.0E-09	6.1E-10	1.4E-09	2.E-09	--	--	2.4E-09	5.5E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+01	ug/kg	7.3E-02	7.3E-02	6.0E-10	1.4E-09	4.4E-11	1.0E-10	1.E-10	--	--	1.7E-09	3.9E-09	--	--	--
	Dibenzo(a,h)anthracene	1.9E+00	ug/kg	7.3E+00	7.3E+00	1.1E-10	2.7E-10	8.3E-10	1.9E-09	3.E-09	--	--	3.2E-10	7.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	7.8E-10	1.8E-09	5.7E-10	1.3E-09	2.E-09	--	--	2.2E-09	5.1E-09	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+01	ug/kg	2.0E+00	2.0E+00	1.2E-09	2.6E-09	2.4E-09	5.2E-09	8.E-09	2.0E-05	2.0E-05	3.4E-09	7.3E-09	1.7E-04	3.7E-04	0.001
Exposure Point Total										5.E-07							0.004
B002	**Metals**																
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	3.3E-08	3.4E-07	5.0E-08	5.0E-07	6.E-07	3.0E-04	3.0E-04	9.3E-08	9.4E-07	3.1E-04	3.1E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+00	ug/kg	7.3E-01	7.3E-01	2.3E-10	5.3E-10	1.7E-10	3.9E-10	6.E-10	--	--	6.4E-10	1.5E-09	--	--	--
	Benzo(a)pyrene	6.6E+00	ug/kg	7.3E+00	7.3E+00	4.0E-10	9.2E-10	2.9E-09	6.7E-09	1.E-08	--	--	1.1E-09	2.6E-09	--	--	--
	Benzo(b)fluoranthene	7.4E+00	ug/kg	7.3E-01	7.3E-01	4.4E-10	1.0E-09	3.2E-10	7.6E-10	1.E-09	--	--	1.2E-09	2.9E-09	--	--	--
	Benzo(k)fluoranthene	2.2E+00	ug/kg	7.3E-02	7.3E-02	1.3E-10	3.1E-10	9.6E-12	2.2E-11	3.E-11	--	--	3.7E-10	8.6E-10	--	--	--
	Dibenzo(a,h)anthracene	1.5E+00	ug/kg	7.3E+00	7.3E+00	9.0E-11	2.1E-10	6.6E-10	1.5E-09	2.E-09	--	--	2.5E-10	5.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	3.8E-10	8.9E-10	2.8E-10	6.5E-10	9.E-10	--	--	1.1E-09	2.5E-09	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+02	ug/kg	2.0E+00	2.0E+00	1.1E-08	2.3E-08	2.1E-08	4.6E-08	7.E-08	2.0E-05	2.0E-05	3.0E-08	6.5E-08	1.5E-03	3.2E-03	0.005
	Dioxin/Furan																
	Total PCB TEQ	3.8E+00	pg/g	1.3E+05	1.3E+05	2.4E-13	5.3E-13	3.2E-08	6.9E-08	1.E-07	1.0E-09	1.0E-09	6.8E-13	1.5E-12	6.8E-04	1.5E-03	0.002
Exposure Point Total										7.E-07							0.01

TABLE 5-2.
Calculation of Cancer Risks and Noncancer Hazards - Dockside Worker, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
B004	**Metals**																
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	3.7E-08	3.8E-07	5.6E-08	5.7E-07	6.E-07	3.0E-04	3.0E-04	1.0E-07	1.1E-06	3.5E-04	3.5E-03	0.004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+01	ug/kg	7.3E-01	7.3E-01	2.6E-09	6.0E-09	1.9E-09	4.4E-09	6.E-09	--	--	7.2E-09	1.7E-08	--	--	--
	Benzo(a)pyrene	8.2E+01	ug/kg	7.3E+00	7.3E+00	4.9E-09	1.1E-08	3.6E-08	8.4E-08	1.E-07	--	--	1.4E-08	3.2E-08	--	--	--
	Benzo(b)fluoranthene	9.9E+01	ug/kg	7.3E-01	7.3E-01	5.9E-09	1.4E-08	4.3E-09	1.0E-08	1.E-08	--	--	1.7E-08	3.9E-08	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	1.9E-09	4.3E-09	1.4E-10	3.2E-10	5.E-10	--	--	5.2E-09	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+01	ug/kg	7.3E+00	7.3E+00	7.8E-10	1.8E-09	5.7E-09	1.3E-08	2.E-08	--	--	2.2E-09	5.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	9.8E+01	ug/kg	7.3E-01	7.3E-01	5.9E-09	1.4E-08	4.3E-09	1.0E-08	1.E-08	--	--	1.6E-08	3.8E-08	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.6E+03	ug/kg	2.0E+00	2.0E+00	1.0E-07	2.2E-07	2.0E-07	4.4E-07	6.E-07	2.0E-05	2.0E-05	2.8E-07	6.1E-07	1.4E-02	3.1E-02	0.04
	Dioxin/Furan																
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	2.0E-12	4.4E-12	2.6E-07	5.7E-07	8.E-07	1.0E-09	1.0E-09	5.7E-12	1.2E-11	5.7E-03	1.2E-02	0.02
Exposure Point Total										2.E-06							0.07
B006	**Metals**																
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	3.5E-08	3.5E-07	5.2E-08	5.3E-07	6.E-07	3.0E-04	3.0E-04	9.8E-08	9.9E-07	3.3E-04	3.3E-03	0.004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+00	ug/kg	7.3E-01	7.3E-01	1.1E-10	2.5E-10	7.9E-11	1.8E-10	3.E-10	--	--	3.0E-10	7.0E-10	--	--	--
	Benzo(a)pyrene	1.3E+00	ug/kg	7.3E+00	7.3E+00	7.8E-11	1.8E-10	5.7E-10	1.3E-09	2.E-09	--	--	2.2E-10	5.1E-10	--	--	--
	Benzo(b)fluoranthene	3.1E+00	ug/kg	7.3E-01	7.3E-01	1.9E-10	4.3E-10	1.4E-10	3.2E-10	5.E-10	--	--	5.2E-10	1.2E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+00	ug/kg	7.3E-02	7.3E-02	6.6E-11	1.5E-10	4.8E-12	1.1E-11	2.E-11	--	--	1.8E-10	4.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+00	ug/kg	7.3E-01	7.3E-01	7.2E-11	1.7E-10	5.3E-11	1.2E-10	2.E-10	--	--	2.0E-10	4.7E-10	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	1.1E-09	2.4E-09	2.2E-09	4.8E-09	7.E-09	2.0E-05	2.0E-05	3.1E-09	6.8E-09	1.6E-04	3.4E-04	0.0005
Exposure Point Total										6.E-07							0.004

Notes:
a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-3.
Calculation of Cancer Risks and Noncancer Hazards - Dockside Worker, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
05B019	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	2.9E-08	1.7E-09	4.3E-08	4.E-08	3.0E-04	3.0E-04	8.9E-09	2.2E-07	3.0E-05	7.5E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.4E+00	ug/kg	7.3E-01	7.3E-01	1.2E-11	7.1E-11	8.9E-12	5.2E-11	6.E-11	--	--	9.5E-11	5.5E-10	--	--	--
	Benzo(a)pyrene	4.2E+00	ug/kg	7.3E+00	7.3E+00	8.0E-12	4.6E-11	5.8E-11	3.4E-10	4.E-10	--	--	6.2E-11	3.6E-10	--	--	--
	Benzo(b)fluoranthene	7.3E+00	ug/kg	7.3E-01	7.3E-01	1.4E-11	8.1E-11	1.0E-11	5.9E-11	7.E-11	--	--	1.1E-10	6.3E-10	--	--	--
	Benzo(k)fluoranthene	7.5E+00	ug/kg	7.3E-02	7.3E-02	1.4E-11	8.3E-11	1.0E-12	6.1E-12	7.E-12	--	--	1.1E-10	6.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.2E+00	ug/kg	7.3E-01	7.3E-01	9.9E-12	5.8E-11	7.2E-12	4.2E-11	5.E-11	--	--	7.7E-11	4.5E-10	--	--	--
Exposure Point Total										5.E-08							0.001
06B025	**Metals**																
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	2.5E-08	1.5E-09	3.8E-08	4.E-08	3.0E-04	3.0E-04	7.8E-09	2.0E-07	2.6E-05	6.6E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+04	ug/kg	7.3E-01	7.3E-01	5.5E-08	3.2E-07	4.0E-08	2.3E-07	3.E-07	--	--	4.3E-07	2.5E-06	--	--	--
	Benzo(a)pyrene	4.1E+04	ug/kg	7.3E+00	7.3E+00	7.8E-08	4.5E-07	5.7E-07	3.3E-06	4.E-06	--	--	6.1E-07	3.5E-06	--	--	--
	Benzo(b)fluoranthene	3.1E+04	ug/kg	7.3E-01	7.3E-01	5.9E-08	3.4E-07	4.3E-08	2.5E-07	3.E-07	--	--	4.6E-07	2.7E-06	--	--	--
	Benzo(k)fluoranthene	2.4E+04	ug/kg	7.3E-02	7.3E-02	4.6E-08	2.7E-07	3.3E-09	1.9E-08	2.E-08	--	--	3.5E-07	2.1E-06	--	--	--
	Dibenzo(a,h)anthracene	9.5E+03	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.1E-07	1.3E-07	7.7E-07	9.E-07	--	--	1.4E-07	8.2E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	3.1E+04	ug/kg	7.3E-01	7.3E-01	5.9E-08	3.4E-07	4.3E-08	2.5E-07	3.E-07	--	--	4.6E-07	2.7E-06	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+01	ug/kg	2.0E+00	2.0E+00	8.9E-11	4.8E-10	1.8E-10	9.6E-10	1.E-09	2.0E-05	2.0E-05	6.9E-10	3.7E-09	3.5E-05	1.9E-04	0.0002
Exposure Point Total										6.E-06							0.001
06B029	**Metals**																
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	7.5E-10	1.9E-08	1.1E-09	2.8E-08	3.E-08	3.0E-04	3.0E-04	5.8E-09	1.5E-07	1.9E-05	4.9E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.7E-10	1.5E-09	1.9E-10	1.1E-09	1.E-09	--	--	2.1E-09	1.2E-08	--	--	--
	Benzo(a)pyrene	3.2E+02	ug/kg	7.3E+00	7.3E+00	6.1E-10	3.5E-09	4.4E-09	2.6E-08	3.E-08	--	--	4.7E-09	2.8E-08	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	4.7E-10	2.8E-09	3.5E-10	2.0E-09	2.E-09	--	--	3.7E-09	2.2E-08	--	--	--
	Benzo(k)fluoranthene	2.2E+02	ug/kg	7.3E-02	7.3E-02	4.2E-10	2.4E-09	3.1E-11	1.8E-10	2.E-10	--	--	3.3E-09	1.9E-08	--	--	--
	Dibenzo(a,h)anthracene	5.9E+01	ug/kg	7.3E+00	7.3E+00	1.1E-10	6.5E-10	8.2E-10	4.8E-09	6.E-09	--	--	8.7E-10	5.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	4.9E-10	2.9E-09	3.6E-10	2.1E-09	2.E-09	--	--	3.8E-09	2.2E-08	--	--	--
Exposure Point Total										7.E-08							0.001

TABLE 5-3.
Calculation of Cancer Risks and Noncancer Hazards - Dockside Worker, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
07B022	**Metals**																
	Arsenic	2.0E+00	mg/kg	1.5E+00	1.5E+00	8.8E-10	2.2E-08	1.3E-09	3.3E-08	3.E-08	3.0E-04	3.0E-04	6.8E-09	1.7E-07	2.3E-05	5.7E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.5E+00	ug/kg	7.3E-01	7.3E-01	1.4E-11	8.3E-11	1.0E-11	6.1E-11	7.E-11	--	--	1.1E-10	6.5E-10	--	--	--
	Benzo(a)pyrene	7.1E+00	ug/kg	7.3E+00	7.3E+00	1.3E-11	7.9E-11	9.8E-11	5.7E-10	7.E-10	--	--	1.0E-10	6.1E-10	--	--	--
	Benzo(b)fluoranthene	6.3E+00	ug/kg	7.3E-01	7.3E-01	1.2E-11	7.0E-11	8.7E-12	5.1E-11	6.E-11	--	--	9.3E-11	5.4E-10	--	--	--
	Benzo(k)fluoranthene	7.1E+00	ug/kg	7.3E-02	7.3E-02	1.3E-11	7.9E-11	9.8E-13	5.7E-12	7.E-12	--	--	1.0E-10	6.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.3E+00	ug/kg	7.3E-01	7.3E-01	1.2E-11	7.0E-11	8.7E-12	5.1E-11	6.E-11	--	--	9.3E-11	5.4E-10	--	--	--
Exposure Point Total										4.E-08							0.001
08B032	**Metals**																
	Arsenic	2.2E+00	mg/kg	1.5E+00	1.5E+00	9.6E-10	2.4E-08	1.4E-09	3.7E-08	4.E-08	3.0E-04	3.0E-04	7.5E-09	1.9E-07	2.5E-05	6.3E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+01	ug/kg	7.3E-01	7.3E-01	2.5E-11	1.4E-10	1.8E-11	1.1E-10	1.E-10	--	--	1.9E-10	1.1E-09	--	--	--
	Benzo(a)pyrene	1.6E+01	ug/kg	7.3E+00	7.3E+00	3.0E-11	1.8E-10	2.2E-10	1.3E-09	2.E-09	--	--	2.4E-10	1.4E-09	--	--	--
	Benzo(b)fluoranthene	1.4E+01	ug/kg	7.3E-01	7.3E-01	2.7E-11	1.5E-10	1.9E-11	1.1E-10	1.E-10	--	--	2.1E-10	1.2E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+01	ug/kg	7.3E-02	7.3E-02	1.9E-11	1.1E-10	1.4E-12	8.1E-12	9.E-12	--	--	1.5E-10	8.6E-10	--	--	--
	Dibenzo(a,h)anthracene	1.9E+00	ug/kg	7.3E+00	7.3E+00	3.6E-12	2.1E-11	2.6E-11	1.5E-10	2.E-10	--	--	2.8E-11	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	2.5E-11	1.4E-10	1.8E-11	1.1E-10	1.E-10	--	--	1.9E-10	1.1E-09	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+01	ug/kg	2.0E+00	2.0E+00	3.8E-11	2.1E-10	7.7E-11	4.2E-10	5.E-10	2.0E-05	2.0E-05	3.0E-10	1.6E-09	1.5E-05	8.1E-05	0.0001
Exposure Point Total										4.E-08							0.001
B002	**Metals**																
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	2.7E-08	1.6E-09	4.0E-08	4.E-08	3.0E-04	3.0E-04	8.2E-09	2.1E-07	2.7E-05	6.9E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+00	ug/kg	7.3E-01	7.3E-01	7.2E-12	4.2E-11	5.3E-12	3.1E-11	4.E-11	--	--	5.6E-11	3.3E-10	--	--	--
	Benzo(a)pyrene	6.6E+00	ug/kg	7.3E+00	7.3E+00	1.3E-11	7.3E-11	9.2E-11	5.3E-10	6.E-10	--	--	9.8E-11	5.7E-10	--	--	--
	Benzo(b)fluoranthene	7.4E+00	ug/kg	7.3E-01	7.3E-01	1.4E-11	8.2E-11	1.0E-11	6.0E-11	7.E-11	--	--	1.1E-10	6.4E-10	--	--	--
	Benzo(k)fluoranthene	2.2E+00	ug/kg	7.3E-02	7.3E-02	4.2E-12	2.4E-11	3.1E-13	1.8E-12	2.E-12	--	--	3.3E-11	1.9E-10	--	--	--
	Dibenzo(a,h)anthracene	1.5E+00	ug/kg	7.3E+00	7.3E+00	2.8E-12	1.7E-11	2.1E-11	1.2E-10	1.E-10	--	--	2.2E-11	1.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	1.2E-11	7.1E-11	8.9E-12	5.2E-11	6.E-11	--	--	9.5E-11	5.5E-10	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+02	ug/kg	2.0E+00	2.0E+00	3.4E-10	1.8E-09	6.8E-10	3.7E-09	4.E-09	2.0E-05	2.0E-05	2.6E-09	1.4E-08	1.3E-04	7.1E-04	0.001
	Dioxin/Furan																
	Total PCB TEQ	3.8E+00	pg/g	1.3E+05	1.3E+05	7.7E-15	4.2E-14	1.0E-09	5.4E-09	6.E-09	1.0E-09	1.0E-09	6.0E-14	3.2E-13	6.0E-05	3.2E-04	0.0004
Exposure Point Total										5.E-08							0.002

TABLE 5-3.
Calculation of Cancer Risks and Noncancer Hazards - Dockside Worker, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
B004	**Metals**																
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	3.0E-08	1.8E-09	4.5E-08	5.E-08	3.0E-04	3.0E-04	9.2E-09	2.3E-07	3.1E-05	7.7E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+01	ug/kg	7.3E-01	7.3E-01	8.2E-11	4.8E-10	6.0E-11	3.5E-10	4.E-10	--	--	6.4E-10	3.7E-09	--	--	--
	Benzo(a)pyrene	8.2E+01	ug/kg	7.3E+00	7.3E+00	1.6E-10	9.1E-10	1.1E-09	6.6E-09	8.E-09	--	--	1.2E-09	7.1E-09	--	--	--
	Benzo(b)fluoranthene	9.9E+01	ug/kg	7.3E-01	7.3E-01	1.9E-10	1.1E-09	1.4E-10	8.0E-10	9.E-10	--	--	1.5E-09	8.5E-09	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	5.9E-11	3.4E-10	4.3E-12	2.5E-11	3.E-11	--	--	4.6E-10	2.7E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+01	ug/kg	7.3E+00	7.3E+00	2.5E-11	1.4E-10	1.8E-10	1.1E-09	1.E-09	--	--	1.9E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	9.8E+01	ug/kg	7.3E-01	7.3E-01	1.9E-10	1.1E-09	1.4E-10	7.9E-10	9.E-10	--	--	1.4E-09	8.4E-09	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.6E+03	ug/kg	2.0E+00	2.0E+00	3.2E-09	1.7E-08	6.4E-09	3.5E-08	4.E-08	2.0E-05	2.0E-05	2.5E-08	1.4E-07	1.2E-03	6.8E-03	0.008
	Dioxin/Furan																
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	6.4E-14	3.5E-13	8.3E-09	4.5E-08	5.E-08	1.0E-09	1.0E-09	5.0E-13	2.7E-12	5.0E-04	2.7E-03	0.003
Exposure Point Total										2.E-07							0.01
B006	**Metals**																
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	2.8E-08	1.7E-09	4.2E-08	4.E-08	3.0E-04	3.0E-04	8.6E-09	2.2E-07	2.9E-05	7.2E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+00	ug/kg	7.3E-01	7.3E-01	3.4E-12	2.0E-11	2.5E-12	1.5E-11	2.E-11	--	--	2.7E-11	1.5E-10	--	--	--
	Benzo(a)pyrene	1.3E+00	ug/kg	7.3E+00	7.3E+00	2.5E-12	1.4E-11	1.8E-11	1.1E-10	1.E-10	--	--	1.9E-11	1.1E-10	--	--	--
	Benzo(b)fluoranthene	3.1E+00	ug/kg	7.3E-01	7.3E-01	5.9E-12	3.4E-11	4.3E-12	2.5E-11	3.E-11	--	--	4.6E-11	2.7E-10	--	--	--
	Benzo(k)fluoranthene	1.1E+00	ug/kg	7.3E-02	7.3E-02	2.1E-12	1.2E-11	1.5E-13	8.9E-13	1.E-12	--	--	1.6E-11	9.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+00	ug/kg	7.3E-01	7.3E-01	2.3E-12	1.3E-11	1.7E-12	9.7E-12	1.E-11	--	--	1.8E-11	1.0E-10	--	--	--
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	3.5E-11	1.9E-10	7.1E-11	3.8E-10	5.E-10	2.0E-05	2.0E-05	2.8E-10	1.5E-09	1.4E-05	7.4E-05	0.0001
Exposure Point Total										4.E-08							0.001

Notes:
a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-4.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	9.7E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.4E-02	0.0E+00	3.4E-02	0.03
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	4.0E-08	1.6E-07	6.0E-08	2.3E-07	3.E-07	3.0E-04	3.0E-04	1.4E-06	5.4E-06	4.6E-03	1.8E-02	0.02
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.1E-05	0.0E+00	1.0E-03	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	5.6E-10	5.1E-10	4.1E-10	3.7E-10	8.E-10	--	--	2.0E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	7.2E-10	6.4E-10	5.2E-09	4.7E-09	1.E-08	--	--	2.5E-08	2.3E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	9.1E-10	8.2E-10	6.6E-10	6.0E-10	1.E-09	--	--	3.2E-08	2.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	1.5E-09	1.3E-09	1.1E-09	9.5E-10	2.E-09	--	--	5.1E-08	4.6E-08	--	--	--
Exposure Point Total										3.E-07							0.06
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	1.8E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.3E-02	0.0E+00	6.3E-02	0.06
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	6.7E-08	2.6E-07	1.0E-07	3.9E-07	5.E-07	3.0E-04	3.0E-04	2.3E-06	9.1E-06	7.8E-03	3.0E-02	0.04
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	1.9E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.5E-05	0.0E+00	1.6E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-09	3.1E-09	2.5E-09	2.3E-09	5.E-09	--	--	1.2E-07	1.1E-07	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	4.8E-09	4.3E-09	3.5E-08	3.2E-08	7.E-08	--	--	1.7E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	3.2E-09	2.9E-09	2.3E-09	2.1E-09	4.E-09	--	--	1.1E-07	1.0E-07	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	1.1E-09	9.8E-10	7.9E-09	7.2E-09	2.E-08	--	--	3.8E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	4.3E-09	3.8E-09	3.1E-09	2.8E-09	6.E-09	--	--	1.5E-07	1.3E-07	--	--	--
Exposure Point Total										6.E-07							0.1
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.4E-02	0.0E+00	4.4E-02	0.04
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.4E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	8.6E-07	0.0E+00	2.1E-03	0.002
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	5.4E-08	2.1E-07	8.2E-08	3.2E-07	4.E-07	3.0E-04	3.0E-04	1.9E-06	7.4E-06	6.4E-03	2.5E-02	0.03
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-04	0.0E+00	3.1E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	4.4E-10	3.9E-10	3.2E-10	2.9E-10	6.E-10	--	--	1.5E-08	1.4E-08	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	4.0E-10	3.6E-10	2.9E-09	2.6E-09	6.E-09	--	--	1.4E-08	1.3E-08	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	5.1E-10	4.6E-10	3.7E-10	3.3E-10	7.E-10	--	--	1.8E-08	1.6E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	4.4E-10	3.9E-10	3.2E-10	2.9E-10	6.E-10	--	--	1.5E-08	1.4E-08	--	--	--
Exposure Point Total										4.E-07							0.08

TABLE 5-4.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	8.2E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.9E-02	0.0E+00	2.9E-02	0.03
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.4E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	8.6E-07	0.0E+00	2.1E-03	0.002
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	1.5E-08	5.7E-08	2.2E-08	8.6E-08	1.E-07	3.0E-04	3.0E-04	5.1E-07	2.0E-06	1.7E-03	6.7E-03	0.008
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	5.7E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-04	0.0E+00	5.0E-03	0.005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	1.3E-09	1.1E-09	9.3E-10	8.3E-10	2.E-09	--	--	4.4E-08	4.0E-08	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	1.4E-09	1.2E-09	9.9E-09	8.9E-09	2.E-08	--	--	4.8E-08	4.3E-08	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	1.1E-09	9.8E-10	7.9E-10	7.2E-10	2.E-09	--	--	3.8E-08	3.4E-08	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	2.3E-10	2.0E-10	1.7E-09	1.5E-09	3.E-09	--	--	7.9E-09	7.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.1E-09	8.6E-10	7.7E-10	2.E-09	--	--	4.1E-08	3.7E-08	--	--	--
Exposure Point Total										1.E-07							0.04
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.2E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.3E-02	0.0E+00	4.3E-02	0.04
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	3.2E-08	1.3E-07	4.9E-08	1.9E-07	2.E-07	3.0E-04	3.0E-04	1.1E-06	4.4E-06	3.8E-03	1.5E-02	0.02
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	1.7E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	5.9E-05	0.0E+00	1.5E-03	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	4.1E-09	3.7E-09	3.0E-09	2.7E-09	6.E-09	--	--	1.4E-07	1.3E-07	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	4.8E-09	4.3E-09	3.5E-08	3.2E-08	7.E-08	--	--	1.7E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	5.6E-09	5.1E-09	4.1E-09	3.7E-09	8.E-09	--	--	2.0E-07	1.8E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	2.1E-09	1.9E-09	1.5E-09	1.4E-09	3.E-09	--	--	7.3E-08	6.6E-08	--	--	--
Exposure Point Total										3.E-07							0.06
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	9.2E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.2E-02	0.0E+00	3.2E-02	0.03
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	5.0E-08	2.0E-07	7.5E-08	2.9E-07	4.E-07	3.0E-04	3.0E-04	1.8E-06	6.9E-06	5.9E-03	2.3E-02	0.03
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	1.5E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	5.2E-05	0.0E+00	1.3E-03	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	1.9E-10	1.7E-10	1.4E-10	1.3E-10	3.E-10	--	--	6.7E-09	6.0E-09	--	--	--
Exposure Point Total										4.E-07							0.06

TABLE 5-4.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
09B027	**Metals**																
	Aluminum	2.0E+04	mg/kg	--	--	0.0E+00	1.6E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.7E-02	0.0E+00	5.7E-02	0.06
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	1.6E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	5.7E-07	0.0E+00	1.4E-03	0.001
	Arsenic	1.4E+00	mg/kg	1.5E+00	1.5E+00	2.9E-08	1.1E-07	4.4E-08	1.7E-07	2.E-07	3.0E-04	3.0E-04	1.0E-06	4.0E-06	3.4E-03	1.3E-02	0.02
	Copper	2.4E+01	mg/kg	--	--	0.0E+00	2.0E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.9E-05	0.0E+00	1.7E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.8E+00	ug/kg	7.3E-01	7.3E-01	8.9E-10	8.0E-10	6.5E-10	5.8E-10	1.E-09	--	--	3.1E-08	2.8E-08	--	--	--
	Benzo(a)pyrene	9.0E+00	ug/kg	7.3E+00	7.3E+00	8.2E-10	7.3E-10	6.0E-09	5.4E-09	1.E-08	--	--	2.9E-08	2.6E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	9.4E-10	8.5E-10	6.9E-10	6.2E-10	1.E-09	--	--	3.3E-08	3.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	6.6E+00	ug/kg	7.3E-01	7.3E-01	6.0E-10	5.4E-10	4.4E-10	3.9E-10	8.E-10	--	--	2.1E-08	1.9E-08	--	--	--
Exposure Point Total										2.E-07							0.08

Notes:
a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-5.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	6.1E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.3E-03	0.0E+00	4.3E-03	0.004
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	2.3E-09	9.7E-09	3.5E-09	1.5E-08	2.E-08	3.0E-04	3.0E-04	1.6E-07	6.8E-07	5.4E-04	2.3E-03	0.003
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	7.4E-08	--	--	--	4.0E-02	4.0E-02	0.0E+00	5.2E-06	0.0E+00	1.3E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	3.3E-11	3.2E-11	2.4E-11	2.3E-11	5.E-11	--	--	2.3E-09	2.2E-09	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	4.2E-11	4.0E-11	3.1E-10	3.0E-10	6.E-10	--	--	2.9E-09	2.8E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	5.3E-11	5.1E-11	3.9E-11	3.7E-11	8.E-11	--	--	3.7E-09	3.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	8.5E-11	8.2E-11	6.2E-11	6.0E-11	1.E-10	--	--	5.9E-09	5.7E-09	--	--	--
Exposure Point Total										2.E-08							0.007
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	1.1E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.9E-03	0.0E+00	7.9E-03	0.008
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	3.9E-09	1.6E-08	5.9E-09	2.5E-08	3.E-08	3.0E-04	3.0E-04	2.7E-07	1.1E-06	9.1E-04	3.8E-03	0.005
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	8.2E-06	0.0E+00	2.0E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	2.0E-10	1.9E-10	1.5E-10	1.4E-10	3.E-10	--	--	1.4E-08	1.4E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	2.8E-10	2.7E-10	2.1E-09	2.0E-09	4.E-09	--	--	2.0E-08	1.9E-08	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	1.9E-10	1.8E-10	1.4E-10	1.3E-10	3.E-10	--	--	1.3E-08	1.3E-08	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	6.4E-11	6.1E-11	4.6E-10	4.5E-10	9.E-10	--	--	4.5E-09	4.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	2.5E-10	2.4E-10	1.8E-10	1.8E-10	4.E-10	--	--	1.7E-08	1.7E-08	--	--	--
Exposure Point Total										4.E-08							0.01
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	7.9E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.5E-03	0.0E+00	5.5E-03	0.006
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	1.5E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.1E-07	0.0E+00	2.7E-04	0.0003
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	3.2E-09	1.3E-08	4.8E-09	2.0E-08	2.E-08	3.0E-04	3.0E-04	2.2E-07	9.3E-07	7.4E-04	3.1E-03	0.004
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	2.2E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.8E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	2.5E-11	2.5E-11	1.9E-11	1.8E-11	4.E-11	--	--	1.8E-09	1.7E-09	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	2.3E-11	2.3E-11	1.7E-10	1.6E-10	3.E-10	--	--	1.6E-09	1.6E-09	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	3.0E-11	2.9E-11	2.2E-11	2.1E-11	4.E-11	--	--	2.1E-09	2.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	2.5E-11	2.5E-11	1.9E-11	1.8E-11	4.E-11	--	--	1.8E-09	1.7E-09	--	--	--
Exposure Point Total										3.E-08							0.01

TABLE 5-5.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	5.2E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.6E-03	0.0E+00	3.6E-03	0.004
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	1.5E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.1E-07	0.0E+00	2.7E-04	0.0003
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	8.6E-10	3.6E-09	1.3E-09	5.4E-09	7.E-09	3.0E-04	3.0E-04	6.0E-08	2.5E-07	2.0E-04	8.4E-04	0.001
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.5E-05	0.0E+00	6.2E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	7.4E-11	7.2E-11	5.4E-11	5.2E-11	1.E-10	--	--	5.2E-09	5.0E-09	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	8.0E-11	7.7E-11	5.8E-10	5.6E-10	1.E-09	--	--	5.6E-09	5.4E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	6.4E-11	6.1E-11	4.6E-11	4.5E-11	9.E-11	--	--	4.5E-09	4.3E-09	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	1.3E-11	1.3E-11	9.7E-11	9.3E-11	2.E-10	--	--	9.3E-10	9.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	6.9E-11	6.7E-11	5.0E-11	4.9E-11	1.E-10	--	--	4.8E-09	4.7E-09	--	--	--
Exposure Point Total										8.E-09							0.006
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	7.8E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.4E-03	0.0E+00	5.4E-03	0.005
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	1.9E-09	7.9E-09	2.8E-09	1.2E-08	1.E-08	3.0E-04	3.0E-04	1.3E-07	5.6E-07	4.4E-04	1.9E-03	0.002
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.4E-06	0.0E+00	1.8E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	2.4E-10	2.3E-10	1.7E-10	1.7E-10	3.E-10	--	--	1.7E-08	1.6E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	2.8E-10	2.7E-10	2.1E-09	2.0E-09	4.E-09	--	--	2.0E-08	1.9E-08	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	3.3E-10	3.2E-10	2.4E-10	2.3E-10	5.E-10	--	--	2.3E-08	2.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.2E-10	8.9E-11	8.6E-11	2.E-10	--	--	8.5E-09	8.2E-09	--	--	--
Exposure Point Total										2.E-08							0.008
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	5.8E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.0E-03	0.0E+00	4.0E-03	0.004
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	2.9E-09	1.2E-08	4.4E-09	1.8E-08	2.E-08	3.0E-04	3.0E-04	2.1E-07	8.6E-07	6.9E-04	2.9E-03	0.004
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	9.4E-08	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.6E-06	0.0E+00	1.6E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	1.1E-11	1.1E-11	8.1E-12	7.8E-12	2.E-11	--	--	7.8E-10	7.5E-10	--	--	--
Exposure Point Total										2.E-08							0.008

TABLE 5-5.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
09B027	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	9.4E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.6E-03	0.0E+00	6.6E-03	0.007
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	1.0E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	7.2E-08	0.0E+00	1.8E-04	0.0002
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	6.8E-09	2.4E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	1.1E-07	4.8E-07	3.8E-04	1.6E-03	0.002
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	8.2E-06	0.0E+00	2.0E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+00	ug/kg	7.3E-01	7.3E-01	4.1E-11	3.9E-11	3.0E-11	2.9E-11	6.E-11	--	--	2.9E-09	2.8E-09	--	--	--
	Benzo(a)pyrene	7.0E+00	ug/kg	7.3E+00	7.3E+00	3.7E-11	3.6E-11	2.7E-10	2.6E-10	5.E-10	--	--	2.6E-09	2.5E-09	--	--	--
	Benzo(b)fluoranthene	8.8E+00	ug/kg	7.3E-01	7.3E-01	4.7E-11	4.5E-11	3.4E-11	3.3E-11	7.E-11	--	--	3.3E-09	3.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+00	ug/kg	7.3E-01	7.3E-01	3.0E-11	2.9E-11	2.2E-11	2.1E-11	4.E-11	--	--	2.1E-09	2.0E-09	--	--	--
Exposure Point Total										1.E-08							0.009

Notes:
a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-6.
Calculation of Noncancer Hazards - Child Recreational Beach User, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B031	**Metals**									
	Aluminum	2.2E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	7.6E-02	0.0E+00	7.6E-02	0.1
	Arsenic	3.2E+00	mg/kg	3.0E-04	3.0E-04	1.5E-05	1.1E-05	5.1E-02	3.7E-02	0.1
	Copper	2.3E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	7.8E-05	0.0E+00	2.0E-03	0.002
Exposure Point Total										0.2
03B033	**Metals**									
	Aluminum	1.4E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	4.8E-02	0.0E+00	4.8E-02	0.05
	Arsenic	4.0E+00	mg/kg	3.0E-04	3.0E-04	1.9E-05	1.4E-05	6.3E-02	4.6E-02	0.1
	Copper	1.6E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	5.4E-05	0.0E+00	1.4E-03	0.001
Exposure Point Total										0.2
04B023	**Metals**									
	Aluminum	1.2E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	4.2E-02	0.0E+00	4.2E-02	0.04
	Antimony	3.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	1.0E-06	0.0E+00	2.6E-03	0.003
	Arsenic	2.7E+00	mg/kg	3.0E-04	3.0E-04	1.3E-05	9.3E-06	4.3E-02	3.1E-02	0.1
	Copper	3.3E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.1E-04	0.0E+00	2.9E-03	0.003
Exposure Point Total										0.1
04B024	**Metals**									
	Aluminum	2.1E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	7.2E-02	0.0E+00	7.2E-02	0.1
	Antimony	1.3E+01	mg/kg	6.0E-05	4.0E-04	0.0E+00	4.5E-05	0.0E+00	1.1E-01	0.1
	Arsenic	4.7E+00	mg/kg	3.0E-04	3.0E-04	2.2E-05	1.6E-05	7.5E-02	5.4E-02	0.1
	Copper	1.9E+02	mg/kg	4.0E-02	4.0E-02	0.0E+00	6.7E-04	0.0E+00	1.7E-02	0.02
Exposure Point Total										0.3
05B018	**Metals**									
	Aluminum	1.9E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	6.5E-02	0.0E+00	6.5E-02	0.1
	Antimony	2.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	6.9E-07	0.0E+00	1.7E-03	0.002
	Arsenic	2.4E+00	mg/kg	3.0E-04	3.0E-04	1.1E-05	8.2E-06	3.8E-02	2.7E-02	0.1
	Copper	1.1E+02	mg/kg	4.0E-02	4.0E-02	0.0E+00	3.7E-04	0.0E+00	9.3E-03	0.01
Exposure Point Total										0.1

TABLE 5-6.
Calculation of Noncancer Hazards - Child Recreational Beach User, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
06B022	**Metals**									
	Aluminum	1.5E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	5.3E-02	0.0E+00	5.3E-02	0.1
	Antimony	3.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	1.0E-06	0.0E+00	2.6E-03	0.003
	Arsenic	2.6E+00	mg/kg	3.0E-04	3.0E-04	1.2E-05	8.9E-06	4.1E-02	3.0E-02	0.1
	Copper	4.3E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.5E-04	0.0E+00	3.7E-03	0.004
Exposure Point Total										0.1
06B026	**Metals**									
	Aluminum	1.2E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	4.2E-02	0.0E+00	4.2E-02	0.04
	Antimony	8.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	2.7E-06	0.0E+00	6.9E-03	0.01
	Arsenic	1.7E+00	mg/kg	3.0E-04	3.0E-04	8.1E-06	5.8E-06	2.7E-02	1.9E-02	0.05
	Copper	2.0E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	6.8E-05	0.0E+00	1.7E-03	0.002
Exposure Point Total										0.1
06B030	**Metals**									
	Aluminum	1.8E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	6.0E-02	0.0E+00	6.0E-02	0.1
	Arsenic	9.9E+00	mg/kg	3.0E-04	3.0E-04	4.7E-05	3.4E-05	1.6E-01	1.1E-01	0.3
	Copper	6.1E+02	mg/kg	4.0E-02	4.0E-02	0.0E+00	2.1E-03	0.0E+00	5.2E-02	0.1
Exposure Point Total										0.4
09B024	**Metals**									
	Aluminum	1.5E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	5.3E-02	0.0E+00	5.3E-02	0.1
	Arsenic	1.1E+00	mg/kg	3.0E-04	3.0E-04	5.2E-06	3.8E-06	1.7E-02	1.3E-02	0.03
	Copper	1.8E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	6.2E-05	0.0E+00	1.6E-03	0.002
Exposure Point Total										0.1
09B026	**Metals**									
	Aluminum	1.1E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	3.9E-02	0.0E+00	3.9E-02	0.04
	Arsenic	2.4E+00	mg/kg	3.0E-04	3.0E-04	1.1E-05	8.2E-06	3.8E-02	2.7E-02	0.1
	Copper	1.8E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	6.3E-05	0.0E+00	1.6E-03	0.002
Exposure Point Total										0.1
09B027	**Metals**									
	Aluminum	2.0E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	6.8E-02	0.0E+00	6.8E-02	0.1
	Antimony	2.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	6.9E-07	0.0E+00	1.7E-03	0.002
	Arsenic	1.4E+00	mg/kg	3.0E-04	3.0E-04	6.7E-06	4.8E-06	2.2E-02	1.6E-02	0.04
	Copper	2.4E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	8.2E-05	0.0E+00	2.1E-03	0.002
Exposure Point Total										0.1

TABLE 5-6.
Calculation of Noncancer Hazards - Child Recreational Beach User, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
09B028	**Metals**									
	Aluminum	1.6E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	5.5E-02	0.0E+00	5.5E-02	0.1
	Arsenic	1.3E+00	mg/kg	3.0E-04	3.0E-04	6.2E-06	4.5E-06	2.1E-02	1.5E-02	0.04
	Copper	1.9E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	6.5E-05	0.0E+00	1.6E-03	0.002
Exposure Point Total										0.1
B001	**Metals**									
	Aluminum	1.6E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	5.6E-02	0.0E+00	5.6E-02	0.1
	Arsenic	2.3E+00	mg/kg	3.0E-04	3.0E-04	1.1E-05	7.7E-06	3.6E-02	2.6E-02	0.1
	Copper	1.9E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	6.6E-05	0.0E+00	1.7E-03	0.002
Exposure Point Total										0.1
B003	**Metals**									
	Aluminum	1.9E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	6.5E-02	0.0E+00	6.5E-02	0.1
	Arsenic	2.5E+00	mg/kg	3.0E-04	3.0E-04	1.2E-05	8.7E-06	4.0E-02	2.9E-02	0.1
	Copper	2.0E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	6.8E-05	0.0E+00	1.7E-03	0.002
Exposure Point Total										0.1
B005	**Metals**									
	Aluminum	1.5E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	5.0E-02	0.0E+00	5.0E-02	0.1
	Arsenic	3.3E+00	mg/kg	3.0E-04	3.0E-04	1.6E-05	1.1E-05	5.2E-02	3.7E-02	0.1
	Copper	1.4E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	4.9E-05	0.0E+00	1.2E-03	0.001
Exposure Point Total										0.1

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
mg/kg = milligram per kilogram
RfD = Reference Dose

TABLE 5-7.
Calculation of Noncancer Hazards - Child Recreational Beach User, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B031	**Metals**									
	Aluminum	2.2E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.02
	Arsenic	3.2E+00	mg/kg	3.0E-04	3.0E-04	3.7E-07	2.2E-06	1.2E-03	7.4E-03	0.01
	Copper	2.3E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.6E-05	0.0E+00	4.0E-04	0.0004
Exposure Point Total										0.02
03B033	**Metals**									
	Aluminum	1.4E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	9.7E-03	0.0E+00	9.7E-03	0.01
	Arsenic	4.0E+00	mg/kg	3.0E-04	3.0E-04	4.7E-07	2.8E-06	1.6E-03	9.3E-03	0.01
	Copper	1.6E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.1E-05	0.0E+00	2.7E-04	0.0003
Exposure Point Total										0.02
04B023	**Metals**									
	Aluminum	1.2E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	8.5E-03	0.0E+00	8.5E-03	0.01
	Antimony	3.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	2.1E-07	0.0E+00	5.2E-04	0.001
	Arsenic	2.7E+00	mg/kg	3.0E-04	3.0E-04	3.1E-07	1.9E-06	1.0E-03	6.2E-03	0.01
	Copper	3.3E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	2.3E-05	0.0E+00	5.8E-04	0.001
Exposure Point Total										0.02
04B024	**Metals**									
	Aluminum	2.1E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.01
	Antimony	1.3E+01	mg/kg	6.0E-05	4.0E-04	0.0E+00	9.0E-06	0.0E+00	2.3E-02	0.02
	Arsenic	4.7E+00	mg/kg	3.0E-04	3.0E-04	5.5E-07	3.3E-06	1.8E-03	1.1E-02	0.01
	Copper	1.9E+02	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.3E-04	0.0E+00	3.4E-03	0.003
Exposure Point Total										0.05
05B018	**Metals**									
	Aluminum	1.9E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.3E-02	0.0E+00	1.3E-02	0.01
	Antimony	2.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	1.4E-07	0.0E+00	3.5E-04	0.0003
	Arsenic	2.4E+00	mg/kg	3.0E-04	3.0E-04	2.8E-07	1.7E-06	9.3E-04	5.6E-03	0.01
	Copper	1.1E+02	mg/kg	4.0E-02	4.0E-02	0.0E+00	7.5E-05	0.0E+00	1.9E-03	0.002
Exposure Point Total										0.02

TABLE 5-7.
Calculation of Noncancer Hazards - Child Recreational Beach User, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
06B022	**Metals**									
	Aluminum	1.5E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.1E-02	0.0E+00	1.1E-02	0.01
	Antimony	3.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	2.1E-07	0.0E+00	5.2E-04	0.001
	Arsenic	2.6E+00	mg/kg	3.0E-04	3.0E-04	3.0E-07	1.8E-06	1.0E-03	6.0E-03	0.01
	Copper	4.3E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	3.0E-05	0.0E+00	7.4E-04	0.001
Exposure Point Total										0.02
06B026	**Metals**									
	Aluminum	1.2E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	8.5E-03	0.0E+00	8.5E-03	0.01
	Antimony	8.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	5.6E-07	0.0E+00	1.4E-03	0.001
	Arsenic	1.7E+00	mg/kg	3.0E-04	3.0E-04	2.0E-07	1.2E-06	6.6E-04	3.9E-03	0.005
	Copper	2.0E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.4E-05	0.0E+00	3.5E-04	0.0003
Exposure Point Total										0.01
06B030	**Metals**									
	Aluminum	1.8E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.2E-02	0.0E+00	1.2E-02	0.01
	Arsenic	9.9E+00	mg/kg	3.0E-04	3.0E-04	1.2E-06	6.9E-06	3.8E-03	2.3E-02	0.03
	Copper	6.1E+02	mg/kg	4.0E-02	4.0E-02	0.0E+00	4.2E-04	0.0E+00	1.1E-02	0.01
Exposure Point Total										0.05
09B024	**Metals**									
	Aluminum	1.5E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.1E-02	0.0E+00	1.1E-02	0.01
	Arsenic	1.1E+00	mg/kg	3.0E-04	3.0E-04	1.3E-07	7.6E-07	4.3E-04	2.5E-03	0.003
	Copper	1.8E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.3E-05	0.0E+00	3.2E-04	0.0003
Exposure Point Total										0.01
09B026	**Metals**									
	Aluminum	1.1E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	7.8E-03	0.0E+00	7.8E-03	0.01
	Arsenic	2.4E+00	mg/kg	3.0E-04	3.0E-04	2.8E-07	1.7E-06	9.3E-04	5.6E-03	0.01
	Copper	1.8E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.3E-05	0.0E+00	3.2E-04	0.0003
Exposure Point Total										0.01

TABLE 5-7.
Calculation of Noncancer Hazards - Child Recreational Beach User, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
09B027	**Metals**									
	Aluminum	1.8E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.3E-02	0.0E+00	1.3E-02	0.01
	Antimony	2.0E-01	mg/kg	6.0E-05	4.0E-04	0.0E+00	1.4E-07	0.0E+00	3.5E-04	0.0003
	Arsenic	1.3E+00	mg/kg	3.0E-04	3.0E-04	1.6E-07	9.3E-07	5.2E-04	3.1E-03	0.004
	Copper	2.3E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.6E-05	0.0E+00	4.0E-04	0.0004
Exposure Point Total										0.02
09B028	**Metals**									
	Aluminum	1.6E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.1E-02	0.0E+00	1.1E-02	0.01
	Arsenic	1.3E+00	mg/kg	3.0E-04	3.0E-04	1.5E-07	9.0E-07	5.1E-04	3.0E-03	0.004
	Copper	1.9E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.3E-05	0.0E+00	3.3E-04	0.0003
Exposure Point Total										0.01
B001	**Metals**									
	Aluminum	1.6E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.1E-02	0.0E+00	1.1E-02	0.01
	Arsenic	2.3E+00	mg/kg	3.0E-04	3.0E-04	2.6E-07	1.6E-06	8.7E-04	5.2E-03	0.01
	Copper	1.9E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.3E-05	0.0E+00	3.3E-04	0.0003
Exposure Point Total										0.02
B003	**Metals**									
	Aluminum	1.9E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.3E-02	0.0E+00	1.3E-02	0.01
	Arsenic	2.5E+00	mg/kg	3.0E-04	3.0E-04	3.0E-07	1.8E-06	9.9E-04	5.9E-03	0.01
	Copper	2.0E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.4E-05	0.0E+00	3.4E-04	0.0003
Exposure Point Total										0.02
B005	**Metals**									
	Aluminum	1.5E+04	mg/kg	1.0E+00	1.0E+00	0.0E+00	1.0E-02	0.0E+00	1.0E-02	0.01
	Arsenic	3.3E+00	mg/kg	3.0E-04	3.0E-04	3.8E-07	2.3E-06	1.3E-03	7.5E-03	0.01
	Copper	1.4E+01	mg/kg	4.0E-02	4.0E-02	0.0E+00	1.0E-05	0.0E+00	2.5E-04	0.0002
Exposure Point Total										0.02

Notes:
a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
mg/kg = milligram per kilogram
RfD = Reference Dose

TABLE 5-8.
Calculation of Cancer Risks - Combined Adult/Child Recreational Beach User, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Combined Adult/Child Recreational Beach User
Population Age: Adult (age-adjusted)

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Adult Total Cancer Risk[a]	Child Total Cancer Risk[a]	Combined Adult and Child Cancer Risk[a,b]
03B031	**Metals**					
	Arsenic	3.2E+00	mg/kg	1.E-06	3.E-06	4E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	3.8E+01	ug/kg	1.E-08	3.E-07	3E-07
	Benzo(a)pyrene	5.3E+01	ug/kg	2.E-07	4.E-06	5E-06
	Benzo(b)fluoranthene	3.5E+01	ug/kg	1.E-08	3.E-07	3E-07
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	4.E-08	1.E-06	1E-06
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	2.E-08	4.E-07	4E-07
Exposure Point Total				1.E-06	1.E-05	1.E-05
03B033	**Metals**					
	Arsenic	4.0E+00	mg/kg	1.E-06	4.E-06	5E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	5.2E+00	ug/kg	2.E-09	4.E-08	4E-08
	Benzo(a)pyrene	5.2E+00	ug/kg	2.E-08	4.E-07	4E-07
	Benzo(b)fluoranthene	5.2E+00	ug/kg	2.E-09	4.E-08	4E-08
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	2.E-09	5.E-08	5E-08
Exposure Point Total				1.E-06	5.E-06	6E-06
04B023	**Metals**					
	Arsenic	2.7E+00	mg/kg	1.E-06	3.E-06	4E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	2.6E+01	ug/kg	1.E-08	2.E-07	2E-07
	Benzo(a)pyrene	4.2E+01	ug/kg	2.E-07	3.E-06	4E-06
	Benzo(b)fluoranthene	3.3E+01	ug/kg	1.E-08	3.E-07	3E-07
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	5.E-08	1.E-06	1E-06
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	1.E-08	3.E-07	3E-07
Exposure Point Total				1.E-06	8.E-06	9E-06
04B024	**Metals**					
	Arsenic	4.7E+00	mg/kg	2.E-06	5.E-06	6E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	1.8E+02	ug/kg	7.E-08	1.E-06	2E-06
	Benzo(a)pyrene	3.6E+02	ug/kg	1.E-06	3.E-05	3E-05
	Benzo(b)fluoranthene	3.0E+02	ug/kg	1.E-07	2.E-06	3E-06
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	9.E-08	2.E-06	2E-06
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	8.E-08	2.E-06	2E-06
Exposure Point Total				3.E-06	4.E-05	5E-05
05B018	**Metals**					
	Arsenic	2.4E+00	mg/kg	9.E-07	3.E-06	3E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	7.2E+01	ug/kg	3.E-08	6.E-07	6E-07
	Benzo(a)pyrene	8.6E+01	ug/kg	3.E-07	7.E-06	7E-06
	Benzo(b)fluoranthene	1.0E+02	ug/kg	4.E-08	8.E-07	9E-07
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	1.E-07	2.E-06	2E-06
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	1.E-08	3.E-07	3E-07
Exposure Point Total				1.E-06	1.E-05	1E-05
06B022	**Metals**					
	Arsenic	2.6E+00	mg/kg	9.E-07	3.E-06	3E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	4.8E+00	ug/kg	2.E-09	4.E-08	4E-08
	Benzo(a)pyrene	4.4E+00	ug/kg	2.E-08	4.E-07	4E-07
	Benzo(b)fluoranthene	5.6E+00	ug/kg	2.E-09	4.E-08	5E-08
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	2.E-09	4.E-08	4E-08
Exposure Point Total				1.E-06	3.E-06	4E-06
06B026	**Metals**					
	Arsenic	1.7E+00	mg/kg	6.E-07	2.E-06	2E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	7.9E+00	ug/kg	3.E-09	6.E-08	7E-08
	Benzo(a)pyrene	6.4E+00	ug/kg	2.E-08	5.E-07	5E-07
	Benzo(b)fluoranthene	1.0E+01	ug/kg	4.E-09	8.E-08	9E-08
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	4.E-09	9.E-08	9E-08
Exposure Point Total				6.E-07	3.E-06	3E-06
06B030	**Metals**					
	Arsenic	9.9E+00	mg/kg	4.E-06	1.E-05	1E-05
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	4.5E+01	ug/kg	2.E-08	4.E-07	4E-07
	Benzo(a)pyrene	6.6E+01	ug/kg	2.E-07	5.E-06	6E-06
	Benzo(b)fluoranthene	8.1E+01	ug/kg	3.E-08	7.E-07	7E-07
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	2.E-08	4.E-07	4E-07
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	2.E-08	4.E-07	4E-07
Exposure Point Total				4.E-06	2.E-05	2E-05

TABLE 5-8.
Calculation of Cancer Risks - Combined Adult/Child Recreational Beach User, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Combined Adult/Child Recreational Beach User
Population Age: Adult (age-adjusted)

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Adult Total Cancer Risk[a]	Child Total Cancer Risk[a]	Combined Adult and Child Cancer Risk[a,b]
09B024	**Metals**					
	Arsenic	1.1E+00	mg/kg	4.E-07	1.E-06	1E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	1.8E+01	ug/kg	7.E-09	1.E-07	2E-07
	Benzo(a)pyrene	1.4E+01	ug/kg	5.E-08	1.E-06	1E-06
	Benzo(b)fluoranthene	9.7E+00	ug/kg	4.E-09	8.E-08	8E-08
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	9.E-09	2.E-07	2E-07
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	3.E-09	7.E-08	7E-08
Exposure Point Total				5.E-07	3.E-06	3E-06
09B026	**Metals**					
	Arsenic	2.4E+00	mg/kg	9.E-07	3.E-06	3E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(b)fluoranthene	2.1E+00	ug/kg	8.E-10	2.E-08	2E-08
Exposure Point Total				9.E-07	3.E-06	3E-06
09B027	**Metals**					
	Arsenic	1.4E+00	mg/kg	5.E-07	1.E-06	2E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	9.8E+00	ug/kg	4.E-09	8.E-08	8E-08
	Benzo(a)pyrene	9.0E+00	ug/kg	3.E-08	7.E-07	8E-07
	Benzo(b)fluoranthene	1.0E+01	ug/kg	4.E-09	8.E-08	9E-08
	Indeno(1,2,3-cd)pyrene	6.6E+00	ug/kg	2.E-09	5.E-08	6E-08
Exposure Point Total				5.E-07	2.E-06	3E-06
09B028	**Metals**					
	Arsenic	1.3E+00	mg/kg	5.E-07	1.E-06	2E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	5.3E+00	ug/kg	2.E-09	4.E-08	5E-08
	Benzo(a)pyrene	4.6E+00	ug/kg	2.E-08	4.E-07	4E-07
	Benzo(b)fluoranthene	5.0E+00	ug/kg	2.E-09	4.E-08	4E-08
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	2.E-09	4.E-08	4E-08
Exposure Point Total				5.E-07	2.E-06	2E-06
B001	**Metals**					
	Arsenic	2.3E+00	mg/kg	8.E-07	2.E-06	3E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	6.5E+00	ug/kg	2.E-09	5.E-08	6E-08
	Benzo(a)pyrene	1.4E+01	ug/kg	5.E-08	1.E-06	1E-06
	Benzo(b)fluoranthene	1.2E+01	ug/kg	4.E-09	1.E-07	1E-07
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	8.E-09	2.E-07	2E-07
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	4.E-09	8.E-08	8E-08
Exposure Point Total				9.E-07	4.E-06	5E-06
B003	**Metals**					
	Arsenic	2.5E+00	mg/kg	9.E-07	3.E-06	3E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	2.1E+02	ug/kg	8.E-08	2.E-06	2E-06
	Benzo(a)pyrene	3.6E+02	ug/kg	1.E-06	3.E-05	3E-05
	Benzo(b)fluoranthene	3.1E+02	ug/kg	1.E-07	2.E-06	3E-06
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	1.E-07	3.E-06	3E-06
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	1.E-07	2.E-06	2E-06
Exposure Point Total				3.E-06	4.E-05	4E-05
B005	**Metals**					
	Arsenic	3.3E+00	mg/kg	1.E-06	3.E-06	4E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	7.7E+01	ug/kg	3.E-08	6.E-07	7E-07
	Benzo(a)pyrene	1.5E+02	ug/kg	6.E-07	1.E-05	1E-05
	Benzo(b)fluoranthene	1.2E+02	ug/kg	4.E-08	1.E-06	1E-06
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	6.E-08	1.E-06	1E-06
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	5.E-08	1.E-06	1E-06
Exposure Point Total				2.E-06	2.E-05	2E-05

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Combined adult and child cancer risks calculated based on child exposure of 6 years and weighted adult exposure of 24 years for an adult recreational beach user. For carcinogenic polynuclear aromatic hydrocarbons (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene), early life exposure was considered and age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

Abbreviations:

-- = Not Applicable
EPC = Exposure Point Concentration
mg/kg = milligram per kilogram
ug/kg = microgram per kilogram

TABLE 5-9.
Calculation of Cancer Risks - Combined Adult/Child Recreational Beach User, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Combined Adult/Child Recreational Beach User
Population Age: Adult (age-adjusted)

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Adult Total Cancer Risk[a]	Child Total Cancer Risk[a]	Combined Adult and Child Cancer Risk[a,b]
03B031	**Metals**					
	Arsenic	3.2E+00	mg/kg	6.E-08	3.E-07	4E-07
	Polynuclear Aromatic Hydrocarbons[b]					
	Benzo(a)anthracene	3.8E+01	ug/kg	5.E-10	2.E-08	2E-08
	Benzo(a)pyrene	5.3E+01	ug/kg	8.E-09	2.E-07	2E-07
	Benzo(b)fluoranthene	3.5E+01	ug/kg	5.E-10	1.E-08	1E-08
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	2.E-09	5.E-08	5E-08
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.E-10	2.E-08	2E-08
Exposure Point Total				7.E-08	1.E-05	7E-07
03B033	**Metals**					
	Arsenic	4.0E+00	mg/kg	7.E-08	4.E-07	5E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	5.2E+00	ug/kg	7.E-11	2.E-09	2E-09
	Benzo(a)pyrene	5.2E+00	ug/kg	7.E-10	2.E-08	2E-08
	Benzo(b)fluoranthene	5.2E+00	ug/kg	7.E-11	2.E-09	2E-09
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	9.E-11	3.E-09	3E-09
Exposure Point Total				7.E-08	5.E-06	5E-07
04B023	**Metals**					
	Arsenic	2.7E+00	mg/kg	5.E-08	3.E-07	3E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	2.6E+01	ug/kg	4.E-10	1.E-08	1E-08
	Benzo(a)pyrene	4.2E+01	ug/kg	6.E-09	2.E-07	2E-07
	Benzo(b)fluoranthene	3.3E+01	ug/kg	5.E-10	1.E-08	1E-08
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	2.E-09	6.E-08	6E-08
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	5.E-10	2.E-08	2E-08
Exposure Point Total				6.E-08	8.E-06	6E-07
04B024	**Metals**					
	Arsenic	4.7E+00	mg/kg	8.E-08	5.E-07	6E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	1.8E+02	ug/kg	3.E-09	7.E-08	7E-08
	Benzo(a)pyrene	3.6E+02	ug/kg	5.E-08	1.E-06	1E-06
	Benzo(b)fluoranthene	3.0E+02	ug/kg	4.E-09	1.E-07	1E-07
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	3.E-09	9.E-08	1E-07
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	3.E-09	9.E-08	9E-08
Exposure Point Total				1.E-07	4.E-05	2E-06
05B018	**Metals**					
	Arsenic	2.4E+00	mg/kg	4.E-08	3.E-07	3E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	7.2E+01	ug/kg	1.E-09	3.E-08	3E-08
	Benzo(a)pyrene	8.6E+01	ug/kg	1.E-08	3.E-07	4E-07
	Benzo(b)fluoranthene	1.0E+02	ug/kg	1.E-09	4.E-08	4E-08
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	4.E-09	1.E-07	1E-07
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	6.E-10	2.E-08	2E-08
Exposure Point Total				6.E-08	1.E-05	8E-07
06B022	**Metals**					
	Arsenic	2.6E+00	mg/kg	5.E-08	3.E-07	3E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	4.8E+00	ug/kg	7.E-11	2.E-09	2E-09
	Benzo(a)pyrene	4.4E+00	ug/kg	6.E-10	2.E-08	2E-08
	Benzo(b)fluoranthene	5.6E+00	ug/kg	8.E-11	2.E-09	2E-09
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.E-11	2.E-09	2E-09
Exposure Point Total				5.E-08	3.E-06	3E-07
06B026	**Metals**					
	Arsenic	1.7E+00	mg/kg	3.E-08	2.E-07	2E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	7.9E+00	ug/kg	1.E-10	3.E-09	3E-09
	Benzo(a)pyrene	6.4E+00	ug/kg	9.E-10	3.E-08	3E-08
	Benzo(b)fluoranthene	1.0E+01	ug/kg	1.E-10	4.E-09	4E-09
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	2.E-10	4.E-09	5E-09
Exposure Point Total				3.E-08	3.E-06	2E-07
06B030	**Metals**					
	Arsenic	9.9E+00	mg/kg	2.E-07	1.E-06	1E-06
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	4.5E+01	ug/kg	6.E-10	2.E-08	2E-08
	Benzo(a)pyrene	6.6E+01	ug/kg	9.E-09	3.E-07	3E-07
	Benzo(b)fluoranthene	8.1E+01	ug/kg	1.E-09	3.E-08	3E-08
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	7.E-10	2.E-08	2E-08
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.E-10	2.E-08	2E-08
Exposure Point Total				2.E-07	2.E-05	2E-06

TABLE 5-9.
Calculation of Cancer Risks - Combined Adult/Child Recreational Beach User, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Combined Adult/Child Recreational Beach User
Population Age: Adult (age-adjusted)

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Adult Total Cancer Risk[a]	Child Total Cancer Risk[a]	Combined Adult and Child Cancer Risk[a,b]
09B024	**Metals**					
	Arsenic	1.1E+00	mg/kg	2.E-08	1.E-07	1E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	1.8E+01	ug/kg	3.E-10	7.E-09	7E-09
	Benzo(a)pyrene	1.4E+01	ug/kg	2.E-09	6.E-08	6E-08
	Benzo(b)fluoranthene	9.7E+00	ug/kg	1.E-10	4.E-09	4E-09
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	4.E-10	1.E-08	1E-08
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	1.E-10	3.E-09	4E-09
Exposure Point Total				2.E-08	3.E-06	2E-07
09B026	**Metals**					
	Arsenic	2.4E+00	mg/kg	4.E-08	3.E-07	3E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(b)fluoranthene	2.1E+00	ug/kg	3.E-11	8.E-10	9E-10
Exposure Point Total				4.E-08	3.E-06	3E-07
09B027	**Metals**					
	Arsenic	1.3E+00	mg/kg	2.E-08	1.E-07	2E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	7.7E+00	ug/kg	1.E-10	3.E-09	3E-09
	Benzo(a)pyrene	7.0E+00	ug/kg	1.E-09	3.E-08	3E-08
	Benzo(b)fluoranthene	8.8E+00	ug/kg	1.E-10	4.E-09	4E-09
	Indeno(1,2,3-cd)pyrene	5.6E+00	ug/kg	8.E-11	2.E-09	2E-09
Exposure Point Total				3.E-08	2.E-06	2E-07
09B028	**Metals**					
	Arsenic	1.3E+00	mg/kg	2.E-08	1.E-07	2E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	5.3E+00	ug/kg	8.E-11	2.E-09	2E-09
	Benzo(a)pyrene	4.6E+00	ug/kg	7.E-10	2.E-08	2E-08
	Benzo(b)fluoranthene	5.0E+00	ug/kg	7.E-11	2.E-09	2E-09
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	7.E-11	2.E-09	2E-09
Exposure Point Total				2.E-08	2.E-06	2E-07
B001	**Metals**					
	Arsenic	2.3E+00	mg/kg	4.E-08	2.E-07	3E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	6.5E+00	ug/kg	9.E-11	3.E-09	3E-09
	Benzo(a)pyrene	1.4E+01	ug/kg	2.E-09	6.E-08	6E-08
	Benzo(b)fluoranthene	1.2E+01	ug/kg	2.E-10	5.E-09	5E-09
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	3.E-10	9.E-09	9E-09
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	1.E-10	4.E-09	4E-09
Exposure Point Total				4.E-08	4.E-06	4E-07
B003	**Metals**					
	Arsenic	2.5E+00	mg/kg	5.E-08	3.E-07	3E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	2.1E+02	ug/kg	3.E-09	8.E-08	9E-08
	Benzo(a)pyrene	3.6E+02	ug/kg	5.E-08	1.E-06	1E-06
	Benzo(b)fluoranthene	3.1E+02	ug/kg	4.E-09	1.E-07	1E-07
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	5.E-09	1.E-07	1E-07
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	4.E-09	1.E-07	1E-07
Exposure Point Total				1.E-07	4.E-05	2E-06
B005	**Metals**					
	Arsenic	3.3E+00	mg/kg	6.E-08	3.E-07	4E-07
	Polynuclear Aromatic Hydrocarbons					
	Benzo(a)anthracene	7.7E+01	ug/kg	1.E-09	3.E-08	3E-08
	Benzo(a)pyrene	1.5E+02	ug/kg	2.E-08	6.E-07	6E-07
	Benzo(b)fluoranthene	1.2E+02	ug/kg	2.E-09	5.E-08	5E-08
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	2.E-09	6.E-08	6E-08
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	2.E-09	5.E-08	5E-08
Exposure Point Total				9.E-08	2.E-05	1E-06

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Combined adult and child cancer risks calculated based on child exposure of 6 years and weighted adult exposure of 24 years for an adult recreational beach user. For carcinogenic polynuclear aromatic hydrocarbons (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene), early life exposure was considered and age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

Abbreviations:

-- = Not Applicable
EPC = Exposure Point Concentration
mg/kg = milligram per kilogram
ug/kg = microgram per kilogram

TABLE 5-10.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.2E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.2E-02	0.0E+00	1.2E-02	0.01
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	9.9E-07	1.9E-06	1.5E-06	2.9E-06	4.E-06	3.0E-04	3.0E-04	9.9E-07	1.9E-06	3.3E-03	6.4E-03	0.01
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	1.5E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	1.4E-08	6.3E-09	1.0E-08	4.6E-09	1.E-08	--	--	1.4E-08	6.3E-09	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	1.8E-08	8.0E-09	1.3E-07	5.9E-08	2.E-07	--	--	1.8E-08	8.0E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.0E-08	1.7E-08	7.4E-09	2.E-08	--	--	2.3E-08	1.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	3.6E-08	1.6E-08	2.6E-08	1.2E-08	4.E-08	--	--	3.6E-08	1.6E-08	--	--	--
Exposure Point Total										5.E-06							0.02
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	2.2E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.2E-02	0.0E+00	2.2E-02	0.02
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.7E-06	3.3E-06	2.5E-06	4.9E-06	7.E-06	3.0E-04	3.0E-04	1.7E-06	3.3E-06	5.6E-03	1.1E-02	0.02
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	2.3E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.3E-05	0.0E+00	5.8E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	8.6E-08	3.9E-08	6.3E-08	2.8E-08	9.E-08	--	--	8.6E-08	3.9E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	1.2E-07	5.4E-08	8.8E-07	3.9E-07	1.E-06	--	--	1.2E-07	5.4E-08	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	7.9E-08	3.6E-08	5.8E-08	2.6E-08	8.E-08	--	--	7.9E-08	3.6E-08	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	2.7E-08	1.2E-08	2.0E-07	8.9E-08	3.E-07	--	--	2.7E-08	1.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	1.1E-07	4.8E-08	7.8E-08	3.5E-08	1.E-07	--	--	1.1E-07	4.8E-08	--	--	--
Exposure Point Total										9.E-06							0.04
03B033	**Metals**																
	Aluminum	1.4E+04	mg/kg	--	--	0.0E+00	1.4E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.4E-02	0.0E+00	1.4E-02	0.01
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	2.1E-06	4.1E-06	3.1E-06	6.1E-06	9.E-06	3.0E-04	3.0E-04	2.1E-06	4.1E-06	7.0E-03	1.4E-02	0.02
	Copper	1.6E+01	mg/kg	--	--	0.0E+00	1.6E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.6E-05	0.0E+00	4.0E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.2E+00	ug/kg	7.3E-01	7.3E-01	1.2E-08	5.3E-09	8.6E-09	3.9E-09	1.E-08	--	--	1.2E-08	5.3E-09	--	--	--
	Benzo(a)pyrene	5.2E+00	ug/kg	7.3E+00	7.3E+00	1.2E-08	5.3E-09	8.6E-08	3.9E-08	1.E-07	--	--	1.2E-08	5.3E-09	--	--	--
	Benzo(b)fluoranthene	5.2E+00	ug/kg	7.3E-01	7.3E-01	1.2E-08	5.3E-09	8.6E-09	3.9E-09	1.E-08	--	--	1.2E-08	5.3E-09	--	--	--

TABLE 5-10.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	1.4E-08	6.5E-09	1.1E-08	4.8E-09	2.E-08	--	--	1.4E-08	6.5E-09	--	--	--
Exposure Point Total										9.E-06							0.04
04B023	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.2E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.2E-02	0.0E+00	1.2E-02	0.01
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	3.1E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	3.1E-07	0.0E+00	7.6E-04	0.001
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	1.4E-06	2.7E-06	2.1E-06	4.1E-06	6.E-06	3.0E-04	3.0E-04	1.4E-06	2.7E-06	4.7E-03	9.2E-03	0.01
	Copper	3.3E+01	mg/kg	--	--	0.0E+00	3.4E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.4E-05	0.0E+00	8.5E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	5.9E-08	2.6E-08	4.3E-08	1.9E-08	6.E-08	--	--	5.9E-08	2.6E-08	--	--	--
	Benzo(a)pyrene	4.2E+01	ug/kg	7.3E+00	7.3E+00	9.5E-08	4.3E-08	6.9E-07	3.1E-07	1.E-06	--	--	9.5E-08	4.3E-08	--	--	--
	Benzo(b)fluoranthene	3.3E+01	ug/kg	7.3E-01	7.3E-01	7.5E-08	3.4E-08	5.4E-08	2.5E-08	8.E-08	--	--	7.5E-08	3.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	3.2E-08	1.4E-08	2.3E-07	1.0E-07	3.E-07	--	--	3.2E-08	1.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	8.6E-08	3.9E-08	6.3E-08	2.8E-08	9.E-08	--	--	8.6E-08	3.9E-08	--	--	--
Exposure Point Total										8.E-06							0.03
04B024	**Metals**																
	Aluminum	2.1E+04	mg/kg	--	--	0.0E+00	2.1E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.1E-02	0.0E+00	2.1E-02	0.02
	Antimony	1.3E+01	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.3E-05	0.0E+00	3.3E-02	0.03
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	2.5E-06	4.8E-06	3.7E-06	7.2E-06	1.E-05	3.0E-04	3.0E-04	2.5E-06	4.8E-06	8.2E-03	1.6E-02	0.02
	Copper	1.9E+02	mg/kg	--	--	0.0E+00	2.0E-04	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-04	0.0E+00	4.9E-03	0.005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	4.1E-07	1.8E-07	3.0E-07	1.3E-07	4.E-07	--	--	4.1E-07	1.8E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	8.1E-07	3.7E-07	5.9E-06	2.7E-06	9.E-06	--	--	8.1E-07	3.7E-07	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	6.8E-07	3.1E-07	5.0E-07	2.2E-07	7.E-07	--	--	6.8E-07	3.1E-07	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	5.2E-08	2.3E-08	3.8E-07	1.7E-07	6.E-07	--	--	5.2E-08	2.3E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	7.3E-01	7.3E-01	5.0E-07	2.2E-07	3.6E-07	1.6E-07	5.E-07	--	--	5.0E-07	2.2E-07	--	--	--
Exposure Point Total										2.E-05							0.08
05B018	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	1.9E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-02	0.0E+00	1.9E-02	0.02
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	2.0E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	2.0E-07	0.0E+00	5.1E-04	0.001
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	1.3E-06	2.4E-06	1.9E-06	3.7E-06	6.E-06	3.0E-04	3.0E-04	1.3E-06	2.4E-06	4.2E-03	8.1E-03	0.01
	Copper	1.1E+02	mg/kg	--	--	0.0E+00	1.1E-04	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.1E-04	0.0E+00	2.7E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.2E+01	ug/kg	7.3E-01	7.3E-01	1.6E-07	7.3E-08	1.2E-07	5.3E-08	2.E-07	--	--	1.6E-07	7.3E-08	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.9E-07	8.8E-08	1.4E-06	6.4E-07	2.E-06	--	--	1.9E-07	8.8E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	2.3E-07	1.0E-07	1.7E-07	7.4E-08	2.E-07	--	--	2.3E-07	1.0E-07	--	--	--

TABLE 5-10.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	5.9E-08	2.6E-08	4.3E-07	1.9E-07	6.E-07	--	--	5.9E-08	2.6E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	8.8E-08	4.0E-08	6.4E-08	2.9E-08	9.E-08	--	--	8.8E-08	4.0E-08	--	--	--
Exposure Point Total										9.E-06							0.03
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.6E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.6E-02	0.0E+00	1.6E-02	0.02
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	3.1E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	3.1E-07	0.0E+00	7.6E-04	0.001
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	1.4E-06	2.6E-06	2.0E-06	4.0E-06	6.E-06	3.0E-04	3.0E-04	1.4E-06	2.6E-06	4.5E-03	8.8E-03	0.01
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	4.3E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.3E-05	0.0E+00	1.1E-03	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	1.1E-08	4.9E-09	7.9E-09	3.6E-09	1.E-08	--	--	1.1E-08	4.9E-09	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	1.0E-08	4.5E-09	7.3E-08	3.3E-08	1.E-07	--	--	1.0E-08	4.5E-09	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	1.3E-08	5.7E-09	9.2E-09	4.2E-09	1.E-08	--	--	1.3E-08	5.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	1.1E-08	4.9E-09	7.9E-09	3.6E-09	1.E-08	--	--	1.1E-08	4.9E-09	--	--	--
Exposure Point Total										6.E-06							0.03
06B026	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.3E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.3E-02	0.0E+00	1.3E-02	0.01
	Antimony	8.0E-01	mg/kg	--	--	0.0E+00	8.1E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	8.1E-07	0.0E+00	2.0E-03	0.002
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	8.9E-07	1.7E-06	1.3E-06	2.6E-06	4.E-06	3.0E-04	3.0E-04	8.9E-07	1.7E-06	3.0E-03	5.8E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	2.0E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.1E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.9E+00	ug/kg	7.3E-01	7.3E-01	1.8E-08	8.0E-09	1.3E-08	5.9E-09	2.E-08	--	--	1.8E-08	8.0E-09	--	--	--
	Benzo(a)pyrene	6.4E+00	ug/kg	7.3E+00	7.3E+00	1.4E-08	6.5E-09	1.1E-07	4.8E-08	2.E-07	--	--	1.4E-08	6.5E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.0E-08	1.7E-08	7.4E-09	2.E-08	--	--	2.3E-08	1.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	2.5E-08	1.1E-08	1.8E-08	8.2E-09	3.E-08	--	--	2.5E-08	1.1E-08	--	--	--
Exposure Point Total										4.E-06							0.02
06B030	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	1.8E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.8E-02	0.0E+00	1.8E-02	0.02
	Arsenic	9.9E+00	mg/kg	1.5E+00	1.5E+00	5.2E-06	1.0E-05	7.8E-06	1.5E-05	2.E-05	3.0E-04	3.0E-04	5.2E-06	1.0E-05	1.7E-02	3.4E-02	0.05
	Copper	6.1E+02	mg/kg	--	--	0.0E+00	6.2E-04	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.2E-04	0.0E+00	1.5E-02	0.02
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	1.0E-07	4.6E-08	7.4E-08	3.3E-08	1.E-07	--	--	1.0E-07	4.6E-08	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	1.5E-07	6.7E-08	1.1E-06	4.9E-07	2.E-06	--	--	1.5E-07	6.7E-08	--	--	--
	Benzo(b)fluoranthene	8.1E+01	ug/kg	7.3E-01	7.3E-01	1.8E-07	8.2E-08	1.3E-07	6.0E-08	2.E-07	--	--	1.8E-07	8.2E-08	--	--	--

TABLE 5-10.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	7.3E+00	7.3E+00	1.1E-08	5.1E-09	8.3E-08	3.7E-08	1.E-07	--	--	1.1E-08	5.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	1.1E-07	4.8E-08	7.8E-08	3.5E-08	1.E-07	--	--	1.1E-07	4.8E-08	--	--	--
Exposure Point Total										2.E-05							0.08
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	1.0E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.0E-02	0.0E+00	1.0E-02	0.01
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	3.1E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	3.1E-07	0.0E+00	7.6E-04	0.001
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	3.7E-07	7.1E-07	5.5E-07	1.1E-06	2.E-06	3.0E-04	3.0E-04	3.7E-07	7.1E-07	1.2E-03	2.4E-03	0.004
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	7.1E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.1E-05	0.0E+00	1.8E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	3.2E-08	1.4E-08	2.3E-08	1.0E-08	3.E-08	--	--	3.2E-08	1.4E-08	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	3.4E-08	1.5E-08	2.5E-07	1.1E-07	4.E-07	--	--	3.4E-08	1.5E-08	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.2E-08	2.0E-08	8.9E-09	3.E-08	--	--	2.7E-08	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	5.7E-09	2.5E-09	4.1E-08	1.9E-08	6.E-08	--	--	5.7E-09	2.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	2.9E-08	1.3E-08	2.1E-08	9.7E-09	3.E-08	--	--	2.9E-08	1.3E-08	--	--	--
Exposure Point Total										2.E-06							0.02
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.5E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.02
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	8.1E-07	1.6E-06	1.2E-06	2.4E-06	4.E-06	3.0E-04	3.0E-04	8.1E-07	1.6E-06	2.7E-03	5.3E-03	0.01
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	2.1E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.1E-05	0.0E+00	5.2E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	1.0E-07	4.6E-08	7.4E-08	3.3E-08	1.E-07	--	--	1.0E-07	4.6E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	1.2E-07	5.4E-08	8.8E-07	3.9E-07	1.E-06	--	--	1.2E-07	5.4E-08	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	1.4E-07	6.3E-08	1.0E-07	4.6E-08	1.E-07	--	--	1.4E-07	6.3E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	5.2E-08	2.3E-08	3.8E-08	1.7E-08	6.E-08	--	--	5.2E-08	2.3E-08	--	--	--
Exposure Point Total										5.E-06							0.02
09B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.6E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.6E-02	0.0E+00	1.6E-02	0.02
	Arsenic	1.1E+00	mg/kg	1.5E+00	1.5E+00	5.7E-07	1.1E-06	8.6E-07	1.7E-06	3.E-06	3.0E-04	3.0E-04	5.7E-07	1.1E-06	1.9E-03	3.7E-03	0.01
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	1.9E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.9E-05	0.0E+00	4.6E-04	0.0005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	4.1E-08	1.8E-08	3.0E-08	1.3E-08	4.E-08	--	--	4.1E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	3.2E-08	1.4E-08	2.3E-07	1.0E-07	3.E-07	--	--	3.2E-08	1.4E-08	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	2.2E-08	9.9E-09	1.6E-08	7.2E-09	2.E-08	--	--	2.2E-08	9.9E-09	--	--	--

TABLE 5-10.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	5.7E-09	2.5E-09	4.1E-08	1.9E-08	6.E-08	--	--	5.7E-09	2.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	7.3E-01	7.3E-01	2.0E-08	8.9E-09	1.4E-08	6.5E-09	2.E-08	--	--	2.0E-08	8.9E-09	--	--	--
Exposure Point Total										3.E-06							0.02
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	1.1E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.1E-02	0.0E+00	1.1E-02	0.01
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	1.3E-06	2.4E-06	1.9E-06	3.7E-06	6.E-06	3.0E-04	3.0E-04	1.3E-06	2.4E-06	4.2E-03	8.1E-03	0.01
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	1.9E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.9E-05	0.0E+00	4.7E-04	0.0005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	4.8E-09	2.1E-09	3.5E-09	1.6E-09	5.E-09	--	--	4.8E-09	2.1E-09	--	--	--
Exposure Point Total										6.E-06							0.02
09B027	**Metals**																
	Aluminum	2.0E+04	mg/kg	--	--	0.0E+00	2.0E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.0E-02	0.0E+00	2.0E-02	0.02
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	2.0E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	2.0E-07	0.0E+00	5.1E-04	0.001
	Arsenic	1.4E+00	mg/kg	1.5E+00	1.5E+00	7.3E-07	1.4E-06	1.1E-06	2.1E-06	3.E-06	3.0E-04	3.0E-04	7.3E-07	1.4E-06	2.4E-03	4.7E-03	0.01
	Copper	2.4E+01	mg/kg	--	--	0.0E+00	2.4E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.4E-05	0.0E+00	6.1E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.8E+00	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.0E-08	1.6E-08	7.3E-09	2.E-08	--	--	2.2E-08	1.0E-08	--	--	--
	Benzo(a)pyrene	9.0E+00	ug/kg	7.3E+00	7.3E+00	2.0E-08	9.2E-09	1.5E-07	6.7E-08	2.E-07	--	--	2.0E-08	9.2E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.1E-08	1.7E-08	7.7E-09	2.E-08	--	--	2.4E-08	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	6.6E+00	ug/kg	7.3E-01	7.3E-01	1.5E-08	6.7E-09	1.1E-08	4.9E-09	2.E-08	--	--	1.5E-08	6.7E-09	--	--	--
Exposure Point Total										4.E-06							0.03
09B028	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	1.6E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.6E-02	0.0E+00	1.6E-02	0.02
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	6.8E-07	1.3E-06	1.0E-06	2.0E-06	3.E-06	3.0E-04	3.0E-04	6.8E-07	1.3E-06	2.3E-03	4.4E-03	0.01
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	1.9E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.9E-05	0.0E+00	4.8E-04	0.0005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+00	ug/kg	7.3E-01	7.3E-01	1.2E-08	5.4E-09	8.8E-09	3.9E-09	1.E-08	--	--	1.2E-08	5.4E-09	--	--	--
	Benzo(a)pyrene	4.6E+00	ug/kg	7.3E+00	7.3E+00	1.0E-08	4.7E-09	7.6E-08	3.4E-08	1.E-07	--	--	1.0E-08	4.7E-09	--	--	--
	Benzo(b)fluoranthene	5.0E+00	ug/kg	7.3E-01	7.3E-01	1.1E-08	5.1E-09	8.3E-09	3.7E-09	1.E-08	--	--	1.1E-08	5.1E-09	--	--	--

TABLE 5-10.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	7.3E-01	7.3E-01	1.0E-08	4.7E-09	7.6E-09	3.4E-09	1.E-08	--	--	1.0E-08	4.7E-09	--	--	--
Exposure Point Total										3.E-06							0.02
B001	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	1.7E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.7E-02	0.0E+00	1.7E-02	0.02
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	1.2E-06	2.3E-06	1.8E-06	3.4E-06	5.E-06	3.0E-04	3.0E-04	1.2E-06	2.3E-06	3.9E-03	7.6E-03	0.01
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	2.0E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	4.9E-04	0.0005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E+00	ug/kg	7.3E-01	7.3E-01	1.5E-08	6.6E-09	1.1E-08	4.8E-09	2.E-08	--	--	1.5E-08	6.6E-09	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	3.2E-08	1.4E-08	2.3E-07	1.0E-07	3.E-07	--	--	3.2E-08	1.4E-08	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.2E-08	2.0E-08	8.9E-09	3.E-08	--	--	2.7E-08	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	7.3E+00	7.3E+00	5.0E-09	2.2E-09	3.6E-08	1.6E-08	5.E-08	--	--	5.0E-09	2.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	7.3E-01	7.3E-01	2.2E-08	9.9E-09	1.6E-08	7.2E-09	2.E-08	--	--	2.2E-08	9.9E-09	--	--	--
Exposure Point Total										6.E-06							0.03
B003	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	1.9E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-02	0.0E+00	1.9E-02	0.02
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	1.3E-06	2.6E-06	2.0E-06	3.9E-06	6.E-06	3.0E-04	3.0E-04	1.3E-06	2.6E-06	4.4E-03	8.6E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	2.0E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.0E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	4.8E-07	2.1E-07	3.5E-07	1.6E-07	5.E-07	--	--	4.8E-07	2.1E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	8.1E-07	3.7E-07	5.9E-06	2.7E-06	9.E-06	--	--	8.1E-07	3.7E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	7.0E-07	3.2E-07	5.1E-07	2.3E-07	7.E-07	--	--	7.0E-07	3.2E-07	--	--	--
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	7.3E+00	7.3E+00	7.5E-08	3.4E-08	5.4E-07	2.5E-07	8.E-07	--	--	7.5E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	6.3E-07	2.8E-07	4.6E-07	2.1E-07	7.E-07	--	--	6.3E-07	2.8E-07	--	--	--
Exposure Point Total										2.E-05							0.03
B005	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.5E-02	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.01
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	1.7E-06	3.3E-06	2.6E-06	5.0E-06	8.E-06	3.0E-04	3.0E-04	1.7E-06	3.3E-06	5.7E-03	1.1E-02	0.02
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	1.5E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	1.7E-07	7.8E-08	1.3E-07	5.7E-08	2.E-07	--	--	1.7E-07	7.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	3.4E-07	1.5E-07	2.5E-06	1.1E-06	4.E-06	--	--	3.4E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.7E-07	1.2E-07	2.0E-07	8.9E-08	3.E-07	--	--	2.7E-07	1.2E-07	--	--	--

TABLE 5-10.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	3.4E-08	1.5E-08	2.5E-07	1.1E-07	4.E-07	--	--	3.4E-08	1.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	7.3E-01	7.3E-01	2.9E-07	1.3E-07	2.1E-07	9.7E-08	3.E-07	--	--	2.9E-07	1.3E-07	--	--	--
Exposure Point Total										1.E-05							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-11.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.0E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.4E-03	0.0E+00	2.4E-03	0.002
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	4.0E-08	1.7E-07	6.0E-08	2.5E-07	3.E-07	3.0E-04	3.0E-04	9.3E-08	3.9E-07	3.1E-04	1.3E-03	0.002
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	1.3E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.9E-06	0.0E+00	7.3E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	5.6E-10	5.4E-10	4.1E-10	3.9E-10	8.E-10	--	--	1.3E-09	1.3E-09	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	7.1E-10	6.9E-10	5.2E-09	5.0E-09	1.E-08	--	--	1.7E-09	1.6E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	9.0E-10	8.7E-10	6.6E-10	6.4E-10	1.E-09	--	--	2.1E-09	2.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	1.4E-09	1.4E-09	1.1E-09	1.0E-09	2.E-09	--	--	3.4E-09	3.3E-09	--	--	--
Exposure Point Total										3.E-07							0.004
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	1.9E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.5E-03	0.0E+00	4.5E-03	0.004
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	6.7E-08	2.8E-07	1.0E-07	4.2E-07	5.E-07	3.0E-04	3.0E-04	1.6E-07	6.5E-07	5.2E-04	2.2E-03	0.003
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	2.0E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.6E-06	0.0E+00	1.2E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-09	3.3E-09	2.5E-09	2.4E-09	5.E-09	--	--	8.0E-09	7.7E-09	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	4.8E-09	4.6E-09	3.5E-08	3.4E-08	7.E-08	--	--	1.1E-08	1.1E-08	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	3.2E-09	3.1E-09	2.3E-09	2.2E-09	5.E-09	--	--	7.4E-09	7.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	1.1E-09	1.0E-09	7.9E-09	7.6E-09	2.E-08	--	--	2.5E-09	2.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	4.3E-09	4.1E-09	3.1E-09	3.0E-09	6.E-09	--	--	9.9E-09	9.6E-09	--	--	--
Exposure Point Total										6.E-07							0.007
03B033	**Metals**																
	Aluminum	1.4E+04	mg/kg	--	--	0.0E+00	1.2E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.8E-03	0.0E+00	2.8E-03	0.003
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	8.4E-08	3.5E-07	1.3E-07	5.2E-07	6.E-07	3.0E-04	3.0E-04	1.9E-07	8.1E-07	6.5E-04	2.7E-03	0.003
	Copper	1.6E+01	mg/kg	--	--	0.0E+00	1.4E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.2E-06	0.0E+00	8.0E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.2E+00	ug/kg	7.3E-01	7.3E-01	4.7E-10	4.5E-10	3.4E-10	3.3E-10	7.E-10	--	--	1.1E-09	1.1E-09	--	--	--
	Benzo(a)pyrene	5.2E+00	ug/kg	7.3E+00	7.3E+00	4.7E-10	4.5E-10	3.4E-09	3.3E-09	7.E-09	--	--	1.1E-09	1.1E-09	--	--	--
	Benzo(b)fluoranthene	5.2E+00	ug/kg	7.3E-01	7.3E-01	4.7E-10	4.5E-10	3.4E-10	3.3E-10	7.E-10	--	--	1.1E-09	1.1E-09	--	--	--

TABLE 5-11.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	5.8E-10	5.6E-10	4.2E-10	4.1E-10	8.E-10	--	--	1.4E-09	1.3E-09	--	--	--
Exposure Point Total										7.E-07							0.006
04B023	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.1E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.5E-03	0.0E+00	2.5E-03	0.002
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	6.1E-08	0.0E+00	1.5E-04	0.0002
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	5.6E-08	2.4E-07	8.5E-08	3.5E-07	4.E-07	3.0E-04	3.0E-04	1.3E-07	5.5E-07	4.4E-04	1.8E-03	0.002
	Copper	3.3E+01	mg/kg	--	--	0.0E+00	2.9E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.8E-06	0.0E+00	1.7E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	2.4E-09	2.3E-09	1.7E-09	1.7E-09	3.E-09	--	--	5.5E-09	5.3E-09	--	--	--
	Benzo(a)pyrene	4.2E+01	ug/kg	7.3E+00	7.3E+00	3.8E-09	3.7E-09	2.8E-08	2.7E-08	5.E-08	--	--	8.9E-09	8.5E-09	--	--	--
	Benzo(b)fluoranthene	3.3E+01	ug/kg	7.3E-01	7.3E-01	3.0E-09	2.9E-09	2.2E-09	2.1E-09	4.E-09	--	--	7.0E-09	6.7E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.2E-09	9.2E-09	8.9E-09	2.E-08	--	--	3.0E-09	2.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-09	3.3E-09	2.5E-09	2.4E-09	5.E-09	--	--	8.0E-09	7.7E-09	--	--	--
Exposure Point Total										5.E-07							0.005
04B024	**Metals**																
	Aluminum	2.1E+04	mg/kg	--	--	0.0E+00	1.8E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.3E-03	0.0E+00	4.3E-03	0.004
	Antimony	1.3E+01	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	6.0E-05	4.0E-04	0.0E+00	2.6E-06	0.0E+00	6.6E-03	0.007
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	9.8E-08	4.1E-07	1.5E-07	6.1E-07	8.E-07	3.0E-04	3.0E-04	2.3E-07	9.6E-07	7.6E-04	3.2E-03	0.004
	Copper	1.9E+02	mg/kg	--	--	0.0E+00	1.7E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.9E-05	0.0E+00	9.9E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.6E-08	1.2E-08	1.1E-08	2.E-08	--	--	3.8E-08	3.7E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	3.3E-08	3.1E-08	2.4E-07	2.3E-07	5.E-07	--	--	7.6E-08	7.3E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	2.6E-08	2.0E-08	1.9E-08	4.E-08	--	--	6.3E-08	6.1E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	2.1E-09	2.0E-09	1.5E-08	1.5E-08	3.E-08	--	--	4.9E-09	4.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.9E-08	1.5E-08	1.4E-08	3.E-08	--	--	4.6E-08	4.5E-08	--	--	--
Exposure Point Total										1.E-06							0.02
05B018	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	1.6E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.8E-03	0.0E+00	3.8E-03	0.004
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	1.7E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	4.1E-08	0.0E+00	1.0E-04	0.0001
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	5.0E-08	2.1E-07	7.5E-08	3.1E-07	4.E-07	3.0E-04	3.0E-04	1.2E-07	4.9E-07	3.9E-04	1.6E-03	0.002
	Copper	1.1E+02	mg/kg	--	--	0.0E+00	9.4E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.2E-05	0.0E+00	5.5E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.2E+01	ug/kg	7.3E-01	7.3E-01	6.5E-09	6.3E-09	4.8E-09	4.6E-09	9.E-09	--	--	1.5E-08	1.5E-08	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	7.8E-09	7.5E-09	5.7E-08	5.5E-08	1.E-07	--	--	1.8E-08	1.8E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	9.0E-09	8.7E-09	6.6E-09	6.4E-09	1.E-08	--	--	2.1E-08	2.0E-08	--	--	--

TABLE 5-11.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	2.3E-09	1.7E-08	1.7E-08	3.E-08	--	--	5.5E-09	5.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	3.5E-09	3.4E-09	2.6E-09	2.5E-09	5.E-09	--	--	8.2E-09	7.9E-09	--	--	--
Exposure Point Total										6.E-07							0.006
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.1E-03	0.0E+00	3.1E-03	0.003
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	6.1E-08	0.0E+00	1.5E-04	0.0002
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	5.4E-08	2.3E-07	8.1E-08	3.4E-07	4.E-07	3.0E-04	3.0E-04	1.3E-07	5.3E-07	4.2E-04	1.8E-03	0.002
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	3.7E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	8.7E-06	0.0E+00	2.2E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	4.3E-10	4.2E-10	3.2E-10	3.1E-10	6.E-10	--	--	1.0E-09	9.8E-10	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	4.0E-10	3.8E-10	2.9E-09	2.8E-09	6.E-09	--	--	9.3E-10	9.0E-10	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	5.1E-10	4.9E-10	3.7E-10	3.6E-10	7.E-10	--	--	1.2E-09	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	4.3E-10	4.2E-10	3.2E-10	3.1E-10	6.E-10	--	--	1.0E-09	9.8E-10	--	--	--
Exposure Point Total										4.E-07							0.006
06B026	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.1E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.5E-03	0.0E+00	2.5E-03	0.003
	Antimony	8.0E-01	mg/kg	--	--	0.0E+00	7.0E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.6E-07	0.0E+00	4.1E-04	0.0004
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	3.5E-08	1.5E-07	5.3E-08	2.2E-07	3.E-07	3.0E-04	3.0E-04	8.3E-08	3.5E-07	2.8E-04	1.2E-03	0.001
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	1.7E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.1E-06	0.0E+00	1.0E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.9E+00	ug/kg	7.3E-01	7.3E-01	7.1E-10	6.9E-10	5.2E-10	5.0E-10	1.E-09	--	--	1.7E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	6.4E+00	ug/kg	7.3E+00	7.3E+00	5.8E-10	5.6E-10	4.2E-09	4.1E-09	8.E-09	--	--	1.4E-09	1.3E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	9.0E-10	8.7E-10	6.6E-10	6.4E-10	1.E-09	--	--	2.1E-09	2.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	1.0E-09	9.6E-10	7.3E-10	7.0E-10	1.E-09	--	--	2.3E-09	2.2E-09	--	--	--
Exposure Point Total										3.E-07							0.004
06B030	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	1.5E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.6E-03	0.0E+00	3.6E-03	0.004
	Arsenic	9.9E+00	mg/kg	1.5E+00	1.5E+00	2.1E-07	8.6E-07	3.1E-07	1.3E-06	2.E-06	3.0E-04	3.0E-04	4.8E-07	2.0E-06	1.6E-03	6.7E-03	0.008
	Copper	6.1E+02	mg/kg	--	--	0.0E+00	5.3E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-04	0.0E+00	3.1E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	4.1E-09	3.9E-09	3.0E-09	2.9E-09	6.E-09	--	--	9.5E-09	9.2E-09	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	6.0E-09	5.8E-09	4.4E-08	4.2E-08	9.E-08	--	--	1.4E-08	1.3E-08	--	--	--
	Benzo(b)fluoranthene	8.1E+01	ug/kg	7.3E-01	7.3E-01	7.3E-09	7.1E-09	5.4E-09	5.2E-09	1.E-08	--	--	1.7E-08	1.6E-08	--	--	--

TABLE 5-11.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	7.3E+00	7.3E+00	4.5E-10	4.4E-10	3.3E-09	3.2E-09	6.E-09	--	--	1.1E-09	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	4.3E-09	4.1E-09	3.1E-09	3.0E-09	6.E-09	--	--	9.9E-09	9.6E-09	--	--	--
Exposure Point Total										2.E-06							0.01
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	8.8E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.1E-03	0.0E+00	2.1E-03	0.002
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	6.1E-08	0.0E+00	1.5E-04	0.0002
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	1.5E-08	6.1E-08	2.2E-08	9.2E-08	1.E-07	3.0E-04	3.0E-04	3.4E-08	1.4E-07	1.1E-04	4.7E-04	0.001
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	6.1E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.4E-05	0.0E+00	3.5E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	1.3E-09	1.2E-09	9.2E-10	8.9E-10	2.E-09	--	--	3.0E-09	2.8E-09	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	1.4E-09	1.3E-09	9.9E-09	9.6E-09	2.E-08	--	--	3.2E-09	3.1E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.0E-09	7.9E-10	7.6E-10	2.E-09	--	--	2.5E-09	2.4E-09	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	2.3E-10	2.2E-10	1.7E-09	1.6E-09	3.E-09	--	--	5.3E-10	5.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.1E-09	8.6E-10	8.3E-10	2.E-09	--	--	2.7E-09	2.6E-09	--	--	--
Exposure Point Total										1.E-07							0.003
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.1E-03	0.0E+00	3.1E-03	0.003
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	3.2E-08	1.4E-07	4.9E-08	2.0E-07	3.E-07	3.0E-04	3.0E-04	7.6E-08	3.2E-07	2.5E-04	1.1E-03	0.001
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	1.8E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.2E-06	0.0E+00	1.0E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	4.1E-09	3.9E-09	3.0E-09	2.9E-09	6.E-09	--	--	9.5E-09	9.2E-09	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	4.8E-09	4.6E-09	3.5E-08	3.4E-08	7.E-08	--	--	1.1E-08	1.1E-08	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	5.6E-09	5.4E-09	4.1E-09	3.9E-09	8.E-09	--	--	1.3E-08	1.3E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	2.1E-09	2.0E-09	1.5E-09	1.5E-09	3.E-09	--	--	4.9E-09	4.7E-09	--	--	--
Exposure Point Total										3.E-07							0.005
09B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.1E-03	0.0E+00	3.1E-03	0.003
	Arsenic	1.1E+00	mg/kg	1.5E+00	1.5E+00	2.3E-08	9.6E-08	3.4E-08	1.4E-07	2.E-07	3.0E-04	3.0E-04	5.4E-08	2.2E-07	1.8E-04	7.5E-04	0.001
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	1.6E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.7E-06	0.0E+00	9.3E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.6E-09	1.6E-09	1.2E-09	1.1E-09	2.E-09	--	--	3.8E-09	3.7E-09	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.2E-09	9.2E-09	8.9E-09	2.E-08	--	--	3.0E-09	2.8E-09	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	8.8E-10	8.5E-10	6.4E-10	6.2E-10	1.E-09	--	--	2.0E-09	2.0E-09	--	--	--

TABLE 5-11.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	2.3E-10	2.2E-10	1.7E-09	1.6E-09	3.E-09	--	--	5.3E-10	5.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	7.3E-01	7.3E-01	7.9E-10	7.6E-10	5.7E-10	5.5E-10	1.E-09	--	--	1.8E-09	1.8E-09	--	--	--
Exposure Point Total										2.E-07							0.004
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	9.9E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.3E-03	0.0E+00	2.3E-03	0.002
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	5.0E-08	2.1E-07	7.5E-08	3.1E-07	4.E-07	3.0E-04	3.0E-04	1.2E-07	4.9E-07	3.9E-04	1.6E-03	0.002
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	1.6E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.7E-06	0.0E+00	9.3E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	1.9E-10	1.8E-10	1.4E-10	1.3E-10	3.E-10	--	--	4.4E-10	4.3E-10	--	--	--
Exposure Point Total										4.E-07							0.004
09B027	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	1.6E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.7E-03	0.0E+00	3.7E-03	0.004
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	1.7E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	4.1E-08	0.0E+00	1.0E-04	0.0001
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	2.8E-08	1.2E-07	4.2E-08	1.7E-07	2.E-07	3.0E-04	3.0E-04	6.5E-08	2.7E-07	2.2E-04	9.0E-04	0.001
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	2.0E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.6E-06	0.0E+00	1.2E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+00	ug/kg	7.3E-01	7.3E-01	7.0E-10	6.7E-10	5.1E-10	4.9E-10	1.E-09	--	--	1.6E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	7.0E+00	ug/kg	7.3E+00	7.3E+00	6.3E-10	6.1E-10	4.6E-09	4.4E-09	9.E-09	--	--	1.5E-09	1.4E-09	--	--	--
	Benzo(b)fluoranthene	8.8E+00	ug/kg	7.3E-01	7.3E-01	8.0E-10	7.7E-10	5.8E-10	5.6E-10	1.E-09	--	--	1.9E-09	1.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+00	ug/kg	7.3E-01	7.3E-01	5.1E-10	4.9E-10	3.7E-10	3.6E-10	7.E-10	--	--	1.2E-09	1.1E-09	--	--	--
Exposure Point Total										2.E-07							0.005
09B028	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	1.4E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.3E-03	0.0E+00	3.3E-03	0.003
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	2.7E-08	1.1E-07	4.1E-08	1.7E-07	2.E-07	3.0E-04	3.0E-04	6.3E-08	2.6E-07	2.1E-04	8.8E-04	0.001
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	1.6E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.8E-06	0.0E+00	9.6E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+00	ug/kg	7.3E-01	7.3E-01	4.8E-10	4.6E-10	3.5E-10	3.4E-10	7.E-10	--	--	1.1E-09	1.1E-09	--	--	--
	Benzo(a)pyrene	4.6E+00	ug/kg	7.3E+00	7.3E+00	4.2E-10	4.0E-10	3.0E-09	2.9E-09	6.E-09	--	--	9.7E-10	9.4E-10	--	--	--
	Benzo(b)fluoranthene	5.0E+00	ug/kg	7.3E-01	7.3E-01	4.5E-10	4.4E-10	3.3E-10	3.2E-10	6.E-10	--	--	1.1E-09	1.0E-09	--	--	--

TABLE 5-11.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	7.3E-01	7.3E-01	4.2E-10	4.0E-10	3.0E-10	2.9E-10	6.E-10	--	--	9.7E-10	9.4E-10	--	--	--
Exposure Point Total										2.E-07							0.004
B001	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	1.4E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	3.3E-03	0.0E+00	3.3E-03	0.003
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	4.7E-08	2.0E-07	7.0E-08	2.9E-07	4.E-07	3.0E-04	3.0E-04	1.1E-07	4.6E-07	3.7E-04	1.5E-03	0.002
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	1.7E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.9E-06	0.0E+00	9.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E+00	ug/kg	7.3E-01	7.3E-01	5.9E-10	5.7E-10	4.3E-10	4.1E-10	8.E-10	--	--	1.4E-09	1.3E-09	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.2E-09	9.2E-09	8.9E-09	2.E-08	--	--	3.0E-09	2.8E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.0E-09	7.9E-10	7.6E-10	2.E-09	--	--	2.5E-09	2.4E-09	--	--	--
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	7.3E+00	7.3E+00	2.0E-10	1.9E-10	1.5E-09	1.4E-09	3.E-09	--	--	4.6E-10	4.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	7.3E-01	7.3E-01	8.8E-10	8.5E-10	6.4E-10	6.2E-10	1.E-09	--	--	2.0E-09	2.0E-09	--	--	--
Exposure Point Total										4.E-07							0.005
B003	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	1.6E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-02	0.0E+00	1.9E-02	0.02
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	5.3E-08	2.2E-07	8.0E-08	3.3E-07	4.E-07	3.0E-04	3.0E-04	1.3E-06	2.6E-06	4.4E-03	8.6E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	1.7E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.0E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.8E-08	1.4E-08	1.3E-08	3.E-08	--	--	4.8E-07	2.1E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	3.3E-08	3.1E-08	2.4E-07	2.3E-07	5.E-07	--	--	8.1E-07	3.7E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	2.7E-08	2.0E-08	2.0E-08	4.E-08	--	--	7.0E-07	3.2E-07	--	--	--
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	7.3E+00	7.3E+00	3.0E-09	2.9E-09	2.2E-08	2.1E-08	4.E-08	--	--	7.5E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	2.5E-08	2.4E-08	1.8E-08	1.8E-08	4.E-08	--	--	6.3E-07	2.8E-07	--	--	--
Exposure Point Total										1.E-06							0.03
B005	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.01
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	6.8E-08	2.8E-07	1.0E-07	4.3E-07	5.E-07	3.0E-04	3.0E-04	1.7E-06	3.3E-06	5.7E-03	1.1E-02	0.02
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	1.3E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	7.0E-09	6.7E-09	5.1E-09	4.9E-09	1.E-08	--	--	1.7E-07	7.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	1.4E-08	1.3E-08	9.9E-08	9.6E-08	2.E-07	--	--	3.4E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.1E-08	1.0E-08	7.9E-09	7.6E-09	2.E-08	--	--	2.7E-07	1.2E-07	--	--	--

TABLE 5-11.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	1.4E-09	1.3E-09	9.9E-09	9.6E-09	2.E-08	--	--	3.4E-08	1.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	1.1E-08	8.6E-09	8.3E-09	2.E-08	--	--	2.9E-07	1.3E-07	--	--	--
Exposure Point Total										8.E-07							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-12.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	3.1E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.3E-03	0.0E+00	7.3E-03	0.01
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	2.6E-07	5.0E-07	3.8E-07	7.5E-07	1.E-06	3.0E-04	3.0E-04	6.0E-07	1.2E-06	2.0E-03	3.9E-03	0.01
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	3.8E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	8.8E-06	0.0E+00	2.2E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	3.6E-09	1.6E-09	2.6E-09	1.2E-09	4.E-09	--	--	8.4E-09	3.8E-09	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	4.6E-09	2.1E-09	3.4E-08	1.5E-08	5.E-08	--	--	1.1E-08	4.8E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	5.8E-09	2.6E-09	4.2E-09	1.9E-09	6.E-09	--	--	1.4E-08	6.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	9.3E-09	4.2E-09	6.8E-09	3.1E-09	1.E-08	--	--	2.2E-08	9.8E-09	--	--	--
Exposure Point Total										1.E-06							0.01
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	5.8E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.3E-02	0.0E+00	1.3E-02	0.01
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	4.3E-07	8.4E-07	6.4E-07	1.3E-06	2.E-06	3.0E-04	3.0E-04	1.0E-06	2.0E-06	3.3E-03	6.5E-03	0.01
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	6.0E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.4E-05	0.0E+00	3.5E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	2.2E-08	9.9E-09	1.6E-08	7.3E-09	2.E-08	--	--	5.2E-08	2.3E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	3.1E-08	1.4E-08	2.3E-07	1.0E-07	3.E-07	--	--	7.2E-08	3.2E-08	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	2.0E-08	9.2E-09	1.5E-08	6.7E-09	2.E-08	--	--	4.8E-08	2.1E-08	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	7.0E-09	3.1E-09	5.1E-08	2.3E-08	7.E-08	--	--	1.6E-08	7.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.2E-08	2.0E-08	9.0E-09	3.E-08	--	--	6.4E-08	2.9E-08	--	--	--
Exposure Point Total										2.E-06							0.02
03B033	**Metals**																
	Aluminum	1.4E+04	mg/kg	--	--	0.0E+00	3.7E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	8.5E-03	0.0E+00	8.5E-03	0.01
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	5.4E-07	1.0E-06	8.1E-07	1.6E-06	2.E-06	3.0E-04	3.0E-04	1.3E-06	2.4E-06	4.2E-03	8.1E-03	0.01
	Copper	1.6E+01	mg/kg	--	--	0.0E+00	4.1E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.6E-06	0.0E+00	2.4E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.2E+00	ug/kg	7.3E-01	7.3E-01	3.0E-09	1.4E-09	2.2E-09	9.9E-10	3.E-09	--	--	7.1E-09	3.2E-09	--	--	--
	Benzo(a)pyrene	5.2E+00	ug/kg	7.3E+00	7.3E+00	3.0E-09	1.4E-09	2.2E-08	9.9E-09	3.E-08	--	--	7.1E-09	3.2E-09	--	--	--
	Benzo(b)fluoranthene	5.2E+00	ug/kg	7.3E-01	7.3E-01	3.0E-09	1.4E-09	2.2E-09	9.9E-10	3.E-09	--	--	7.1E-09	3.2E-09	--	--	--

TABLE 5-12.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	3.7E-09	1.7E-09	2.7E-09	1.2E-09	4.E-09	--	--	8.7E-09	3.9E-09	--	--	--
Exposure Point Total										2.E-06							0.02
04B023	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	3.2E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.4E-03	0.0E+00	7.4E-03	0.01
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	7.9E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.8E-07	0.0E+00	4.6E-04	0.0005
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	3.6E-07	7.1E-07	5.4E-07	1.1E-06	2.E-06	3.0E-04	3.0E-04	8.5E-07	1.6E-06	2.8E-03	5.5E-03	0.01
	Copper	3.3E+01	mg/kg	--	--	0.0E+00	8.7E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.1E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	1.5E-08	6.8E-09	1.1E-08	5.0E-09	2.E-08	--	--	3.5E-08	1.6E-08	--	--	--
	Benzo(a)pyrene	4.2E+01	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.1E-08	1.8E-07	8.0E-08	3.E-07	--	--	5.7E-08	2.6E-08	--	--	--
	Benzo(b)fluoranthene	3.3E+01	ug/kg	7.3E-01	7.3E-01	1.9E-08	8.6E-09	1.4E-08	6.3E-09	2.E-08	--	--	4.5E-08	2.0E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	8.1E-09	3.7E-09	5.9E-08	2.7E-08	9.E-08	--	--	1.9E-08	8.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	2.2E-08	9.9E-09	1.6E-08	7.3E-09	2.E-08	--	--	5.2E-08	2.3E-08	--	--	--
Exposure Point Total										2.E-06							0.02
04B024	**Metals**																
	Aluminum	2.1E+04	mg/kg	--	--	0.0E+00	5.5E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.3E-02	0.0E+00	1.3E-02	0.01
	Antimony	1.3E+01	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	6.0E-05	4.0E-04	0.0E+00	7.9E-06	0.0E+00	2.0E-02	0.02
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	6.3E-07	1.2E-06	9.5E-07	1.8E-06	3.E-06	3.0E-04	3.0E-04	1.5E-06	2.9E-06	4.9E-03	9.6E-03	0.01
	Copper	1.9E+02	mg/kg	--	--	0.0E+00	5.1E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-04	0.0E+00	3.0E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	1.0E-07	4.7E-08	7.6E-08	3.4E-08	1.E-07	--	--	2.4E-07	1.1E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	2.1E-07	9.4E-08	1.5E-06	6.9E-07	2.E-06	--	--	4.9E-07	2.2E-07	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.7E-07	7.9E-08	1.3E-07	5.7E-08	2.E-07	--	--	4.1E-07	1.8E-07	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	1.3E-08	6.0E-09	9.8E-08	4.4E-08	1.E-07	--	--	3.1E-08	1.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	7.3E-01	7.3E-01	1.3E-07	5.8E-08	9.3E-08	4.2E-08	1.E-07	--	--	3.0E-07	1.3E-07	--	--	--
Exposure Point Total										6.E-06							0.05
05B018	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	4.9E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.1E-02	0.0E+00	1.1E-02	0.01
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	5.2E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.2E-07	0.0E+00	3.1E-04	0.0003
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	3.2E-07	6.3E-07	4.8E-07	9.4E-07	1.E-06	3.0E-04	3.0E-04	7.5E-07	1.5E-06	2.5E-03	4.9E-03	0.01
	Copper	1.1E+02	mg/kg	--	--	0.0E+00	2.8E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.6E-05	0.0E+00	1.6E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.2E+01	ug/kg	7.3E-01	7.3E-01	4.2E-08	1.9E-08	3.1E-08	1.4E-08	4.E-08	--	--	9.8E-08	4.4E-08	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	5.0E-08	2.3E-08	3.7E-07	1.6E-07	5.E-07	--	--	1.2E-07	5.3E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	5.8E-08	2.6E-08	4.2E-08	1.9E-08	6.E-08	--	--	1.4E-07	6.1E-08	--	--	--

TABLE 5-12.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	1.5E-08	6.8E-09	1.1E-07	5.0E-08	2.E-07	--	--	3.5E-08	1.6E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.0E-08	1.7E-08	7.4E-09	2.E-08	--	--	5.3E-08	2.4E-08	--	--	--
Exposure Point Total										2.E-06							0.02
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	4.0E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	9.4E-03	0.0E+00	9.4E-03	0.01
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	7.9E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.8E-07	0.0E+00	4.6E-04	0.0005
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	3.5E-07	6.8E-07	5.2E-07	1.0E-06	2.E-06	3.0E-04	3.0E-04	8.1E-07	1.6E-06	2.7E-03	5.3E-03	0.01
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	1.1E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.6E-05	0.0E+00	6.5E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.3E-09	2.0E-09	9.2E-10	3.E-09	--	--	6.5E-09	2.9E-09	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	2.6E-09	1.2E-09	1.9E-08	8.4E-09	3.E-08	--	--	6.0E-09	2.7E-09	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	3.3E-09	1.5E-09	2.4E-09	1.1E-09	3.E-09	--	--	7.6E-09	3.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.3E-09	2.0E-09	9.2E-10	3.E-09	--	--	6.5E-09	2.9E-09	--	--	--
Exposure Point Total										2.E-06							0.02
06B026	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	3.2E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.5E-03	0.0E+00	7.5E-03	0.01
	Antimony	8.0E-01	mg/kg	--	--	0.0E+00	2.1E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	4.9E-07	0.0E+00	1.2E-03	0.001
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	2.3E-07	4.4E-07	3.4E-07	6.7E-07	1.E-06	3.0E-04	3.0E-04	5.3E-07	1.0E-06	1.8E-03	3.5E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	5.2E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-05	0.0E+00	3.0E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.9E+00	ug/kg	7.3E-01	7.3E-01	4.6E-09	2.1E-09	3.4E-09	1.5E-09	5.E-09	--	--	1.1E-08	4.8E-09	--	--	--
	Benzo(a)pyrene	6.4E+00	ug/kg	7.3E+00	7.3E+00	3.7E-09	1.7E-09	2.7E-08	1.2E-08	4.E-08	--	--	8.7E-09	3.9E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	5.8E-09	2.6E-09	4.2E-09	1.9E-09	6.E-09	--	--	1.4E-08	6.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	6.4E-09	2.9E-09	4.7E-09	2.1E-09	7.E-09	--	--	1.5E-08	6.7E-09	--	--	--
Exposure Point Total										1.E-06							0.01
06B030	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	4.6E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.1E-02	0.0E+00	1.1E-02	0.01
	Arsenic	9.9E+00	mg/kg	1.5E+00	1.5E+00	1.3E-06	2.6E-06	2.0E-06	3.9E-06	6.E-06	3.0E-04	3.0E-04	3.1E-06	6.0E-06	1.0E-02	2.0E-02	0.03
	Copper	6.1E+02	mg/kg	--	--	0.0E+00	1.6E-04	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.7E-04	0.0E+00	9.3E-03	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	2.6E-08	1.2E-08	1.9E-08	8.6E-09	3.E-08	--	--	6.1E-08	2.7E-08	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	3.8E-08	1.7E-08	2.8E-07	1.3E-07	4.E-07	--	--	9.0E-08	4.0E-08	--	--	--
	Benzo(b)fluoranthene	8.1E+01	ug/kg	7.3E-01	7.3E-01	4.7E-08	2.1E-08	3.4E-08	1.5E-08	5.E-08	--	--	1.1E-07	4.9E-08	--	--	--

TABLE 5-12.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	7.3E+00	7.3E+00	2.9E-09	1.3E-09	2.1E-08	9.6E-09	3.E-08	--	--	6.8E-09	3.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.2E-08	2.0E-08	9.0E-09	3.E-08	--	--	6.4E-08	2.9E-08	--	--	--
Exposure Point Total										6.E-06							0.05
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	2.6E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.2E-03	0.0E+00	6.2E-03	0.01
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	7.9E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.8E-07	0.0E+00	4.6E-04	0.0005
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	9.4E-08	1.8E-07	1.4E-07	2.7E-07	4.E-07	3.0E-04	3.0E-04	2.2E-07	4.3E-07	7.3E-04	1.4E-03	0.002
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	1.8E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.2E-05	0.0E+00	1.1E-03	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	8.1E-09	3.7E-09	5.9E-09	2.7E-09	9.E-09	--	--	1.9E-08	8.5E-09	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	8.7E-09	3.9E-09	6.4E-08	2.9E-08	9.E-08	--	--	2.0E-08	9.2E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	7.0E-09	3.1E-09	5.1E-09	2.3E-09	7.E-09	--	--	1.6E-08	7.3E-09	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	1.5E-09	6.5E-10	1.1E-08	4.8E-09	2.E-08	--	--	3.4E-09	1.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	7.6E-09	3.4E-09	5.5E-09	2.5E-09	8.E-09	--	--	1.8E-08	7.9E-09	--	--	--
Exposure Point Total										5.E-07							0.01
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	4.0E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	9.3E-03	0.0E+00	9.3E-03	0.01
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	2.1E-07	4.1E-07	3.1E-07	6.1E-07	9.E-07	3.0E-04	3.0E-04	4.9E-07	9.5E-07	1.6E-03	3.2E-03	0.005
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	5.4E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.3E-05	0.0E+00	3.1E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	2.6E-08	1.2E-08	1.9E-08	8.6E-09	3.E-08	--	--	6.1E-08	2.7E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	3.1E-08	1.4E-08	2.3E-07	1.0E-07	3.E-07	--	--	7.2E-08	3.2E-08	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	3.6E-08	1.6E-08	2.6E-08	1.2E-08	4.E-08	--	--	8.4E-08	3.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	1.3E-08	6.0E-09	9.8E-09	4.4E-09	1.E-08	--	--	3.1E-08	1.4E-08	--	--	--
Exposure Point Total										1.E-06							0.01
09B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	4.0E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	9.3E-03	0.0E+00	9.3E-03	0.01
	Arsenic	1.1E+00	mg/kg	1.5E+00	1.5E+00	1.5E-07	2.9E-07	2.2E-07	4.3E-07	7.E-07	3.0E-04	3.0E-04	3.4E-07	6.7E-07	1.1E-03	2.2E-03	0.003
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	4.8E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.1E-05	0.0E+00	2.8E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.0E-08	4.7E-09	7.6E-09	3.4E-09	1.E-08	--	--	2.4E-08	1.1E-08	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	8.1E-09	3.7E-09	5.9E-08	2.7E-08	9.E-08	--	--	1.9E-08	8.5E-09	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	5.6E-09	2.5E-09	4.1E-09	1.9E-09	6.E-09	--	--	1.3E-08	5.9E-09	--	--	--

TABLE 5-12.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	1.5E-09	6.5E-10	1.1E-08	4.8E-09	2.E-08	--	--	3.4E-09	1.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	7.3E-01	7.3E-01	5.1E-09	2.3E-09	3.7E-09	1.7E-09	5.E-09	--	--	1.2E-08	5.3E-09	--	--	--
Exposure Point Total										8.E-07							0.01
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	3.0E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.9E-03	0.0E+00	6.9E-03	0.01
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	3.2E-07	6.3E-07	4.8E-07	9.4E-07	1.E-06	3.0E-04	3.0E-04	7.5E-07	1.5E-06	2.5E-03	4.9E-03	0.01
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	4.8E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.1E-05	0.0E+00	2.8E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	1.2E-09	5.5E-10	8.9E-10	4.0E-10	1.E-09	--	--	2.9E-09	1.3E-09	--	--	--
Exposure Point Total										1.E-06							0.01
09B027	**Metals**																
	Aluminum	2.0E+04	mg/kg	--	--	0.0E+00	5.2E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.2E-02	0.0E+00	1.2E-02	0.01
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	5.2E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.2E-07	0.0E+00	3.1E-04	0.0003
	Arsenic	1.4E+00	mg/kg	1.5E+00	1.5E+00	1.9E-07	3.7E-07	2.8E-07	5.5E-07	8.E-07	3.0E-04	3.0E-04	4.4E-07	8.5E-07	1.5E-03	2.8E-03	0.004
	Copper	2.4E+01	mg/kg	--	--	0.0E+00	6.3E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.8E+00	ug/kg	7.3E-01	7.3E-01	5.7E-09	2.6E-09	4.2E-09	1.9E-09	6.E-09	--	--	1.3E-08	6.0E-09	--	--	--
	Benzo(a)pyrene	9.0E+00	ug/kg	7.3E+00	7.3E+00	5.2E-09	2.4E-09	3.8E-08	1.7E-08	6.E-08	--	--	1.2E-08	5.5E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	6.0E-09	2.7E-09	4.4E-09	2.0E-09	6.E-09	--	--	1.4E-08	6.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.6E+00	ug/kg	7.3E-01	7.3E-01	3.8E-09	1.7E-09	2.8E-09	1.3E-09	4.E-09	--	--	9.0E-09	4.0E-09	--	--	--
Exposure Point Total										9.E-07							0.02
09B028	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	4.2E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	9.8E-03	0.0E+00	9.8E-03	0.01
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	3.4E-07	2.6E-07	5.1E-07	8.E-07	3.0E-04	3.0E-04	4.1E-07	7.9E-07	1.4E-03	2.6E-03	0.004
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	4.9E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-05	0.0E+00	2.9E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+00	ug/kg	7.3E-01	7.3E-01	3.1E-09	1.4E-09	2.3E-09	1.0E-09	3.E-09	--	--	7.2E-09	3.2E-09	--	--	--
	Benzo(a)pyrene	4.6E+00	ug/kg	7.3E+00	7.3E+00	2.7E-09	1.2E-09	2.0E-08	8.8E-09	3.E-08	--	--	6.2E-09	2.8E-09	--	--	--
	Benzo(b)fluoranthene	5.0E+00	ug/kg	7.3E-01	7.3E-01	2.9E-09	1.3E-09	2.1E-09	9.6E-10	3.E-09	--	--	6.8E-09	3.1E-09	--	--	--

TABLE 5-12.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.2E-09	2.0E-09	8.8E-10	3.E-09	--	--	6.2E-09	2.8E-09	--	--	--
Exposure Point Total										8.E-07							0.01
B001	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	4.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.0E-02	0.0E+00	1.0E-02	0.01
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	3.0E-07	5.9E-07	4.5E-07	8.8E-07	1.E-06	3.0E-04	3.0E-04	7.0E-07	1.4E-06	2.3E-03	4.6E-03	0.01
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	5.1E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-05	0.0E+00	2.9E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E+00	ug/kg	7.3E-01	7.3E-01	3.8E-09	1.7E-09	2.8E-09	1.2E-09	4.E-09	--	--	8.8E-09	4.0E-09	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	8.1E-09	3.7E-09	5.9E-08	2.7E-08	9.E-08	--	--	1.9E-08	8.5E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	7.0E-09	3.1E-09	5.1E-09	2.3E-09	7.E-09	--	--	1.6E-08	7.3E-09	--	--	--
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	7.3E+00	7.3E+00	1.3E-09	5.8E-10	9.3E-09	4.2E-09	1.E-08	--	--	3.0E-09	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	7.3E-01	7.3E-01	5.6E-09	2.5E-09	4.1E-09	1.9E-09	6.E-09	--	--	1.3E-08	5.9E-09	--	--	--
Exposure Point Total										1.E-06							0.02
B003	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	4.9E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-02	0.0E+00	1.9E-02	0.02
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	3.4E-07	6.6E-07	5.1E-07	1.0E-06	2.E-06	3.0E-04	3.0E-04	1.3E-06	2.6E-06	4.4E-03	8.6E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	5.2E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.0E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.2E-07	5.5E-08	8.9E-08	4.0E-08	1.E-07	--	--	4.8E-07	2.1E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	2.1E-07	9.4E-08	1.5E-06	6.9E-07	2.E-06	--	--	8.1E-07	3.7E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.8E-07	8.1E-08	1.3E-07	5.9E-08	2.E-07	--	--	7.0E-07	3.2E-07	--	--	--
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	7.3E+00	7.3E+00	1.9E-08	8.6E-09	1.4E-07	6.3E-08	2.E-07	--	--	7.5E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.6E-07	7.3E-08	1.2E-07	5.3E-08	2.E-07	--	--	6.3E-07	2.8E-07	--	--	--
Exposure Point Total										4.E-06							0.03
B005	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	3.8E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.01
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	4.4E-07	8.5E-07	6.6E-07	1.3E-06	2.E-06	3.0E-04	3.0E-04	1.7E-06	3.3E-06	5.7E-03	1.1E-02	0.02
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	3.8E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	4.5E-08	2.0E-08	3.3E-08	1.5E-08	5.E-08	--	--	1.7E-07	7.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	8.7E-08	3.9E-08	6.4E-07	2.9E-07	9.E-07	--	--	3.4E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	1.2E+02	ug/kg	7.3E-01	7.3E-01	7.0E-08	3.1E-08	5.1E-08	2.3E-08	7.E-08	--	--	2.7E-07	1.2E-07	--	--	--

TABLE 5-12.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	8.7E-09	3.9E-09	6.4E-08	2.9E-08	9.E-08	--	--	3.4E-08	1.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	7.3E-01	7.3E-01	7.6E-08	3.4E-08	5.5E-08	2.5E-08	8.E-08	--	--	2.9E-07	1.3E-07	--	--	--
Exposure Point Total										3.E-06							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-13.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.6E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.2E-03	0.0E+00	1.2E-03	0.001
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	6.0E-09	2.5E-08	8.9E-09	3.7E-08	5.E-08	3.0E-04	3.0E-04	4.6E-08	1.9E-07	1.5E-04	6.4E-04	0.001
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	1.9E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-06	0.0E+00	3.7E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	8.4E-11	8.1E-11	6.1E-11	5.9E-11	1.E-10	--	--	6.5E-10	6.3E-10	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	1.1E-10	1.0E-10	7.8E-10	7.5E-10	2.E-09	--	--	8.3E-10	8.0E-10	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	1.3E-10	9.9E-11	9.6E-11	2.E-10	--	--	1.1E-09	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	2.2E-10	2.1E-10	1.6E-10	1.5E-10	3.E-10	--	--	1.7E-09	1.6E-09	--	--	--
Exposure Point Total										5.E-08							0.002
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	2.9E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.2E-03	0.0E+00	2.2E-03	0.002
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.0E-08	4.2E-08	1.5E-08	6.3E-08	8.E-08	3.0E-04	3.0E-04	7.8E-08	3.3E-07	2.6E-04	1.1E-03	0.001
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	3.0E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.3E-06	0.0E+00	5.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	5.2E-10	5.0E-10	3.8E-10	3.6E-10	7.E-10	--	--	4.0E-09	3.9E-09	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	7.2E-10	6.9E-10	5.3E-09	5.1E-09	1.E-08	--	--	5.6E-09	5.4E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	4.8E-10	4.6E-10	3.5E-10	3.3E-10	7.E-10	--	--	3.7E-09	3.6E-09	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	1.6E-10	1.6E-10	1.2E-09	1.1E-09	2.E-09	--	--	1.3E-09	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	6.4E-10	6.1E-10	4.7E-10	4.5E-10	9.E-10	--	--	5.0E-09	4.8E-09	--	--	--
Exposure Point Total										9.E-08							0.004
03B033	**Metals**																
	Aluminum	1.4E+04	mg/kg	--	--	0.0E+00	1.8E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.4E-03	0.0E+00	1.4E-03	0.001
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.3E-08	5.2E-08	1.9E-08	7.9E-08	1.E-07	3.0E-04	3.0E-04	9.7E-08	4.1E-07	3.2E-04	1.4E-03	0.002
	Copper	1.6E+01	mg/kg	--	--	0.0E+00	2.1E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.6E-06	0.0E+00	4.0E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.2E+00	ug/kg	7.3E-01	7.3E-01	7.1E-11	6.8E-11	5.2E-11	5.0E-11	1.E-10	--	--	5.5E-10	5.3E-10	--	--	--
	Benzo(a)pyrene	5.2E+00	ug/kg	7.3E+00	7.3E+00	7.1E-11	6.8E-11	5.2E-10	5.0E-10	1.E-09	--	--	5.5E-10	5.3E-10	--	--	--
	Benzo(b)fluoranthene	5.2E+00	ug/kg	7.3E-01	7.3E-01	7.1E-11	6.8E-11	5.2E-11	5.0E-11	1.E-10	--	--	5.5E-10	5.3E-10	--	--	--

TABLE 5-13.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	8.7E-11	8.4E-11	6.3E-11	6.1E-11	1.E-10	--	--	6.8E-10	6.5E-10	--	--	--
Exposure Point Total										1.E-07							0.003
04B023	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.6E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.2E-03	0.0E+00	1.2E-03	0.001
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	3.9E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	3.1E-08	0.0E+00	7.6E-05	0.0001
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	8.5E-09	3.5E-08	1.3E-08	5.3E-08	7.E-08	3.0E-04	3.0E-04	6.6E-08	2.7E-07	2.2E-04	9.2E-04	0.001
	Copper	3.3E+01	mg/kg	--	--	0.0E+00	4.4E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.4E-06	0.0E+00	8.5E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	3.5E-10	3.4E-10	2.6E-10	2.5E-10	5.E-10	--	--	2.7E-09	2.6E-09	--	--	--
	Benzo(a)pyrene	4.2E+01	ug/kg	7.3E+00	7.3E+00	5.7E-10	5.5E-10	4.2E-09	4.0E-09	8.E-09	--	--	4.4E-09	4.3E-09	--	--	--
	Benzo(b)fluoranthene	3.3E+01	ug/kg	7.3E-01	7.3E-01	4.5E-10	4.3E-10	3.3E-10	3.2E-10	6.E-10	--	--	3.5E-09	3.4E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.9E-10	1.8E-10	1.4E-09	1.3E-09	3.E-09	--	--	1.5E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	5.2E-10	5.0E-10	3.8E-10	3.6E-10	7.E-10	--	--	4.0E-09	3.9E-09	--	--	--
Exposure Point Total										8.E-08							0.003
04B024	**Metals**																
	Aluminum	2.1E+04	mg/kg	--	--	0.0E+00	2.8E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	2.1E-03	0.0E+00	2.1E-03	0.002
	Antimony	1.3E+01	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.3E-06	0.0E+00	3.3E-03	0.003
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	1.5E-08	6.1E-08	2.2E-08	9.2E-08	1.E-07	3.0E-04	3.0E-04	1.1E-07	4.8E-07	3.8E-04	1.6E-03	0.002
	Copper	1.9E+02	mg/kg	--	--	0.0E+00	2.5E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	4.9E-04	0.0005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	2.4E-09	2.4E-09	1.8E-09	1.7E-09	4.E-09	--	--	1.9E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	4.9E-09	4.7E-09	3.6E-08	3.4E-08	7.E-08	--	--	3.8E-08	3.7E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	4.1E-09	3.9E-09	3.0E-09	2.9E-09	6.E-09	--	--	3.2E-08	3.1E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	3.1E-10	3.0E-10	2.3E-09	2.2E-09	4.E-09	--	--	2.4E-09	2.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	7.3E-01	7.3E-01	3.0E-09	2.9E-09	2.2E-09	2.1E-09	4.E-09	--	--	2.3E-08	2.2E-08	--	--	--
Exposure Point Total										2.E-07							0.01
05B018	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	2.5E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-03	0.0E+00	1.9E-03	0.002
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	2.6E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	2.0E-08	0.0E+00	5.1E-05	0.0001
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	7.5E-09	3.1E-08	1.1E-08	4.7E-08	6.E-08	3.0E-04	3.0E-04	5.8E-08	2.4E-07	1.9E-04	8.1E-04	0.001
	Copper	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.1E-05	0.0E+00	2.7E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.2E+01	ug/kg	7.3E-01	7.3E-01	9.8E-10	9.4E-10	7.1E-10	6.9E-10	1.E-09	--	--	7.6E-09	7.3E-09	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.2E-09	1.1E-09	8.5E-09	8.2E-09	2.E-08	--	--	9.1E-09	8.8E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	1.3E-09	9.9E-10	9.6E-10	2.E-09	--	--	1.1E-08	1.0E-08	--	--	--

TABLE 5-13.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	3.5E-10	3.4E-10	2.6E-09	2.5E-09	5.E-09	--	--	2.7E-09	2.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	5.3E-10	5.1E-10	3.9E-10	3.7E-10	8.E-10	--	--	4.1E-09	4.0E-09	--	--	--
Exposure Point Total										8.E-08							0.003
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	2.0E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.6E-03	0.0E+00	1.6E-03	0.002
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	3.9E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	3.1E-08	0.0E+00	7.6E-05	0.0001
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	8.1E-09	3.4E-08	1.2E-08	5.1E-08	6.E-08	3.0E-04	3.0E-04	6.3E-08	2.6E-07	2.1E-04	8.8E-04	0.001
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	5.6E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.3E-06	0.0E+00	1.1E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	6.5E-11	6.3E-11	4.8E-11	4.6E-11	9.E-11	--	--	5.1E-10	4.9E-10	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	6.0E-11	5.8E-11	4.4E-10	4.2E-10	9.E-10	--	--	4.6E-10	4.5E-10	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	7.6E-11	7.3E-11	5.5E-11	5.3E-11	1.E-10	--	--	5.9E-10	5.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	6.5E-11	6.3E-11	4.8E-11	4.6E-11	9.E-11	--	--	5.1E-10	4.9E-10	--	--	--
Exposure Point Total										6.E-08							0.003
06B026	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	1.6E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.3E-03	0.0E+00	1.3E-03	0.001
	Antimony	8.0E-01	mg/kg	--	--	0.0E+00	1.0E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	8.1E-08	0.0E+00	2.0E-04	0.0002
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	5.3E-09	2.2E-08	8.0E-09	3.3E-08	4.E-08	3.0E-04	3.0E-04	4.1E-08	1.7E-07	1.4E-04	5.8E-04	0.001
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	2.6E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-06	0.0E+00	5.1E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.9E+00	ug/kg	7.3E-01	7.3E-01	1.1E-10	1.0E-10	7.8E-11	7.5E-11	2.E-10	--	--	8.3E-10	8.0E-10	--	--	--
	Benzo(a)pyrene	6.4E+00	ug/kg	7.3E+00	7.3E+00	8.7E-11	8.4E-11	6.3E-10	6.1E-10	1.E-09	--	--	6.8E-10	6.5E-10	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	1.3E-10	9.9E-11	9.6E-11	2.E-10	--	--	1.1E-09	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	1.5E-10	1.4E-10	1.1E-10	1.1E-10	2.E-10	--	--	1.2E-09	1.1E-09	--	--	--
Exposure Point Total										4.E-08							0.002
06B030	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	2.3E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.8E-03	0.0E+00	1.8E-03	0.002
	Arsenic	9.9E+00	mg/kg	1.5E+00	1.5E+00	3.1E-08	1.3E-07	4.7E-08	1.9E-07	2.E-07	3.0E-04	3.0E-04	2.4E-07	1.0E-06	8.0E-04	3.4E-03	0.004
	Copper	6.1E+02	mg/kg	--	--	0.0E+00	7.9E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.2E-05	0.0E+00	1.5E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	6.1E-10	5.9E-10	4.5E-10	4.3E-10	9.E-10	--	--	4.8E-09	4.6E-09	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	9.0E-10	8.6E-10	6.5E-09	6.3E-09	1.E-08	--	--	7.0E-09	6.7E-09	--	--	--
	Benzo(b)fluoranthene	8.1E+01	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.1E-09	8.0E-10	7.7E-10	2.E-09	--	--	8.6E-09	8.2E-09	--	--	--

TABLE 5-13.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	7.3E+00	7.3E+00	6.8E-11	6.5E-11	5.0E-10	4.8E-10	1.E-09	--	--	5.3E-10	5.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	6.4E-10	6.1E-10	4.7E-10	4.5E-10	9.E-10	--	--	5.0E-09	4.8E-09	--	--	--
Exposure Point Total										3.E-07							0.01
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	1.3E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.0E-03	0.0E+00	1.0E-03	0.001
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	3.9E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	3.1E-08	0.0E+00	7.6E-05	0.0001
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	2.2E-09	9.2E-09	3.3E-09	1.4E-08	2.E-08	3.0E-04	3.0E-04	1.7E-08	7.1E-08	5.7E-05	2.4E-04	0.0003
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	9.1E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.1E-06	0.0E+00	1.8E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	1.9E-10	1.8E-10	1.4E-10	1.3E-10	3.E-10	--	--	1.5E-09	1.4E-09	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.0E-10	1.5E-09	1.4E-09	3.E-09	--	--	1.6E-09	1.5E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	1.6E-10	1.2E-10	1.1E-10	2.E-10	--	--	1.3E-09	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	3.4E-11	3.3E-11	2.5E-10	2.4E-10	5.E-10	--	--	2.6E-10	2.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	1.8E-10	1.7E-10	1.3E-10	1.2E-10	3.E-10	--	--	1.4E-09	1.3E-09	--	--	--
Exposure Point Total										2.E-08							0.002
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	2.0E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-03	0.0E+00	1.5E-03	0.002
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	4.9E-09	2.0E-08	7.3E-09	3.0E-08	4.E-08	3.0E-04	3.0E-04	3.8E-08	1.6E-07	1.3E-04	5.3E-04	0.001
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	2.7E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.1E-06	0.0E+00	5.2E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	6.1E-10	5.9E-10	4.5E-10	4.3E-10	9.E-10	--	--	4.8E-09	4.6E-09	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	7.2E-10	6.9E-10	5.3E-09	5.1E-09	1.E-08	--	--	5.6E-09	5.4E-09	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	8.4E-10	8.1E-10	6.1E-10	5.9E-10	1.E-09	--	--	6.5E-09	6.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	3.1E-10	3.0E-10	2.3E-10	2.2E-10	4.E-10	--	--	2.4E-09	2.3E-09	--	--	--
Exposure Point Total										5.E-08							0.002
09B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	2.0E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.6E-03	0.0E+00	1.6E-03	0.002
	Arsenic	1.1E+00	mg/kg	1.5E+00	1.5E+00	3.4E-09	1.4E-08	5.2E-09	2.2E-08	3.E-08	3.0E-04	3.0E-04	2.7E-08	1.1E-07	8.9E-05	3.7E-04	0.0005
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	2.4E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.9E-06	0.0E+00	4.6E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	2.4E-10	2.4E-10	1.8E-10	1.7E-10	4.E-10	--	--	1.9E-09	1.8E-09	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.9E-10	1.8E-10	1.4E-09	1.3E-09	3.E-09	--	--	1.5E-09	1.4E-09	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.3E-10	9.6E-11	9.3E-11	2.E-10	--	--	1.0E-09	9.9E-10	--	--	--

TABLE 5-13.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	3.4E-11	3.3E-11	2.5E-10	2.4E-10	5.E-10	--	--	2.6E-10	2.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.1E-10	8.6E-11	8.3E-11	2.E-10	--	--	9.2E-10	8.9E-10	--	--	--
Exposure Point Total										3.E-08							0.002
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	1.5E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.1E-03	0.0E+00	1.1E-03	0.001
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	7.5E-09	3.1E-08	1.1E-08	4.7E-08	6.E-08	3.0E-04	3.0E-04	5.8E-08	2.4E-07	1.9E-04	8.1E-04	0.001
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	2.4E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.9E-06	0.0E+00	4.7E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	2.9E-11	2.7E-11	2.1E-11	2.0E-11	4.E-11	--	--	2.2E-10	2.1E-10	--	--	--
Exposure Point Total										6.E-08							0.002
09B027	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	2.4E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-03	0.0E+00	1.9E-03	0.002
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	2.6E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	2.0E-08	0.0E+00	5.1E-05	0.0001
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	4.2E-09	1.7E-08	6.3E-09	2.6E-08	3.E-08	3.0E-04	3.0E-04	3.2E-08	1.4E-07	1.1E-04	4.5E-04	0.001
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	3.0E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.3E-06	0.0E+00	5.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+00	ug/kg	7.3E-01	7.3E-01	1.0E-10	1.0E-10	7.6E-11	7.3E-11	1.E-10	--	--	8.1E-10	7.8E-10	--	--	--
	Benzo(a)pyrene	7.0E+00	ug/kg	7.3E+00	7.3E+00	9.4E-11	9.1E-11	6.9E-10	6.6E-10	1.E-09	--	--	7.3E-10	7.1E-10	--	--	--
	Benzo(b)fluoranthene	8.8E+00	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.2E-10	8.7E-11	8.4E-11	2.E-10	--	--	9.3E-10	9.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+00	ug/kg	7.3E-01	7.3E-01	7.6E-11	7.4E-11	5.6E-11	5.4E-11	1.E-10	--	--	5.9E-10	5.7E-10	--	--	--
Exposure Point Total										3.E-08							0.003
09B028	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	2.1E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.6E-03	0.0E+00	1.6E-03	0.002
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	4.1E-09	1.7E-08	6.1E-09	2.6E-08	3.E-08	3.0E-04	3.0E-04	3.2E-08	1.3E-07	1.1E-04	4.4E-04	0.001
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	2.5E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.9E-06	0.0E+00	4.8E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+00	ug/kg	7.3E-01	7.3E-01	7.2E-11	6.9E-11	5.3E-11	5.1E-11	1.E-10	--	--	5.6E-10	5.4E-10	--	--	--
	Benzo(a)pyrene	4.6E+00	ug/kg	7.3E+00	7.3E+00	6.2E-11	6.0E-11	4.6E-10	4.4E-10	9.E-10	--	--	4.9E-10	4.7E-10	--	--	--
	Benzo(b)fluoranthene	5.0E+00	ug/kg	7.3E-01	7.3E-01	6.8E-11	6.5E-11	5.0E-11	4.8E-11	1.E-10	--	--	5.3E-10	5.1E-10	--	--	--

TABLE 5-13.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	7.3E-01	7.3E-01	6.2E-11	6.0E-11	4.6E-11	4.4E-11	9.E-11	--	--	4.9E-10	4.7E-10	--	--	--
Exposure Point Total										3.E-08							0.002
B001	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	2.1E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.7E-03	0.0E+00	1.7E-03	0.002
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	7.0E-09	2.9E-08	1.1E-08	4.4E-08	5.E-08	3.0E-04	3.0E-04	5.5E-08	2.3E-07	1.8E-04	7.6E-04	0.001
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	2.5E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-06	0.0E+00	4.9E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E+00	ug/kg	7.3E-01	7.3E-01	8.8E-11	8.5E-11	6.4E-11	6.2E-11	1.E-10	--	--	6.9E-10	6.6E-10	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.9E-10	1.8E-10	1.4E-09	1.3E-09	3.E-09	--	--	1.5E-09	1.4E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	1.6E-10	1.2E-10	1.1E-10	2.E-10	--	--	1.3E-09	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	7.3E+00	7.3E+00	3.0E-11	2.9E-11	2.2E-10	2.1E-10	4.E-10	--	--	2.3E-10	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.3E-10	9.6E-11	9.3E-11	2.E-10	--	--	1.0E-09	9.9E-10	--	--	--
Exposure Point Total										6.E-08							0.003
B003	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	2.5E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-02	0.0E+00	1.9E-02	0.02
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	8.0E-09	3.3E-08	1.2E-08	5.0E-08	6.E-08	3.0E-04	3.0E-04	1.3E-06	2.6E-06	4.4E-03	8.6E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	2.6E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.0E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	2.9E-09	2.7E-09	2.1E-09	2.0E-09	4.E-09	--	--	4.8E-07	2.1E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	4.9E-09	4.7E-09	3.6E-08	3.4E-08	7.E-08	--	--	8.1E-07	3.7E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	4.2E-09	4.1E-09	3.1E-09	3.0E-09	6.E-09	--	--	7.0E-07	3.2E-07	--	--	--
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	7.3E+00	7.3E+00	4.5E-10	4.3E-10	3.3E-09	3.2E-09	6.E-09	--	--	7.5E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	3.8E-09	3.7E-09	2.8E-09	2.7E-09	5.E-09	--	--	6.3E-07	2.8E-07	--	--	--
Exposure Point Total										2.E-07							0.03
B005	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.9E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.01
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	1.0E-08	4.3E-08	1.5E-08	6.4E-08	8.E-08	3.0E-04	3.0E-04	1.7E-06	3.3E-06	5.7E-03	1.1E-02	0.02
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	1.9E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	1.0E-09	1.0E-09	7.6E-10	7.4E-10	1.E-09	--	--	1.7E-07	7.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	2.0E-09	2.0E-09	1.5E-08	1.4E-08	3.E-08	--	--	3.4E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	1.6E-09	1.2E-09	1.1E-09	2.E-09	--	--	2.7E-07	1.2E-07	--	--	--

TABLE 5-13.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.0E-10	1.5E-09	1.4E-09	3.E-09	--	--	3.4E-08	1.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	7.3E-01	7.3E-01	1.8E-09	1.7E-09	1.3E-09	1.2E-09	3.E-09	--	--	2.9E-07	1.3E-07	--	--	--
Exposure Point Total										1.E-07							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-14.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	2.1E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.8E-03	0.0E+00	4.8E-03	0.005
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	3.3E-07	2.6E-07	5.0E-07	8.E-07	3.0E-04	3.0E-04	4.0E-07	7.7E-07	1.3E-03	2.6E-03	0.004
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	2.5E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	5.9E-06	0.0E+00	1.5E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	2.4E-09	1.1E-09	1.8E-09	7.9E-10	3.E-09	--	--	5.6E-09	2.5E-09	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	3.1E-09	1.4E-09	2.2E-08	1.0E-08	3.E-08	--	--	7.1E-09	3.2E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	3.9E-09	1.7E-09	2.8E-09	1.3E-09	4.E-09	--	--	9.0E-09	4.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	6.2E-09	2.8E-09	4.5E-09	2.0E-09	7.E-09	--	--	1.4E-08	6.5E-09	--	--	--
Exposure Point Total										8.E-07							0.01
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	3.9E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	9.0E-03	0.0E+00	9.0E-03	0.01
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	2.9E-07	5.6E-07	4.3E-07	8.4E-07	1.E-06	3.0E-04	3.0E-04	6.7E-07	1.3E-06	2.2E-03	4.3E-03	0.01
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	4.0E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.3E-06	0.0E+00	2.3E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	1.5E-08	6.6E-09	1.1E-08	4.8E-09	2.E-08	--	--	3.4E-08	1.5E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	2.1E-08	9.2E-09	1.5E-07	6.7E-08	2.E-07	--	--	4.8E-08	2.2E-08	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	1.4E-08	6.1E-09	9.9E-09	4.5E-09	1.E-08	--	--	3.2E-08	1.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	4.7E-09	2.1E-09	3.4E-08	1.5E-08	5.E-08	--	--	1.1E-08	4.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	1.8E-08	8.2E-09	1.3E-08	6.0E-09	2.E-08	--	--	4.3E-08	1.9E-08	--	--	--
Exposure Point Total										2.E-06							0.02
03B033	**Metals**																
	Aluminum	1.4E+04	mg/kg	--	--	0.0E+00	2.4E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.7E-03	0.0E+00	5.7E-03	0.01
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	3.6E-07	7.0E-07	5.4E-07	1.0E-06	2.E-06	3.0E-04	3.0E-04	8.4E-07	1.6E-06	2.8E-03	5.4E-03	0.01
	Copper	1.6E+01	mg/kg	--	--	0.0E+00	2.8E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	6.4E-06	0.0E+00	1.6E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.2E+00	ug/kg	7.3E-01	7.3E-01	2.0E-09	9.1E-10	1.5E-09	6.6E-10	2.E-09	--	--	4.7E-09	2.1E-09	--	--	--
	Benzo(a)pyrene	5.2E+00	ug/kg	7.3E+00	7.3E+00	2.0E-09	9.1E-10	1.5E-08	6.6E-09	2.E-08	--	--	4.7E-09	2.1E-09	--	--	--
	Benzo(b)fluoranthene	5.2E+00	ug/kg	7.3E-01	7.3E-01	2.0E-09	9.1E-10	1.5E-09	6.6E-10	2.E-09	--	--	4.7E-09	2.1E-09	--	--	--

TABLE 5-14.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	2.5E-09	1.1E-09	1.8E-09	8.2E-10	3.E-09	--	--	5.8E-09	2.6E-09	--	--	--
Exposure Point Total										2.E-06							0.01
04B023	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	2.1E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.0E-03	0.0E+00	5.0E-03	0.005
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	5.2E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.2E-07	0.0E+00	3.1E-04	0.0003
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	2.4E-07	4.7E-07	3.6E-07	7.1E-07	1.E-06	3.0E-04	3.0E-04	5.6E-07	1.1E-06	1.9E-03	3.7E-03	0.01
	Copper	3.3E+01	mg/kg	--	--	0.0E+00	5.8E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.4E-05	0.0E+00	3.4E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	1.0E-08	4.5E-09	7.4E-09	3.3E-09	1.E-08	--	--	2.4E-08	1.1E-08	--	--	--
	Benzo(a)pyrene	4.2E+01	ug/kg	7.3E+00	7.3E+00	1.6E-08	7.3E-09	1.2E-07	5.3E-08	2.E-07	--	--	3.8E-08	1.7E-08	--	--	--
	Benzo(b)fluoranthene	3.3E+01	ug/kg	7.3E-01	7.3E-01	1.3E-08	5.8E-09	9.3E-09	4.2E-09	1.E-08	--	--	3.0E-08	1.3E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	5.4E-09	2.4E-09	4.0E-08	1.8E-08	6.E-08	--	--	1.3E-08	5.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	1.5E-08	6.6E-09	1.1E-08	4.8E-09	2.E-08	--	--	3.4E-08	1.5E-08	--	--	--
Exposure Point Total										1.E-06							0.01
04B024	**Metals**																
	Aluminum	2.1E+04	mg/kg	--	--	0.0E+00	3.7E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	8.6E-03	0.0E+00	8.6E-03	0.01
	Antimony	1.3E+01	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	6.0E-05	4.0E-04	0.0E+00	5.3E-06	0.0E+00	1.3E-02	0.01
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	4.2E-07	8.2E-07	6.3E-07	1.2E-06	2.E-06	3.0E-04	3.0E-04	9.8E-07	1.9E-06	3.3E-03	6.4E-03	0.01
	Copper	1.9E+02	mg/kg	--	--	0.0E+00	3.4E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.9E-05	0.0E+00	2.0E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	7.0E-08	3.1E-08	5.1E-08	2.3E-08	7.E-08	--	--	1.6E-07	7.3E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.4E-07	6.3E-08	1.0E-06	4.6E-07	1.E-06	--	--	3.3E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.2E-07	5.2E-08	8.5E-08	3.8E-08	1.E-07	--	--	2.7E-07	1.2E-07	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	8.9E-09	4.0E-09	6.5E-08	2.9E-08	9.E-08	--	--	2.1E-08	9.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	7.3E-01	7.3E-01	8.5E-08	3.8E-08	6.2E-08	2.8E-08	9.E-08	--	--	2.0E-07	9.0E-08	--	--	--
Exposure Point Total										4.E-06							0.03
05B018	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	3.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.7E-03	0.0E+00	7.7E-03	0.01
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	3.5E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	8.1E-08	0.0E+00	2.0E-04	0.0002
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	2.1E-07	4.2E-07	3.2E-07	6.3E-07	1.E-06	3.0E-04	3.0E-04	5.0E-07	9.8E-07	1.7E-03	3.3E-03	0.005
	Copper	1.1E+02	mg/kg	--	--	0.0E+00	1.9E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	4.4E-05	0.0E+00	1.1E-03	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.2E+01	ug/kg	7.3E-01	7.3E-01	2.8E-08	1.3E-08	2.0E-08	9.2E-09	3.E-08	--	--	6.5E-08	2.9E-08	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	3.3E-08	1.5E-08	2.4E-07	1.1E-07	4.E-07	--	--	7.8E-08	3.5E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	3.9E-08	1.7E-08	2.8E-08	1.3E-08	4.E-08	--	--	9.0E-08	4.1E-08	--	--	--

TABLE 5-14.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	1.0E-08	4.5E-09	7.4E-08	3.3E-08	1.E-07	--	--	2.4E-08	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	1.5E-08	6.8E-09	1.1E-08	5.0E-09	2.E-08	--	--	3.5E-08	1.6E-08	--	--	--
Exposure Point Total										1.E-06							0.01
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	2.7E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.3E-03	0.0E+00	6.3E-03	0.01
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	5.2E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.2E-07	0.0E+00	3.1E-04	0.0003
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	2.3E-07	4.5E-07	3.5E-07	6.8E-07	1.E-06	3.0E-04	3.0E-04	5.4E-07	1.1E-06	1.8E-03	3.5E-03	0.01
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	7.4E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.7E-05	0.0E+00	4.3E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	1.9E-09	8.4E-10	1.4E-09	6.1E-10	2.E-09	--	--	4.3E-09	2.0E-09	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	1.7E-09	7.7E-10	1.2E-08	5.6E-09	2.E-08	--	--	4.0E-09	1.8E-09	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	2.2E-09	9.8E-10	1.6E-09	7.1E-10	2.E-09	--	--	5.1E-09	2.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	1.9E-09	8.4E-10	1.4E-09	6.1E-10	2.E-09	--	--	4.3E-09	2.0E-09	--	--	--
Exposure Point Total										1.E-06							0.01
06B026	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	2.1E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.0E-03	0.0E+00	5.0E-03	0.01
	Antimony	8.0E-01	mg/kg	--	--	0.0E+00	1.4E-07	--	--	--	6.0E-05	4.0E-04	0.0E+00	3.3E-07	0.0E+00	8.1E-04	0.001
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	1.5E-07	3.0E-07	2.3E-07	4.4E-07	7.E-07	3.0E-04	3.0E-04	3.5E-07	6.9E-07	1.2E-03	2.3E-03	0.003
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	8.1E-06	0.0E+00	2.0E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.9E+00	ug/kg	7.3E-01	7.3E-01	3.1E-09	1.4E-09	2.2E-09	1.0E-09	3.E-09	--	--	7.1E-09	3.2E-09	--	--	--
	Benzo(a)pyrene	6.4E+00	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.1E-09	1.8E-08	8.2E-09	3.E-08	--	--	5.8E-09	2.6E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	3.9E-09	1.7E-09	2.8E-09	1.3E-09	4.E-09	--	--	9.0E-09	4.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	4.3E-09	1.9E-09	3.1E-09	1.4E-09	5.E-09	--	--	1.0E-08	4.5E-09	--	--	--
Exposure Point Total										7.E-07							0.01
06B030	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	3.1E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.1E-03	0.0E+00	7.1E-03	0.01
	Arsenic	9.9E+00	mg/kg	1.5E+00	1.5E+00	8.9E-07	1.7E-06	1.3E-06	2.6E-06	4.E-06	3.0E-04	3.0E-04	2.1E-06	4.0E-06	6.9E-03	1.3E-02	0.02
	Copper	6.1E+02	mg/kg	--	--	0.0E+00	1.1E-04	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.5E-04	0.0E+00	6.2E-03	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	1.7E-08	7.9E-09	1.3E-08	5.7E-09	2.E-08	--	--	4.1E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	2.6E-08	1.2E-08	1.9E-07	8.4E-08	3.E-07	--	--	6.0E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	8.1E+01	ug/kg	7.3E-01	7.3E-01	3.1E-08	1.4E-08	2.3E-08	1.0E-08	3.E-08	--	--	7.3E-08	3.3E-08	--	--	--

TABLE 5-14.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	7.3E+00	7.3E+00	1.9E-09	8.7E-10	1.4E-08	6.4E-09	2.E-08	--	--	4.5E-09	2.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	1.8E-08	8.2E-09	1.3E-08	6.0E-09	2.E-08	--	--	4.3E-08	1.9E-08	--	--	--
Exposure Point Total										4.E-06							0.03
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	1.8E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.1E-03	0.0E+00	4.1E-03	0.004
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	5.2E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.2E-07	0.0E+00	3.1E-04	0.0003
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	6.3E-08	1.2E-07	9.4E-08	1.8E-07	3.E-07	3.0E-04	3.0E-04	1.5E-07	2.8E-07	4.9E-04	9.5E-04	0.001
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	1.2E-05	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.8E-05	0.0E+00	7.1E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	5.4E-09	2.4E-09	4.0E-09	1.8E-09	6.E-09	--	--	1.3E-08	5.7E-09	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	5.8E-09	2.6E-09	4.2E-08	1.9E-08	6.E-08	--	--	1.4E-08	6.1E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	4.7E-09	2.1E-09	3.4E-09	1.5E-09	5.E-09	--	--	1.1E-08	4.9E-09	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	9.7E-10	4.4E-10	7.1E-09	3.2E-09	1.E-08	--	--	2.3E-09	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	5.0E-09	2.3E-09	3.7E-09	1.7E-09	5.E-09	--	--	1.2E-08	5.3E-09	--	--	--
Exposure Point Total										4.E-07							0.01
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	2.7E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.2E-03	0.0E+00	6.2E-03	0.01
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	1.4E-07	2.7E-07	2.1E-07	4.1E-07	6.E-07	3.0E-04	3.0E-04	3.2E-07	6.3E-07	1.1E-03	2.1E-03	0.003
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	3.6E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	8.4E-06	0.0E+00	2.1E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	1.7E-08	7.9E-09	1.3E-08	5.7E-09	2.E-08	--	--	4.1E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	2.1E-08	9.2E-09	1.5E-07	6.7E-08	2.E-07	--	--	4.8E-08	2.2E-08	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.1E-08	1.8E-08	7.9E-09	3.E-08	--	--	5.6E-08	2.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	8.9E-09	4.0E-09	6.5E-09	2.9E-09	9.E-09	--	--	2.1E-08	9.4E-09	--	--	--
Exposure Point Total										9.E-07							0.01
09B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	2.7E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.2E-03	0.0E+00	6.2E-03	0.01
	Arsenic	1.1E+00	mg/kg	1.5E+00	1.5E+00	9.8E-08	1.9E-07	1.5E-07	2.9E-07	4.E-07	3.0E-04	3.0E-04	2.3E-07	4.5E-07	7.7E-04	1.5E-03	0.002
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	3.2E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.4E-06	0.0E+00	1.9E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	7.0E-09	3.1E-09	5.1E-09	2.3E-09	7.E-09	--	--	1.6E-08	7.3E-09	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	5.4E-09	2.4E-09	4.0E-08	1.8E-08	6.E-08	--	--	1.3E-08	5.7E-09	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	3.8E-09	1.7E-09	2.7E-09	1.2E-09	4.E-09	--	--	8.8E-09	3.9E-09	--	--	--

[a] Cancer Risk Calculations and Noncancer Hazard Quotient Calculations

TABLE 5-14.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	9.7E-10	4.4E-10	7.1E-09	3.2E-09	1.E-08	--	--	2.3E-09	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	7.3E-01	7.3E-01	3.4E-09	1.5E-09	2.5E-09	1.1E-09	4.E-09	--	--	7.9E-09	3.5E-09	--	--	--
Exposure Point Total										5.E-07							0.01
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	2.0E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	4.6E-03	0.0E+00	4.6E-03	0.005
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	2.1E-07	4.2E-07	3.2E-07	6.3E-07	1.E-06	3.0E-04	3.0E-04	5.0E-07	9.8E-07	1.7E-03	3.3E-03	0.005
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	3.2E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.4E-06	0.0E+00	1.9E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	8.1E-10	3.7E-10	5.9E-10	2.7E-10	9.E-10	--	--	1.9E-09	8.5E-10	--	--	--
Exposure Point Total										1.E-06							0.01
09B027	**Metals**																
	Aluminum	2.0E+04	mg/kg	--	--	0.0E+00	3.5E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	8.1E-03	0.0E+00	8.1E-03	0.01
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	3.5E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	8.1E-08	0.0E+00	2.0E-04	0.0002
	Arsenic	1.4E+00	mg/kg	1.5E+00	1.5E+00	1.3E-07	2.4E-07	1.9E-07	3.7E-07	6.E-07	3.0E-04	3.0E-04	2.9E-07	5.7E-07	9.7E-04	1.9E-03	0.003
	Copper	2.4E+01	mg/kg	--	--	0.0E+00	4.2E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.8E-06	0.0E+00	2.4E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.8E+00	ug/kg	7.3E-01	7.3E-01	3.8E-09	1.7E-09	2.8E-09	1.2E-09	4.E-09	--	--	8.9E-09	4.0E-09	--	--	--
	Benzo(a)pyrene	9.0E+00	ug/kg	7.3E+00	7.3E+00	3.5E-09	1.6E-09	2.5E-08	1.1E-08	4.E-08	--	--	8.1E-09	3.7E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	4.0E-09	1.8E-09	2.9E-09	1.3E-09	4.E-09	--	--	9.4E-09	4.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.6E+00	ug/kg	7.3E-01	7.3E-01	2.6E-09	1.2E-09	1.9E-09	8.4E-10	3.E-09	--	--	6.0E-09	2.7E-09	--	--	--
Exposure Point Total										6.E-07							0.01
09B028	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	2.8E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.5E-03	0.0E+00	6.5E-03	0.01
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	1.2E-07	2.3E-07	1.7E-07	3.4E-07	5.E-07	3.0E-04	3.0E-04	2.7E-07	5.3E-07	9.0E-04	1.8E-03	0.003
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	3.3E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.7E-06	0.0E+00	1.9E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+00	ug/kg	7.3E-01	7.3E-01	2.1E-09	9.2E-10	1.5E-09	6.7E-10	2.E-09	--	--	4.8E-09	2.2E-09	--	--	--
	Benzo(a)pyrene	4.6E+00	ug/kg	7.3E+00	7.3E+00	1.8E-09	8.0E-10	1.3E-08	5.9E-09	2.E-08	--	--	4.2E-09	1.9E-09	--	--	--
	Benzo(b)fluoranthene	5.0E+00	ug/kg	7.3E-01	7.3E-01	1.9E-09	8.7E-10	1.4E-09	6.4E-10	2.E-09	--	--	4.5E-09	2.0E-09	--	--	--

TABLE 5-14.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	7.3E-01	7.3E-01	1.8E-09	8.0E-10	1.3E-09	5.9E-10	2.E-09	--	--	4.2E-09	1.9E-09	--	--	--
Exposure Point Total										5.E-07							0.01
B001	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	2.9E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.7E-03	0.0E+00	6.7E-03	0.01
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	2.0E-07	3.9E-07	3.0E-07	5.9E-07	9.E-07	3.0E-04	3.0E-04	4.7E-07	9.2E-07	1.6E-03	3.1E-03	0.005
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.9E-06	0.0E+00	2.0E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E+00	ug/kg	7.3E-01	7.3E-01	2.5E-09	1.1E-09	1.8E-09	8.3E-10	3.E-09	--	--	5.9E-09	2.6E-09	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	5.4E-09	2.4E-09	4.0E-08	1.8E-08	6.E-08	--	--	1.3E-08	5.7E-09	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	4.7E-09	2.1E-09	3.4E-09	1.5E-09	5.E-09	--	--	1.1E-08	4.9E-09	--	--	--
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	7.3E+00	7.3E+00	8.5E-10	3.8E-10	6.2E-09	2.8E-09	9.E-09	--	--	2.0E-09	9.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	7.3E-01	7.3E-01	3.8E-09	1.7E-09	2.7E-09	1.2E-09	4.E-09	--	--	8.8E-09	3.9E-09	--	--	--
Exposure Point Total										1.E-06							0.01
B003	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	3.3E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-02	0.0E+00	1.9E-02	0.02
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	2.3E-07	4.4E-07	3.4E-07	6.6E-07	1.E-06	3.0E-04	3.0E-04	1.3E-06	2.6E-06	4.4E-03	8.6E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.0E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	8.1E-08	3.7E-08	5.9E-08	2.7E-08	9.E-08	--	--	4.8E-07	2.1E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.4E-07	6.3E-08	1.0E-06	4.6E-07	1.E-06	--	--	8.1E-07	3.7E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.2E-07	5.4E-08	8.8E-08	3.9E-08	1.E-07	--	--	7.0E-07	3.2E-07	--	--	--
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	7.3E+00	7.3E+00	1.3E-08	5.8E-09	9.3E-08	4.2E-08	1.E-07	--	--	7.5E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.1E-07	4.9E-08	7.9E-08	3.6E-08	1.E-07	--	--	6.3E-07	2.8E-07	--	--	--
Exposure Point Total										3.E-06							0.03
B005	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	2.5E-03	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.01
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	2.9E-07	5.7E-07	4.4E-07	8.5E-07	1.E-06	3.0E-04	3.0E-04	1.7E-06	3.3E-06	5.7E-03	1.1E-02	0.02
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	2.5E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	3.0E-08	1.3E-08	2.2E-08	9.8E-09	3.E-08	--	--	1.7E-07	7.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	5.8E-08	2.6E-08	4.2E-07	1.9E-07	6.E-07	--	--	3.4E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	1.2E+02	ug/kg	7.3E-01	7.3E-01	4.7E-08	2.1E-08	3.4E-08	1.5E-08	5.E-08	--	--	2.7E-07	1.2E-07	--	--	--

TABLE 5-14.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]							Noncancer Hazard Quotient Calculations[a]						
				Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	5.8E-09	2.6E-09	4.2E-08	1.9E-08	6.E-08	--	--	3.4E-08	1.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	7.3E-01	7.3E-01	5.0E-08	2.3E-08	3.7E-08	1.7E-08	5.E-08	--	--	2.9E-07	1.3E-07	--	--	--
Exposure Point Total										2.E-06							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-15.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
03B030	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	7.8E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.1E-04	0.0E+00	6.1E-04	0.001
	Arsenic	1.9E+00	mg/kg	1.5E+00	1.5E+00	3.0E-09	1.2E-08	4.5E-09	1.9E-08	2.E-08	3.0E-04	3.0E-04	2.3E-08	9.7E-08	7.7E-05	3.2E-04	0.0004
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	9.4E-08	--	--	--	4.0E-02	4.0E-02	0.0E+00	7.3E-07	0.0E+00	1.8E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+00	ug/kg	7.3E-01	7.3E-01	4.2E-11	4.1E-11	3.1E-11	3.0E-11	6.E-11	--	--	3.3E-10	3.2E-10	--	--	--
	Benzo(a)pyrene	7.9E+00	ug/kg	7.3E+00	7.3E+00	5.4E-11	5.2E-11	3.9E-10	3.8E-10	8.E-10	--	--	4.2E-10	4.0E-10	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	6.8E-11	6.5E-11	5.0E-11	4.8E-11	1.E-10	--	--	5.3E-10	5.1E-10	--	--	--
	Dibenzo(a,h)anthracene	ND	ug/kg	7.3E+00	7.3E+00	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	1.0E-10	7.9E-11	7.6E-11	2.E-10	--	--	8.4E-10	8.1E-10	--	--	--
Exposure Point Total										2.E-08							0.001
03B031	**Metals**																
	Aluminum	2.2E+04	mg/kg	--	--	0.0E+00	1.4E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.1E-03	0.0E+00	1.1E-03	0.001
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	5.0E-09	2.1E-08	7.5E-09	3.1E-08	4.E-08	3.0E-04	3.0E-04	3.9E-08	1.6E-07	1.3E-04	5.4E-04	0.001
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	1.5E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-06	0.0E+00	2.9E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.8E+01	ug/kg	7.3E-01	7.3E-01	2.6E-10	2.5E-10	1.9E-10	1.8E-10	4.E-10	--	--	2.0E-09	1.9E-09	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	3.6E-10	3.5E-10	2.6E-09	2.5E-09	5.E-09	--	--	2.8E-09	2.7E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	2.4E-10	2.3E-10	1.7E-10	1.7E-10	3.E-10	--	--	1.8E-09	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	8.1E-11	7.9E-11	5.9E-10	5.7E-10	1.E-09	--	--	6.3E-10	6.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	3.2E-10	3.1E-10	2.3E-10	2.2E-10	5.E-10	--	--	2.5E-09	2.4E-09	--	--	--
Exposure Point Total										5.E-08							0.002
03B033	**Metals**																
	Aluminum	1.4E+04	mg/kg	--	--	0.0E+00	9.2E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.1E-04	0.0E+00	7.1E-04	0.001
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	6.3E-09	2.6E-08	9.4E-09	3.9E-08	5.E-08	3.0E-04	3.0E-04	4.9E-08	2.0E-07	1.6E-04	6.8E-04	0.001
	Copper	1.6E+01	mg/kg	--	--	0.0E+00	1.0E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	8.0E-07	0.0E+00	2.0E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.2E+00	ug/kg	7.3E-01	7.3E-01	3.5E-11	3.4E-11	2.6E-11	2.5E-11	5.E-11	--	--	2.7E-10	2.6E-10	--	--	--
	Benzo(a)pyrene	5.2E+00	ug/kg	7.3E+00	7.3E+00	3.5E-11	3.4E-11	2.6E-10	2.5E-10	5.E-10	--	--	2.7E-10	2.6E-10	--	--	--
	Benzo(b)fluoranthene	5.2E+00	ug/kg	7.3E-01	7.3E-01	3.5E-11	3.4E-11	2.6E-11	2.5E-11	5.E-11	--	--	2.7E-10	2.6E-10	--	--	--

TABLE 5-15.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	6.4E+00	ug/kg	7.3E-01	7.3E-01	4.3E-11	4.2E-11	3.2E-11	3.1E-11	6.E-11	--	--	3.4E-10	3.3E-10	--	--	--
Exposure Point Total										5.E-08							0.002
04B023	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	8.0E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.2E-04	0.0E+00	6.2E-04	0.001
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.5E-08	0.0E+00	3.8E-05	0.00004
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	4.2E-09	1.8E-08	6.3E-09	2.6E-08	3.E-08	3.0E-04	3.0E-04	3.3E-08	1.4E-07	1.1E-04	4.6E-04	0.001
	Copper	3.3E+01	mg/kg	--	--	0.0E+00	2.2E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.7E-06	0.0E+00	4.2E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	1.8E-10	1.7E-10	1.3E-10	1.2E-10	3.E-10	--	--	1.4E-09	1.3E-09	--	--	--
	Benzo(a)pyrene	4.2E+01	ug/kg	7.3E+00	7.3E+00	2.9E-10	2.7E-10	2.1E-09	2.0E-09	4.E-09	--	--	2.2E-09	2.1E-09	--	--	--
	Benzo(b)fluoranthene	3.3E+01	ug/kg	7.3E-01	7.3E-01	2.2E-10	2.2E-10	1.6E-10	1.6E-10	3.E-10	--	--	1.7E-09	1.7E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	9.5E-11	9.2E-11	6.9E-10	6.7E-10	1.E-09	--	--	7.4E-10	7.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	2.6E-10	2.5E-10	1.9E-10	1.8E-10	4.E-10	--	--	2.0E-09	1.9E-09	--	--	--
Exposure Point Total										4.E-08							0.001
04B024	**Metals**																
	Aluminum	2.1E+04	mg/kg	--	--	0.0E+00	1.4E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.1E-03	0.0E+00	1.1E-03	0.001
	Antimony	1.3E+01	mg/kg	--	--	0.0E+00	8.5E-08	--	--	--	6.0E-05	4.0E-04	0.0E+00	6.6E-07	0.0E+00	1.7E-03	0.002
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	7.4E-09	3.1E-08	1.1E-08	4.6E-08	6.E-08	3.0E-04	3.0E-04	5.7E-08	2.4E-07	1.9E-04	8.0E-04	0.001
	Copper	1.9E+02	mg/kg	--	--	0.0E+00	1.3E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.9E-06	0.0E+00	2.5E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.2E-09	8.9E-10	8.6E-10	2.E-09	--	--	9.5E-09	9.2E-09	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	2.4E-09	2.4E-09	1.8E-08	1.7E-08	4.E-08	--	--	1.9E-08	1.8E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-09	2.0E-09	1.5E-09	1.4E-09	3.E-09	--	--	1.6E-08	1.5E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	1.6E-10	1.5E-10	1.1E-09	1.1E-09	2.E-09	--	--	1.2E-09	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	1.4E-09	1.1E-09	1.1E-09	2.E-09	--	--	1.2E-08	1.1E-08	--	--	--
Exposure Point Total										1.E-07							0.004
05B018	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	1.2E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	9.6E-04	0.0E+00	9.6E-04	0.001
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.0E-08	0.0E+00	2.5E-05	0.00003
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	3.8E-09	1.6E-08	5.6E-09	2.4E-08	3.E-08	3.0E-04	3.0E-04	2.9E-08	1.2E-07	9.7E-05	4.1E-04	0.001
	Copper	1.1E+02	mg/kg	--	--	0.0E+00	7.1E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	5.5E-06	0.0E+00	1.4E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.2E+01	ug/kg	7.3E-01	7.3E-01	4.9E-10	4.7E-10	3.6E-10	3.4E-10	7.E-10	--	--	3.8E-09	3.7E-09	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	5.8E-10	5.6E-10	4.3E-09	4.1E-09	8.E-09	--	--	4.5E-09	4.4E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	6.8E-10	6.5E-10	5.0E-10	4.8E-10	1.E-09	--	--	5.3E-09	5.1E-09	--	--	--

TABLE 5-15.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	1.8E-10	1.7E-10	1.3E-09	1.2E-09	3.E-09	--	--	1.4E-09	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	2.6E-10	2.6E-10	1.9E-10	1.9E-10	4.E-10	--	--	2.1E-09	2.0E-09	--	--	--
Exposure Point Total										4.E-08							0.002
06B022	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.0E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.8E-04	0.0E+00	7.8E-04	0.001
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.5E-08	0.0E+00	3.8E-05	0.00004
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	4.1E-09	1.7E-08	6.1E-09	2.6E-08	3.E-08	3.0E-04	3.0E-04	3.2E-08	1.3E-07	1.1E-04	4.4E-04	0.001
	Copper	4.3E+01	mg/kg	--	--	0.0E+00	2.8E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.2E-06	0.0E+00	5.4E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+00	ug/kg	7.3E-01	7.3E-01	3.3E-11	3.1E-11	2.4E-11	2.3E-11	5.E-11	--	--	2.5E-10	2.4E-10	--	--	--
	Benzo(a)pyrene	4.4E+00	ug/kg	7.3E+00	7.3E+00	3.0E-11	2.9E-11	2.2E-10	2.1E-10	4.E-10	--	--	2.3E-10	2.2E-10	--	--	--
	Benzo(b)fluoranthene	5.6E+00	ug/kg	7.3E-01	7.3E-01	3.8E-11	3.7E-11	2.8E-11	2.7E-11	5.E-11	--	--	3.0E-10	2.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+00	ug/kg	7.3E-01	7.3E-01	3.3E-11	3.1E-11	2.4E-11	2.3E-11	5.E-11	--	--	2.5E-10	2.4E-10	--	--	--
Exposure Point Total										3.E-08							0.001
06B026	**Metals**																
	Aluminum	1.2E+04	mg/kg	--	--	0.0E+00	8.0E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	6.3E-04	0.0E+00	6.3E-04	0.001
	Antimony	8.0E-01	mg/kg	--	--	0.0E+00	5.2E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	4.1E-08	0.0E+00	1.0E-04	0.0001
	Arsenic	1.7E+00	mg/kg	1.5E+00	1.5E+00	2.7E-09	1.1E-08	4.0E-09	1.7E-08	2.E-08	3.0E-04	3.0E-04	2.1E-08	8.6E-08	6.9E-05	2.9E-04	0.0004
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	1.3E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.0E-06	0.0E+00	2.5E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.9E+00	ug/kg	7.3E-01	7.3E-01	5.4E-11	5.2E-11	3.9E-11	3.8E-11	8.E-11	--	--	4.2E-10	4.0E-10	--	--	--
	Benzo(a)pyrene	6.4E+00	ug/kg	7.3E+00	7.3E+00	4.3E-11	4.2E-11	3.2E-10	3.1E-10	6.E-10	--	--	3.4E-10	3.3E-10	--	--	--
	Benzo(b)fluoranthene	1.0E+01	ug/kg	7.3E-01	7.3E-01	6.8E-11	6.5E-11	5.0E-11	4.8E-11	1.E-10	--	--	5.3E-10	5.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	7.5E-11	7.2E-11	5.4E-11	5.3E-11	1.E-10	--	--	5.8E-10	5.6E-10	--	--	--
Exposure Point Total										2.E-08							0.001
06B030	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	1.1E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	8.9E-04	0.0E+00	8.9E-04	0.001
	Arsenic	9.9E+00	mg/kg	1.5E+00	1.5E+00	1.6E-08	6.5E-08	2.3E-08	9.7E-08	1.E-07	3.0E-04	3.0E-04	1.2E-07	5.0E-07	4.0E-04	1.7E-03	0.002
	Copper	6.1E+02	mg/kg	--	--	0.0E+00	4.0E-06	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.1E-05	0.0E+00	7.7E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	3.1E-10	2.9E-10	2.2E-10	2.1E-10	4.E-10	--	--	2.4E-09	2.3E-09	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	4.5E-10	4.3E-10	3.3E-09	3.2E-09	6.E-09	--	--	3.5E-09	3.4E-09	--	--	--
	Benzo(b)fluoranthene	8.1E+01	ug/kg	7.3E-01	7.3E-01	5.5E-10	5.3E-10	4.0E-10	3.9E-10	8.E-10	--	--	4.3E-09	4.1E-09	--	--	--

TABLE 5-15.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	5.0E+00	ug/kg	7.3E+00	7.3E+00	3.4E-11	3.3E-11	2.5E-10	2.4E-10	5.E-10	--	--	2.6E-10	2.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	3.2E-10	3.1E-10	2.3E-10	2.2E-10	5.E-10	--	--	2.5E-09	2.4E-09	--	--	--
Exposure Point Total										1.E-07							0.004
07B023	**Metals**																
	Aluminum	1.0E+04	mg/kg	--	--	0.0E+00	6.6E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.1E-04	0.0E+00	5.1E-04	0.001
	Antimony	3.0E-01	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.5E-08	0.0E+00	3.8E-05	0.00004
	Arsenic	7.0E-01	mg/kg	1.5E+00	1.5E+00	1.1E-09	4.6E-09	1.6E-09	6.9E-09	9.E-09	3.0E-04	3.0E-04	8.5E-09	3.6E-08	2.8E-05	1.2E-04	0.0001
	Copper	7.0E+01	mg/kg	--	--	0.0E+00	4.6E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	3.5E-06	0.0E+00	8.9E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	9.5E-11	9.2E-11	6.9E-11	6.7E-11	1.E-10	--	--	7.4E-10	7.1E-10	--	--	--
	Benzo(a)pyrene	1.5E+01	ug/kg	7.3E+00	7.3E+00	1.0E-10	9.8E-11	7.4E-10	7.2E-10	1.E-09	--	--	7.9E-10	7.6E-10	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	8.1E-11	7.9E-11	5.9E-11	5.7E-11	1.E-10	--	--	6.3E-10	6.1E-10	--	--	--
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	1.7E-11	1.6E-11	1.2E-10	1.2E-10	2.E-10	--	--	1.3E-10	1.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+01	ug/kg	7.3E-01	7.3E-01	8.8E-11	8.5E-11	6.4E-11	6.2E-11	1.E-10	--	--	6.9E-10	6.6E-10	--	--	--
Exposure Point Total										1.E-08							0.001
07B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	9.9E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.7E-04	0.0E+00	7.7E-04	0.001
	Arsenic	1.6E+00	mg/kg	1.5E+00	1.5E+00	2.4E-09	1.0E-08	3.6E-09	1.5E-08	2.E-08	3.0E-04	3.0E-04	1.9E-08	7.9E-08	6.3E-05	2.6E-04	0.0003
	Copper	2.1E+01	mg/kg	--	--	0.0E+00	1.3E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.0E-06	0.0E+00	2.6E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.5E+01	ug/kg	7.3E-01	7.3E-01	3.1E-10	2.9E-10	2.2E-10	2.1E-10	4.E-10	--	--	2.4E-09	2.3E-09	--	--	--
	Benzo(a)pyrene	5.3E+01	ug/kg	7.3E+00	7.3E+00	3.6E-10	3.5E-10	2.6E-09	2.5E-09	5.E-09	--	--	2.8E-09	2.7E-09	--	--	--
	Benzo(b)fluoranthene	6.2E+01	ug/kg	7.3E-01	7.3E-01	4.2E-10	4.1E-10	3.1E-10	3.0E-10	6.E-10	--	--	3.3E-09	3.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.3E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	1.5E-10	1.1E-10	1.1E-10	2.E-10	--	--	1.2E-09	1.2E-09	--	--	--
Exposure Point Total										3.E-08							0.001
09B024	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	1.0E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	7.8E-04	0.0E+00	7.8E-04	0.001
	Arsenic	1.1E+00	mg/kg	1.5E+00	1.5E+00	1.7E-09	7.2E-09	2.6E-09	1.1E-08	1.E-08	3.0E-04	3.0E-04	1.3E-08	5.6E-08	4.5E-05	1.9E-04	0.0002
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.3E-07	0.0E+00	2.3E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.2E-10	8.9E-11	8.6E-11	2.E-10	--	--	9.5E-10	9.2E-10	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	9.5E-11	9.2E-11	6.9E-10	6.7E-10	1.E-09	--	--	7.4E-10	7.1E-10	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	6.6E-11	6.3E-11	4.8E-11	4.6E-11	9.E-11	--	--	5.1E-10	4.9E-10	--	--	--

TABLE 5-15.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	2.5E+00	ug/kg	7.3E+00	7.3E+00	1.7E-11	1.6E-11	1.2E-10	1.2E-10	2.E-10	--	--	1.3E-10	1.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.7E+00	ug/kg	7.3E-01	7.3E-01	5.9E-11	5.7E-11	4.3E-11	4.2E-11	8.E-11	--	--	4.6E-10	4.4E-10	--	--	--
Exposure Point Total										2.E-08							0.001
09B026	**Metals**																
	Aluminum	1.1E+04	mg/kg	--	--	0.0E+00	7.4E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	5.7E-04	0.0E+00	5.7E-04	0.001
	Arsenic	2.4E+00	mg/kg	1.5E+00	1.5E+00	3.8E-09	1.6E-08	5.6E-09	2.4E-08	3.E-08	3.0E-04	3.0E-04	2.9E-08	1.2E-07	9.7E-05	4.1E-04	0.001
	Copper	1.8E+01	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.3E-07	0.0E+00	2.3E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(b)fluoranthene	2.1E+00	ug/kg	7.3E-01	7.3E-01	1.4E-11	1.4E-11	1.0E-11	1.0E-11	2.E-11	--	--	1.1E-10	1.1E-10	--	--	--
Exposure Point Total										3.E-08							0.001
09B027	**Metals**																
	Aluminum	1.8E+04	mg/kg	--	--	0.0E+00	1.2E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	9.3E-04	0.0E+00	9.3E-04	0.001
	Antimony	2.0E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	6.0E-05	4.0E-04	0.0E+00	1.0E-08	0.0E+00	2.5E-05	0.00003
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	2.1E-09	8.7E-09	3.1E-09	1.3E-08	2.E-08	3.0E-04	3.0E-04	1.6E-08	6.8E-08	5.4E-05	2.3E-04	0.0003
	Copper	2.3E+01	mg/kg	--	--	0.0E+00	1.5E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.2E-06	0.0E+00	2.9E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+00	ug/kg	7.3E-01	7.3E-01	5.2E-11	5.0E-11	3.8E-11	3.7E-11	7.E-11	--	--	4.1E-10	3.9E-10	--	--	--
	Benzo(a)pyrene	7.0E+00	ug/kg	7.3E+00	7.3E+00	4.7E-11	4.5E-11	3.4E-10	3.3E-10	7.E-10	--	--	3.7E-10	3.5E-10	--	--	--
	Benzo(b)fluoranthene	8.8E+00	ug/kg	7.3E-01	7.3E-01	6.0E-11	5.8E-11	4.4E-11	4.2E-11	9.E-11	--	--	4.6E-10	4.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+00	ug/kg	7.3E-01	7.3E-01	3.8E-11	3.7E-11	2.8E-11	2.7E-11	5.E-11	--	--	3.0E-10	2.9E-10	--	--	--
Exposure Point Total										2.E-08							0.001
09B028	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	1.0E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	8.1E-04	0.0E+00	8.1E-04	0.001
	Arsenic	1.3E+00	mg/kg	1.5E+00	1.5E+00	2.0E-09	8.5E-09	3.1E-09	1.3E-08	2.E-08	3.0E-04	3.0E-04	1.6E-08	6.6E-08	5.3E-05	2.2E-04	0.0003
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.6E-07	0.0E+00	2.4E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+00	ug/kg	7.3E-01	7.3E-01	3.6E-11	3.5E-11	2.6E-11	2.5E-11	5.E-11	--	--	2.8E-10	2.7E-10	--	--	--
	Benzo(a)pyrene	4.6E+00	ug/kg	7.3E+00	7.3E+00	3.1E-11	3.0E-11	2.3E-10	2.2E-10	4.E-10	--	--	2.4E-10	2.3E-10	--	--	--
	Benzo(b)fluoranthene	5.0E+00	ug/kg	7.3E-01	7.3E-01	3.4E-11	3.3E-11	2.5E-11	2.4E-11	5.E-11	--	--	2.6E-10	2.5E-10	--	--	--

TABLE 5-15.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	4.6E+00	ug/kg	7.3E-01	7.3E-01	3.1E-11	3.0E-11	2.3E-11	2.2E-11	4.E-11	--	--	2.4E-10	2.3E-10	--	--	--
Exposure Point Total										2.E-08							0.001
B001	**Metals**																
	Aluminum	1.6E+04	mg/kg	--	--	0.0E+00	1.1E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	8.3E-04	0.0E+00	8.3E-04	0.001
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	3.5E-09	1.5E-08	5.3E-09	2.2E-08	3.E-08	3.0E-04	3.0E-04	2.7E-08	1.1E-07	9.1E-05	3.8E-04	0.0005
	Copper	1.9E+01	mg/kg	--	--	0.0E+00	1.3E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	9.8E-07	0.0E+00	2.5E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E+00	ug/kg	7.3E-01	7.3E-01	4.4E-11	4.3E-11	3.2E-11	3.1E-11	6.E-11	--	--	3.4E-10	3.3E-10	--	--	--
	Benzo(a)pyrene	1.4E+01	ug/kg	7.3E+00	7.3E+00	9.5E-11	9.2E-11	6.9E-10	6.7E-10	1.E-09	--	--	7.4E-10	7.1E-10	--	--	--
	Benzo(b)fluoranthene	1.2E+01	ug/kg	7.3E-01	7.3E-01	8.1E-11	7.9E-11	5.9E-11	5.7E-11	1.E-10	--	--	6.3E-10	6.1E-10	--	--	--
	Dibenzo(a,h)anthracene	2.2E+00	ug/kg	7.3E+00	7.3E+00	1.5E-11	1.4E-11	1.1E-10	1.1E-10	2.E-10	--	--	1.2E-10	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	9.7E+00	ug/kg	7.3E-01	7.3E-01	6.6E-11	6.3E-11	4.8E-11	4.6E-11	9.E-11	--	--	5.1E-10	4.9E-10	--	--	--
Exposure Point Total										3.E-08							0.001
B003	**Metals**																
	Aluminum	1.9E+04	mg/kg	--	--	0.0E+00	1.2E-04	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.9E-02	0.0E+00	1.9E-02	0.02
	Arsenic	2.5E+00	mg/kg	1.5E+00	1.5E+00	4.0E-09	1.7E-08	6.0E-09	2.5E-08	3.E-08	3.0E-04	3.0E-04	1.3E-06	2.6E-06	4.4E-03	8.6E-03	0.01
	Copper	2.0E+01	mg/kg	--	--	0.0E+00	1.3E-07	--	--	--	4.0E-02	4.0E-02	0.0E+00	2.0E-05	0.0E+00	5.0E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	1.4E-09	1.0E-09	1.0E-09	2.E-09	--	--	4.8E-07	2.1E-07	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	2.4E-09	2.4E-09	1.8E-08	1.7E-08	4.E-08	--	--	8.1E-07	3.7E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	2.0E-09	1.5E-09	1.5E-09	3.E-09	--	--	7.0E-07	3.2E-07	--	--	--
	Dibenzo(a,h)anthracene	3.3E+01	ug/kg	7.3E+00	7.3E+00	2.2E-10	2.2E-10	1.6E-09	1.6E-09	3.E-09	--	--	7.5E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	1.8E-09	1.4E-09	1.3E-09	3.E-09	--	--	6.3E-07	2.8E-07	--	--	--
Exposure Point Total										8.E-08							0.033
B005	**Metals**																
	Aluminum	1.5E+04	mg/kg	--	--	0.0E+00	9.6E-05	--	--	--	1.0E+00	1.0E+00	0.0E+00	1.5E-02	0.0E+00	1.5E-02	0.01
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	5.1E-09	2.1E-08	7.7E-09	3.2E-08	4.E-08	3.0E-04	3.0E-04	1.7E-06	3.3E-06	5.7E-03	1.1E-02	0.02
	Copper	1.4E+01	mg/kg	--	--	0.0E+00	9.4E-08	--	--	--	4.0E-02	4.0E-02	0.0E+00	1.5E-05	0.0E+00	3.7E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	5.2E-10	5.0E-10	3.8E-10	3.7E-10	7.E-10	--	--	1.7E-07	7.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	1.0E-09	9.8E-10	7.4E-09	7.2E-09	1.E-08	--	--	3.4E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	1.2E+02	ug/kg	7.3E-01	7.3E-01	8.1E-10	7.9E-10	5.9E-10	5.7E-10	1.E-09	--	--	2.7E-07	1.2E-07	--	--	--

TABLE 5-15.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: Beach Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Hazard Quotient Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	1.0E-10	9.8E-11	7.4E-10	7.2E-10	1.E-09	--	--	3.4E-08	1.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.3E+02	ug/kg	7.3E-01	7.3E-01	8.8E-10	8.5E-10	6.4E-10	6.2E-10	1.E-09	--	--	2.9E-07	1.3E-07	--	--	--
Exposure Point Total										6.E-08							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations: -- = Not Applicable
CDI = Chronic Daily Intake
EPC = Exposure Point Concentration
HQ = Hazard Quotient
LADI = Lifetime Average Daily Intake
mg/kg = milligram per kilogram
RfD = Reference Dose
ug/kg = microgram per kilogram

TABLE 5-16.
Calculation of Noncancer Hazards - Breastfeeding Infant of a Dockside Worker, Beach Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant of Dockside Worker
Population Age: Infant
Medium: Beach Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
06B025	Total Aroclors	4.3E+01	ug/kg	25	1.E-03	0.03
Exposure Point Total						0.03
08B032	Total Aroclors	1.9E+01	ug/kg	25	5.E-04	0.01
Exposure Point Total						0.01
B002	Total Aroclors	1.7E+02	ug/kg	25	5.E-03	0.1
	Total PCB TEQ	3.8E+00	pg/g	2	2.E-03	0.004
Exposure Point Total						0.1
B004	Total Aroclors	1.6E+03	ug/kg	25	4.E-02	1
	Total PCB TEQ	3.1E+01	pg/g	2	2.E-02	0.04
Exposure Point Total						1
B006	Total Aroclors	1.7E+01	ug/kg	25	5.E-04	0.01
Exposure Point Total						0.01

Notes

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations

EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-17.
Calculation of Noncancer Hazards - Breastfeeding Infant of a Dockside Worker, Beach Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant of Dockside Worker
Population Age: Infant
Medium: Beach Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
06B025	Total Aroclors	4.3E+01	ug/kg	25	2.E-04	0.01
Exposure Point Total						0.01
08B032	Total Aroclors	1.9E+01	ug/kg	25	1.E-04	0.002
Exposure Point Total						0.002
B002	Total Aroclors	1.7E+02	ug/kg	25	8.E-04	0.02
	Total PCB TEQ	3.8E+00	pg/g	2	4.E-04	0.001
Exposure Point Total						0.02
B004	Total Aroclors	1.6E+03	ug/kg	25	8.E-03	0.2
	Total PCB TEQ	3.1E+01	pg/g	2	3.E-03	0.01
Exposure Point Total						0.2
B006	Total Aroclors	1.7E+01	ug/kg	25	9.E-05	0.002
Exposure Point Total						0.002

Notes

a Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations

EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-18. Summary of Risks From Exposures to Beach Sediment[a]

Beach Location	Dockside Worker	Transients	Child Recreational Beach User[b]	Combined Adult and Child Recreational Beach User	Tribal Fisher	High Frequency Fisher	Low Frequency Fisher	Breastfeeding Infant[b]
B001W	NA	NA	--	5E-06	6E-06	--	--	NA
B002	--	NA	NA	NA	NA	NA	NA	--
B003W	NA	NA	--	4E-05	2E-05	4E-06	3E-06	NA
B004E	2E-06	NA	NA	NA	NA	NA	NA	--
B005W	NA	NA	--	2E-05	1E-05	3E-06	2E-06	NA
B006	--	NA	NA	NA	NA	NA	NA	--
03B030E	NA	--	NA	NA	5E-06	--	--	NA
03B031W	NA	--	--	1E-05	9E-06	2E-06	2E-06	NA
03B033W	NA	NA	--	6E-06	9E-06	2E-06	2E-06	NA
04B024W	NA	NA	--	5E-05	2E-05	6E-06	4.E-06	NA
04B023W	NA	NA	--	9E-06	8E-06	2E-06	--	NA
05B018E	NA	NA	--	1E-05	9E-06	2E-06	--	NA
05B019	--	NA	NA	NA	NA	NA	NA	--
06B025W	9E-05	NA	NA	NA	NA	NA	NA	--
06B030E	NA	NA	--	2E-05	2E-05	6E-06	4E-06	NA
06B026E	NA	NA	--	3E-06	4E-06	--	--	NA
06B029W	--	NA	NA	NA	NA	NA	NA	--
06B022E	NA	--	--	4E-06	6E-06	2E-06	--	NA
07B022	--	NA	NA	NA	NA	NA	NA	--
07B024W	NA	--	NA	NA	5E-06	--	--	NA
07B023E	NA	--	NA	NA	2E-06	--	--	NA
08B032	--	NA	NA	NA	NA	NA	NA	--
09B028E	NA	NA	--	2E-06	3E-06	--	--	NA
09B024E	NA	NA	--	3E-06	3E-06	--	--	NA
09B026E	NA	--	--	3E-06	6E-06	--	--	NA
09B027E	NA	--	--	3.E-06	4E-06	--	--	NA

Notes:

a Table presents cumulative risk (or cumulative hazard indices) per exposure area for reasonable maximum exposure scenarios, per beach location and per receptor

b Only hazard indices values are presented for child and breastfeeding infant exposure scenarios.

Abbreviations:

-- Exposure area does not result in risk greater than 1 x 10^{-6} or hazard index greater than 1.

NA Beach use does not coincide with exposure by a given receptor

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	5.8E-09	5.9E-08	9.E-09	9.E-08	1.E-07	3.0E-04	3.0E-04	4.1E-08	4.1E-07	1.E-04	1.E-03	0.002
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	8.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-09	0.E+00	6.E-05	0.00006
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	3.1E-12	9.4E-12	--	--	--	3.0E-04	3.0E-04	2.2E-11	6.6E-11	7.E-08	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	7.2E-10	1.7E-09	5.E-10	1.E-09	2.E-09	--	--	5.0E-09	1.2E-08	--	--	--
	Benzo(a)pyrene	2.4E+02	ug/kg	7.3E+00	7.3E+00	1.2E-09	2.7E-09	8.E-09	2.E-08	3.E-08	--	--	8.1E-09	1.9E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	2.6E-09	8.E-10	2.E-09	3.E-09	--	--	7.7E-09	1.8E-08	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	3.7E-10	8.6E-10	3.E-11	6.E-11	9.E-11	--	--	2.6E-09	6.0E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.2E-10	2.7E-10	9.E-10	2.E-09	3.E-09	--	--	8.2E-10	1.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+02	ug/kg	7.3E-01	7.3E-01	9.6E-10	2.2E-09	7.E-10	2.E-09	2.E-09	--	--	6.7E-09	1.6E-08	--	--	--
	Naphthalene	2.9E+01	ug/kg	--	--	1.4E-10	3.2E-10	--	--	--	2.0E-02	2.0E-02	9.7E-10	2.3E-09	5.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+01	ug/kg	1.4E-02	1.4E-02	1.6E-10	4.9E-10	2.E-12	7.E-12	9.E-12	2.0E-02	2.0E-02	1.1E-09	3.4E-09	6.E-08	2.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.1E-11	1.3E-11	4.E-12	5.E-12	1.E-11	5.0E-03	5.0E-03	7.7E-11	9.4E-11	2.E-08	2.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	8.8E-11	1.9E-10	2.E-10	4.E-10	6.E-10	2.0E-05	2.0E-05	6.1E-10	1.3E-09	3.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	1.3E+05	1.3E+05	3.0E-15	3.0E-14	4.E-10	4.E-09	4.E-09	1.0E-09	1.0E-09	2.1E-14	2.1E-13	2.E-05	2.E-04	0.0002
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	1.6E-15	3.5E-15	2.E-10	5.E-10	7.E-10	1.0E-09	1.0E-09	1.1E-14	2.5E-14	1.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	1.4E-12	4.1E-12	2.E-11	7.E-11	9.E-11	3.0E-05	3.0E-05	9.6E-12	2.9E-11	3.E-07	1.E-06	0.000001
	Total DDT	4.6E+00	ug/kg	3.4E-01	3.4E-01	5.1E-12	5.1E-11	2.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	3.6E-11	3.6E-10	7.E-08	7.E-07	0.000001
Exposure Point Total[b]										1.E-07							0.002
RM 1 East	**Metals**																
	Arsenic	5.7E+00	mg/kg	1.5E+00	1.5E+00	6.3E-09	6.4E-08	9.E-09	1.E-07	1.E-07	3.0E-04	3.0E-04	4.4E-08	4.5E-07	1.E-04	1.E-03	0.002
	Mercury	7.1E+00	mg/kg	--	--	0.0E+00	8.0E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.6E-07	0.E+00	6.E-03	0.006
	Butyltins																
	Tributyltin ion	1.2E+00	ug/kg	--	--	4.4E-12	1.3E-11	--	--	--	3.0E-04	3.0E-04	3.1E-11	9.4E-11	1.E-07	3.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+01	ug/kg	7.3E-01	7.3E-01	2.5E-10	5.9E-10	2.E-10	4.E-10	6.E-10	--	--	1.8E-09	4.1E-09	--	--	--
	Benzo(a)pyrene	8.1E+01	ug/kg	7.3E+00	7.3E+00	3.9E-10	9.1E-10	3.E-09	7.E-09	9.E-09	--	--	2.7E-09	6.3E-09	--	--	--
	Benzo(b)fluoranthene	6.9E+01	ug/kg	7.3E-01	7.3E-01	3.3E-10	7.7E-10	2.E-10	6.E-10	8.E-10	--	--	2.3E-09	5.4E-09	--	--	--
	Benzo(k)fluoranthene	4.8E+01	ug/kg	7.3E-02	7.3E-02	2.3E-10	5.3E-10	2.E-11	4.E-11	6.E-11	--	--	1.6E-09	3.7E-09	--	--	--
	Dibenzo(a,h)anthracene	9.1E+00	ug/kg	7.3E+00	7.3E+00	4.4E-11	1.0E-10	3.E-10	7.E-10	1.E-09	--	--	3.1E-10	7.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+01	ug/kg	7.3E-01	7.3E-01	2.7E-10	6.3E-10	2.E-10	5.E-10	7.E-10	--	--	1.9E-09	4.4E-09	--	--	--
	Naphthalene	2.3E+01	ug/kg	--	--	1.1E-10	2.6E-10	--	--	--	2.0E-02	2.0E-02	7.7E-10	1.8E-09	4.E-08	9.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	2.6E-10	7.9E-10	4.E-12	1.E-11	1.E-11	2.0E-02	2.0E-02	1.8E-09	5.6E-09	9.E-08	3.E-07	0.0000004

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	2.3E-11	2.8E-11	9.E-12	1.E-11	2.E-11	5.0E-03	5.0E-03	1.6E-10	2.0E-10	3.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+02	ug/kg	2.0E+00	2.0E+00	2.6E-09	5.7E-09	5.E-09	1.E-08	2.E-08	2.0E-05	2.0E-05	1.8E-08	4.0E-08	9.E-04	2.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.3E+05	1.3E+05	8.3E-16	8.3E-15	1.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	5.8E-15	5.8E-14	6.E-06	6.E-05	0.00006
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	1.4E-15	3.0E-15	2.E-10	4.E-10	6.E-10	1.0E-09	1.0E-09	9.8E-15	2.1E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Total DDT	4.0E+00	ug/kg	3.4E-01	3.4E-01	4.4E-12	4.4E-11	1.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	3.1E-11	3.1E-10	6.E-08	6.E-07	0.000001
Exposure Point Total										1.E-07							0.01
RM 1.5 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	4.9E-09	4.9E-08	7.E-09	7.E-08	8.E-08	3.0E-04	3.0E-04	3.4E-08	3.4E-07	1.E-04	1.E-03	0.001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.3E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	3.7E-10	1.E-10	3.E-10	4.E-10	--	--	1.1E-09	2.6E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.3E-10	5.4E-10	2.E-09	4.E-09	6.E-09	--	--	1.6E-09	3.8E-09	--	--	--
	Benzo(b)fluoranthene	4.1E+01	ug/kg	7.3E-01	7.3E-01	2.0E-10	4.6E-10	1.E-10	3.E-10	5.E-10	--	--	1.4E-09	3.2E-09	--	--	--
	Benzo(k)fluoranthene	3.4E+01	ug/kg	7.3E-02	7.3E-02	1.6E-10	3.8E-10	1.E-11	3.E-11	4.E-11	--	--	1.1E-09	2.7E-09	--	--	--
	Dibenzo(a,h)anthracene	5.9E+00	ug/kg	7.3E+00	7.3E+00	2.8E-11	6.6E-11	2.E-10	5.E-10	7.E-10	--	--	2.0E-10	4.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.8E-10	4.1E-10	1.E-10	3.E-10	4.E-10	--	--	1.2E-09	2.9E-09	--	--	--
	Naphthalene	9.6E+00	ug/kg	--	--	4.6E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	3.2E-10	7.5E-10	2.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	1.4E-11	1.7E-11	6.E-12	7.E-12	1.E-11	5.0E-03	5.0E-03	9.7E-11	1.2E-10	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	1.1E-10	2.4E-10	2.E-10	5.E-10	7.E-10	2.0E-05	2.0E-05	7.8E-10	1.7E-09	4.E-05	8.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	1.3E+05	1.3E+05	1.0E-16	1.1E-15	1.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	7.3E-16	7.4E-15	7.E-07	7.E-06	0.00001
	Pesticides																
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	1.2E-12	1.2E-11	4.E-13	4.E-12	5.E-12	5.0E-04	5.0E-04	8.4E-12	8.5E-11	2.E-08	2.E-07	0.0000002
Exposure Point Total										9.E-08							0.001
RM 1.5 East	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	6.0E-09	6.0E-08	9.E-09	9.E-08	1.E-07	3.0E-04	3.0E-04	4.2E-08	4.2E-07	1.E-04	1.E-03	0.002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.9E-09	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	1.4E-12	4.1E-12	--	--	--	3.0E-04	3.0E-04	9.6E-12	2.9E-11	3.E-08	1.E-07	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+02	ug/kg	7.3E-01	7.3E-01	4.5E-09	1.1E-08	3.E-09	8.E-09	1.E-08	--	--	3.2E-08	7.4E-08	--	--	--
	Benzo(a)pyrene	1.4E+03	ug/kg	7.3E+00	7.3E+00	6.7E-09	1.6E-08	5.E-08	1.E-07	2.E-07	--	--	4.7E-08	1.1E-07	--	--	--
	Benzo(b)fluoranthene	8.2E+02	ug/kg	7.3E-01	7.3E-01	3.9E-09	9.2E-09	3.E-09	7.E-09	1.E-08	--	--	2.8E-08	6.4E-08	--	--	--
	Benzo(k)fluoranthene	8.2E+02	ug/kg	7.3E-02	7.3E-02	3.9E-09	9.2E-09	3.E-10	7.E-10	1.E-09	--	--	2.8E-08	6.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.7E-10	1.6E-09	5.E-09	1.E-08	2.E-08	--	--	4.7E-09	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+03	ug/kg	7.3E-01	7.3E-01	4.8E-09	1.1E-08	4.E-09	8.E-09	1.E-08	--	--	3.4E-08	7.8E-08	--	--	--
	Naphthalene	3.7E+02	ug/kg	--	--	1.8E-09	4.1E-09	--	--	--	2.0E-02	2.0E-02	1.2E-08	2.9E-08	6.E-07	1.E-06	0.000002

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	6.3E-10	1.9E-09	9.E-12	3.E-11	4.E-11	2.0E-02	2.0E-02	4.4E-09	1.3E-08	2.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.1E+00	ug/kg	4.0E-01	4.0E-01	3.8E-11	4.6E-11	2.E-11	2.E-11	3.E-11	5.0E-03	5.0E-03	2.6E-10	3.2E-10	5.E-08	6.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.1E+01	ug/kg	2.0E+00	2.0E+00	2.1E-10	4.5E-10	4.E-10	9.E-10	1.E-09	2.0E-05	2.0E-05	1.5E-09	3.2E-09	7.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	2.0E-15	2.0E-14	3.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	1.4E-14	1.4E-13	1.E-05	1.E-04	0.0002
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	5.4E-16	1.2E-15	7.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	3.8E-15	8.2E-15	4.E-06	8.E-06	0.00001
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	2.5E-13	7.7E-13	4.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	1.8E-12	5.4E-12	4.E-08	1.E-07	0.0000001
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	2.4E-11	2.4E-10	8.E-12	8.E-11	9.E-11	5.0E-04	5.0E-04	1.7E-10	1.7E-09	3.E-07	3.E-06	0.000004
Exposure Point Total										3.E-07							0.002
RM 2 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	4.3E-09	4.3E-08	6.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	3.0E-08	3.0E-07	1.E-04	1.E-03	0.001
	Mercury	7.8E-02	mg/kg	--	--	0.0E+00	8.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.1E-09	0.E+00	6.E-05	0.00006
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	7.7E-12	2.3E-11	--	--	--	3.0E-04	3.0E-04	5.4E-11	1.6E-10	2.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+01	ug/kg	7.3E-01	7.3E-01	2.6E-10	6.1E-10	2.E-10	4.E-10	6.E-10	--	--	1.8E-09	4.3E-09	--	--	--
	Benzo(a)pyrene	9.8E+01	ug/kg	7.3E+00	7.3E+00	4.7E-10	1.1E-09	3.E-09	8.E-09	1.E-08	--	--	3.3E-09	7.7E-09	--	--	--
	Benzo(b)fluoranthene	9.8E+01	ug/kg	7.3E-01	7.3E-01	4.7E-10	1.1E-09	3.E-10	8.E-10	1.E-09	--	--	3.3E-09	7.7E-09	--	--	--
	Benzo(k)fluoranthene	3.2E+01	ug/kg	7.3E-02	7.3E-02	1.5E-10	3.6E-10	1.E-11	3.E-11	4.E-11	--	--	1.1E-09	2.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.0E+01	ug/kg	7.3E+00	7.3E+00	5.0E-11	1.2E-10	4.E-10	8.E-10	1.E-09	--	--	3.5E-10	8.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.1E+01	ug/kg	7.3E-01	7.3E-01	3.9E-10	9.1E-10	3.E-10	7.E-10	9.E-10	--	--	2.7E-09	6.4E-09	--	--	--
	Naphthalene	1.0E+01	ug/kg	--	--	4.8E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	3.4E-10	7.8E-10	2.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.8E+01	ug/kg	1.4E-02	1.4E-02	1.8E-10	5.4E-10	2.E-12	8.E-12	1.E-11	2.0E-02	2.0E-02	1.2E-09	3.8E-09	6.E-08	2.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	9.4E-11	2.0E-10	2.E-10	4.E-10	6.E-10	2.0E-05	2.0E-05	6.6E-10	1.4E-09	3.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	1.3E+05	1.3E+05	2.4E-15	2.4E-14	3.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	1.7E-14	1.7E-13	2.E-05	2.E-04	0.0002
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	1.8E-15	3.9E-15	2.E-10	5.E-10	7.E-10	1.0E-09	1.0E-09	1.3E-14	2.8E-14	1.E-05	3.E-05	0.00004
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.3E-12	4.0E-12	2.E-11	7.E-11	9.E-11	3.0E-05	3.0E-05	9.3E-12	2.8E-11	3.E-07	9.E-07	0.000001
	Dieldrin	2.7E-01	ug/kg	1.6E+01	1.6E+01	9.9E-13	3.0E-12	2.E-11	5.E-11	6.E-11	5.0E-05	5.0E-05	6.9E-12	2.1E-11	1.E-07	4.E-07	0.000001
	Total DDT	3.2E+00	ug/kg	3.4E-01	3.4E-01	3.5E-12	3.6E-11	1.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	2.5E-11	2.5E-10	5.E-08	5.E-07	0.000001
Exposure Point Total										9.E-08							0.001
RM 2 East	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	4.7E-09	4.8E-08	7.E-09	7.E-08	8.E-08	3.0E-04	3.0E-04	3.3E-08	3.4E-07	1.E-04	1.E-03	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	1.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-09	0.E+00	7.E-05	0.00007
	Butyltins																
	Tributyltin ion	3.7E+00	ug/kg	--	--	1.4E-11	4.1E-11	--	--	--	3.0E-04	3.0E-04	9.6E-11	2.9E-10	3.E-07	1.E-06	0.000001

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	4.7E-10	1.1E-09	3.E-10	8.E-10	1.E-09	--	--	3.3E-09	7.6E-09	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	5.7E-10	1.3E-09	4.E-09	1.E-08	1.E-08	--	--	4.0E-09	9.4E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	6.3E-10	1.5E-09	5.E-10	1.E-09	2.E-09	--	--	4.4E-09	1.0E-08	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	3.7E-10	8.7E-10	3.E-11	6.E-11	9.E-11	--	--	2.6E-09	6.1E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.1E-10	2.6E-10	8.E-10	2.E-09	3.E-09	--	--	7.9E-10	1.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	5.1E-10	1.2E-09	4.E-10	9.E-10	1.E-09	--	--	3.6E-09	8.3E-09	--	--	--
	Naphthalene	2.1E+01	ug/kg	--	--	1.0E-10	2.3E-10	--	--	--	2.0E-02	2.0E-02	7.0E-10	1.6E-09	4.E-08	8.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.4E-10	1.3E-09	6.E-12	2.E-11	3.E-11	2.0E-02	2.0E-02	3.1E-09	9.4E-09	2.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.2E+00	ug/kg	4.0E-01	4.0E-01	2.0E-11	2.5E-11	8.E-12	1.E-11	2.E-11	5.0E-03	5.0E-03	1.4E-10	1.7E-10	3.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+03	ug/kg	2.0E+00	2.0E+00	7.9E-09	1.7E-08	2.E-08	3.E-08	5.E-08	2.0E-05	2.0E-05	5.5E-08	1.2E-07	3.E-03	6.E-03	0.009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	1.3E+05	1.3E+05	4.4E-15	4.5E-14	6.E-10	6.E-09	6.E-09	1.0E-09	1.0E-09	3.1E-14	3.1E-13	3.E-05	3.E-04	0.0003
	Total PCB TEQ	8.5E+01	pg/g	1.3E+05	1.3E+05	4.4E-13	9.5E-13	6.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	3.1E-12	6.6E-12	3.E-03	7.E-03	0.01
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	2.6E-12	7.8E-12	4.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	1.8E-11	5.4E-11	6.E-07	2.E-06	0.000002
	Dieldrin	1.2E+00	ug/kg	1.6E+01	1.6E+01	4.6E-12	1.4E-11	7.E-11	2.E-10	3.E-10	5.0E-05	5.0E-05	3.2E-11	9.8E-11	6.E-07	2.E-06	0.000003
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	4.6E-12	4.7E-11	2.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	3.3E-11	3.3E-10	7.E-08	7.E-07	0.000001
Exposure Point Total										3.E-07							0.02
RM 2.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	5.2E-09	5.2E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.6E-08	3.7E-07	1.E-04	1.E-03	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	1.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-09	0.E+00	7.E-05	0.00007
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	8.5E-12	2.6E-11	--	--	--	3.0E-04	3.0E-04	5.9E-11	1.8E-10	2.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	3.4E-09	1.E-09	3.E-09	4.E-09	--	--	1.0E-08	2.4E-08	--	--	--
	Benzo(a)pyrene	5.5E+02	ug/kg	7.3E+00	7.3E+00	2.6E-09	6.1E-09	2.E-08	4.E-08	6.E-08	--	--	1.8E-08	4.3E-08	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	4.4E-09	1.E-09	3.E-09	5.E-09	--	--	1.3E-08	3.1E-08	--	--	--
	Benzo(k)fluoranthene	2.5E+02	ug/kg	7.3E-02	7.3E-02	1.2E-09	2.8E-09	9.E-11	2.E-10	3.E-10	--	--	8.5E-09	2.0E-08	--	--	--
	Dibenzo(a,h)anthracene	6.4E+01	ug/kg	7.3E+00	7.3E+00	3.1E-10	7.1E-10	2.E-09	5.E-09	7.E-09	--	--	2.1E-09	5.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+02	ug/kg	7.3E-01	7.3E-01	2.3E-09	5.2E-09	2.E-09	4.E-09	5.E-09	--	--	1.6E-08	3.7E-08	--	--	--
	Naphthalene	7.6E+01	ug/kg	--	--	3.6E-10	8.5E-10	--	--	--	2.0E-02	2.0E-02	2.5E-09	5.9E-09	1.E-07	3.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.3E+01	ug/kg	1.4E-02	1.4E-02	1.6E-10	4.8E-10	2.E-12	7.E-12	9.E-12	2.0E-02	2.0E-02	1.1E-09	3.4E-09	6.E-08	2.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.1E-11	1.3E-11	4.E-12	5.E-12	1.E-11	5.0E-03	5.0E-03	7.7E-11	9.4E-11	2.E-08	2.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	1.1E-10	2.4E-10	2.E-10	5.E-10	7.E-10	2.0E-05	2.0E-05	7.7E-10	1.7E-09	4.E-05	8.E-05	0.0001

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	4.6E-16	4.6E-15	6.E-11	6.E-10	7.E-10	1.0E-09	1.0E-09	3.2E-15	3.2E-14	3.E-06	3.E-05	0.00004
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	1.1E-15	2.3E-15	1.E-10	3.E-10	4.E-10	1.0E-09	1.0E-09	7.5E-15	1.6E-14	7.E-06	2.E-05	0.00002
	Pesticides																
	Aldrin	2.6E-01	ug/kg	1.7E+01	1.7E+01	9.5E-13	2.9E-12	2.E-11	5.E-11	6.E-11	3.0E-05	3.0E-05	6.6E-12	2.0E-11	2.E-07	7.E-07	0.000001
	Dieldrin	2.2E-01	ug/kg	1.6E+01	1.6E+01	8.1E-13	2.5E-12	1.E-11	4.E-11	5.E-11	5.0E-05	5.0E-05	5.7E-12	1.7E-11	1.E-07	3.E-07	0.0000005
	Total DDT	3.4E+00	ug/kg	3.4E-01	3.4E-01	3.8E-12	3.8E-11	1.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	2.6E-11	2.7E-10	5.E-08	5.E-07	0.000001
Exposure Point Total										2.E-07							0.002
RM 2.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.3E-09	5.4E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.7E-08	3.8E-07	1.E-04	1.E-03	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	1.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-09	0.E+00	7.E-05	0.00007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+03	ug/kg	7.3E-01	7.3E-01	2.8E-08	6.5E-08	2.E-08	5.E-08	7.E-08	--	--	1.9E-07	4.5E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	2.2E-08	5.1E-08	2.E-07	4.E-07	5.E-07	--	--	1.5E-07	3.5E-07	--	--	--
	Benzo(b)fluoranthene	3.9E+03	ug/kg	7.3E-01	7.3E-01	1.9E-08	4.4E-08	1.E-08	3.E-08	5.E-08	--	--	1.3E-07	3.1E-07	--	--	--
	Benzo(k)fluoranthene	1.2E+03	ug/kg	7.3E-02	7.3E-02	5.9E-09	1.4E-08	4.E-10	1.E-09	1.E-09	--	--	4.1E-08	9.6E-08	--	--	--
	Dibenzo(a,h)anthracene	4.5E+02	ug/kg	7.3E+00	7.3E+00	2.1E-09	5.0E-09	2.E-08	4.E-08	5.E-08	--	--	1.5E-08	3.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.2E-08	2.9E-08	9.E-09	2.E-08	3.E-08	--	--	8.6E-08	2.0E-07	--	--	--
	Naphthalene	2.8E+02	ug/kg	--	--	1.3E-09	3.1E-09	--	--	--	2.0E-02	2.0E-02	9.3E-09	2.2E-08	5.E-07	1.E-06	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	3.9E-10	1.2E-09	5.E-12	2.E-11	2.E-11	2.0E-02	2.0E-02	2.7E-09	8.3E-09	1.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	5.7E+01	ug/kg	4.0E-01	4.0E-01	5.3E-10	6.4E-10	2.E-10	3.E-10	5.E-10	5.0E-03	5.0E-03	3.7E-09	4.5E-09	7.E-07	9.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	4.0E-10	8.7E-10	8.E-10	2.E-09	3.E-09	2.0E-05	2.0E-05	2.8E-09	6.1E-09	1.E-04	3.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.2E-15	1.2E-14	2.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	8.2E-15	8.3E-14	8.E-06	8.E-05	0.00009
	Total PCB TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	1.7E-14	3.7E-14	2.E-09	5.E-09	7.E-09	1.0E-09	1.0E-09	1.2E-13	2.6E-13	1.E-04	3.E-04	0.0004
	Pesticides																
	Aldrin	7.5E-01	ug/kg	1.7E+01	1.7E+01	2.8E-12	8.4E-12	5.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	1.9E-11	5.9E-11	6.E-07	2.E-06	0.000003
	Dieldrin	3.3E-01	ug/kg	1.6E+01	1.6E+01	1.2E-12	3.7E-12	2.E-11	6.E-11	8.E-11	5.0E-05	5.0E-05	8.5E-12	2.6E-11	2.E-07	5.E-07	0.000001
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.2E-11	1.3E-10	4.E-12	4.E-11	5.E-11	5.0E-04	5.0E-04	8.7E-11	8.8E-10	2.E-07	2.E-06	0.000002
Exposure Point Total										8.E-07							0.002
RM 2.5 MC	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.3E-09	5.3E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.7E-08	3.7E-07	1.E-04	1.E-03	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-08	0.E+00	1.E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	3.4E-09	1.E-09	2.E-09	4.E-09	--	--	1.0E-08	2.4E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	2.3E-09	5.5E-09	2.E-08	4.E-08	6.E-08	--	--	1.6E-08	3.8E-08	--	--	--
	Benzo(b)fluoranthene	4.5E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	5.0E-09	2.E-09	4.E-09	5.E-09	--	--	1.5E-08	3.5E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	6.9E-10	1.6E-09	5.E-11	1.E-10	2.E-10	--	--	4.8E-09	1.1E-08	--	--	--
	Dibenzo(a,h)anthracene	4.7E+01	ug/kg	7.3E+00	7.3E+00	2.3E-10	5.3E-10	2.E-09	4.E-09	6.E-09	--	--	1.6E-09	3.7E-09	--	--	--

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	3.8E+02	ug/kg	7.3E-01	7.3E-01	1.8E-09	4.2E-09	1.E-09	3.E-09	4.E-09	--	--	1.3E-08	3.0E-08	--	--	--
	Naphthalene	9.9E+01	ug/kg	--	--	4.8E-10	1.1E-09	--	--	--	2.0E-02	2.0E-02	3.3E-09	7.8E-09	2.E-07	4.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	3.4E-10	1.0E-09	5.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	2.4E-09	7.3E-09	1.E-07	4.E-07	0.0000005
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	1.5E-11	1.8E-11	6.E-12	7.E-12	1.E-11	5.0E-03	5.0E-03	1.0E-10	1.3E-10	2.E-08	3.E-08	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.0E-10	4.3E-10	4.E-10	9.E-10	1.E-09	2.0E-05	2.0E-05	1.4E-09	3.0E-09	7.E-05	2.E-04	0.0002
	Pesticides																
	Aldrin	6.5E-01	ug/kg	1.7E+01	1.7E+01	2.4E-12	7.3E-12	4.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	1.7E-11	5.1E-11	6.E-07	2.E-06	0.000002
	Dieldrin	9.7E-01	ug/kg	1.6E+01	1.6E+01	3.6E-12	1.1E-11	6.E-11	2.E-10	2.E-10	5.0E-05	5.0E-05	2.5E-11	7.6E-11	5.E-07	2.E-06	0.000002
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.2E-11	1.2E-10	4.E-12	4.E-11	5.E-11	5.0E-04	5.0E-04	8.5E-11	8.5E-10	2.E-07	2.E-06	0.000002
Exposure Point Total										2.E-07							0.002
RM 3 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	4.5E-09	4.6E-08	7.E-09	7.E-08	8.E-08	3.0E-04	3.0E-04	3.2E-08	3.2E-07	1.E-04	1.E-03	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.4E-09	0.E+00	8.E-05	0.00008
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	6.6E-11	2.0E-10	--	--	--	3.0E-04	3.0E-04	4.6E-10	1.4E-09	2.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.7E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	5.2E-09	2.E-09	4.E-09	5.E-09	--	--	1.6E-08	3.7E-08	--	--	--
	Benzo(a)pyrene	7.1E+02	ug/kg	7.3E+00	7.3E+00	3.4E-09	7.9E-09	2.E-08	6.E-08	8.E-08	--	--	2.4E-08	5.5E-08	--	--	--
	Benzo(b)fluoranthene	6.0E+02	ug/kg	7.3E-01	7.3E-01	2.9E-09	6.8E-09	2.E-09	5.E-09	7.E-09	--	--	2.0E-08	4.7E-08	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	1.9E-09	4.4E-09	1.E-10	3.E-10	5.E-10	--	--	1.3E-08	3.1E-08	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	3.9E-10	9.1E-10	3.E-09	7.E-09	1.E-08	--	--	2.7E-09	6.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	2.3E-09	5.3E-09	2.E-09	4.E-09	6.E-09	--	--	1.6E-08	3.7E-08	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.1E-09	2.5E-09	--	--	--	2.0E-02	2.0E-02	7.5E-09	1.7E-08	4.E-07	9.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	2.1E-10	6.4E-10	3.E-12	9.E-12	1.E-11	2.0E-02	2.0E-02	1.5E-09	4.5E-09	7.E-08	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	1.1E+02	ug/kg	4.0E-01	4.0E-01	1.0E-09	1.2E-09	4.E-10	5.E-10	9.E-10	5.0E-03	5.0E-03	7.1E-09	8.6E-09	1.E-06	2.E-06	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	9.1E-11	2.0E-10	2.E-10	4.E-10	6.E-10	2.0E-05	2.0E-05	6.4E-10	1.4E-09	3.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	1.8E-15	1.8E-14	2.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	1.3E-14	1.3E-13	1.E-05	1.E-04	0.0001
	Total PCB TEQ	4.4E-01	pg/g	1.3E+05	1.3E+05	2.3E-15	5.0E-15	3.E-10	6.E-10	9.E-10	1.0E-09	1.0E-09	1.6E-14	3.5E-14	2.E-05	3.E-05	0.00005
	Pesticides																
	Aldrin	5.2E-01	ug/kg	1.7E+01	1.7E+01	1.9E-12	5.8E-12	3.E-11	1.E-10	1.E-10	3.0E-05	3.0E-05	1.3E-11	4.1E-11	4.E-07	1.E-06	0.000002
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	4.9E-12	1.5E-11	8.E-11	2.E-10	3.E-10	5.0E-05	5.0E-05	3.4E-11	1.0E-10	7.E-07	2.E-06	0.000003
	Total DDT	2.1E+02	ug/kg	3.4E-01	3.4E-01	2.3E-10	2.4E-09	8.E-11	8.E-10	9.E-10	5.0E-04	5.0E-04	1.6E-09	1.7E-08	3.E-06	3.E-05	0.00004
Exposure Point Total										2.E-07							0.1

[a] Cancer Risk Calculations and Noncancer Hazard Calculations
[b] Total Cancer Risk and Total Noncancer HQ

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3 East	**Metals**																
	Arsenic	5.5E+00	mg/kg	1.5E+00	1.5E+00	6.0E-09	6.1E-08	9.E-09	9.E-08	1.E-07	3.0E-04	3.0E-04	4.2E-08	4.3E-07	1.E-04	1.E-03	0.002
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	8.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.8E-09	0.E+00	6.E-05	0.00006
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.4E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.6E+01	ug/kg	--	--	5.9E-11	1.8E-10	--	--	--	3.0E-04	3.0E-04	4.1E-10	1.3E-09	1.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	6.9E-10	1.6E-09	5.E-10	1.E-09	2.E-09	--	--	4.9E-09	1.1E-08	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.5E-10	1.5E-09	5.E-09	1.E-08	2.E-08	--	--	4.5E-09	1.1E-08	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	7.6E-10	1.8E-09	6.E-10	1.E-09	2.E-09	--	--	5.3E-09	1.2E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.3E-10	1.2E-09	4.E-11	9.E-11	1.E-10	--	--	3.7E-09	8.7E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.1E-11	1.9E-10	6.E-10	1.E-09	2.E-09	--	--	5.7E-10	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+01	ug/kg	7.3E-01	7.3E-01	4.0E-10	9.3E-10	3.E-10	7.E-10	1.E-09	--	--	2.8E-09	6.5E-09	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	8.1E-11	1.9E-10	--	--	--	2.0E-02	2.0E-02	5.7E-10	1.3E-09	3.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.8E+01	ug/kg	1.4E-02	1.4E-02	3.2E-10	9.8E-10	5.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	2.3E-09	6.9E-09	1.E-07	3.E-07	0.0000005
	Phenols																
	Pentachlorophenol	4.6E+00	ug/kg	4.0E-01	4.0E-01	4.2E-11	5.1E-11	2.E-11	2.E-11	4.E-11	5.0E-03	5.0E-03	3.0E-10	3.6E-10	6.E-08	7.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	1.2E-10	2.6E-10	2.E-10	5.E-10	7.E-10	2.0E-05	2.0E-05	8.3E-10	1.8E-09	4.E-05	9.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	5.9E-15	6.0E-14	8.E-10	8.E-09	9.E-09	1.0E-09	1.0E-09	4.2E-14	4.2E-13	4.E-05	4.E-04	0.0005
	Total PCB TEQ	1.0E-01	pg/g	1.3E+05	1.3E+05	5.2E-16	1.1E-15	7.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	3.7E-15	7.9E-15	4.E-06	8.E-06	0.00001
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.5E-12	4.4E-12	2.E-11	8.E-11	1.E-10	3.0E-05	3.0E-05	1.0E-11	3.1E-11	3.E-07	1.E-06	0.000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	7.2E-13	2.2E-12	1.E-11	4.E-11	5.E-11	5.0E-05	5.0E-05	5.1E-12	1.5E-11	1.E-07	3.E-07	0.0000004
	Total DDT	3.8E+00	ug/kg	3.4E-01	3.4E-01	4.2E-12	4.3E-11	1.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	2.9E-11	3.0E-10	6.E-08	6.E-07	0.000001
Exposure Point Total										1.E-07							0.1
RM 3.5 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.2E-08	1.2E-07	2.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.1E-08	8.2E-07	3.E-04	3.E-03	0.003
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.2E-09	0.E+00	9.E-05	0.00009
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.8E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	3.0E-10	9.1E-10	--	--	--	3.0E-04	3.0E-04	2.1E-09	6.3E-09	7.E-06	2.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+03	ug/kg	7.3E-01	7.3E-01	8.5E-09	2.0E-08	6.E-09	1.E-08	2.E-08	--	--	5.9E-08	1.4E-07	--	--	--
	Benzo(a)pyrene	2.6E+03	ug/kg	7.3E+00	7.3E+00	1.2E-08	2.9E-08	9.E-08	2.E-07	3.E-07	--	--	8.6E-08	2.0E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	2.5E-08	8.E-09	2.E-08	3.E-08	--	--	7.6E-08	1.8E-07	--	--	--
	Benzo(k)fluoranthene	8.0E+02	ug/kg	7.3E-02	7.3E-02	3.8E-09	8.9E-09	3.E-10	7.E-10	9.E-10	--	--	2.7E-08	6.3E-08	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	3.6E-10	8.4E-10	3.E-09	6.E-09	9.E-09	--	--	2.5E-09	5.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+03	ug/kg	7.3E-01	7.3E-01	9.9E-09	2.3E-08	7.E-09	2.E-08	2.E-08	--	--	6.9E-08	1.6E-07	--	--	--
	Naphthalene	5.2E+02	ug/kg	--	--	2.5E-09	5.8E-09	--	--	--	2.0E-02	2.0E-02	1.8E-08	4.1E-08	9.E-07	2.E-06	0.000003

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	3.0E-10	9.2E-10	4.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	2.1E-09	6.4E-09	1.E-07	3.E-07	0.0000004
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	1.4E-10	1.6E-10	5.E-11	7.E-11	1.E-10	5.0E-03	5.0E-03	9.5E-10	1.2E-09	2.E-07	2.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.7E+01	ug/kg	2.0E+00	2.0E+00	1.4E-10	3.0E-10	3.E-10	6.E-10	9.E-10	2.0E-05	2.0E-05	9.7E-10	2.1E-09	5.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	1.8E-15	1.8E-14	2.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	1.2E-14	1.3E-13	1.E-05	1.E-04	0.0001
	Total PCB TEQ	7.7E-01	pg/g	1.3E+05	1.3E+05	4.0E-15	8.7E-15	5.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	2.8E-14	6.1E-14	3.E-05	6.E-05	0.00009
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.8E-12	5.5E-12	3.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	1.3E-11	3.8E-11	4.E-07	1.E-06	0.000002
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	6.7E-13	2.0E-12	1.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	4.7E-12	1.4E-11	9.E-08	3.E-07	0.0000004
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	2.3E-11	2.3E-10	8.E-12	8.E-11	9.E-11	5.0E-04	5.0E-04	1.6E-10	1.6E-09	3.E-07	3.E-06	0.000004
Exposure Point Total										6.E-07							0.1
RM 3.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.3E-09	5.4E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.7E-08	3.8E-07	1.E-04	1.E-03	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.7E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.9E+04	ug/kg	--	--	7.0E-08	2.1E-07	--	--	--	3.0E-04	3.0E-04	4.9E-07	1.5E-06	2.E-03	5.E-03	0.007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+03	ug/kg	7.3E-01	7.3E-01	6.0E-09	1.4E-08	4.E-09	1.E-08	1.E-08	--	--	4.2E-08	9.8E-08	--	--	--
	Benzo(a)pyrene	8.7E+02	ug/kg	7.3E+00	7.3E+00	4.2E-09	9.8E-09	3.E-08	7.E-08	1.E-07	--	--	2.9E-08	6.8E-08	--	--	--
	Benzo(b)fluoranthene	1.3E+03	ug/kg	7.3E-01	7.3E-01	6.3E-09	1.5E-08	5.E-09	1.E-08	2.E-08	--	--	4.4E-08	1.0E-07	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	3.4E-09	7.9E-09	2.E-10	6.E-10	8.E-10	--	--	2.4E-08	5.5E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	6.3E-10	1.5E-09	5.E-09	1.E-08	2.E-08	--	--	4.4E-09	1.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	3.7E-09	1.E-09	3.E-09	4.E-09	--	--	1.1E-08	2.6E-08	--	--	--
	Naphthalene	1.8E+01	ug/kg	--	--	8.7E-11	2.0E-10	--	--	--	2.0E-02	2.0E-02	6.1E-10	1.4E-09	3.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.9E+03	ug/kg	1.4E-02	1.4E-02	2.6E-08	7.7E-08	4.E-10	1.E-09	1.E-09	2.0E-02	2.0E-02	1.8E-07	5.4E-07	9.E-06	3.E-05	0.00004
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	2.3E-11	2.8E-11	9.E-12	1.E-11	2.E-11	5.0E-03	5.0E-03	1.6E-10	2.0E-10	3.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+03	ug/kg	2.0E+00	2.0E+00	8.6E-09	1.9E-08	2.E-08	4.E-08	5.E-08	2.0E-05	2.0E-05	6.0E-08	1.3E-07	3.E-03	7.E-03	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	1.3E+05	1.3E+05	1.2E-14	1.2E-13	2.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	8.6E-14	8.7E-13	9.E-05	9.E-04	0.001
	Total PCB TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	5.9E-13	1.3E-12	8.E-08	2.E-07	2.E-07	1.0E-09	1.0E-09	4.1E-12	8.9E-12	4.E-03	9.E-03	0.01
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	1.8E-12	5.5E-12	3.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	1.3E-11	3.9E-11	4.E-07	1.E-06	0.000002
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	5.5E-13	1.7E-12	9.E-12	3.E-11	4.E-11	5.0E-05	5.0E-05	3.8E-12	1.2E-11	8.E-08	2.E-07	0.0000003
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	3.0E-11	3.0E-10	1.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	2.1E-10	2.1E-09	4.E-07	4.E-06	0.000005
Exposure Point Total										6.E-07							0.2

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 4 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	4.8E-09	4.9E-08	7.E-09	7.E-08	8.E-08	3.0E-04	3.0E-04	3.4E-08	3.4E-07	1.E-04	1.E-03	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.3E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	8.2E+00	ug/kg	--	--	3.0E-11	9.2E-11	--	--	--	3.0E-04	3.0E-04	2.1E-10	6.4E-10	7.E-07	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.0E+02	ug/kg	7.3E-01	7.3E-01	4.3E-09	1.0E-08	3.E-09	7.E-09	1.E-08	--	--	3.0E-08	7.0E-08	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.8E-09	6.5E-09	2.E-08	5.E-08	7.E-08	--	--	2.0E-08	4.6E-08	--	--	--
	Benzo(b)fluoranthene	5.2E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	5.8E-09	2.E-09	4.E-09	6.E-09	--	--	1.7E-08	4.1E-08	--	--	--
	Benzo(k)fluoranthene	3.2E+02	ug/kg	7.3E-02	7.3E-02	1.5E-09	3.5E-09	1.E-10	3.E-10	4.E-10	--	--	1.1E-08	2.5E-08	--	--	--
	Dibenzo(a,h)anthracene	8.9E+01	ug/kg	7.3E+00	7.3E+00	4.3E-10	1.0E-09	3.E-09	7.E-09	1.E-08	--	--	3.0E-09	7.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	5.2E-09	2.E-09	4.E-09	5.E-09	--	--	1.6E-08	3.6E-08	--	--	--
	Naphthalene	1.9E+02	ug/kg	--	--	9.2E-10	2.1E-09	--	--	--	2.0E-02	2.0E-02	6.4E-09	1.5E-08	3.E-07	7.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	2.6E-10	8.0E-10	4.E-12	1.E-11	1.E-11	2.0E-02	2.0E-02	1.8E-09	5.6E-09	9.E-08	3.E-07	0.0000004
	Phenols																
	Pentachlorophenol	6.7E+00	ug/kg	4.0E-01	4.0E-01	6.2E-11	7.5E-11	2.E-11	3.E-11	5.E-11	5.0E-03	5.0E-03	4.3E-10	5.2E-10	9.E-08	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.6E+01	ug/kg	2.0E+00	2.0E+00	1.4E-10	3.0E-10	3.E-10	6.E-10	9.E-10	2.0E-05	2.0E-05	9.6E-10	2.1E-09	5.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	3.6E-15	3.6E-14	5.E-10	5.E-09	5.E-09	1.0E-09	1.0E-09	2.5E-14	2.5E-13	3.E-05	3.E-04	0.0003
	Total PCB TEQ	6.5E-01	pg/g	1.3E+05	1.3E+05	3.4E-15	7.3E-15	4.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	2.4E-14	5.1E-14	2.E-05	5.E-05	0.00007
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.8E-12	5.4E-12	3.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	1.3E-11	3.8E-11	4.E-07	1.E-06	0.000002
	Dieldrin	2.8E-01	ug/kg	1.6E+01	1.6E+01	1.0E-12	3.1E-12	2.E-11	5.E-11	7.E-11	5.0E-05	5.0E-05	7.2E-12	2.2E-11	1.E-07	4.E-07	0.000001
	Total DDT	5.6E+01	ug/kg	3.4E-01	3.4E-01	6.1E-11	6.2E-10	2.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	4.3E-10	4.3E-09	9.E-07	9.E-06	0.00001
Exposure Point Total										2.E-07							0.1
RM 4 East	**Metals**																
	Arsenic	5.6E+00	mg/kg	1.5E+00	1.5E+00	6.2E-09	6.3E-08	9.E-09	9.E-08	1.E-07	3.0E-04	3.0E-04	4.4E-08	4.4E-07	1.E-04	1.E-03	0.002
	Mercury	9.6E-02	mg/kg	--	--	0.0E+00	1.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.5E-09	0.E+00	8.E-05	0.00008
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.7E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	3.6E+01	ug/kg	--	--	1.3E-10	4.1E-10	--	--	--	3.0E-04	3.0E-04	9.4E-10	2.9E-09	3.E-06	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	7.5E-09	1.7E-08	5.E-09	1.E-08	2.E-08	--	--	5.2E-08	1.2E-07	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.1E-08	2.5E-08	8.E-08	2.E-07	3.E-07	--	--	7.5E-08	1.7E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	2.5E-08	8.E-09	2.E-08	3.E-08	--	--	7.6E-08	1.8E-07	--	--	--
	Benzo(k)fluoranthene	1.8E+03	ug/kg	7.3E-02	7.3E-02	8.8E-09	2.0E-08	6.E-10	1.E-09	2.E-09	--	--	6.1E-08	1.4E-07	--	--	--
	Dibenzo(a,h)anthracene	3.7E+02	ug/kg	7.3E+00	7.3E+00	1.8E-09	4.1E-09	1.E-08	3.E-08	4.E-08	--	--	1.2E-08	2.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	8.0E-09	1.9E-08	6.E-09	1.E-08	2.E-08	--	--	5.6E-08	1.3E-07	--	--	--
	Naphthalene	7.4E+01	ug/kg	--	--	3.5E-10	8.3E-10	--	--	--	2.0E-02	2.0E-02	2.5E-09	5.8E-09	1.E-07	3.E-07	0.0000004

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+03	ug/kg	1.4E-02	1.4E-02	1.2E-08	3.7E-08	2.E-10	5.E-10	7.E-10	2.0E-02	2.0E-02	8.4E-08	2.6E-07	4.E-06	1.E-05	0.00002
	Phenols																
	Pentachlorophenol	4.3E+03	ug/kg	4.0E-01	4.0E-01	4.0E-08	4.8E-08	2.E-08	2.E-08	4.E-08	5.0E-03	5.0E-03	2.8E-07	3.4E-07	6.E-05	7.E-05	0.0001
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	1.9E-09	4.0E-09	4.E-09	8.E-09	1.E-08	2.0E-05	2.0E-05	1.3E-08	2.8E-08	7.E-04	1.E-03	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	1.3E+05	1.3E+05	7.7E-15	7.8E-14	1.E-09	1.E-08	1.E-08	1.0E-09	1.0E-09	5.4E-14	5.4E-13	5.E-05	5.E-04	0.0006
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.7E-14	3.8E-14	2.E-09	5.E-09	7.E-09	1.0E-09	1.0E-09	1.2E-13	2.6E-13	1.E-04	3.E-04	0.0004
	Pesticides																
	Aldrin	7.9E-01	ug/kg	1.7E+01	1.7E+01	2.9E-12	8.8E-12	5.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	2.0E-11	6.1E-11	7.E-07	2.E-06	0.000003
	Dieldrin	1.6E-01	ug/kg	1.6E+01	1.6E+01	5.8E-13	1.7E-12	9.E-12	3.E-11	4.E-11	5.0E-05	5.0E-05	4.0E-12	1.2E-11	8.E-08	2.E-07	0.0000003
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.3E-11	1.3E-10	4.E-12	5.E-11	5.E-11	5.0E-04	5.0E-04	9.2E-11	9.3E-10	2.E-07	2.E-06	0.000002
Exposure Point Total										5.E-07							0.1
RM 4.5 West	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	5.4E-09	5.5E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.8E-08	3.8E-07	1.E-04	1.E-03	0.001
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	1.9E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.6E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.4E+01	ug/kg	--	--	5.2E-11	1.6E-10	--	--	--	3.0E-04	3.0E-04	3.6E-10	1.1E-09	1.E-06	4.E-06	0.000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	7.5E-09	1.7E-08	5.E-09	1.E-08	2.E-08	--	--	5.2E-08	1.2E-07	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.0E-08	2.4E-08	8.E-08	2.E-07	3.E-07	--	--	7.2E-08	1.7E-07	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	7.2E-09	1.7E-08	5.E-09	1.E-08	2.E-08	--	--	5.0E-08	1.2E-07	--	--	--
	Benzo(k)fluoranthene	6.2E+02	ug/kg	7.3E-02	7.3E-02	3.0E-09	7.0E-09	2.E-10	5.E-10	7.E-10	--	--	2.1E-08	4.9E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.1E-09	2.6E-09	8.E-09	2.E-08	3.E-08	--	--	7.8E-09	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	8.0E-09	1.9E-08	6.E-09	1.E-08	2.E-08	--	--	5.6E-08	1.3E-07	--	--	--
	Naphthalene	3.9E+02	ug/kg	--	--	1.9E-09	4.4E-09	--	--	--	2.0E-02	2.0E-02	1.3E-08	3.1E-08	7.E-07	2.E-06	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.0E+01	ug/kg	1.4E-02	1.4E-02	2.6E-10	7.8E-10	4.E-12	1.E-11	1.E-11	2.0E-02	2.0E-02	1.8E-09	5.5E-09	9.E-08	3.E-07	0.0000004
	Phenols																
	Pentachlorophenol	2.3E+00	ug/kg	4.0E-01	4.0E-01	2.1E-11	2.5E-11	8.E-12	1.E-11	2.E-11	5.0E-03	5.0E-03	1.5E-10	1.8E-10	3.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+01	ug/kg	2.0E+00	2.0E+00	2.0E-10	4.3E-10	4.E-10	9.E-10	1.E-09	2.0E-05	2.0E-05	1.4E-09	3.0E-09	7.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	1.3E+05	1.3E+05	7.5E-15	7.6E-14	1.E-09	1.E-08	1.E-08	1.0E-09	1.0E-09	5.3E-14	5.3E-13	5.E-05	5.E-04	0.0006
	Total PCB TEQ	2.5E+00	pg/g	1.3E+05	1.3E+05	1.3E-14	2.8E-14	2.E-09	4.E-09	5.E-09	1.0E-09	1.0E-09	9.0E-14	2.0E-13	9.E-05	2.E-04	0.0003
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	4.4E-12	1.3E-11	8.E-11	2.E-10	3.E-10	3.0E-05	3.0E-05	3.1E-11	9.4E-11	1.E-06	3.E-06	0.000004
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	6.8E-13	2.1E-12	1.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	4.8E-12	1.4E-11	1.E-07	3.E-07	0.0000004
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	3.0E-11	3.1E-10	1.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	2.1E-10	2.1E-09	4.E-07	4.E-06	0.000005
Exposure Point Total										4.E-07							0.1

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 4.5 East	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	5.4E-09	5.5E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.8E-08	3.9E-07	1.E-04	1.E-03	0.001
	Mercury	7.3E-02	mg/kg	--	--	0.0E+00	8.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-09	0.E+00	6.E-05	0.00006
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	7.2E+01	ug/kg	--	--	2.7E-10	8.1E-10	--	--	--	3.0E-04	3.0E-04	1.9E-09	5.6E-09	6.E-06	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+04	ug/kg	7.3E-01	7.3E-01	9.5E-08	2.2E-07	7.E-08	2.E-07	2.E-07	--	--	6.7E-07	1.6E-06	--	--	--
	Benzo(a)pyrene	8.7E+03	ug/kg	7.3E+00	7.3E+00	4.2E-08	9.7E-08	3.E-07	7.E-07	1.E-06	--	--	2.9E-07	6.8E-07	--	--	--
	Benzo(b)fluoranthene	7.5E+03	ug/kg	7.3E-01	7.3E-01	3.6E-08	8.4E-08	3.E-08	6.E-08	9.E-08	--	--	2.5E-07	5.9E-07	--	--	--
	Benzo(k)fluoranthene	6.9E+03	ug/kg	7.3E-02	7.3E-02	3.3E-08	7.7E-08	2.E-09	6.E-09	8.E-09	--	--	2.3E-07	5.4E-07	--	--	--
	Dibenzo(a,h)anthracene	1.4E+03	ug/kg	7.3E+00	7.3E+00	6.9E-09	1.6E-08	5.E-08	1.E-07	2.E-07	--	--	4.8E-08	1.1E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E+03	ug/kg	7.3E-01	7.3E-01	2.9E-08	6.8E-08	2.E-08	5.E-08	7.E-08	--	--	2.0E-07	4.7E-07	--	--	--
	Naphthalene	4.4E+02	ug/kg	--	--	2.1E-09	4.9E-09	--	--	--	2.0E-02	2.0E-02	1.5E-08	3.4E-08	7.E-07	2.E-06	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.6E-10	1.4E-09	6.E-12	2.E-11	3.E-11	2.0E-02	2.0E-02	3.2E-09	9.7E-09	2.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	3.0E-11	3.6E-11	1.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	2.1E-10	2.5E-10	4.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+01	ug/kg	2.0E+00	2.0E+00	2.3E-10	4.9E-10	5.E-10	1.E-09	1.E-09	2.0E-05	2.0E-05	1.6E-09	3.5E-09	8.E-05	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	3.1E-16	3.1E-15	4.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	2.1E-15	2.2E-14	2.E-06	2.E-05	0.00002
	Total PCB TEQ	3.4E-01	pg/g	1.3E+05	1.3E+05	1.7E-15	3.8E-15	2.E-10	5.E-10	7.E-10	1.0E-09	1.0E-09	1.2E-14	2.6E-14	1.E-05	3.E-05	0.00004
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	5.6E-13	1.7E-12	1.E-11	3.E-11	4.E-11	3.0E-05	3.0E-05	3.9E-12	1.2E-11	1.E-07	4.E-07	0.000001
	Dieldrin	8.4E-02	ug/kg	1.6E+01	1.6E+01	3.1E-13	9.3E-13	5.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	2.2E-12	6.5E-12	4.E-08	1.E-07	0.0000002
	Total DDT	8.7E+00	ug/kg	3.4E-01	3.4E-01	9.6E-12	9.7E-11	3.E-12	3.E-11	4.E-11	5.0E-04	5.0E-04	6.7E-11	6.8E-10	1.E-07	1.E-06	0.000001
Exposure Point Total										2.E-06							0.1
RM 5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	4.2E-09	4.2E-08	6.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	2.9E-08	3.0E-07	1.E-04	1.E-03	0.001
	Mercury	6.0E-02	mg/kg	--	--	0.0E+00	6.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.7E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.0E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.1E+01	ug/kg	--	--	7.7E-11	2.3E-10	--	--	--	3.0E-04	3.0E-04	5.4E-10	1.6E-09	2.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E+03	ug/kg	7.3E-01	7.3E-01	1.6E-08	3.8E-08	1.E-08	3.E-08	4.E-08	--	--	1.2E-07	2.7E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	2.2E-08	5.0E-08	2.E-07	4.E-07	5.E-07	--	--	1.5E-07	3.5E-07	--	--	--
	Benzo(b)fluoranthene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.4E-08	3.3E-08	1.E-08	2.E-08	3.E-08	--	--	1.0E-07	2.3E-07	--	--	--
	Benzo(k)fluoranthene	5.7E+02	ug/kg	7.3E-02	7.3E-02	2.7E-09	6.4E-09	2.E-10	5.E-10	7.E-10	--	--	1.9E-08	4.5E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.1E-09	2.6E-09	8.E-09	2.E-08	3.E-08	--	--	7.7E-09	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-08	3.7E-08	1.E-08	3.E-08	4.E-08	--	--	1.1E-07	2.6E-07	--	--	--
	Naphthalene	4.2E+02	ug/kg	--	--	2.0E-09	4.7E-09	--	--	--	2.0E-02	2.0E-02	1.4E-08	3.3E-08	7.E-07	2.E-06	0.000002

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+01	ug/kg	1.4E-02	1.4E-02	3.4E-10	1.0E-09	5.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	2.3E-09	7.1E-09	1.E-07	4.E-07	0.0000005
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.7E-10	2.0E-10	7.E-11	8.E-11	1.E-10	5.0E-03	5.0E-03	1.2E-09	1.4E-09	2.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.3E-10	2.8E-10	3.E-10	6.E-10	8.E-10	2.0E-05	2.0E-05	9.1E-10	2.0E-09	5.E-05	1.E-04	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	6.0E-15	6.1E-14	8.E-10	8.E-09	9.E-09	1.0E-09	1.0E-09	4.2E-14	4.2E-13	4.E-05	4.E-04	0.0005
	Total PCB TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	1.1E-14	2.3E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	7.5E-14	1.6E-13	8.E-05	2.E-04	0.0002
	Pesticides																
	Aldrin	1.9E+00	ug/kg	1.7E+01	1.7E+01	7.0E-12	2.1E-11	1.E-10	4.E-10	5.E-10	3.0E-05	3.0E-05	4.9E-11	1.5E-10	2.E-06	5.E-06	0.00001
	Dieldrin	7.8E-01	ug/kg	1.6E+01	1.6E+01	2.9E-12	8.7E-12	5.E-11	1.E-10	2.E-10	5.0E-05	5.0E-05	2.0E-11	6.1E-11	4.E-07	1.E-06	0.000002
	Total DDT	8.2E+01	ug/kg	3.4E-01	3.4E-01	9.1E-11	9.2E-10	3.E-11	3.E-10	3.E-10	5.0E-04	5.0E-04	6.3E-10	6.4E-09	1.E-06	1.E-05	0.00001
Exposure Point Total										7.E-07							0.1
RM 5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.1E-09	4.1E-08	6.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	2.8E-08	2.9E-07	9.E-05	1.E-03	0.001
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	9.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.7E-09	0.E+00	7.E-05	0.00007
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.2E+02	ug/kg	--	--	4.4E-10	1.3E-09	--	--	--	3.0E-04	3.0E-04	3.1E-09	9.4E-09	1.E-05	3.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	3.7E-09	1.E-09	3.E-09	4.E-09	--	--	1.1E-08	2.6E-08	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	2.3E-09	5.3E-09	2.E-08	4.E-08	6.E-08	--	--	1.6E-08	3.7E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	3.2E-09	7.5E-09	2.E-09	5.E-09	8.E-09	--	--	2.2E-08	5.2E-08	--	--	--
	Benzo(k)fluoranthene	3.0E+02	ug/kg	7.3E-02	7.3E-02	1.5E-09	3.4E-09	1.E-10	2.E-10	4.E-10	--	--	1.0E-08	2.4E-08	--	--	--
	Dibenzo(a,h)anthracene	9.1E+01	ug/kg	7.3E+00	7.3E+00	4.4E-10	1.0E-09	3.E-09	7.E-09	1.E-08	--	--	3.1E-09	7.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	2.3E-09	5.4E-09	2.E-09	4.E-09	6.E-09	--	--	1.6E-08	3.8E-08	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	6.4E-10	1.5E-09	--	--	--	2.0E-02	2.0E-02	4.5E-09	1.1E-08	2.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	4.8E-10	1.5E-09	7.E-12	2.E-11	3.E-11	2.0E-02	2.0E-02	3.4E-09	1.0E-08	2.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	1.2E-10	1.5E-10	5.E-11	6.E-11	1.E-10	5.0E-03	5.0E-03	8.7E-10	1.1E-09	2.E-07	2.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.3E-10	2.8E-10	3.E-10	6.E-10	8.E-10	2.0E-05	2.0E-05	9.2E-10	2.0E-09	5.E-05	1.E-04	0.0001
	Pesticides																
	Aldrin	8.0E-01	ug/kg	1.7E+01	1.7E+01	2.9E-12	8.9E-12	5.E-11	2.E-10	2.E-10	3.0E-05	3.0E-05	2.1E-11	6.3E-11	7.E-07	2.E-06	0.000003
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	2.9E-12	8.8E-12	5.E-11	1.E-10	2.E-10	5.0E-05	5.0E-05	2.0E-11	6.2E-11	4.E-07	1.E-06	0.000002
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.1E-12	2.1E-11	7.E-13	7.E-12	8.E-12	5.0E-04	5.0E-04	1.5E-11	1.5E-10	3.E-08	3.E-07	0.0000003
Exposure Point Total										2.E-07							0.1
RM 5.5 West	**Metals**																
	Arsenic	6.1E+00	mg/kg	1.5E+00	1.5E+00	6.7E-09	6.8E-08	1.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	4.7E-08	4.8E-07	2.E-04	2.E-03	0.002
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	9.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.3E-09	0.E+00	6.E-05	0.00006
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	1.6E-10	4.9E-10	--	--	--	3.0E-04	3.0E-04	1.1E-09	3.4E-09	4.E-06	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.5E-08	3.4E-08	1.E-08	2.E-08	4.E-08	--	--	1.0E-07	2.4E-07	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	2.1E-08	4.9E-08	2.E-07	4.E-07	5.E-07	--	--	1.5E-07	3.4E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.5E-08	3.5E-08	1.E-08	3.E-08	4.E-08	--	--	1.0E-07	2.4E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	9.8E-09	2.3E-08	7.E-10	2.E-09	2.E-09	--	--	6.8E-08	1.6E-07	--	--	--
	Dibenzo(a,h)anthracene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.7E-09	3.9E-09	1.E-08	3.E-08	4.E-08	--	--	1.2E-08	2.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.5E+03	ug/kg	7.3E-01	7.3E-01	1.7E-08	3.9E-08	1.E-08	3.E-08	4.E-08	--	--	1.2E-07	2.7E-07	--	--	--
	Naphthalene	3.3E+02	ug/kg	--	--	1.6E-09	3.7E-09	--	--	--	2.0E-02	2.0E-02	1.1E-08	2.6E-08	6.E-07	1.E-06	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+01	ug/kg	1.4E-02	1.4E-02	6.6E-11	2.0E-10	9.E-13	3.E-12	4.E-12	2.0E-02	2.0E-02	4.7E-10	1.4E-09	2.E-08	7.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.7E-10	2.0E-10	7.E-11	8.E-11	1.E-10	5.0E-03	5.0E-03	1.2E-09	1.4E-09	2.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+01	ug/kg	2.0E+00	2.0E+00	2.7E-10	5.7E-10	5.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	1.9E-09	4.0E-09	9.E-05	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	1.3E+05	1.3E+05	2.6E-15	2.6E-14	3.E-10	3.E-09	4.E-09	1.0E-09	1.0E-09	1.8E-14	1.8E-13	2.E-05	2.E-04	0.0002
	Total PCB TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	5.6E-15	1.2E-14	7.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	3.9E-14	8.5E-14	4.E-05	9.E-05	0.0001
	Pesticides																
	Aldrin	6.7E-01	ug/kg	1.7E+01	1.7E+01	2.5E-12	7.5E-12	4.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	1.7E-11	5.3E-11	6.E-07	2.E-06	0.000002
	Dieldrin	4.1E-01	ug/kg	1.6E+01	1.6E+01	1.5E-12	4.6E-12	2.E-11	7.E-11	1.E-10	5.0E-05	5.0E-05	1.1E-11	3.2E-11	2.E-07	6.E-07	0.000001
	Total DDT	6.2E+01	ug/kg	3.4E-01	3.4E-01	6.8E-11	6.9E-10	2.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	4.8E-10	4.8E-09	1.E-06	1.E-05	0.00001
Exposure Point Total										8.E-07							0.1
RM 5.5 East	**Metals**																
	Arsenic	8.9E+00	mg/kg	1.5E+00	1.5E+00	9.8E-09	9.9E-08	1.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.9E-08	6.9E-07	2.E-04	2.E-03	0.003
	Mercury	6.7E-01	mg/kg	--	--	0.0E+00	7.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.2E-08	0.E+00	5.E-04	0.0005
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	1.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.1E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	3.2E+02	ug/kg	--	--	1.2E-09	3.6E-09	--	--	--	3.0E-04	3.0E-04	8.3E-09	2.5E-08	3.E-05	8.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.7E+02	ug/kg	7.3E-01	7.3E-01	2.8E-09	6.4E-09	2.E-09	5.E-09	7.E-09	--	--	1.9E-08	4.5E-08	--	--	--
	Benzo(a)pyrene	7.0E+02	ug/kg	7.3E+00	7.3E+00	3.4E-09	7.8E-09	2.E-08	6.E-08	8.E-08	--	--	2.3E-08	5.5E-08	--	--	--
	Benzo(b)fluoranthene	8.4E+02	ug/kg	7.3E-01	7.3E-01	4.0E-09	9.4E-09	3.E-09	7.E-09	1.E-08	--	--	2.8E-08	6.6E-08	--	--	--
	Benzo(k)fluoranthene	4.4E+02	ug/kg	7.3E-02	7.3E-02	2.1E-09	4.9E-09	2.E-10	4.E-10	5.E-10	--	--	1.5E-08	3.5E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.7E-10	1.6E-09	5.E-09	1.E-08	2.E-08	--	--	4.7E-09	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	5.9E-09	2.E-09	4.E-09	6.E-09	--	--	1.8E-08	4.1E-08	--	--	--
	Naphthalene	3.5E+02	ug/kg	--	--	1.7E-09	3.9E-09	--	--	--	2.0E-02	2.0E-02	1.2E-08	2.7E-08	6.E-07	1.E-06	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+02	ug/kg	1.4E-02	1.4E-02	1.2E-09	3.7E-09	2.E-11	5.E-11	7.E-11	2.0E-02	2.0E-02	8.5E-09	2.6E-08	4.E-07	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.6E-10	2.0E-10	6.E-11	8.E-11	1.E-10	5.0E-03	5.0E-03	1.1E-09	1.4E-09	2.E-07	3.E-07	0.000001

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.3E-10	2.0E-09	2.E-09	4.E-09	6.E-09	2.0E-05	2.0E-05	6.5E-09	1.4E-08	3.E-04	7.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	1.3E+05	1.3E+05	9.8E-15	9.9E-14	1.E-09	1.E-08	1.E-08	1.0E-09	1.0E-09	6.9E-14	6.9E-13	7.E-05	7.E-04	0.0008
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	3.0E-14	6.5E-14	4.E-09	8.E-09	1.E-08	1.0E-09	1.0E-09	2.1E-13	4.6E-13	2.E-04	5.E-04	0.0007
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.5E-12	4.5E-12	3.E-11	8.E-11	1.E-10	3.0E-05	3.0E-05	1.0E-11	3.1E-11	3.E-07	1.E-06	0.000001
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	2.2E-12	6.7E-12	4.E-11	1.E-10	1.E-10	5.0E-05	5.0E-05	1.5E-11	4.7E-11	3.E-07	9.E-07	0.000001
	Total DDT	2.0E+01	ug/kg	3.4E-01	3.4E-01	2.2E-11	2.2E-10	7.E-12	7.E-11	8.E-11	5.0E-04	5.0E-04	1.5E-10	1.5E-09	3.E-07	3.E-06	0.000003
Exposure Point Total										3.E-07							0.1
RM 6 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	4.5E-09	4.6E-08	7.E-09	7.E-08	8.E-08	3.0E-04	3.0E-04	3.2E-08	3.2E-07	1.E-04	1.E-03	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	1.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.3E+02	mg/kg	--	--	0.0E+00	1.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.9E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.0E+01	ug/kg	--	--	7.3E-11	2.2E-10	--	--	--	3.0E-04	3.0E-04	5.1E-10	1.5E-09	2.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+04	ug/kg	7.3E-01	7.3E-01	2.3E-07	5.3E-07	2.E-07	4.E-07	6.E-07	--	--	1.6E-06	3.7E-06	--	--	--
	Benzo(a)pyrene	5.8E+04	ug/kg	7.3E+00	7.3E+00	2.8E-07	6.4E-07	2.E-06	5.E-06	7.E-06	--	--	1.9E-06	4.5E-06	--	--	--
	Benzo(b)fluoranthene	4.3E+04	ug/kg	7.3E-01	7.3E-01	2.0E-07	4.8E-07	1.E-07	3.E-07	5.E-07	--	--	1.4E-06	3.3E-06	--	--	--
	Benzo(k)fluoranthene	2.7E+04	ug/kg	7.3E-02	7.3E-02	1.3E-07	3.0E-07	9.E-09	2.E-08	3.E-08	--	--	9.0E-07	2.1E-06	--	--	--
	Dibenzo(a,h)anthracene	5.4E+03	ug/kg	7.3E+00	7.3E+00	2.6E-08	6.0E-08	2.E-07	4.E-07	6.E-07	--	--	1.8E-07	4.2E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+04	ug/kg	7.3E-01	7.3E-01	1.9E-07	4.5E-07	1.E-07	3.E-07	5.E-07	--	--	1.3E-06	3.1E-06	--	--	--
	Naphthalene	4.4E+04	ug/kg	--	--	2.1E-07	5.0E-07	--	--	--	2.0E-02	2.0E-02	1.5E-06	3.5E-06	7.E-05	2.E-04	0.0002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.8E+02	ug/kg	1.4E-02	1.4E-02	1.4E-09	4.2E-09	2.E-11	6.E-11	8.E-11	2.0E-02	2.0E-02	9.7E-09	2.9E-08	5.E-07	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	3.5E+01	ug/kg	4.0E-01	4.0E-01	3.2E-10	3.9E-10	1.E-10	2.E-10	3.E-10	5.0E-03	5.0E-03	2.2E-09	2.7E-09	4.E-07	5.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	6.1E+01	ug/kg	2.0E+00	2.0E+00	3.2E-10	6.8E-10	6.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	2.2E-09	4.8E-09	1.E-04	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	1.7E-15	1.7E-14	2.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	1.2E-14	1.2E-13	1.E-05	1.E-04	0.0001
	Total PCB TEQ	2.8E+00	pg/g	1.3E+05	1.3E+05	1.5E-14	3.2E-14	2.E-09	4.E-09	6.E-09	1.0E-09	1.0E-09	1.0E-13	2.2E-13	1.E-04	2.E-04	0.0003
	Pesticides																
	Aldrin	2.3E+00	ug/kg	1.7E+01	1.7E+01	8.6E-12	2.6E-11	1.E-10	4.E-10	6.E-10	3.0E-05	3.0E-05	6.0E-11	1.8E-10	2.E-06	6.E-06	0.00001
	Dieldrin	1.8E+00	ug/kg	1.6E+01	1.6E+01	6.8E-12	2.0E-11	1.E-10	3.E-10	4.E-10	5.0E-05	5.0E-05	4.7E-11	1.4E-10	9.E-07	3.E-06	0.000004
	Total DDT	8.1E+01	ug/kg	3.4E-01	3.4E-01	9.0E-11	9.1E-10	3.E-11	3.E-10	3.E-10	5.0E-04	5.0E-04	6.3E-10	6.4E-09	1.E-06	1.E-05	0.00001
Exposure Point Total										9.E-06							0.1
RM 6 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	4.8E-09	4.9E-08	7.E-09	7.E-08	8.E-08	3.0E-04	3.0E-04	3.4E-08	3.4E-07	1.E-04	1.E-03	0.001
	Mercury	4.0E-01	mg/kg	--	--	0.0E+00	4.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.1E-08	0.E+00	3.E-04	0.0003
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.6E-06	0.E+00	1.E-01	0.1

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	3.5E+02	ug/kg	--	--	1.3E-09	3.9E-09	--	--	--	3.0E-04	3.0E-04	9.0E-09	2.7E-08	3.E-05	9.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	6.4E-09	1.5E-08	5.E-09	1.E-08	2.E-08	--	--	4.5E-08	1.1E-07	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	9.3E-09	2.2E-08	7.E-08	2.E-07	2.E-07	--	--	6.5E-08	1.5E-07	--	--	--
	Benzo(b)fluoranthene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-08	3.6E-08	1.E-08	3.E-08	4.E-08	--	--	1.1E-07	2.5E-07	--	--	--
	Benzo(k)fluoranthene	2.5E+03	ug/kg	7.3E-02	7.3E-02	1.2E-08	2.8E-08	9.E-10	2.E-09	3.E-09	--	--	8.5E-08	2.0E-07	--	--	--
	Dibenzo(a,h)anthracene	2.7E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	3.0E-09	9.E-09	2.E-08	3.E-08	--	--	9.1E-09	2.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+03	ug/kg	7.3E-01	7.3E-01	5.4E-09	1.3E-08	4.E-09	9.E-09	1.E-08	--	--	3.8E-08	8.8E-08	--	--	--
	Naphthalene	8.4E+02	ug/kg	--	--	4.0E-09	9.4E-09	--	--	--	2.0E-02	2.0E-02	2.8E-08	6.6E-08	1.E-06	3.E-06	0.000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	5.2E-10	1.6E-09	7.E-12	2.E-11	3.E-11	2.0E-02	2.0E-02	3.6E-09	1.1E-08	2.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	4.1E-10	4.9E-10	2.E-10	2.E-10	4.E-10	5.0E-03	5.0E-03	2.8E-09	3.4E-09	6.E-07	7.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.1E-10	2.0E-09	2.E-09	4.E-09	6.E-09	2.0E-05	2.0E-05	6.3E-09	1.4E-08	3.E-04	7.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	4.6E-15	4.6E-14	6.E-10	6.E-09	7.E-09	1.0E-09	1.0E-09	3.2E-14	3.2E-13	3.E-05	3.E-04	0.0004
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.8E-14	3.8E-14	2.E-09	5.E-09	7.E-09	1.0E-09	1.0E-09	1.2E-13	2.7E-13	1.E-04	3.E-04	0.0004
	Pesticides																
	Aldrin	6.4E-01	ug/kg	1.7E+01	1.7E+01	2.4E-12	7.1E-12	4.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	1.6E-11	5.0E-11	5.E-07	2.E-06	0.000002
	Dieldrin	1.0E-01	ug/kg	1.6E+01	1.6E+01	3.7E-13	1.1E-12	6.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	2.6E-12	7.8E-12	5.E-08	2.E-07	0.0000002
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	4.7E-12	4.8E-11	2.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	3.3E-11	3.3E-10	7.E-08	7.E-07	0.000001
Exposure Point Total										4.E-07							0.1
RM 6.5 West	**Metals**																
	Arsenic	1.4E+01	mg/kg	1.5E+00	1.5E+00	1.6E-08	1.6E-07	2.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	1.1E-06	4.E-04	4.E-03	0.004
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	2.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.4E+02	mg/kg	--	--	0.0E+00	1.6E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	4.6E+01	ug/kg	--	--	1.7E-10	5.2E-10	--	--	--	3.0E-04	3.0E-04	1.2E-09	3.6E-09	4.E-06	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+03	ug/kg	7.3E-01	7.3E-01	4.8E-09	1.1E-08	4.E-09	8.E-09	1.E-08	--	--	3.4E-08	7.9E-08	--	--	--
	Benzo(a)pyrene	1.2E+03	ug/kg	7.3E+00	7.3E+00	5.9E-09	1.4E-08	4.E-08	1.E-07	1.E-07	--	--	4.1E-08	9.6E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	6.6E-09	1.5E-08	5.E-09	1.E-08	2.E-08	--	--	4.7E-08	1.1E-07	--	--	--
	Benzo(k)fluoranthene	6.6E+02	ug/kg	7.3E-02	7.3E-02	3.2E-09	7.4E-09	2.E-10	5.E-10	8.E-10	--	--	2.2E-08	5.2E-08	--	--	--
	Dibenzo(a,h)anthracene	4.2E+02	ug/kg	7.3E+00	7.3E+00	2.0E-09	4.7E-09	1.E-08	3.E-08	5.E-08	--	--	1.4E-08	3.3E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+02	ug/kg	7.3E-01	7.3E-01	4.0E-09	9.3E-09	3.E-09	7.E-09	1.E-08	--	--	2.8E-08	6.5E-08	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	6.7E-10	1.6E-09	--	--	--	2.0E-02	2.0E-02	4.7E-09	1.1E-08	2.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	3.9E-10	1.2E-09	5.E-12	2.E-11	2.E-11	2.0E-02	2.0E-02	2.7E-09	8.3E-09	1.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.4E+00	ug/kg	4.0E-01	4.0E-01	2.2E-11	2.7E-11	9.E-12	1.E-11	2.E-11	5.0E-03	5.0E-03	1.5E-10	1.9E-10	3.E-08	4.E-08	0.0000001

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	9.1E+01	ug/kg	2.0E+00	2.0E+00	4.7E-10	1.0E-09	9.E-10	2.E-09	3.E-09	2.0E-05	2.0E-05	3.3E-09	7.2E-09	2.E-04	4.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	1.3E-13	1.3E-12	2.E-08	2.E-07	2.E-07	1.0E-09	1.0E-09	8.8E-13	8.9E-12	9.E-04	9.E-03	0.01
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.5E-14	3.3E-14	2.E-09	4.E-09	6.E-09	1.0E-09	1.0E-09	1.1E-13	2.3E-13	1.E-04	2.E-04	0.0003
	Pesticides																
	Aldrin	2.5E+00	ug/kg	1.7E+01	1.7E+01	9.2E-12	2.8E-11	2.E-10	5.E-10	6.E-10	3.0E-05	3.0E-05	6.5E-11	2.0E-10	2.E-06	7.E-06	0.00001
	Dieldrin	5.9E-01	ug/kg	1.6E+01	1.6E+01	2.2E-12	6.6E-12	3.E-11	1.E-10	1.E-10	5.0E-05	5.0E-05	1.5E-11	4.6E-11	3.E-07	9.E-07	0.000001
	Total DDT	1.7E+02	ug/kg	3.4E-01	3.4E-01	1.9E-10	1.9E-09	6.E-11	6.E-10	7.E-10	5.0E-04	5.0E-04	1.3E-09	1.3E-08	3.E-06	3.E-05	0.00003
	Conventionals																
	Perchlorate	NA	ug/kg	--	--	NA	NA	NA	NA	NA	7.0E-04	7.0E-04	NA	NA	NA	NA	NA
Exposure Point Total										7.E-07							0.2
RM 6.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	6.4E-09	6.5E-08	1.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	4.5E-08	4.5E-07	1.E-04	2.E-03	0.002
	Mercury	1.4E+01	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-06	0.E+00	1.E-02	0.01
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.8E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.1E+02	ug/kg	--	--	3.9E-10	1.2E-09	--	--	--	3.0E-04	3.0E-04	2.7E-09	8.2E-09	9.E-06	3.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	2.6E-09	8.E-10	2.E-09	3.E-09	--	--	7.8E-09	1.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	7.1E-10	1.7E-09	5.E-09	1.E-08	2.E-08	--	--	5.0E-09	1.2E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	2.6E-09	8.E-10	2.E-09	3.E-09	--	--	7.8E-09	1.8E-08	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	7.0E-10	1.6E-09	5.E-11	1.E-10	2.E-10	--	--	4.9E-09	1.1E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+01	ug/kg	7.3E+00	7.3E+00	9.1E-11	2.1E-10	7.E-10	2.E-09	2.E-09	--	--	6.4E-10	1.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+02	ug/kg	7.3E-01	7.3E-01	4.9E-10	1.1E-09	4.E-10	8.E-10	1.E-09	--	--	3.4E-09	8.0E-09	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	5.9E-10	1.4E-09	--	--	--	2.0E-02	2.0E-02	4.1E-09	9.6E-09	2.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.6E-10	1.4E-09	6.E-12	2.E-11	3.E-11	2.0E-02	2.0E-02	3.2E-09	9.7E-09	2.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.9E+00	ug/kg	4.0E-01	4.0E-01	4.6E-11	5.5E-11	2.E-11	2.E-11	4.E-11	5.0E-03	5.0E-03	3.2E-10	3.9E-10	6.E-08	8.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+03	ug/kg	2.0E+00	2.0E+00	6.8E-09	1.5E-08	1.E-08	3.E-08	4.E-08	2.0E-05	2.0E-05	4.8E-08	1.0E-07	2.E-03	5.E-03	0.008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	1.3E+05	1.3E+05	9.8E-14	9.9E-13	1.E-08	1.E-07	1.E-07	1.0E-09	1.0E-09	6.9E-13	6.9E-12	7.E-04	7.E-03	0.008
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	6.9E-14	1.5E-13	9.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	4.8E-13	1.0E-12	5.E-04	1.E-03	0.002
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.1E-12	3.3E-12	2.E-11	6.E-11	7.E-11	3.0E-05	3.0E-05	7.5E-12	2.3E-11	3.E-07	8.E-07	0.000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	7.2E-13	2.2E-12	1.E-11	4.E-11	5.E-11	5.0E-05	5.0E-05	5.1E-12	1.5E-11	1.E-07	3.E-07	0.0000004
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.4E-10	1.4E-09	5.E-11	5.E-10	5.E-10	5.0E-04	5.0E-04	1.0E-09	1.0E-08	2.E-06	2.E-05	0.00002
Exposure Point Total										3.E-07							0.2

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	5.8E-09	5.9E-08	9.E-09	9.E-08	1.E-07	3.0E-04	3.0E-04	4.1E-08	4.1E-07	1.E-04	1.E-03	0.002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.8E-09	0.E+00	9.E-05	0.00009
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.1E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	6.4E+00	ug/kg	--	--	2.4E-11	7.2E-11	--	--	--	3.0E-04	3.0E-04	1.7E-10	5.0E-10	6.E-07	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	2.5E-08	8.E-09	2.E-08	3.E-08	--	--	7.4E-08	1.7E-07	--	--	--
	Benzo(a)pyrene	1.7E+03	ug/kg	7.3E+00	7.3E+00	8.2E-09	1.9E-08	6.E-08	1.E-07	2.E-07	--	--	5.7E-08	1.3E-07	--	--	--
	Benzo(b)fluoranthene	4.5E+03	ug/kg	7.3E-01	7.3E-01	2.2E-08	5.0E-08	2.E-08	4.E-08	5.E-08	--	--	1.5E-07	3.5E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+03	ug/kg	7.3E-02	7.3E-02	6.9E-09	1.6E-08	5.E-10	1.E-09	2.E-09	--	--	4.8E-08	1.1E-07	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	3.4E-09	7.9E-09	2.E-08	6.E-08	8.E-08	--	--	2.4E-08	5.6E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+03	ug/kg	7.3E-01	7.3E-01	6.7E-09	1.6E-08	5.E-09	1.E-08	2.E-08	--	--	4.7E-08	1.1E-07	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	5.3E-11	1.2E-10	--	--	--	2.0E-02	2.0E-02	3.7E-10	8.6E-10	2.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.7E+02	ug/kg	1.4E-02	1.4E-02	1.0E-09	3.1E-09	1.E-11	4.E-11	6.E-11	2.0E-02	2.0E-02	7.1E-09	2.1E-08	4.E-07	1.E-06	0.000001
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	4.1E-10	4.9E-10	2.E-10	2.E-10	4.E-10	5.0E-03	5.0E-03	2.8E-09	3.4E-09	6.E-07	7.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	9.3E+01	ug/kg	2.0E+00	2.0E+00	4.8E-10	1.0E-09	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	3.4E-09	7.3E-09	2.E-04	4.E-04	0.00053
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	1.3E+05	1.3E+05	1.6E-11	1.6E-10	2.E-06	2.E-05	2.E-05	1.0E-09	1.0E-09	1.1E-10	1.1E-09	1.E-01	1.E+00	1
	Total PCB TEQ	2.7E+01	pg/g	1.3E+05	1.3E+05	1.4E-13	3.0E-13	2.E-08	4.E-08	6.E-08	1.0E-09	1.0E-09	9.6E-13	2.1E-12	1.E-03	2.E-03	0.003
	Pesticides																
	Aldrin	1.9E+02	ug/kg	1.7E+01	1.7E+01	7.1E-10	2.1E-09	1.E-08	4.E-08	5.E-08	3.0E-05	3.0E-05	5.0E-09	1.5E-08	2.E-04	5.E-04	0.0007
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	7.5E-12	2.3E-11	1.E-10	4.E-10	5.E-10	5.0E-05	5.0E-05	5.3E-11	1.6E-10	1.E-06	3.E-06	0.000004
	Total DDT	6.3E+03	ug/kg	3.4E-01	3.4E-01	7.0E-09	7.0E-08	2.E-09	2.E-08	3.E-08	5.0E-04	5.0E-04	4.9E-08	4.9E-07	1.E-04	1.E-03	0.001
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	3.1E-06	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.1E-05	0.E+00	3.E-02	0.03
Exposure Point Total										2.E-05							1
RM 7 East	**Metals**																
	Arsenic	1.5E+01	mg/kg	1.5E+00	1.5E+00	1.6E-08	1.6E-07	2.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	1.2E-06	4.E-04	4.E-03	0.004
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.3E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.0E+03	ug/kg	--	--	3.8E-09	1.2E-08	--	--	--	3.0E-04	3.0E-04	2.7E-08	8.1E-08	9.E-05	3.E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.2E+02	ug/kg	7.3E-01	7.3E-01	2.0E-09	4.7E-09	1.E-09	3.E-09	5.E-09	--	--	1.4E-08	3.3E-08	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.8E-09	6.5E-09	2.E-08	5.E-08	7.E-08	--	--	2.0E-08	4.6E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	3.2E-09	7.5E-09	2.E-09	5.E-09	8.E-09	--	--	2.2E-08	5.2E-08	--	--	--
	Benzo(k)fluoranthene	6.5E+02	ug/kg	7.3E-02	7.3E-02	3.1E-09	7.3E-09	2.E-10	5.E-10	8.E-10	--	--	2.2E-08	5.1E-08	--	--	--

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	9.0E-10	2.1E-09	7.E-09	2.E-08	2.E-08	--	--	6.3E-09	1.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	4.4E-09	1.E-09	3.E-09	5.E-09	--	--	1.3E-08	3.1E-08	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	2.2E-10	5.0E-10	--	--	--	2.0E-02	2.0E-02	1.5E-09	3.5E-09	8.E-08	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	4.8E-09	1.5E-08	7.E-11	2.E-10	3.E-10	2.0E-02	2.0E-02	3.4E-08	1.0E-07	2.E-06	5.E-06	0.00001
	Phenols																
	Pentachlorophenol	1.2E+02	ug/kg	4.0E-01	4.0E-01	1.1E-09	1.3E-09	4.E-10	5.E-10	1.E-09	5.0E-03	5.0E-03	7.6E-09	9.2E-09	2.E-06	2.E-06	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	3.6E-10	7.9E-10	7.E-10	2.E-09	2.E-09	2.0E-05	2.0E-05	2.5E-09	5.5E-09	1.E-04	3.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	1.3E+05	1.3E+05	4.4E-14	4.5E-13	6.E-09	6.E-08	6.E-08	1.0E-09	1.0E-09	3.1E-13	3.1E-12	3.E-04	3.E-03	0.003
	Total PCB TEQ	7.4E-01	pg/g	1.3E+05	1.3E+05	3.8E-15	8.3E-15	5.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	2.7E-14	5.8E-14	3.E-05	6.E-05	0.00008
	Pesticides																
	Aldrin	4.6E-01	ug/kg	1.7E+01	1.7E+01	1.7E-12	5.1E-12	3.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	1.2E-11	3.6E-11	4.E-07	1.E-06	0.000002
	Dieldrin	1.2E-01	ug/kg	1.6E+01	1.6E+01	4.2E-13	1.3E-12	7.E-12	2.E-11	3.E-11	5.0E-05	5.0E-05	3.0E-12	9.0E-12	6.E-08	2.E-07	0.0000002
	Total DDT	1.3E+01	ug/kg	3.4E-01	3.4E-01	1.4E-11	1.4E-10	5.E-12	5.E-11	5.E-11	5.0E-04	5.0E-04	9.9E-11	1.0E-09	2.E-07	2.E-06	0.000002
Exposure Point Total										4.E-07							0.1
RM 7.5 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.1E-09	4.1E-08	6.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	2.8E-08	2.9E-07	9.E-05	1.E-03	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	9.7E+00	ug/kg	--	--	3.6E-11	1.1E-10	--	--	--	3.0E-04	3.0E-04	2.5E-10	7.6E-10	8.E-07	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	4.9E-09	2.E-09	4.E-09	5.E-09	--	--	1.5E-08	3.4E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.6E-09	3.8E-09	1.E-08	3.E-08	4.E-08	--	--	1.1E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	4.6E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	5.2E-09	2.E-09	4.E-09	5.E-09	--	--	1.6E-08	3.6E-08	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	6.2E-10	1.4E-09	5.E-11	1.E-10	2.E-10	--	--	4.3E-09	1.0E-08	--	--	--
	Dibenzo(a,h)anthracene	5.0E+01	ug/kg	7.3E+00	7.3E+00	2.4E-10	5.6E-10	2.E-09	4.E-09	6.E-09	--	--	1.7E-09	3.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E+02	ug/kg	7.3E-01	7.3E-01	9.1E-10	2.1E-09	7.E-10	2.E-09	2.E-09	--	--	6.4E-09	1.5E-08	--	--	--
	Naphthalene	3.3E+01	ug/kg	--	--	1.6E-10	3.7E-10	--	--	--	2.0E-02	2.0E-02	1.1E-09	2.6E-09	6.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	6.8E-10	2.1E-09	9.E-12	3.E-11	4.E-11	2.0E-02	2.0E-02	4.7E-09	1.4E-08	2.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.1E+00	ug/kg	4.0E-01	4.0E-01	1.9E-11	2.3E-11	8.E-12	9.E-12	2.E-11	5.0E-03	5.0E-03	1.3E-10	1.6E-10	3.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+02	ug/kg	2.0E+00	2.0E+00	1.3E-09	2.8E-09	3.E-09	6.E-09	8.E-09	2.0E-05	2.0E-05	9.0E-09	2.0E-08	5.E-04	1.E-03	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	2.9E-15	2.9E-14	4.E-10	4.E-09	4.E-09	1.0E-09	1.0E-09	2.0E-14	2.0E-13	2.E-05	2.E-04	0.0002
	Total PCB TEQ	9.2E-01	pg/g	1.3E+05	1.3E+05	4.8E-15	1.0E-14	6.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	3.3E-14	7.2E-14	3.E-05	7.E-05	0.0001

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.1E-12	3.2E-12	2.E-11	5.E-11	7.E-11	3.0E-05	3.0E-05	7.4E-12	2.2E-11	2.E-07	7.E-07	0.000001
	Dieldrin	7.7E-01	ug/kg	1.6E+01	1.6E+01	2.8E-12	8.6E-12	5.E-11	1.E-10	2.E-10	5.0E-05	5.0E-05	2.0E-11	6.0E-11	4.E-07	1.E-06	0.000002
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.4E-10	1.4E-09	5.E-11	5.E-10	5.E-10	5.0E-04	5.0E-04	9.9E-10	1.0E-08	2.E-06	2.E-05	0.00002
Exposure Point Total										1.E-07							0.1
RM 7.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	4.7E-09	4.7E-08	7.E-09	7.E-08	8.E-08	3.0E-04	3.0E-04	3.3E-08	3.3E-07	1.E-04	1.E-03	0.001
	Mercury	1.0E-01	mg/kg	--	--	0.0E+00	1.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.8E-09	0.E+00	8.E-05	0.00008
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.4E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.3E+02	ug/kg	--	--	8.4E-10	2.6E-09	--	--	--	3.0E-04	3.0E-04	5.9E-09	1.8E-08	2.E-05	6.E-05	0.00008
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.0E+01	ug/kg	7.3E-01	7.3E-01	1.9E-10	4.4E-10	1.E-10	3.E-10	5.E-10	--	--	1.3E-09	3.1E-09	--	--	--
	Benzo(a)pyrene	3.5E+01	ug/kg	7.3E+00	7.3E+00	1.7E-10	3.9E-10	1.E-09	3.E-09	4.E-09	--	--	1.2E-09	2.8E-09	--	--	--
	Benzo(b)fluoranthene	4.4E+01	ug/kg	7.3E-01	7.3E-01	2.1E-10	5.0E-10	2.E-10	4.E-10	5.E-10	--	--	1.5E-09	3.5E-09	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	1.5E-10	3.5E-10	1.E-11	3.E-11	4.E-11	--	--	1.0E-09	2.4E-09	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	5.2E-11	1.2E-10	4.E-10	9.E-10	1.E-09	--	--	3.7E-10	8.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	2.7E-10	8.E-11	2.E-10	3.E-10	--	--	8.0E-10	1.9E-09	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	5.3E-11	1.2E-10	--	--	--	2.0E-02	2.0E-02	3.7E-10	8.6E-10	2.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+03	ug/kg	1.4E-02	1.4E-02	1.3E-08	4.1E-08	2.E-10	6.E-10	8.E-10	2.0E-02	2.0E-02	9.4E-08	2.9E-07	5.E-06	1.E-05	0.00002
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+01	ug/kg	2.0E+00	2.0E+00	2.3E-10	5.0E-10	5.E-10	1.E-09	1.E-09	2.0E-05	2.0E-05	1.6E-09	3.5E-09	8.E-05	2.E-04	0.0003
	Pesticides																
	Dieldrin	3.4E-01	ug/kg	1.6E+01	1.6E+01	1.3E-12	3.8E-12	2.E-11	6.E-11	8.E-11	5.0E-05	5.0E-05	8.8E-12	2.7E-11	2.E-07	5.E-07	0.000001
	Total DDT	3.3E+00	ug/kg	3.4E-01	3.4E-01	3.7E-12	3.7E-11	1.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	2.6E-11	2.6E-10	5.E-08	5.E-07	0.000001
Exposure Point Total										9.E-08							0.1
RM 8 West	**Metals**																
	Arsenic	8.0E+00	mg/kg	1.5E+00	1.5E+00	8.9E-09	9.0E-08	1.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	6.2E-08	6.3E-07	2.E-04	2.E-03	0.002
	Mercury	3.3E-01	mg/kg	--	--	0.0E+00	3.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.5E-08	0.E+00	3.E-04	0.0003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.0E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.5E+01	ug/kg	--	--	9.1E-11	2.8E-10	--	--	--	3.0E-04	3.0E-04	6.4E-10	1.9E-09	2.E-06	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	2.6E-09	6.2E-09	2.E-09	5.E-09	6.E-09	--	--	1.9E-08	4.3E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	2.3E-09	5.5E-09	2.E-08	4.E-08	6.E-08	--	--	1.6E-08	3.8E-08	--	--	--
	Benzo(b)fluoranthene	6.9E+02	ug/kg	7.3E-01	7.3E-01	3.3E-09	7.7E-09	2.E-09	6.E-09	8.E-09	--	--	2.3E-08	5.4E-08	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	5.9E-10	1.4E-09	4.E-11	1.E-10	1.E-10	--	--	4.1E-09	9.7E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.6E-10	1.5E-09	5.E-09	1.E-08	2.E-08	--	--	4.6E-09	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	3.5E-09	1.E-09	3.E-09	4.E-09	--	--	1.1E-08	2.5E-08	--	--	--
	Naphthalene	8.1E+01	ug/kg	--	--	3.9E-10	9.0E-10	--	--	--	2.0E-02	2.0E-02	2.7E-09	6.3E-09	1.E-07	3.E-07	0.0000005

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+03	ug/kg	1.4E-02	1.4E-02	1.1E-08	3.4E-08	2.E-10	5.E-10	6.E-10	2.0E-02	2.0E-02	7.8E-08	2.4E-07	4.E-06	1.E-05	0.00002
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	1.4E-10	1.7E-10	6.E-11	7.E-11	1.E-10	5.0E-03	5.0E-03	9.8E-10	1.2E-09	2.E-07	2.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+02	ug/kg	2.0E+00	2.0E+00	2.1E-09	4.5E-09	4.E-09	9.E-09	1.E-08	2.0E-05	2.0E-05	1.5E-08	3.1E-08	7.E-04	2.E-03	0.002
	Total PCB Congeners	1.2E+05	pg/g	NA	NA	6.0E-10	1.3E-09	NA	NA	--	NA	NA	4.2E-09	9.1E-09	NA	NA	--
	Total PCBs, Adjusted	1.0E+05	pg/g	2.0E+00	2.0E+00	5.3E-10	1.1E-09	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	3.7E-09	8.0E-09	2.E-04	4.E-04	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.3E+05	1.3E+05	4.7E-16	4.8E-15	6.E-11	6.E-10	7.E-10	1.0E-09	1.0E-09	3.3E-15	3.3E-14	3.E-06	3.E-05	0.00004
	Total PCB TEQ	6.1E+00	pg/g	1.3E+05	1.3E+05	3.1E-14	6.8E-14	4.E-09	9.E-09	1.E-08	1.0E-09	1.0E-09	2.2E-13	4.7E-13	2.E-04	5.E-04	0.0007
	Total TEQ	--	pg/g	--	--	--	--	4.E-09	9.E-09	1.E-08	--	--	--	--	2.E-04	5.E-04	0.0007
	Pesticides																
	Aldrin	1.2E-01	ug/kg	1.7E+01	1.7E+01	4.2E-13	1.3E-12	7.E-12	2.E-11	3.E-11	3.0E-05	3.0E-05	3.0E-12	9.0E-12	1.E-07	3.E-07	0.0000004
	Dieldrin	4.6E+00	ug/kg	1.6E+01	1.6E+01	1.7E-11	5.1E-11	3.E-10	8.E-10	1.E-09	5.0E-05	5.0E-05	1.2E-10	3.6E-10	2.E-06	7.E-06	0.00001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	2.3E-11	2.4E-10	8.E-12	8.E-11	9.E-11	5.0E-04	5.0E-04	1.6E-10	1.7E-09	3.E-07	3.E-06	0.000004
Exposure Point Total										3.E-07							0.1
RM 8 East	**Metals**																
	Arsenic	9.1E+00	mg/kg	1.5E+00	1.5E+00	1.0E-08	1.0E-07	2.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	7.1E-08	7.1E-07	2.E-04	2.E-03	0.003
	Mercury	2.2E-01	mg/kg	--	--	0.0E+00	2.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	5.8E+03	ug/kg	--	--	2.1E-08	6.5E-08	--	--	--	3.0E-04	3.0E-04	1.5E-07	4.5E-07	5.E-04	2.E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+02	ug/kg	7.3E-01	7.3E-01	2.4E-09	5.5E-09	2.E-09	4.E-09	6.E-09	--	--	1.7E-08	3.9E-08	--	--	--
	Benzo(a)pyrene	5.3E+02	ug/kg	7.3E+00	7.3E+00	2.5E-09	5.9E-09	2.E-08	4.E-08	6.E-08	--	--	1.8E-08	4.1E-08	--	--	--
	Benzo(b)fluoranthene	5.5E+02	ug/kg	7.3E-01	7.3E-01	2.6E-09	6.1E-09	2.E-09	4.E-09	6.E-09	--	--	1.8E-08	4.3E-08	--	--	--
	Benzo(k)fluoranthene	3.7E+02	ug/kg	7.3E-02	7.3E-02	1.8E-09	4.1E-09	1.E-10	3.E-10	4.E-10	--	--	1.2E-08	2.9E-08	--	--	--
	Dibenzo(a,h)anthracene	4.0E+01	ug/kg	7.3E+00	7.3E+00	1.9E-10	4.5E-10	1.E-09	3.E-09	5.E-09	--	--	1.4E-09	3.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	1.8E-09	4.1E-09	1.E-09	3.E-09	4.E-09	--	--	1.2E-08	2.9E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.0E-10	2.4E-10	--	--	--	2.0E-02	2.0E-02	7.3E-10	1.7E-09	4.E-08	9.E-08	0.00000
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	4.8E-09	1.5E-08	7.E-11	2.E-10	3.E-10	2.0E-02	2.0E-02	3.4E-08	1.0E-07	2.E-06	5.E-06	0.00001
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	2.5E-10	3.0E-10	1.E-10	1.E-10	2.E-10	5.0E-03	5.0E-03	1.7E-09	2.1E-09	3.E-07	4.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.8E+02	ug/kg	2.0E+00	2.0E+00	3.0E-09	6.5E-09	6.E-09	1.E-08	2.E-08	2.0E-05	2.0E-05	2.1E-08	4.5E-08	1.E-03	2.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	2.3E-15	2.3E-14	3.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	1.6E-14	1.6E-13	2.E-05	2.E-04	0.0002
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	9.0E-14	1.9E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	6.3E-13	1.4E-12	6.E-04	1.E-03	0.002
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	1.6E-12	5.0E-12	3.E-11	8.E-11	1.E-10	3.0E-05	3.0E-05	1.1E-11	3.5E-11	4.E-07	1.E-06	0.000002
	Dieldrin	4.7E+00	ug/kg	1.6E+01	1.6E+01	1.7E-11	5.2E-11	3.E-10	8.E-10	1.E-09	5.0E-05	5.0E-05	1.2E-10	3.6E-10	2.E-06	7.E-06	0.00001
	Total DDT	9.4E+01	ug/kg	3.4E-01	3.4E-01	1.0E-10	1.0E-09	4.E-11	4.E-10	4.E-10	5.0E-04	5.0E-04	7.3E-10	7.3E-09	1.E-06	1.E-05	0.00002
Exposure Point Total										3.E-07							0.1

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8 SIL	**Metals**																
	Arsenic	5.9E+00	mg/kg	1.5E+00	1.5E+00	6.6E-09	6.7E-08	1.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	4.6E-08	4.7E-07	2.E-04	2.E-03	0.002
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	1.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.6E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.1E+04	ug/kg	--	--	7.8E-08	2.4E-07	--	--	--	3.0E-04	3.0E-04	5.5E-07	1.7E-06	2.E-03	6.E-03	0.007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.4E+02	ug/kg	7.3E-01	7.3E-01	2.6E-09	6.0E-09	2.E-09	4.E-09	6.E-09	--	--	1.8E-08	4.2E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.7E-09	4.0E-09	1.E-08	3.E-08	4.E-08	--	--	1.2E-08	2.8E-08	--	--	--
	Benzo(b)fluoranthene	7.0E+02	ug/kg	7.3E-01	7.3E-01	3.4E-09	7.8E-09	2.E-09	6.E-09	8.E-09	--	--	2.3E-08	5.5E-08	--	--	--
	Benzo(k)fluoranthene	3.5E+02	ug/kg	7.3E-02	7.3E-02	1.7E-09	3.9E-09	1.E-10	3.E-10	4.E-10	--	--	1.2E-08	2.7E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+01	ug/kg	7.3E+00	7.3E+00	3.4E-10	8.0E-10	2.E-09	6.E-09	8.E-09	--	--	2.4E-09	5.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.0E-09	2.3E-09	7.E-10	2.E-09	2.E-09	--	--	7.0E-09	1.6E-08	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.5E-10	3.4E-10	--	--	--	2.0E-02	2.0E-02	1.0E-09	2.4E-09	5.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.1E+04	ug/kg	1.4E-02	1.4E-02	1.5E-07	4.6E-07	2.E-09	6.E-09	9.E-09	2.0E-02	2.0E-02	1.1E-06	3.2E-06	5.E-05	2.E-04	0.0002
	Phenols																
	Pentachlorophenol	3.3E+01	ug/kg	4.0E-01	4.0E-01	3.0E-10	3.6E-10	1.E-10	1.E-10	3.E-10	5.0E-03	5.0E-03	2.1E-09	2.5E-09	4.E-07	5.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.3E+02	ug/kg	2.0E+00	2.0E+00	2.7E-09	5.9E-09	5.E-09	1.E-08	2.E-08	2.0E-05	2.0E-05	1.9E-08	4.1E-08	1.E-03	2.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	3.7E-14	3.7E-13	5.E-09	5.E-08	5.E-08	1.0E-09	1.0E-09	2.6E-13	2.6E-12	3.E-04	3.E-03	0.003
	Total PCB TEQ	8.8E+01	pg/g	1.3E+05	1.3E+05	4.5E-13	9.8E-13	6.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	3.2E-12	6.9E-12	3.E-03	7.E-03	0.01
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.3E-12	4.0E-12	2.E-11	7.E-11	9.E-11	3.0E-05	3.0E-05	9.2E-12	2.8E-11	3.E-07	9.E-07	0.000001
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	5.2E-12	1.6E-11	8.E-11	3.E-10	3.E-10	5.0E-05	5.0E-05	3.7E-11	1.1E-10	7.E-07	2.E-06	0.000003
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.3E-11	1.3E-10	4.E-12	5.E-11	5.E-11	5.0E-04	5.0E-04	9.2E-11	9.3E-10	2.E-07	2.E-06	0.000002
Exposure Point Total										4.E-07							0.2
RM 8.5 West	**Metals**																
	Arsenic	1.2E+01	mg/kg	1.5E+00	1.5E+00	1.3E-08	1.3E-07	2.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.0E-08	9.1E-07	3.E-04	3.E-03	0.003
	Mercury	4.7E-01	mg/kg	--	--	0.0E+00	5.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-08	0.E+00	4.E-04	0.0004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	6.1E-11	1.9E-10	--	--	--	3.0E-04	3.0E-04	4.3E-10	1.3E-09	1.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	8.5E-10	2.0E-09	6.E-10	1.E-09	2.E-09	--	--	5.9E-09	1.4E-08	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.1E-09	2.5E-09	8.E-09	2.E-08	3.E-08	--	--	7.5E-09	1.7E-08	--	--	--
	Benzo(b)fluoranthene	1.8E+02	ug/kg	7.3E-01	7.3E-01	8.7E-10	2.0E-09	6.E-10	1.E-09	2.E-09	--	--	6.1E-09	1.4E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.4E-10	1.3E-09	4.E-11	9.E-11	1.E-10	--	--	3.8E-09	8.8E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.0E-11	1.9E-10	6.E-10	1.E-09	2.E-09	--	--	5.6E-10	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	7.6E+01	ug/kg	7.3E-01	7.3E-01	3.6E-10	8.5E-10	3.E-10	6.E-10	9.E-10	--	--	2.5E-09	5.9E-09	--	--	--
	Naphthalene	3.7E+01	ug/kg	--	--	1.8E-10	4.1E-10	--	--	--	2.0E-02	2.0E-02	1.2E-09	2.9E-09	6.E-08	1.E-07	0.0000002

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+03	ug/kg	1.4E-02	1.4E-02	6.4E-09	1.9E-08	9.E-11	3.E-10	4.E-10	2.0E-02	2.0E-02	4.5E-08	1.4E-07	2.E-06	7.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	3.6E-11	4.3E-11	1.E-11	2.E-11	3.E-11	5.0E-03	5.0E-03	2.5E-10	3.0E-10	5.E-08	6.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	8.5E+03	ug/kg	2.0E+00	2.0E+00	4.4E-08	9.5E-08	9.E-08	2.E-07	3.E-07	2.0E-05	2.0E-05	3.1E-07	6.6E-07	2.E-02	3.E-02	0.05
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	1.3E+05	1.3E+05	2.0E-14	2.0E-13	3.E-09	3.E-08	3.E-08	1.0E-09	1.0E-09	1.4E-13	1.4E-12	1.E-04	1.E-03	0.002
	Total PCB TEQ	2.4E+02	pg/g	1.3E+05	1.3E+05	1.2E-12	2.7E-12	2.E-07	3.E-07	5.E-07	1.0E-09	1.0E-09	8.6E-12	1.9E-11	9.E-03	2.E-02	0.03
	Pesticides																
	Aldrin	3.2E+01	ug/kg	1.7E+01	1.7E+01	1.2E-10	3.6E-10	2.E-09	6.E-09	8.E-09	3.0E-05	3.0E-05	8.4E-10	2.5E-09	3.E-05	8.E-05	0.0001
	Dieldrin	3.9E+01	ug/kg	1.6E+01	1.6E+01	1.4E-10	4.3E-10	2.E-09	7.E-09	9.E-09	5.0E-05	5.0E-05	1.0E-09	3.0E-09	2.E-05	6.E-05	0.00008
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	2.5E-11	2.5E-10	8.E-12	8.E-11	9.E-11	5.0E-04	5.0E-04	1.7E-10	1.7E-09	3.E-07	3.E-06	0.000004
Exposure Point Total										1.E-06							0.2
RM 8.5 East	**Metals**																
	Arsenic	9.0E+00	mg/kg	1.5E+00	1.5E+00	1.0E-08	1.0E-07	2.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	7.0E-08	7.1E-07	2.E-04	2.E-03	0.003
	Mercury	1.8E-01	mg/kg	--	--	0.0E+00	2.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	3.1E+01	ug/kg	--	--	1.1E-10	3.4E-10	--	--	--	3.0E-04	3.0E-04	7.9E-10	2.4E-09	3.E-06	8.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	4.7E-10	1.1E-09	3.E-10	8.E-10	1.E-09	--	--	3.3E-09	7.6E-09	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	4.8E-10	1.1E-09	4.E-09	8.E-09	1.E-08	--	--	3.4E-09	7.9E-09	--	--	--
	Benzo(b)fluoranthene	1.4E+02	ug/kg	7.3E-01	7.3E-01	6.5E-10	1.5E-09	5.E-10	1.E-09	2.E-09	--	--	4.6E-09	1.1E-08	--	--	--
	Benzo(k)fluoranthene	9.8E+01	ug/kg	7.3E-02	7.3E-02	4.7E-10	1.1E-09	3.E-11	8.E-11	1.E-10	--	--	3.3E-09	7.6E-09	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	5.6E-11	1.3E-10	4.E-10	9.E-10	1.E-09	--	--	3.9E-10	9.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.0E+01	ug/kg	7.3E-01	7.3E-01	3.8E-10	9.0E-10	3.E-10	7.E-10	9.E-10	--	--	2.7E-09	6.3E-09	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	7.1E-10	1.7E-09	--	--	--	2.0E-02	2.0E-02	5.0E-09	1.2E-08	2.E-07	6.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+02	ug/kg	1.4E-02	1.4E-02	3.4E-09	1.0E-08	5.E-11	1.E-10	2.E-10	2.0E-02	2.0E-02	2.4E-08	7.2E-08	1.E-06	4.E-06	0.000005
	Polychlorinated Biphenyls																
	Total Aroclors	7.2E+01	ug/kg	2.0E+00	2.0E+00	3.7E-10	8.1E-10	7.E-10	2.E-09	2.E-09	2.0E-05	2.0E-05	2.6E-09	5.7E-09	1.E-04	3.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	1.3E+05	1.3E+05	1.0E-15	1.1E-14	1.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	7.3E-15	7.4E-14	7.E-06	7.E-05	0.00008
	Total PCB TEQ	5.9E-01	pg/g	1.3E+05	1.3E+05	3.1E-15	6.6E-15	4.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	2.1E-14	4.6E-14	2.E-05	5.E-05	0.00007
	Pesticides																
	Aldrin	4.1E-02	ug/kg	1.7E+01	1.7E+01	1.5E-13	4.6E-13	3.E-12	8.E-12	1.E-11	3.0E-05	3.0E-05	1.1E-12	3.2E-12	4.E-08	1.E-07	0.0000001
	Dieldrin	4.4E-01	ug/kg	1.6E+01	1.6E+01	1.6E-12	4.9E-12	3.E-11	8.E-11	1.E-10	5.0E-05	5.0E-05	1.1E-11	3.4E-11	2.E-07	7.E-07	0.000001
	Total DDT	2.3E+00	ug/kg	3.4E-01	3.4E-01	2.5E-12	2.6E-11	9.E-13	9.E-12	1.E-11	5.0E-04	5.0E-04	1.8E-11	1.8E-10	4.E-08	4.E-07	0.0000004
Exposure Point Total										2.E-07							0.1
RM 9 West	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	5.5E-09	5.5E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.8E-08	3.9E-07	1.E-04	1.E-03	0.001
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	2.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.8E-06	0.E+00	1.E-01	0.1

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	6.1E-11	1.9E-10	--	--	--	3.0E-04	3.0E-04	4.3E-10	1.3E-09	1.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	3.5E-09	1.E-09	3.E-09	4.E-09	--	--	1.1E-08	2.5E-08	--	--	--
	Benzo(a)pyrene	1.9E+02	ug/kg	7.3E+00	7.3E+00	9.2E-10	2.2E-09	7.E-09	2.E-08	2.E-08	--	--	6.5E-09	1.5E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	3.4E-09	1.E-09	2.E-09	4.E-09	--	--	1.0E-08	2.4E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.5E-10	1.3E-09	4.E-11	9.E-11	1.E-10	--	--	3.8E-09	8.9E-09	--	--	--
	Dibenzo(a,h)anthracene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.3E-10	5.3E-10	2.E-09	4.E-09	6.E-09	--	--	1.6E-09	3.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	5.7E-10	1.3E-09	4.E-10	1.E-09	1.E-09	--	--	4.0E-09	9.3E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	1.2E-10	2.8E-10	--	--	--	2.0E-02	2.0E-02	8.4E-10	2.0E-09	4.E-08	1.E-07	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+02	ug/kg	1.4E-02	1.4E-02	1.6E-09	5.0E-09	2.E-11	7.E-11	9.E-11	2.0E-02	2.0E-02	1.1E-08	3.5E-08	6.E-07	2.E-06	0.000002
	Phenols																
	Pentachlorophenol	4.5E+01	ug/kg	4.0E-01	4.0E-01	4.2E-10	5.0E-10	2.E-10	2.E-10	4.E-10	5.0E-03	5.0E-03	2.9E-09	3.5E-09	6.E-07	7.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+03	ug/kg	2.0E+00	2.0E+00	1.2E-08	2.6E-08	2.E-08	5.E-08	8.E-08	2.0E-05	2.0E-05	8.4E-08	1.8E-07	4.E-03	9.E-03	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	1.3E+05	1.3E+05	6.6E-15	6.7E-14	9.E-10	9.E-09	1.E-08	1.0E-09	1.0E-09	4.6E-14	4.7E-13	5.E-05	5.E-04	0.0005
	Total PCB TEQ	3.2E+01	pg/g	1.3E+05	1.3E+05	1.7E-13	3.6E-13	2.E-08	5.E-08	7.E-08	1.0E-09	1.0E-09	1.2E-12	2.5E-12	1.E-03	3.E-03	0.004
	Pesticides																
	Aldrin	1.4E+00	ug/kg	1.7E+01	1.7E+01	5.2E-12	1.6E-11	9.E-11	3.E-10	4.E-10	3.0E-05	3.0E-05	3.7E-11	1.1E-10	1.E-06	4.E-06	0.000005
	Dieldrin	6.3E-01	ug/kg	1.6E+01	1.6E+01	2.3E-12	7.0E-12	4.E-11	1.E-10	1.E-10	5.0E-05	5.0E-05	1.6E-11	4.9E-11	3.E-07	1.E-06	0.000001
	Total DDT	9.9E+00	ug/kg	3.4E-01	3.4E-01	1.1E-11	1.1E-10	4.E-12	4.E-11	4.E-11	5.0E-04	5.0E-04	7.7E-11	7.7E-10	2.E-07	2.E-06	0.000002
Exposure Point Total										3.E-07							0.1
RM 9 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.3E-09	5.4E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.7E-08	3.8E-07	1.E-04	1.E-03	0.001
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	6.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.8E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	6.7E-11	1.6E-10	5.E-11	1.E-10	2.E-10	--	--	4.7E-10	1.1E-09	--	--	--
	Benzo(a)pyrene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.4E-11	2.0E-10	6.E-10	1.E-09	2.E-09	--	--	5.9E-10	1.4E-09	--	--	--
	Benzo(b)fluoranthene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	2.7E-10	8.E-11	2.E-10	3.E-10	--	--	8.0E-10	1.9E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+01	ug/kg	7.3E-02	7.3E-02	5.1E-11	1.2E-10	4.E-12	9.E-12	1.E-11	--	--	3.6E-10	8.3E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	1.4E-11	3.3E-11	1.E-10	2.E-10	3.E-10	--	--	9.8E-11	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	6.9E-11	1.6E-10	5.E-11	1.E-10	2.E-10	--	--	4.8E-10	1.1E-09	--	--	--
	Naphthalene	8.9E+00	ug/kg	--	--	4.3E-11	1.0E-10	--	--	--	2.0E-02	2.0E-02	3.0E-10	7.0E-10	1.E-08	3.E-08	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.0E+03	ug/kg	1.4E-02	1.4E-02	7.3E-09	2.2E-08	1.E-10	3.E-10	4.E-10	2.0E-02	2.0E-02	5.1E-08	1.6E-07	3.E-06	8.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	5.2E-10	1.1E-09	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	3.6E-09	7.9E-09	2.E-04	4.E-04	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	2.4E-16	2.4E-15	3.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	1.7E-15	1.7E-14	2.E-06	2.E-05	0.00002
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	3.3E-15	7.1E-15	4.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	2.3E-14	4.9E-14	2.E-05	5.E-05	0.00007

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Dieldrin	2.6E-01	ug/kg	1.6E+01	1.6E+01	9.6E-13	2.9E-12	2.E-11	5.E-11	6.E-11	5.0E-05	5.0E-05	6.7E-12	2.0E-11	1.E-07	4.E-07	0.000001
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.1E-12	2.2E-11	7.E-13	7.E-12	8.E-12	5.0E-04	5.0E-04	1.5E-11	1.5E-10	3.E-08	3.E-07	0.0000003
Exposure Point Total										1.E-07							0.002
RM 9.5 West	**Metals**																
	Arsenic	4.5E+00	mg/kg	1.5E+00	1.5E+00	5.0E-09	5.0E-08	7.E-09	8.E-08	8.E-08	3.0E-04	3.0E-04	3.5E-08	3.5E-07	1.E-04	1.E-03	0.001
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	8.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-09	0.E+00	6.E-05	0.00006
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	3.7E-11	1.1E-10	--	--	--	3.0E-04	3.0E-04	2.6E-10	7.8E-10	9.E-07	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	2.9E-09	9.E-10	2.E-09	3.E-09	--	--	8.6E-09	2.0E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.7E-09	4.0E-09	1.E-08	3.E-08	4.E-08	--	--	1.2E-08	2.8E-08	--	--	--
	Benzo(b)fluoranthene	5.3E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	5.9E-09	2.E-09	4.E-09	6.E-09	--	--	1.8E-08	4.1E-08	--	--	--
	Benzo(k)fluoranthene	2.4E+02	ug/kg	7.3E-02	7.3E-02	1.1E-09	2.6E-09	8.E-11	2.E-10	3.E-10	--	--	7.9E-09	1.9E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	6.2E-10	1.5E-09	5.E-09	1.E-08	2.E-08	--	--	4.4E-09	1.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	3.3E-09	1.E-09	2.E-09	3.E-09	--	--	1.0E-08	2.3E-08	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.1E-09	2.5E-09	--	--	--	2.0E-02	2.0E-02	7.5E-09	1.7E-08	4.E-07	9.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.4E+03	ug/kg	1.4E-02	1.4E-02	8.7E-09	2.6E-08	1.E-10	4.E-10	5.E-10	2.0E-02	2.0E-02	6.1E-08	1.8E-07	3.E-06	9.E-06	0.00001
	Phenols																
	Pentachlorophenol	9.8E+01	ug/kg	4.0E-01	4.0E-01	9.0E-10	1.1E-09	4.E-10	4.E-10	8.E-10	5.0E-03	5.0E-03	6.3E-09	7.7E-09	1.E-06	2.E-06	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.0E+02	ug/kg	2.0E+00	2.0E+00	1.6E-09	3.4E-09	3.E-09	7.E-09	1.E-08	2.0E-05	2.0E-05	1.1E-08	2.4E-08	5.E-04	1.E-03	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.8E-14	1.8E-13	2.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	1.3E-13	1.3E-12	1.E-04	1.E-03	0.001
	Total PCB TEQ	4.8E+00	pg/g	1.3E+05	1.3E+05	2.5E-14	5.3E-14	3.E-09	7.E-09	1.E-08	1.0E-09	1.0E-09	1.7E-13	3.7E-13	2.E-04	4.E-04	0.0005
	Pesticides																
	Aldrin	2.8E+00	ug/kg	1.7E+01	1.7E+01	1.0E-11	3.1E-11	2.E-10	5.E-10	7.E-10	3.0E-05	3.0E-05	7.2E-11	2.2E-10	2.E-06	7.E-06	0.00001
	Dieldrin	4.9E+00	ug/kg	1.6E+01	1.6E+01	1.8E-11	5.4E-11	3.E-10	9.E-10	1.E-09	5.0E-05	5.0E-05	1.3E-10	3.8E-10	3.E-06	8.E-06	0.00001
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	5.0E-12	5.1E-11	2.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	3.5E-11	3.5E-10	7.E-08	7.E-07	0.000001
Exposure Point Total										2.E-07							0.005
RM 9.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.0E-09	4.1E-08	6.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	2.8E-08	2.9E-07	9.E-05	1.E-03	0.001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.6E-09	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	3.6E+00	ug/kg	--	--	1.3E-11	4.0E-11	--	--	--	3.0E-04	3.0E-04	9.3E-11	2.8E-10	3.E-07	9.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	3.4E-10	1.E-10	2.E-10	4.E-10	--	--	1.0E-09	2.4E-09	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	1.6E-10	3.8E-10	1.E-09	3.E-09	4.E-09	--	--	1.2E-09	2.7E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	1.9E-10	4.5E-10	1.E-10	3.E-10	5.E-10	--	--	1.3E-09	3.1E-09	--	--	--
	Benzo(k)fluoranthene	2.4E+01	ug/kg	7.3E-02	7.3E-02	1.1E-10	2.7E-10	8.E-12	2.E-11	3.E-11	--	--	8.0E-10	1.9E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	4.4E-11	1.0E-10	3.E-10	7.E-10	1.E-09	--	--	3.1E-10	7.2E-10	--	--	--

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.3E-10	3.1E-10	1.E-10	2.E-10	3.E-10	--	--	9.2E-10	2.1E-09	--	--	--
	Naphthalene	4.8E+00	ug/kg	--	--	2.3E-11	5.4E-11	--	--	--	2.0E-02	2.0E-02	1.6E-10	3.8E-10	8.E-09	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	9.5E-10	2.9E-09	1.E-11	4.E-11	5.E-11	2.0E-02	2.0E-02	6.7E-09	2.0E-08	3.E-07	1.E-06	0.000001
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	3.1E-11	3.8E-11	1.E-11	2.E-11	3.E-11	5.0E-03	5.0E-03	2.2E-10	2.7E-10	4.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	2.9E-10	6.3E-10	6.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	2.0E-09	4.4E-09	1.E-04	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.3E-15	1.3E-14	2.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	8.9E-15	9.0E-14	9.E-06	9.E-05	0.0001
	Total PCB TEQ	3.3E-01	pg/g	1.3E+05	1.3E+05	1.7E-15	3.7E-15	2.E-10	5.E-10	7.E-10	1.0E-09	1.0E-09	1.2E-14	2.6E-14	1.E-05	3.E-05	0.00004
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	1.7E-12	5.3E-12	3.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	1.2E-11	3.7E-11	4.E-07	1.E-06	0.000002
	Dieldrin	4.3E-02	ug/kg	1.6E+01	1.6E+01	1.6E-13	4.8E-13	3.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	1.1E-12	3.4E-12	2.E-08	7.E-08	0.0000001
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	1.7E-12	1.7E-11	6.E-13	6.E-12	6.E-12	5.0E-04	5.0E-04	1.2E-11	1.2E-10	2.E-08	2.E-07	0.0000003
Exposure Point Total										8.E-08							0.002
RM 10 West	**Metals**																
	Arsenic	2.9E+01	mg/kg	1.5E+00	1.5E+00	3.2E-08	3.2E-07	5.E-08	5.E-07	5.E-07	3.0E-04	3.0E-04	2.2E-07	2.3E-06	7.E-04	8.E-03	0.008
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.6E-09	0.E+00	9.E-05	0.00009
	Butyltins																
	Tributyltin ion	3.4E+00	ug/kg	--	--	1.3E-11	3.8E-11	--	--	--	3.0E-04	3.0E-04	8.8E-11	2.7E-10	3.E-07	9.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	3.6E-09	1.E-09	3.E-09	4.E-09	--	--	1.1E-08	2.5E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.6E-09	3.8E-09	1.E-08	3.E-08	4.E-08	--	--	1.1E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	4.3E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	4.8E-09	2.E-09	4.E-09	5.E-09	--	--	1.4E-08	3.4E-08	--	--	--
	Benzo(k)fluoranthene	1.8E+02	ug/kg	7.3E-02	7.3E-02	8.9E-10	2.1E-09	6.E-11	2.E-10	2.E-10	--	--	6.2E-09	1.4E-08	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	3.6E-10	8.4E-10	3.E-09	6.E-09	9.E-09	--	--	2.5E-09	5.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	3.4E-09	1.E-09	2.E-09	4.E-09	--	--	1.0E-08	2.4E-08	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	2.8E-10	6.5E-10	--	--	--	2.0E-02	2.0E-02	2.0E-09	4.6E-09	1.E-07	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	6.7E-10	2.0E-09	9.E-12	3.E-11	4.E-11	2.0E-02	2.0E-02	4.7E-09	1.4E-08	2.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	7.5E+00	ug/kg	4.0E-01	4.0E-01	6.9E-11	8.4E-11	3.E-11	3.E-11	6.E-11	5.0E-03	5.0E-03	4.8E-10	5.9E-10	1.E-07	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+02	ug/kg	2.0E+00	2.0E+00	2.3E-09	5.0E-09	5.E-09	1.E-08	1.E-08	2.0E-05	2.0E-05	1.6E-08	3.5E-08	8.E-04	2.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	1.3E+05	1.3E+05	1.1E-14	1.1E-13	1.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	7.7E-14	7.7E-13	8.E-05	8.E-04	0.0009
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.5E-14	3.3E-14	2.E-09	4.E-09	6.E-09	1.0E-09	1.0E-09	1.1E-13	2.3E-13	1.E-04	2.E-04	0.0003
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	1.9E-12	5.6E-12	3.E-11	1.E-10	1.E-10	3.0E-05	3.0E-05	1.3E-11	3.9E-11	4.E-07	1.E-06	0.000002
	Total DDT	6.7E+00	ug/kg	3.4E-01	3.4E-01	7.4E-12	7.5E-11	3.E-12	3.E-11	3.E-11	5.0E-04	5.0E-04	5.2E-11	5.2E-10	1.E-07	1.E-06	0.000001
Exposure Point Total										6.E-07							0.01

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 10 East	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	3.9E-09	3.9E-08	6.E-09	6.E-08	6.E-08	3.0E-04	3.0E-04	2.7E-08	2.7E-07	9.E-05	9.E-04	0.00100
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	1.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.0E-09	0.E+00	7.E-05	0.00007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.7E+02	ug/kg	7.3E-01	7.3E-01	1.3E-09	3.1E-09	1.E-09	2.E-09	3.E-09	--	--	9.2E-09	2.1E-08	--	--	--
	Benzo(a)pyrene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.7E-09	3.9E-09	1.E-08	3.E-08	4.E-08	--	--	1.2E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	4.5E-09	1.E-09	3.E-09	5.E-09	--	--	1.4E-08	3.2E-08	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	4.9E-10	1.2E-09	4.E-11	8.E-11	1.E-10	--	--	3.5E-09	8.1E-09	--	--	--
	Dibenzo(a,h)anthracene	5.2E+01	ug/kg	7.3E+00	7.3E+00	2.5E-10	5.8E-10	2.E-09	4.E-09	6.E-09	--	--	1.7E-09	4.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.3E-09	3.1E-09	1.E-09	2.E-09	3.E-09	--	--	9.3E-09	2.2E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.1E-10	2.5E-10	--	--	--	2.0E-02	2.0E-02	7.5E-10	1.7E-09	4.E-08	9.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	7.1E-10	2.1E-09	1.E-11	3.E-11	4.E-11	2.0E-02	2.0E-02	4.9E-09	1.5E-08	2.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.3E+00	ug/kg	4.0E-01	4.0E-01	3.0E-11	3.7E-11	1.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	2.1E-10	2.6E-10	4.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.8E+01	ug/kg	2.0E+00	2.0E+00	2.5E-10	5.4E-10	5.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	1.7E-09	3.8E-09	9.E-05	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	6.0E-16	6.1E-15	8.E-11	8.E-10	9.E-10	1.0E-09	1.0E-09	4.2E-15	4.3E-14	4.E-06	4.E-05	0.00005
	Total PCB TEQ	8.0E-01	pg/g	1.3E+05	1.3E+05	4.2E-15	9.0E-15	5.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	2.9E-14	6.3E-14	3.E-05	6.E-05	0.00009
	Pesticides																
	Aldrin	8.3E-02	ug/kg	1.7E+01	1.7E+01	3.1E-13	9.3E-13	5.E-12	2.E-11	2.E-11	3.0E-05	3.0E-05	2.1E-12	6.5E-12	7.E-08	2.E-07	0.0000003
	Dieldrin	9.4E-02	ug/kg	1.6E+01	1.6E+01	3.5E-13	1.0E-12	6.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	2.4E-12	7.3E-12	5.E-08	1.E-07	0.0000002
	Total DDT	7.7E-01	ug/kg	3.4E-01	3.4E-01	8.6E-13	8.7E-12	3.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	6.0E-12	6.1E-11	1.E-08	1.E-07	0.0000001
Exposure Point Total										1.E-07							0.001
RM 10.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	5.2E-09	5.2E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.6E-08	3.7E-07	1.E-04	1.E-03	0.001
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	8.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.0E-09	0.E+00	6.E-05	0.00006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E+01	ug/kg	7.3E-01	7.3E-01	2.9E-10	6.8E-10	2.E-10	5.E-10	7.E-10	--	--	2.0E-09	4.8E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.3E-10	5.4E-10	2.E-09	4.E-09	6.E-09	--	--	1.6E-09	3.8E-09	--	--	--
	Benzo(b)fluoranthene	6.8E+01	ug/kg	7.3E-01	7.3E-01	3.3E-10	7.6E-10	2.E-10	6.E-10	8.E-10	--	--	2.3E-09	5.3E-09	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	9.7E-11	2.3E-10	7.E-12	2.E-11	2.E-11	--	--	6.8E-10	1.6E-09	--	--	--
	Dibenzo(a,h)anthracene	7.9E+00	ug/kg	7.3E+00	7.3E+00	3.8E-11	8.8E-11	3.E-10	6.E-10	9.E-10	--	--	2.7E-10	6.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.8E-10	4.2E-10	1.E-10	3.E-10	4.E-10	--	--	1.3E-09	2.9E-09	--	--	--
	Naphthalene	2.6E+02	ug/kg	--	--	1.2E-09	2.9E-09	--	--	--	2.0E-02	2.0E-02	8.7E-09	2.0E-08	4.E-07	1.E-06	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.5E+02	ug/kg	1.4E-02	1.4E-02	9.0E-10	2.7E-09	1.E-11	4.E-11	5.E-11	2.0E-02	2.0E-02	6.3E-09	1.9E-08	3.E-07	1.E-06	0.000001
	Phenols																
	Pentachlorophenol	3.8E+01	ug/kg	4.0E-01	4.0E-01	3.5E-10	4.2E-10	1.E-10	2.E-10	3.E-10	5.0E-03	5.0E-03	2.5E-09	3.0E-09	5.E-07	6.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.0E-10	4.4E-10	4.E-10	9.E-10	1.E-09	2.0E-05	2.0E-05	1.4E-09	3.1E-09	7.E-05	2.E-04	0.0002

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	3.6E-15	7.7E-15	5.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	2.5E-14	5.4E-14	2.E-05	5.E-05	0.00008
	Pesticides																
	Aldrin	9.3E-01	ug/kg	1.7E+01	1.7E+01	3.4E-12	1.0E-11	6.E-11	2.E-10	2.E-10	3.0E-05	3.0E-05	2.4E-11	7.3E-11	8.E-07	2.E-06	0.000003
	Total DDT	2.7E+00	ug/kg	3.4E-01	3.4E-01	2.9E-12	3.0E-11	1.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	2.1E-11	2.1E-10	4.E-08	4.E-07	0.0000005
Exposure Point Total										1.E-07							0.002
RM 10.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	3.7E-09	3.7E-08	6.E-09	6.E-08	6.E-08	3.0E-04	3.0E-04	2.6E-08	2.6E-07	9.E-05	9.E-04	0.001
	Mercury	7.4E-02	mg/kg	--	--	0.0E+00	8.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.8E-09	0.E+00	6.E-05	0.00006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+02	ug/kg	7.3E-01	7.3E-01	4.9E-10	1.1E-09	4.E-10	8.E-10	1.E-09	--	--	3.4E-09	7.9E-09	--	--	--
	Benzo(a)pyrene	7.1E+01	ug/kg	7.3E+00	7.3E+00	3.4E-10	7.9E-10	2.E-09	6.E-09	8.E-09	--	--	2.4E-09	5.5E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	5.3E-10	1.2E-09	4.E-10	9.E-10	1.E-09	--	--	3.7E-09	8.7E-09	--	--	--
	Benzo(k)fluoranthene	7.2E+01	ug/kg	7.3E-02	7.3E-02	3.4E-10	8.0E-10	3.E-11	6.E-11	8.E-11	--	--	2.4E-09	5.6E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	4.4E-11	1.0E-10	3.E-10	8.E-10	1.E-09	--	--	3.1E-10	7.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	2.2E-10	5.2E-10	2.E-10	4.E-10	5.E-10	--	--	1.6E-09	3.7E-09	--	--	--
	Naphthalene	5.2E+00	ug/kg	--	--	2.5E-11	5.8E-11	--	--	--	2.0E-02	2.0E-02	1.7E-10	4.1E-10	9.E-09	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	4.1E-10	1.2E-09	6.E-12	2.E-11	2.E-11	2.0E-02	2.0E-02	2.8E-09	8.6E-09	1.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	1.0E-10	1.2E-10	4.E-11	5.E-11	9.E-11	5.0E-03	5.0E-03	7.1E-10	8.6E-10	1.E-07	2.E-07	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	8.0E-10	1.7E-09	2.E-09	3.E-09	5.E-09	2.0E-05	2.0E-05	5.6E-09	1.2E-08	3.E-04	6.E-04	0.0009
	Dioxin/Furan																
	Total PCB TEQ	3.9E-01	pg/g	1.3E+05	1.3E+05	2.0E-15	4.3E-15	3.E-10	6.E-10	8.E-10	1.0E-09	1.0E-09	1.4E-14	3.0E-14	1.E-05	3.E-05	0.00004
	Pesticides																
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.3E-11	1.3E-10	5.E-12	5.E-11	5.E-11	5.0E-04	5.0E-04	9.4E-11	9.4E-10	2.E-07	2.E-06	0.000002
Exposure Point Total										8.E-08							0.002
RM 11 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	4.0E-09	4.1E-08	6.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	2.8E-08	2.8E-07	9.E-05	9.E-04	0.001
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	7.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.4E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+02	ug/kg	7.3E-01	7.3E-01	9.5E-10	2.2E-09	7.E-10	2.E-09	2.E-09	--	--	6.7E-09	1.6E-08	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.0E-09	2.4E-09	8.E-09	2.E-08	3.E-08	--	--	7.3E-09	1.7E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	4.8E-10	1.1E-09	4.E-10	8.E-10	1.E-09	--	--	3.4E-09	7.9E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.0E-10	1.2E-09	4.E-11	9.E-11	1.E-10	--	--	3.5E-09	8.2E-09	--	--	--
	Dibenzo(a,h)anthracene	2.7E+01	ug/kg	7.3E+00	7.3E+00	1.3E-10	3.0E-10	9.E-10	2.E-09	3.E-09	--	--	9.0E-10	2.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	5.6E-10	1.3E-09	4.E-10	1.E-09	1.E-09	--	--	3.9E-09	9.1E-09	--	--	--
	Naphthalene	3.2E+02	ug/kg	--	--	1.5E-09	3.6E-09	--	--	--	2.0E-02	2.0E-02	1.1E-08	2.5E-08	5.E-07	1.E-06	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.0E+03	ug/kg	1.4E-02	1.4E-02	3.8E-09	1.2E-08	5.E-11	2.E-10	2.E-10	2.0E-02	2.0E-02	2.7E-08	8.1E-08	1.E-06	4.E-06	0.00001

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	2.9E-11	3.5E-11	1.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	2.0E-10	2.4E-10	4.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	1.8E-10	3.9E-10	4.E-10	8.E-10	1.E-09	2.0E-05	2.0E-05	1.3E-09	2.7E-09	6.E-05	1.E-04	0.0002
	Pesticides																
	Dieldrin	2.5E+00	ug/kg	1.6E+01	1.6E+01	9.2E-12	2.8E-11	1.E-10	4.E-10	6.E-10	5.0E-05	5.0E-05	6.5E-11	2.0E-10	1.E-06	4.E-06	0.00001
	Total DDT	2.1E+00	ug/kg	3.4E-01	3.4E-01	2.3E-12	2.3E-11	8.E-13	8.E-12	9.E-12	5.0E-04	5.0E-04	1.6E-11	1.6E-10	3.E-08	3.E-07	0.0000004
	Conventionals																
	Perchlorate	NA	ug/kg	--	--	NA	NA	NA	NA	NA	7.0E-04	7.0E-04	NA	NA	NA	NA	NA
Exposure Point Total										1.E-07							0.001
RM 11 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	3.6E-09	3.6E-08	5.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	2.5E-08	2.5E-07	8.E-05	8.E-04	0.00092
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.5E-09	0.E+00	9.E-05	0.00009
	Butyltins																
	Tributyltin ion	5.8E+00	ug/kg	--	--	2.1E-11	6.5E-11	--	--	--	3.0E-04	3.0E-04	1.5E-10	4.5E-10	5.E-07	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+02	ug/kg	7.3E-01	7.3E-01	7.6E-10	1.8E-09	6.E-10	1.E-09	2.E-09	--	--	5.3E-09	1.2E-08	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	5.8E-10	1.3E-09	4.E-09	1.E-08	1.E-08	--	--	4.0E-09	9.4E-09	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	2.8E-09	9.E-10	2.E-09	3.E-09	--	--	8.4E-09	1.9E-08	--	--	--
	Benzo(k)fluoranthene	9.4E+01	ug/kg	7.3E-02	7.3E-02	4.5E-10	1.1E-09	3.E-11	8.E-11	1.E-10	--	--	3.2E-09	7.4E-09	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	9.6E-11	2.2E-10	7.E-10	2.E-09	2.E-09	--	--	6.7E-10	1.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+01	ug/kg	7.3E-01	7.3E-01	2.6E-10	6.0E-10	2.E-10	4.E-10	6.E-10	--	--	1.8E-09	4.2E-09	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.4E-10	3.4E-10	--	--	--	2.0E-02	2.0E-02	1.0E-09	2.3E-09	5.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	5.2E-10	1.6E-09	7.E-12	2.E-11	3.E-11	2.0E-02	2.0E-02	3.6E-09	1.1E-08	2.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	8.7E+00	ug/kg	4.0E-01	4.0E-01	8.0E-11	9.7E-11	3.E-11	4.E-11	7.E-11	5.0E-03	5.0E-03	5.6E-10	6.8E-10	1.E-07	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+03	ug/kg	2.0E+00	2.0E+00	2.0E-08	4.3E-08	4.E-08	9.E-08	1.E-07	2.0E-05	2.0E-05	1.4E-07	3.0E-07	7.E-03	2.E-02	0.02
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	3.3E-15	3.4E-14	4.E-10	4.E-09	5.E-09	1.0E-09	1.0E-09	2.3E-14	2.4E-13	2.E-05	2.E-04	0.0003
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	1.6E-13	3.5E-13	2.E-08	5.E-08	7.E-08	1.0E-09	1.0E-09	1.1E-12	2.4E-12	1.E-03	2.E-03	0.004
	Pesticides																
	Total DDT	3.8E+02	ug/kg	3.4E-01	3.4E-01	4.2E-10	4.3E-09	1.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	3.0E-09	3.0E-08	6.E-06	6.E-05	0.00007
Exposure Point Total										3.E-07							0.03
RM 11.5 West	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	3.9E-09	3.9E-08	6.E-09	6.E-08	6.E-08	3.0E-04	3.0E-04	2.7E-08	2.7E-07	9.E-05	9.E-04	0.001
	Mercury	3.1E-02	mg/kg	--	--	0.0E+00	3.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+01	ug/kg	7.3E-01	7.3E-01	7.7E-11	1.8E-10	6.E-11	1.E-10	2.E-10	--	--	5.4E-10	1.3E-09	--	--	--
	Benzo(a)pyrene	1.8E+01	ug/kg	7.3E+00	7.3E+00	8.6E-11	2.0E-10	6.E-10	1.E-09	2.E-09	--	--	6.0E-10	1.4E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+01	ug/kg	7.3E-01	7.3E-01	8.2E-11	1.9E-10	6.E-11	1.E-10	2.E-10	--	--	5.7E-10	1.3E-09	--	--	--

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	1.4E+01	ug/kg	7.3E-02	7.3E-02	6.7E-11	1.6E-10	5.E-12	1.E-11	2.E-11	--	--	4.7E-10	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	1.4E-11	3.2E-11	1.E-10	2.E-10	3.E-10	--	--	9.7E-11	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	6.7E-11	1.6E-10	5.E-11	1.E-10	2.E-10	--	--	4.7E-10	1.1E-09	--	--	--
	Naphthalene	6.4E+00	ug/kg	--	--	3.1E-11	7.2E-11	--	--	--	2.0E-02	2.0E-02	2.1E-10	5.0E-10	1.E-08	3.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.2E+02	ug/kg	1.4E-02	1.4E-02	1.9E-09	5.8E-09	3.E-11	8.E-11	1.E-10	2.0E-02	2.0E-02	1.3E-08	4.1E-08	7.E-07	2.E-06	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.4E+01	ug/kg	2.0E+00	2.0E+00	1.2E-10	2.7E-10	2.E-10	5.E-10	8.E-10	2.0E-05	2.0E-05	8.6E-10	1.9E-09	4.E-05	9.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	2.0E-16	2.0E-15	3.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	1.4E-15	1.4E-14	1.E-06	1.E-05	0.00002
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	1.5E-15	3.3E-15	2.E-10	4.E-10	6.E-10	1.0E-09	1.0E-09	1.1E-14	2.3E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	3.3E-13	1.0E-12	5.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	2.3E-12	7.0E-12	5.E-08	1.E-07	0.0000002
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.1E-12	2.2E-11	7.E-13	7.E-12	8.E-12	5.0E-04	5.0E-04	1.5E-11	1.5E-10	3.E-08	3.E-07	0.0000003
Exposure Point Total										7.E-08							0.001
RM 12 West	**Metals**																
	Arsenic	3.9E+00	mg/kg	1.5E+00	1.5E+00	4.3E-09	4.3E-08	6.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	3.0E-08	3.0E-07	1.E-04	1.E-03	0.001
	Mercury	7.4E-01	mg/kg	--	--	0.0E+00	8.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.8E-08	0.E+00	6.E-04	0.0006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+03	ug/kg	7.3E-01	7.3E-01	5.3E-09	1.2E-08	4.E-09	9.E-09	1.E-08	--	--	3.7E-08	8.7E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	8.6E-09	2.0E-08	6.E-08	1.E-07	2.E-07	--	--	6.1E-08	1.4E-07	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	6.8E-09	1.6E-08	5.E-09	1.E-08	2.E-08	--	--	4.8E-08	1.1E-07	--	--	--
	Benzo(k)fluoranthene	5.9E+02	ug/kg	7.3E-02	7.3E-02	2.8E-09	6.6E-09	2.E-10	5.E-10	7.E-10	--	--	2.0E-08	4.6E-08	--	--	--
	Dibenzo(a,h)anthracene	2.1E+02	ug/kg	7.3E+00	7.3E+00	1.0E-09	2.3E-09	7.E-09	2.E-08	2.E-08	--	--	7.1E-09	1.6E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	7.1E-09	1.6E-08	5.E-09	1.E-08	2.E-08	--	--	4.9E-08	1.2E-07	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	7.1E-10	1.7E-09	--	--	--	2.0E-02	2.0E-02	5.0E-09	1.2E-08	2.E-07	6.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	7.0E-10	2.1E-09	1.E-11	3.E-11	4.E-11	2.0E-02	2.0E-02	4.9E-09	1.5E-08	2.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.0E+01	ug/kg	4.0E-01	4.0E-01	1.8E-10	2.2E-10	7.E-11	9.E-11	2.E-10	5.0E-03	5.0E-03	1.3E-09	1.6E-09	3.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	6.2E-10	1.4E-09	1.E-09	3.E-09	4.E-09	2.0E-05	2.0E-05	4.4E-09	9.5E-09	2.E-04	5.E-04	0.0007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	1.8E-16	1.9E-15	2.E-11	2.E-10	3.E-10	1.0E-09	1.0E-09	1.3E-15	1.3E-14	1.E-06	1.E-05	0.00001
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	2.3E-15	5.1E-15	3.E-10	7.E-10	1.E-09	1.0E-09	1.0E-09	1.6E-14	3.5E-14	2.E-05	4.E-05	0.00005
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	2.6E-12	7.8E-12	4.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	1.8E-11	5.5E-11	6.E-07	2.E-06	0.000002
	Total DDT	9.5E+00	ug/kg	3.4E-01	3.4E-01	1.0E-11	1.1E-10	4.E-12	4.E-11	4.E-11	5.0E-04	5.0E-04	7.3E-11	7.4E-10	1.E-07	1.E-06	0.000002
Exposure Point Total										4.E-07							0.002
RM 12 East	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	2.9E-09	2.9E-08	4.E-09	4.E-08	5.E-08	3.0E-04	3.0E-04	2.0E-08	2.1E-07	7.E-05	7.E-04	0.0008
	Mercury	6.5E-02	mg/kg	--	--	0.0E+00	7.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.1E-09	0.E+00	5.E-05	0.00005

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	4.8E+00	ug/kg	--	--	1.8E-11	5.4E-11	--	--	--	3.0E-04	3.0E-04	1.2E-10	3.8E-10	4.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	8.6E-11	2.0E-10	6.E-11	1.E-10	2.E-10	--	--	6.0E-10	1.4E-09	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	9.1E-11	2.1E-10	7.E-10	2.E-09	2.E-09	--	--	6.4E-10	1.5E-09	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.3E-10	3.0E-10	9.E-11	2.E-10	3.E-10	--	--	9.1E-10	2.1E-09	--	--	--
	Benzo(k)fluoranthene	8.4E+00	ug/kg	7.3E-02	7.3E-02	4.0E-11	9.4E-11	3.E-12	7.E-12	1.E-11	--	--	2.8E-10	6.6E-10	--	--	--
	Dibenzo(a,h)anthracene	4.5E+00	ug/kg	7.3E+00	7.3E+00	2.2E-11	5.0E-11	2.E-10	4.E-10	5.E-10	--	--	1.5E-10	3.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+01	ug/kg	7.3E-01	7.3E-01	8.2E-11	1.9E-10	6.E-11	1.E-10	2.E-10	--	--	5.7E-10	1.3E-09	--	--	--
	Naphthalene	4.2E+01	ug/kg	--	--	2.0E-10	4.7E-10	--	--	--	2.0E-02	2.0E-02	1.4E-09	3.3E-09	7.E-08	2.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+04	ug/kg	1.4E-02	1.4E-02	6.6E-08	2.0E-07	9.E-10	3.E-09	4.E-09	2.0E-02	2.0E-02	4.6E-07	1.4E-06	2.E-05	7.E-05	0.00009
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	3.0E-11	3.6E-11	1.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	2.1E-10	2.5E-10	4.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.4E-10	2.0E-09	2.E-09	4.E-09	6.E-09	2.0E-05	2.0E-05	6.5E-09	1.4E-08	3.E-04	7.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	1.9E-15	2.0E-14	3.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	1.4E-14	1.4E-13	1.E-05	1.E-04	0.0002
	Total PCB TEQ	4.6E+00	pg/g	1.3E+05	1.3E+05	2.4E-14	5.1E-14	3.E-09	7.E-09	1.E-08	1.0E-09	1.0E-09	1.6E-13	3.6E-13	2.E-04	4.E-04	0.0005
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	1.0E-11	1.1E-10	4.E-12	4.E-11	4.E-11	5.0E-04	5.0E-04	7.3E-11	7.4E-10	1.E-07	1.E-06	0.000002
Exposure Point Total										7.E-08							0.003
Study Area-wide[c]	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	5.6E-09	5.6E-08	8.E-09	8.E-08	9.E-08	3.0E-04	3.0E-04	3.9E-08	3.9E-07	1.E-04	1.E-03	0.001
	Mercury	3.0E-01	mg/kg	--	--	0.0E+00	3.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	8.7E-09	2.7E-08	--	--	--	3.0E-04	3.0E-04	6.1E-08	1.9E-07	2.E-04	6.E-04	0.0008
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.5E-08	3.4E-08	1.E-08	3.E-08	4.E-08	--	--	1.0E-07	2.4E-07	--	--	--
	Benzo(a)pyrene	3.7E+03	ug/kg	7.3E+00	7.3E+00	1.8E-08	4.2E-08	1.E-07	3.E-07	4.E-07	--	--	1.3E-07	2.9E-07	--	--	--
	Benzo(b)fluoranthene	2.9E+03	ug/kg	7.3E-01	7.3E-01	1.4E-08	3.3E-08	1.E-08	2.E-08	3.E-08	--	--	9.8E-08	2.3E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	9.6E-09	2.2E-08	7.E-10	2.E-09	2.E-09	--	--	6.7E-08	1.6E-07	--	--	--
	Dibenzo(a,h)anthracene	3.8E+02	ug/kg	7.3E+00	7.3E+00	1.8E-09	4.2E-09	1.E-08	3.E-08	4.E-08	--	--	1.3E-08	3.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.3E-08	2.9E-08	9.E-09	2.E-08	3.E-08	--	--	8.8E-08	2.0E-07	--	--	--
	Naphthalene	1.5E+03	ug/kg	--	--	7.0E-09	1.6E-08	--	--	--	2.0E-02	2.0E-02	4.9E-08	1.1E-07	2.E-06	6.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.9E+03	ug/kg	1.4E-02	1.4E-02	1.1E-08	3.2E-08	1.E-10	5.E-10	6.E-10	2.0E-02	2.0E-02	7.4E-08	2.3E-07	4.E-06	1.E-05	0.00001
	Phenols																
	Pentachlorophenol	5.6E+01	ug/kg	4.0E-01	4.0E-01	5.2E-10	6.3E-10	2.E-10	3.E-10	5.E-10	5.0E-03	5.0E-03	3.6E-09	4.4E-09	7.E-07	9.E-07	0.000002

TABLE 5-19.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	1.9E-09	4.0E-09	4.E-09	8.E-09	1.E-08	2.0E-05	2.0E-05	1.3E-08	2.8E-08	6.E-04	1.E-03	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	1.3E+05	1.3E+05	7.3E-13	7.4E-12	9.E-08	1.E-06	1.E-06	1.0E-09	1.0E-09	5.1E-12	5.2E-11	5.E-03	5.E-02	0.06
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	8.7E-14	1.9E-13	1.E-08	2.E-08	4.E-08	1.0E-09	1.0E-09	6.1E-13	1.3E-12	6.E-04	1.E-03	0.002
	Pesticides																
	Aldrin	5.8E+00	ug/kg	1.7E+01	1.7E+01	2.1E-11	6.5E-11	4.E-10	1.E-09	1.E-09	3.0E-05	3.0E-05	1.5E-10	4.5E-10	5.E-06	2.E-05	0.00002
	Dieldrin	2.8E+00	ug/kg	1.6E+01	1.6E+01	1.0E-11	3.1E-11	2.E-10	5.E-10	7.E-10	5.0E-05	5.0E-05	7.2E-11	2.2E-10	1.E-06	4.E-06	0.00001
	Total DDT	3.7E+02	ug/kg	3.4E-01	3.4E-01	4.1E-10	4.2E-09	1.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	2.9E-09	2.9E-08	6.E-06	6.E-05	0.00006
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	3.1E-06	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.1E-05	0.E+00	3.E-02	0.03
Exposure Point Total										2.E-06							0.2

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.9E-10	4.7E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.3E-09	8.2E-08	1.E-05	3.E-04	0.0003
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	6.8E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	1.2E-13	9.4E-13	--	--	--	3.0E-04	3.0E-04	2.2E-12	1.6E-11	7.E-09	5.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+01	ug/kg	7.3E-01	7.3E-01	9.6E-12	5.6E-11	7.E-12	4.E-11	5.E-11	--	--	1.7E-10	9.8E-10	--	--	--
	Benzo(a)pyrene	7.4E+01	ug/kg	7.3E+00	7.3E+00	1.4E-11	8.3E-11	1.E-10	6.E-10	7.E-10	--	--	2.5E-10	1.5E-09	--	--	--
	Benzo(b)fluoranthene	7.4E+01	ug/kg	7.3E-01	7.3E-01	1.4E-11	8.3E-11	1.E-11	6.E-11	7.E-11	--	--	2.5E-10	1.4E-09	--	--	--
	Benzo(k)fluoranthene	3.0E+01	ug/kg	7.3E-02	7.3E-02	5.8E-12	3.4E-11	4.E-13	2.E-12	3.E-12	--	--	1.0E-10	5.9E-10	--	--	--
	Dibenzo(a,h)anthracene	9.4E+00	ug/kg	7.3E+00	7.3E+00	1.8E-12	1.1E-11	1.E-11	8.E-11	9.E-11	--	--	3.2E-11	1.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.8E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	6.5E-11	8.E-12	5.E-11	6.E-11	--	--	1.9E-10	1.1E-09	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	2.5E-12	1.5E-11	--	--	--	2.0E-02	2.0E-02	4.4E-11	2.6E-10	2.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+01	ug/kg	1.4E-02	1.4E-02	2.7E-12	2.1E-11	4.E-14	3.E-13	3.E-13	2.0E-02	2.0E-02	4.8E-11	3.6E-10	2.E-09	2.E-08	0.00000002
	Phenols																
	Pentachlorophenol	7.2E-01	ug/kg	4.0E-01	4.0E-01	2.6E-13	8.0E-13	1.E-13	3.E-13	4.E-13	5.0E-03	5.0E-03	4.6E-12	1.4E-11	9.E-10	3.E-09	0.000000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	2.3E-12	1.3E-11	5.E-12	3.E-11	3.E-11	2.0E-05	2.0E-05	4.1E-11	2.2E-10	2.E-06	1.E-05	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	1.3E+05	1.3E+05	3.4E-17	8.5E-16	4.E-12	1.E-10	1.E-10	1.0E-09	1.0E-09	5.9E-16	1.5E-14	6.E-07	1.E-05	0.00002
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	2.5E-14	1.9E-13	4.E-13	3.E-12	4.E-12	3.0E-05	3.0E-05	4.4E-13	3.3E-12	1.E-08	1.E-07	0.0000001
	Total DDT	2.5E+00	ug/kg	3.4E-01	3.4E-01	1.1E-13	2.8E-12	4.E-14	9.E-13	1.E-12	5.0E-04	5.0E-04	1.9E-12	4.9E-11	4.E-09	1.E-07	0.0000001
	Conventionals																
	Perchlorate	NA	ug/kg	--	--	NA	NA	NA	NA	NA	7.0E-04	7.0E-04	NA	NA	NA	NA	NA
Exposure Point Total[b]										9.E-09							0.0003
RM 1 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.6E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.2E-09	8.0E-08	1.E-05	3.E-04	0.0003
	Mercury	1.4E+00	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.8E-08	0.E+00	3.E-04	0.0003
	Butyltins																
	Tributyltin ion	1.1E+00	ug/kg	--	--	1.6E-13	1.2E-12	--	--	--	3.0E-04	3.0E-04	2.8E-12	2.2E-11	9.E-09	7.E-08	0.00000008
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	6.0E-12	3.5E-11	4.E-12	3.E-11	3.E-11	--	--	1.1E-10	6.2E-10	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	8.9E-12	5.2E-11	6.E-11	4.E-10	4.E-10	--	--	1.6E-10	9.1E-10	--	--	--
	Benzo(b)fluoranthene	4.2E+01	ug/kg	7.3E-01	7.3E-01	8.1E-12	4.7E-11	6.E-12	3.E-11	4.E-11	--	--	1.4E-10	8.2E-10	--	--	--
	Benzo(k)fluoranthene	2.7E+01	ug/kg	7.3E-02	7.3E-02	5.1E-12	3.0E-11	4.E-13	2.E-12	3.E-12	--	--	8.9E-11	5.2E-10	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	1.1E-12	6.2E-12	8.E-12	4.E-11	5.E-11	--	--	1.8E-11	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+01	ug/kg	7.3E-01	7.3E-01	6.3E-12	3.7E-11	5.E-12	3.E-11	3.E-11	--	--	1.1E-10	6.4E-10	--	--	--
	Naphthalene	8.3E+00	ug/kg	--	--	1.6E-12	9.2E-12	--	--	--	2.0E-02	2.0E-02	2.8E-11	1.6E-10	1.E-09	8.E-09	0.00000001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	5.9E-12	4.4E-11	8.E-14	6.E-13	7.E-13	2.0E-02	2.0E-02	1.0E-10	7.8E-10	5.E-09	4.E-08	0.00000004
	Phenols																
	Pentachlorophenol	7.6E-01	ug/kg	4.0E-01	4.0E-01	2.8E-13	8.4E-13	1.E-13	3.E-13	4.E-13	5.0E-03	5.0E-03	4.9E-12	1.5E-11	1.E-09	3.E-09	0.000000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	2.1E-11	1.1E-10	4.E-11	2.E-10	3.E-10	2.0E-05	2.0E-05	3.7E-10	2.0E-09	2.E-05	1.E-04	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	2.1E-17	5.2E-16	3.E-12	7.E-11	7.E-11	1.0E-09	1.0E-09	3.6E-16	9.2E-15	4.E-07	9.E-06	0.00001
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	5.5E-17	3.0E-16	7.E-12	4.E-11	5.E-11	1.0E-09	1.0E-09	9.7E-16	5.2E-15	1.E-06	5.E-06	0.00001
	Pesticides																
	Total DDT	1.8E+00	ug/kg	3.4E-01	3.4E-01	7.9E-14	2.0E-12	3.E-14	7.E-13	7.E-13	5.0E-04	5.0E-04	1.4E-12	3.5E-11	3.E-09	7.E-08	0.0000001
Exposure Point Total										8.E-09							0.0007
RM 1.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	1.6E-10	4.0E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.8E-09	7.1E-08	9.E-06	2.E-04	0.0002
	Mercury	5.1E-02	mg/kg	--	--	0.0E+00	5.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.9E-10	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.9E+01	ug/kg	7.3E-01	7.3E-01	3.6E-12	2.1E-11	3.E-12	2.E-11	2.E-11	--	--	6.2E-11	3.6E-10	--	--	--
	Benzo(a)pyrene	2.7E+01	ug/kg	7.3E+00	7.3E+00	5.2E-12	3.0E-11	4.E-11	2.E-10	3.E-10	--	--	9.1E-11	5.3E-10	--	--	--
	Benzo(b)fluoranthene	2.3E+01	ug/kg	7.3E-01	7.3E-01	4.4E-12	2.6E-11	3.E-12	2.E-11	2.E-11	--	--	7.7E-11	4.5E-10	--	--	--
	Benzo(k)fluoranthene	1.9E+01	ug/kg	7.3E-02	7.3E-02	3.7E-12	2.1E-11	3.E-13	2.E-12	2.E-12	--	--	6.4E-11	3.7E-10	--	--	--
	Dibenzo(a,h)anthracene	3.3E+00	ug/kg	7.3E+00	7.3E+00	6.2E-13	3.6E-12	5.E-12	3.E-11	3.E-11	--	--	1.1E-11	6.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+01	ug/kg	7.3E-01	7.3E-01	4.0E-12	2.4E-11	3.E-12	2.E-11	2.E-11	--	--	7.1E-11	4.1E-10	--	--	--
	Naphthalene	5.3E+00	ug/kg	--	--	1.0E-12	6.0E-12	--	--	--	2.0E-02	2.0E-02	1.8E-11	1.0E-10	9.E-10	5.E-09	0.00000001
	Phenols																
	Pentachlorophenol	8.1E-01	ug/kg	4.0E-01	4.0E-01	3.0E-13	9.0E-13	1.E-13	4.E-13	5.E-13	5.0E-03	5.0E-03	5.2E-12	1.6E-11	1.E-09	3.E-09	0.000000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	2.4E-12	1.3E-11	5.E-12	3.E-11	3.E-11	2.0E-05	2.0E-05	4.2E-11	2.3E-10	2.E-06	1.E-05	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	1.3E+05	1.3E+05	3.8E-18	9.5E-17	5.E-13	1.E-11	1.E-11	1.0E-09	1.0E-09	6.6E-17	1.7E-15	7.E-08	2.E-06	0.000002
	Pesticides																
	Total DDT	7.9E-01	ug/kg	3.4E-01	3.4E-01	3.5E-14	8.9E-13	1.E-14	3.E-13	3.E-13	5.0E-04	5.0E-04	6.1E-13	1.6E-11	1.E-09	3.E-08	0.00000003
Exposure Point Total										7.E-09							0.0003
RM 1.5 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	1.9E-10	4.9E-09	3.E-10	7.E-09	8.E-09	3.0E-04	3.0E-04	3.4E-09	8.5E-08	1.E-05	3.E-04	0.0003
	Mercury	6.4E-02	mg/kg	--	--	0.0E+00	7.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	5.5E-14	4.1E-13	--	--	--	3.0E-04	3.0E-04	9.6E-13	7.2E-12	3.E-09	2.E-08	0.00000003

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	4.8E-11	2.8E-10	3.E-11	2.E-10	2.E-10	--	--	8.3E-10	4.9E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	7.0E-11	4.1E-10	5.E-10	3.E-09	4.E-09	--	--	1.2E-09	7.2E-09	--	--	--
	Benzo(b)fluoranthene	2.2E+02	ug/kg	7.3E-01	7.3E-01	4.2E-11	2.5E-10	3.E-11	2.E-10	2.E-10	--	--	7.4E-10	4.3E-09	--	--	--
	Benzo(k)fluoranthene	2.2E+02	ug/kg	7.3E-02	7.3E-02	4.1E-11	2.4E-10	3.E-12	2.E-11	2.E-11	--	--	7.2E-10	4.2E-09	--	--	--
	Dibenzo(a,h)anthracene	3.7E+01	ug/kg	7.3E+00	7.3E+00	7.1E-12	4.1E-11	5.E-11	3.E-10	4.E-10	--	--	1.2E-10	7.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	5.0E-11	2.9E-10	4.E-11	2.E-10	3.E-10	--	--	8.8E-10	5.1E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	1.9E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	3.3E-10	1.9E-09	2.E-08	1.E-07	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	1.1E-11	8.0E-11	1.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	1.8E-10	1.4E-09	9.E-09	7.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	6.0E-13	1.8E-12	2.E-13	7.E-13	1.E-12	5.0E-03	5.0E-03	1.1E-11	3.2E-11	2.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	4.5E-12	2.4E-11	9.E-12	5.E-11	6.E-11	2.0E-05	2.0E-05	7.8E-11	4.2E-10	4.E-06	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	1.3E+05	1.3E+05	2.5E-17	6.4E-16	3.E-12	8.E-11	9.E-11	1.0E-09	1.0E-09	4.5E-16	1.1E-14	4.E-07	1.E-05	0.00001
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	2.2E-17	1.2E-16	3.E-12	2.E-11	2.E-11	1.0E-09	1.0E-09	3.8E-16	2.1E-15	4.E-07	2.E-06	0.000002
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	1.0E-14	7.7E-14	2.E-13	1.E-12	1.E-12	5.0E-05	5.0E-05	1.8E-13	1.4E-12	4.E-09	3.E-08	0.00000003
	Total DDT	6.8E+00	ug/kg	3.4E-01	3.4E-01	3.0E-13	7.6E-12	1.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	5.3E-12	1.3E-10	1.E-08	3.E-07	0.0000003
Exposure Point Total										1.E-08							0.0003
RM 2 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	1.5E-10	3.8E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.7E-09	6.7E-08	9.E-06	2.E-04	0.0002
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	7.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	3.1E-13	2.3E-12	--	--	--	3.0E-04	3.0E-04	5.4E-12	4.1E-11	2.E-08	1.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	5.9E-12	3.4E-11	4.E-12	3.E-11	3.E-11	--	--	1.0E-10	6.0E-10	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	1.1E-11	6.2E-11	8.E-11	5.E-10	5.E-10	--	--	1.9E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	5.6E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	6.3E-11	8.E-12	5.E-11	5.E-11	--	--	1.9E-10	1.1E-09	--	--	--
	Benzo(k)fluoranthene	1.8E+01	ug/kg	7.3E-02	7.3E-02	3.4E-12	2.0E-11	2.E-13	1.E-12	2.E-12	--	--	6.0E-11	3.5E-10	--	--	--
	Dibenzo(a,h)anthracene	6.1E+00	ug/kg	7.3E+00	7.3E+00	1.2E-12	6.8E-12	9.E-12	5.E-11	6.E-11	--	--	2.0E-11	1.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+01	ug/kg	7.3E-01	7.3E-01	8.8E-12	5.1E-11	6.E-12	4.E-11	4.E-11	--	--	1.5E-10	9.0E-10	--	--	--
	Naphthalene	7.2E+00	ug/kg	--	--	1.4E-12	8.0E-12	--	--	--	2.0E-02	2.0E-02	2.4E-11	1.4E-10	1.E-09	7.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+01	ug/kg	1.4E-02	1.4E-02	4.9E-12	3.7E-11	7.E-14	5.E-13	6.E-13	2.0E-02	2.0E-02	8.5E-11	6.5E-10	4.E-09	3.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+01	ug/kg	2.0E+00	2.0E+00	2.7E-12	1.5E-11	5.E-12	3.E-11	3.E-11	2.0E-05	2.0E-05	4.7E-11	2.5E-10	2.E-06	1.E-05	0.00002

[a] Cancer Risk Calculations and Noncancer Hazard Calculations

[b] Total Cancer Risk and Total Noncancer HQ

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	1.3E+05	1.3E+05	3.6E-17	9.1E-16	5.E-12	1.E-10	1.E-10	1.0E-09	1.0E-09	6.3E-16	1.6E-14	6.E-07	2.E-05	0.00002
	Total PCB TEQ	2.5E-01	pg/g	1.3E+05	1.3E+05	5.2E-17	2.8E-16	7.E-12	4.E-11	4.E-11	1.0E-09	1.0E-09	9.1E-16	4.9E-15	9.E-07	5.E-06	0.00001
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	1.3E-14	1.0E-13	2.E-13	2.E-12	2.E-12	3.0E-05	3.0E-05	2.3E-13	1.8E-12	8.E-09	6.E-08	0.0000001
	Dieldrin	1.1E-01	ug/kg	1.6E+01	1.6E+01	1.7E-14	1.3E-13	3.E-13	2.E-12	2.E-12	5.0E-05	5.0E-05	2.9E-13	2.2E-12	6.E-09	4.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	6.1E-14	1.5E-12	2.E-14	5.E-13	5.E-13	5.0E-04	5.0E-04	1.1E-12	2.7E-11	2.E-09	5.E-08	0.0000001
Exposure Point Total										7.E-09							0.0003
RM 2 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.6E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.2E-09	8.0E-08	1.E-05	3.E-04	0.0003
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	9.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	2.7E+00	ug/kg	--	--	3.9E-13	3.0E-12	--	--	--	3.0E-04	3.0E-04	6.8E-12	5.2E-11	2.E-08	2.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	6.5E-11	8.E-12	5.E-11	6.E-11	--	--	1.9E-10	1.1E-09	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.7E-11	9.6E-11	1.E-10	7.E-10	8.E-10	--	--	2.9E-10	1.7E-09	--	--	--
	Benzo(b)fluoranthene	9.4E+01	ug/kg	7.3E-01	7.3E-01	1.8E-11	1.0E-10	1.E-11	8.E-11	9.E-11	--	--	3.1E-10	1.8E-09	--	--	--
	Benzo(k)fluoranthene	4.1E+01	ug/kg	7.3E-02	7.3E-02	7.9E-12	4.6E-11	6.E-13	3.E-12	4.E-12	--	--	1.4E-10	8.1E-10	--	--	--
	Dibenzo(a,h)anthracene	1.3E+01	ug/kg	7.3E+00	7.3E+00	2.5E-12	1.4E-11	2.E-11	1.E-10	1.E-10	--	--	4.3E-11	2.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	7.5E+01	ug/kg	7.3E-01	7.3E-01	1.4E-11	8.4E-11	1.E-11	6.E-11	7.E-11	--	--	2.5E-10	1.5E-09	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	2.8E-12	1.6E-11	--	--	--	2.0E-02	2.0E-02	4.9E-11	2.8E-10	2.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.9E+01	ug/kg	1.4E-02	1.4E-02	1.5E-11	1.1E-10	2.E-13	2.E-12	2.E-12	2.0E-02	2.0E-02	2.6E-10	1.9E-09	1.E-08	1.E-07	0.0000001
	Phenols																
	Pentachlorophenol	5.3E-01	ug/kg	4.0E-01	4.0E-01	2.0E-13	6.0E-13	8.E-14	2.E-13	3.E-13	5.0E-03	5.0E-03	3.4E-12	1.0E-11	7.E-10	2.E-09	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+02	ug/kg	2.0E+00	2.0E+00	8.9E-11	4.8E-10	2.E-10	1.E-09	1.E-09	2.0E-05	2.0E-05	1.6E-09	8.5E-09	8.E-05	4.E-04	0.00050
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	5.4E-17	1.4E-15	7.E-12	2.E-10	2.E-10	1.0E-09	1.0E-09	9.5E-16	2.4E-14	9.E-07	2.E-05	0.00002
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	2.8E-15	1.5E-14	4.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	4.9E-14	2.6E-13	5.E-05	3.E-04	0.00031
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	6.9E-14	5.2E-13	1.E-12	9.E-12	1.E-11	3.0E-05	3.0E-05	1.2E-12	9.1E-12	4.E-08	3.E-07	0.0000003
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	8.8E-14	6.7E-13	1.E-12	1.E-11	1.E-11	5.0E-05	5.0E-05	1.5E-12	1.2E-11	3.E-08	2.E-07	0.0000003
	Total DDT	2.6E+00	ug/kg	3.4E-01	3.4E-01	1.1E-13	2.9E-12	4.E-14	1.E-12	1.E-12	5.0E-04	5.0E-04	2.0E-12	5.1E-11	4.E-09	1.E-07	0.0000001
Exposure Point Total										1.E-08							0.001
RM 2.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.5E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.1E-09	7.9E-08	1.E-05	3.E-04	0.0003
	Mercury	5.5E-02	mg/kg	--	--	0.0E+00	6.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	3.4E-13	2.6E-12	--	--	--	3.0E-04	3.0E-04	5.9E-12	4.5E-11	2.E-08	2.E-07	0.0000002

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	3.9E-11	2.3E-10	3.E-11	2.E-10	2.E-10	--	--	6.9E-10	4.0E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	7.1E-11	4.1E-10	5.E-10	3.E-09	4.E-09	--	--	1.2E-09	7.2E-09	--	--	--
	Benzo(b)fluoranthene	2.8E+02	ug/kg	7.3E-01	7.3E-01	5.3E-11	3.1E-10	4.E-11	2.E-10	3.E-10	--	--	9.2E-10	5.4E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	2.4E-11	1.4E-10	2.E-12	1.E-11	1.E-11	--	--	4.2E-10	2.4E-09	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	7.8E-12	4.6E-11	6.E-11	3.E-10	4.E-10	--	--	1.4E-10	8.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.1E+02	ug/kg	7.3E-01	7.3E-01	5.9E-11	3.5E-10	4.E-11	3.E-10	3.E-10	--	--	1.0E-09	6.1E-09	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	7.8E-12	4.5E-11	--	--	--	2.0E-02	2.0E-02	1.4E-10	7.9E-10	7.E-09	4.E-08	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.5E+01	ug/kg	1.4E-02	1.4E-02	2.3E-12	1.7E-11	3.E-14	2.E-13	3.E-13	2.0E-02	2.0E-02	4.0E-11	3.0E-10	2.E-09	2.E-08	0.00000002
	Phenols																
	Pentachlorophenol	4.5E-01	ug/kg	4.0E-01	4.0E-01	1.6E-13	5.0E-13	7.E-14	2.E-13	3.E-13	5.0E-03	5.0E-03	2.9E-12	8.7E-12	6.E-10	2.E-09	0.000000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	2.2E-12	1.2E-11	4.E-12	2.E-11	3.E-11	2.0E-05	2.0E-05	3.9E-11	2.1E-10	2.E-06	1.E-05	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	1.2E-17	3.0E-16	2.E-12	4.E-11	4.E-11	1.0E-09	1.0E-09	2.1E-16	5.2E-15	2.E-07	5.E-06	0.00001
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	4.3E-17	2.3E-16	6.E-12	3.E-11	4.E-11	1.0E-09	1.0E-09	7.5E-16	4.0E-15	7.E-07	4.E-06	0.000005
	Pesticides																
	Aldrin	9.3E-02	ug/kg	1.7E+01	1.7E+01	1.4E-14	1.0E-13	2.E-13	2.E-12	2.E-12	3.0E-05	3.0E-05	2.4E-13	1.8E-12	8.E-09	6.E-08	0.0000001
	Dieldrin	1.4E-01	ug/kg	1.6E+01	1.6E+01	2.0E-14	1.5E-13	3.E-13	2.E-12	3.E-12	5.0E-05	5.0E-05	3.5E-13	2.7E-12	7.E-09	5.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	6.4E-14	1.6E-12	2.E-14	6.E-13	6.E-13	5.0E-04	5.0E-04	1.1E-12	2.8E-11	2.E-09	6.E-08	0.0000001
Exposure Point Total										1.E-08							0.0003
RM 2.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.9E-10	4.7E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.3E-09	8.3E-08	1.E-05	3.E-04	0.0003
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	6.5E-10	8.E-11	5.E-10	6.E-10	--	--	2.0E-09	1.1E-08	--	--	--
	Benzo(a)pyrene	4.8E+02	ug/kg	7.3E+00	7.3E+00	9.2E-11	5.4E-10	7.E-10	4.E-09	5.E-09	--	--	1.6E-09	9.4E-09	--	--	--
	Benzo(b)fluoranthene	4.4E+02	ug/kg	7.3E-01	7.3E-01	8.5E-11	4.9E-10	6.E-11	4.E-10	4.E-10	--	--	1.5E-09	8.6E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	2.7E-11	1.6E-10	2.E-12	1.E-11	1.E-11	--	--	4.7E-10	2.7E-09	--	--	--
	Dibenzo(a,h)anthracene	4.9E+01	ug/kg	7.3E+00	7.3E+00	9.4E-12	5.5E-11	7.E-11	4.E-10	5.E-10	--	--	1.6E-10	9.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	5.5E-11	3.2E-10	4.E-11	2.E-10	3.E-10	--	--	9.6E-10	5.6E-09	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	9.8E-12	5.7E-11	--	--	--	2.0E-02	2.0E-02	1.7E-10	9.9E-10	9.E-09	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.8E+01	ug/kg	1.4E-02	1.4E-02	1.2E-11	8.7E-11	2.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	2.0E-10	1.5E-09	1.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	4.3E+00	ug/kg	4.0E-01	4.0E-01	1.6E-12	4.8E-12	6.E-13	2.E-12	3.E-12	5.0E-03	5.0E-03	2.7E-11	8.3E-11	5.E-09	2.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	1.2E-11	6.2E-11	2.E-11	1.E-10	1.E-10	2.0E-05	2.0E-05	2.0E-10	1.1E-09	1.E-05	5.E-05	0.00006

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	2.9E-17	7.4E-16	4.E-12	1.E-10	1.E-10	1.0E-09	1.0E-09	5.1E-16	1.3E-14	5.E-07	1.E-05	0.00001
	Total PCB TEQ	1.3E+00	pg/g	1.3E+05	1.3E+05	2.8E-16	1.5E-15	4.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	4.8E-15	2.6E-14	5.E-06	3.E-05	0.00003
	Pesticides																
	Aldrin	5.1E-01	ug/kg	1.7E+01	1.7E+01	7.5E-14	5.6E-13	1.E-12	1.E-11	1.E-11	3.0E-05	3.0E-05	1.3E-12	9.9E-12	4.E-08	3.E-07	0.0000004
	Dieldrin	1.7E-01	ug/kg	1.6E+01	1.6E+01	2.4E-14	1.8E-13	4.E-13	3.E-12	3.E-12	5.0E-05	5.0E-05	4.3E-13	3.2E-12	9.E-09	6.E-08	0.0000001
	Total DDT	2.4E+00	ug/kg	3.4E-01	3.4E-01	1.1E-13	2.7E-12	4.E-14	9.E-13	9.E-13	5.0E-04	5.0E-04	1.8E-12	4.7E-11	4.E-09	9.E-08	0.0000001
Exposure Point Total										1.E-08							0.0004
RM 2.5 MC	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	1.9E-10	4.8E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.3E-09	8.3E-08	1.E-05	3.E-04	0.0003
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	8.8E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	4.1E-11	2.4E-10	3.E-11	2.E-10	2.E-10	--	--	7.1E-10	4.2E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	6.6E-11	3.8E-10	5.E-10	3.E-09	3.E-09	--	--	1.1E-09	6.7E-09	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	6.0E-11	3.5E-10	4.E-11	3.E-10	3.E-10	--	--	1.1E-09	6.1E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	1.9E-11	1.1E-10	1.E-12	8.E-12	1.E-11	--	--	3.4E-10	2.0E-09	--	--	--
	Dibenzo(a,h)anthracene	3.4E+01	ug/kg	7.3E+00	7.3E+00	6.4E-12	3.8E-11	5.E-11	3.E-10	3.E-10	--	--	1.1E-10	6.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	5.0E-11	2.9E-10	4.E-11	2.E-10	2.E-10	--	--	8.8E-10	5.1E-09	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	1.1E-11	6.6E-11	--	--	--	2.0E-02	2.0E-02	2.0E-10	1.1E-09	1.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	8.5E-12	6.4E-11	1.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	1.5E-10	1.1E-09	7.E-09	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	5.5E-01	ug/kg	4.0E-01	4.0E-01	2.0E-13	6.2E-13	8.E-14	2.E-13	3.E-13	5.0E-03	5.0E-03	3.6E-12	1.1E-11	7.E-10	2.E-09	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	5.2E-12	2.8E-11	1.E-11	6.E-11	7.E-11	2.0E-05	2.0E-05	9.2E-11	5.0E-10	5.E-06	2.E-05	0.00003
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	3.0E-14	2.3E-13	5.E-13	4.E-12	4.E-12	3.0E-05	3.0E-05	5.3E-13	4.0E-12	2.E-08	1.E-07	0.0000002
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	4.5E-14	3.4E-13	7.E-13	5.E-12	6.E-12	5.0E-05	5.0E-05	7.9E-13	6.0E-12	2.E-08	1.E-07	0.0000001
	Total DDT	3.7E+00	ug/kg	3.4E-01	3.4E-01	1.7E-13	4.2E-12	6.E-14	1.E-12	1.E-12	5.0E-04	5.0E-04	2.9E-12	7.3E-11	6.E-09	1.E-07	0.0000002
Exposure Point Total										1.E-08							0.0003
RM 3 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.6E-10	4.1E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.8E-09	7.2E-08	9.E-06	2.E-04	0.00025
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	8.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Vanadium	8.6E+01	mg/kg	--	--	0.0E+00	9.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.7E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	1.5E-12	1.2E-11	--	--	--	3.0E-04	3.0E-04	2.7E-11	2.0E-10	9.E-08	7.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	5.6E-11	3.2E-10	4.E-11	2.E-10	3.E-10	--	--	9.7E-10	5.7E-09	--	--	--
	Benzo(a)pyrene	4.6E+02	ug/kg	7.3E+00	7.3E+00	8.9E-11	5.2E-10	6.E-10	4.E-09	4.E-09	--	--	1.6E-09	9.0E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	7.6E-11	4.4E-10	6.E-11	3.E-10	4.E-10	--	--	1.3E-09	7.7E-09	--	--	--

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	2.3E+02	ug/kg	7.3E-02	7.3E-02	4.4E-11	2.6E-10	3.E-12	2.E-11	2.E-11	--	--	7.8E-10	4.5E-09	--	--	--
	Dibenzo(a,h)anthracene	5.3E+01	ug/kg	7.3E+00	7.3E+00	1.0E-11	5.9E-11	7.E-11	4.E-10	5.E-10	--	--	1.8E-10	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	6.3E-11	3.7E-10	5.E-11	3.E-10	3.E-10	--	--	1.1E-09	6.4E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	1.9E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	3.3E-10	1.9E-09	2.E-08	1.E-07	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	5.9E-12	4.5E-11	8.E-14	6.E-13	7.E-13	2.0E-02	2.0E-02	1.0E-10	7.9E-10	5.E-09	4.E-08	0.00000004
	Phenols																
	Pentachlorophenol	1.6E+01	ug/kg	4.0E-01	4.0E-01	6.0E-12	1.8E-11	2.E-12	7.E-12	1.E-11	5.0E-03	5.0E-03	1.1E-10	3.2E-10	2.E-08	6.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	2.3E-12	1.3E-11	5.E-12	3.E-11	3.E-11	2.0E-05	2.0E-05	4.1E-11	2.2E-10	2.E-06	1.E-05	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	1.3E+05	2.7E-17	6.8E-16	3.E-12	9.E-11	9.E-11	1.0E-09	1.0E-09	4.7E-16	1.2E-14	5.E-07	1.E-05	0.00001
	Total PCB TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	8.5E-17	4.6E-16	1.E-11	6.E-11	7.E-11	1.0E-09	1.0E-09	1.5E-15	8.0E-15	1.E-06	8.E-06	0.00001
	Pesticides																
	Aldrin	3.5E-01	ug/kg	1.7E+01	1.7E+01	5.2E-14	3.9E-13	9.E-13	7.E-12	8.E-12	3.0E-05	3.0E-05	9.1E-13	6.9E-12	3.E-08	2.E-07	0.0000003
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	2.9E-14	2.2E-13	5.E-13	4.E-12	4.E-12	5.0E-05	5.0E-05	5.1E-13	3.8E-12	1.E-08	8.E-08	0.0000001
	Total DDT	2.8E+01	ug/kg	3.4E-01	3.4E-01	1.3E-12	3.2E-11	4.E-13	1.E-11	1.E-11	5.0E-04	5.0E-04	2.2E-11	5.5E-10	4.E-08	1.E-06	0.000001
Exposure Point Total										1.E-08							0.02
RM 3 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.6E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.2E-09	8.1E-08	1.E-05	3.E-04	0.00028
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	6.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Vanadium	8.8E+01	mg/kg	--	--	0.0E+00	9.9E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.7E-06	0.E+00	2.E-02	0.02471
	Butyltins																
	Tributyltin ion	8.3E+00	ug/kg	--	--	1.2E-12	9.2E-12	--	--	--	3.0E-04	3.0E-04	2.1E-11	1.6E-10	7.E-08	5.E-07	0.0000006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	1.5E-11	8.6E-11	1.E-11	6.E-11	7.E-11	--	--	2.6E-10	1.5E-09	--	--	--
	Benzo(a)pyrene	8.4E+01	ug/kg	7.3E+00	7.3E+00	1.6E-11	9.4E-11	1.E-10	7.E-10	8.E-10	--	--	2.8E-10	1.6E-09	--	--	--
	Benzo(b)fluoranthene	9.9E+01	ug/kg	7.3E-01	7.3E-01	1.9E-11	1.1E-10	1.E-11	8.E-11	9.E-11	--	--	3.3E-10	1.9E-09	--	--	--
	Benzo(k)fluoranthene	6.0E+01	ug/kg	7.3E-02	7.3E-02	1.2E-11	6.7E-11	8.E-13	5.E-12	6.E-12	--	--	2.0E-10	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	2.6E-12	1.5E-11	2.E-11	1.E-10	1.E-10	--	--	4.6E-11	2.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	1.3E-11	7.5E-11	9.E-12	6.E-11	6.E-11	--	--	2.3E-10	1.3E-09	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	2.4E-12	1.4E-11	--	--	--	2.0E-02	2.0E-02	4.2E-11	2.5E-10	2.E-09	1.E-08	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.5E+01	ug/kg	1.4E-02	1.4E-02	9.5E-12	7.2E-11	1.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	1.7E-10	1.3E-09	8.E-09	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.9E+00	ug/kg	4.0E-01	4.0E-01	7.1E-13	2.2E-12	3.E-13	9.E-13	1.E-12	5.0E-03	5.0E-03	1.3E-11	3.8E-11	3.E-09	8.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+01	ug/kg	2.0E+00	2.0E+00	3.9E-12	2.1E-11	8.E-12	4.E-11	5.E-11	2.0E-05	2.0E-05	6.9E-11	3.7E-10	3.E-06	2.E-05	0.00002

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	1.3E+05	1.3E+05	1.3E-16	3.2E-15	2.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	2.2E-15	5.6E-14	2.E-06	6.E-05	0.00006
	Total PCB TEQ	7.7E-02	pg/g	1.3E+05	1.3E+05	1.6E-17	8.6E-17	2.E-12	1.E-11	1.E-11	1.0E-09	1.0E-09	2.8E-16	1.5E-15	3.E-07	1.E-06	0.000002
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	4.2E-14	3.2E-13	7.E-13	5.E-12	6.E-12	3.0E-05	3.0E-05	7.4E-13	5.6E-12	2.E-08	2.E-07	0.0000002
	Dieldrin	5.7E-02	ug/kg	1.6E+01	1.6E+01	8.5E-15	6.4E-14	1.E-13	1.E-12	1.E-12	5.0E-05	5.0E-05	1.5E-13	1.1E-12	3.E-09	2.E-08	0.00000003
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	7.0E-14	1.8E-12	2.E-14	6.E-13	6.E-13	5.0E-04	5.0E-04	1.2E-12	3.1E-11	2.E-09	6.E-08	0.00000006
Exposure Point Total										9.E-09							0.03
RM 3.5 West	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	2.6E-10	6.5E-09	4.E-10	1.E-08	1.E-08	3.0E-04	3.0E-04	4.5E-09	1.1E-07	1.E-05	4.E-04	0.0004
	Mercury	7.1E-02	mg/kg	--	--	0.0E+00	7.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	1.2E-11	9.1E-11	--	--	--	3.0E-04	3.0E-04	2.1E-10	1.6E-09	7.E-07	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	5.0E-11	2.9E-10	4.E-11	2.E-10	2.E-10	--	--	8.7E-10	5.1E-09	--	--	--
	Benzo(a)pyrene	3.9E+02	ug/kg	7.3E+00	7.3E+00	7.5E-11	4.4E-10	5.E-10	3.E-09	4.E-09	--	--	1.3E-09	7.7E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	6.7E-11	3.9E-10	5.E-11	3.E-10	3.E-10	--	--	1.2E-09	6.8E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	2.8E-11	1.6E-10	2.E-12	1.E-11	1.E-11	--	--	4.8E-10	2.8E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	8.3E-12	4.8E-11	6.E-11	4.E-10	4.E-10	--	--	1.4E-10	8.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	6.2E-11	3.6E-10	4.E-11	3.E-10	3.E-10	--	--	1.1E-09	6.3E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	2.5E-11	1.5E-10	--	--	--	2.0E-02	2.0E-02	4.4E-10	2.6E-09	2.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	6.9E-12	5.2E-11	1.E-13	7.E-13	8.E-13	2.0E-02	2.0E-02	1.2E-10	9.1E-10	6.E-09	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	9.1E-13	2.8E-12	4.E-13	1.E-12	1.E-12	5.0E-03	5.0E-03	1.6E-11	4.8E-11	3.E-09	1.E-08	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	4.7E-12	2.5E-11	9.E-12	5.E-11	6.E-11	2.0E-05	2.0E-05	8.2E-11	4.4E-10	4.E-06	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	1.3E+05	1.3E+05	4.0E-17	1.0E-15	5.E-12	1.E-10	1.E-10	1.0E-09	1.0E-09	7.0E-16	1.8E-14	7.E-07	2.E-05	0.00002
	Total PCB TEQ	5.1E-01	pg/g	1.3E+05	1.3E+05	1.1E-16	5.7E-16	1.E-11	7.E-11	9.E-11	1.0E-09	1.0E-09	1.8E-15	1.0E-14	2.E-06	1.E-05	0.00001
	Pesticides																
	Aldrin	2.7E-01	ug/kg	1.7E+01	1.7E+01	3.9E-14	3.0E-13	7.E-13	5.E-12	6.E-12	3.0E-05	3.0E-05	6.8E-13	5.2E-12	2.E-08	2.E-07	0.0000002
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.9E-14	1.4E-13	3.E-13	2.E-12	3.E-12	5.0E-05	5.0E-05	3.2E-13	2.5E-12	6.E-09	5.E-08	0.0000001
	Total DDT	5.8E+00	ug/kg	3.4E-01	3.4E-01	2.6E-13	6.5E-12	9.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	4.5E-12	1.1E-10	9.E-09	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.03
RM 3.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.6E-10	4.1E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.9E-09	7.2E-08	1.E-05	2.E-04	0.00025
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	8.8E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-06	0.E+00	3.E-02	0.03

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.8E+03	ug/kg	--	--	2.6E-10	2.0E-09	--	--	--	3.0E-04	3.0E-04	4.6E-09	3.5E-08	2.E-05	1.E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	5.6E-11	3.3E-10	4.E-11	2.E-10	3.E-10	--	--	9.8E-10	5.7E-09	--	--	--
	Benzo(a)pyrene	2.5E+02	ug/kg	7.3E+00	7.3E+00	4.7E-11	2.8E-10	3.E-10	2.E-09	2.E-09	--	--	8.3E-10	4.8E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	6.7E-11	3.9E-10	5.E-11	3.E-10	3.E-10	--	--	1.2E-09	6.9E-09	--	--	--
	Benzo(k)fluoranthene	1.7E+02	ug/kg	7.3E-02	7.3E-02	3.3E-11	1.9E-10	2.E-12	1.E-11	2.E-11	--	--	5.7E-10	3.3E-09	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	7.9E-12	4.6E-11	6.E-11	3.E-10	4.E-10	--	--	1.4E-10	8.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+02	ug/kg	7.3E-01	7.3E-01	2.9E-11	1.7E-10	2.E-11	1.E-10	1.E-10	--	--	5.0E-10	2.9E-09	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	2.7E-12	1.6E-11	--	--	--	2.0E-02	2.0E-02	4.7E-11	2.7E-10	2.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	2.0E-10	1.5E-09	3.E-12	2.E-11	2.E-11	2.0E-02	2.0E-02	3.4E-09	2.6E-08	2.E-07	1.E-06	0.000001
	Phenols																
	Pentachlorophenol	2.0E+00	ug/kg	4.0E-01	4.0E-01	7.5E-13	2.3E-12	3.E-13	9.E-13	1.E-12	5.0E-03	5.0E-03	1.3E-11	4.0E-11	3.E-09	8.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+02	ug/kg	2.0E+00	2.0E+00	7.8E-11	4.2E-10	2.E-10	8.E-10	1.E-09	2.0E-05	2.0E-05	1.4E-09	7.3E-09	7.E-05	4.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	1.5E-16	3.7E-15	2.E-11	5.E-10	5.E-10	1.0E-09	1.0E-09	2.6E-15	6.5E-14	3.E-06	7.E-05	0.00007
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	3.6E-15	1.9E-14	5.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	6.3E-14	3.4E-13	6.E-05	3.E-04	0.0004
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	5.5E-14	4.2E-13	9.E-13	7.E-12	8.E-12	3.0E-05	3.0E-05	9.6E-13	7.3E-12	3.E-08	2.E-07	0.0000003
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.9E-14	1.4E-13	3.E-13	2.E-12	3.E-12	5.0E-05	5.0E-05	3.2E-13	2.5E-12	6.E-09	5.E-08	0.0000001
	Total DDT	6.2E+00	ug/kg	3.4E-01	3.4E-01	2.7E-13	6.9E-12	9.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	4.8E-12	1.2E-10	1.E-08	2.E-07	0.0000003
Exposure Point Total										1.E-08							0.03
RM 4 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	1.5E-10	3.8E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.6E-09	6.6E-08	9.E-06	2.E-04	0.0002
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	9.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	6.1E+00	ug/kg	--	--	9.0E-13	6.8E-12	--	--	--	3.0E-04	3.0E-04	1.6E-11	1.2E-10	5.E-08	4.E-07	0.0000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	4.9E-11	2.9E-10	4.E-11	2.E-10	2.E-10	--	--	8.6E-10	5.0E-09	--	--	--
	Benzo(a)pyrene	4.0E+02	ug/kg	7.3E+00	7.3E+00	7.6E-11	4.4E-10	6.E-10	3.E-09	4.E-09	--	--	1.3E-09	7.8E-09	--	--	--
	Benzo(b)fluoranthene	3.6E+02	ug/kg	7.3E-01	7.3E-01	6.8E-11	4.0E-10	5.E-11	3.E-10	3.E-10	--	--	1.2E-09	7.0E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	2.5E-11	1.5E-10	2.E-12	1.E-11	1.E-11	--	--	4.5E-10	2.6E-09	--	--	--
	Dibenzo(a,h)anthracene	4.4E+01	ug/kg	7.3E+00	7.3E+00	8.4E-12	4.9E-11	6.E-11	4.E-10	4.E-10	--	--	1.5E-10	8.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	6.1E-11	3.5E-10	4.E-11	3.E-10	3.E-10	--	--	1.1E-09	6.2E-09	--	--	--
	Naphthalene	7.7E+01	ug/kg	--	--	1.5E-11	8.6E-11	--	--	--	2.0E-02	2.0E-02	2.6E-10	1.5E-09	1.E-08	8.E-08	0.0000001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.2E+01	ug/kg	1.4E-02	1.4E-02	6.2E-12	4.7E-11	9.E-14	7.E-13	7.E-13	2.0E-02	2.0E-02	1.1E-10	8.2E-10	5.E-09	4.E-08	0.00000005
	Phenols																
	Pentachlorophenol	4.5E+00	ug/kg	4.0E-01	4.0E-01	1.7E-12	5.0E-12	7.E-13	2.E-12	3.E-12	5.0E-03	5.0E-03	2.9E-11	8.8E-11	6.E-09	2.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	4.4E-12	2.4E-11	9.E-12	5.E-11	6.E-11	2.0E-05	2.0E-05	7.7E-11	4.2E-10	4.E-06	2.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	7.2E-17	1.8E-15	9.E-12	2.E-10	2.E-10	1.0E-09	1.0E-09	1.3E-15	3.2E-14	1.E-06	3.E-05	0.00003
	Total PCB TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	9.7E-17	5.3E-16	1.E-11	7.E-11	8.E-11	1.0E-09	1.0E-09	1.7E-15	9.2E-15	2.E-06	9.E-06	0.00001
	Pesticides																
	Aldrin	3.9E-01	ug/kg	1.7E+01	1.7E+01	5.7E-14	4.3E-13	1.E-12	7.E-12	8.E-12	3.0E-05	3.0E-05	1.0E-12	7.6E-12	3.E-08	3.E-07	0.0000003
	Dieldrin	7.1E-02	ug/kg	1.6E+01	1.6E+01	1.1E-14	8.0E-14	2.E-13	1.E-12	1.E-12	5.0E-05	5.0E-05	1.8E-13	1.4E-12	4.E-09	3.E-08	0.00000003
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	8.4E-13	2.1E-11	3.E-13	7.E-12	7.E-12	5.0E-04	5.0E-04	1.5E-11	3.7E-10	3.E-08	7.E-07	0.000001
Exposure Point Total										1.E-08							0.03
RM 4 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.9E-10	4.7E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.3E-09	8.3E-08	1.E-05	3.E-04	0.0003
	Mercury	6.6E-02	mg/kg	--	--	0.0E+00	7.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	3.9E-12	2.9E-11	--	--	--	3.0E-04	3.0E-04	6.8E-11	5.1E-10	2.E-07	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-10	7.1E-10	9.E-11	5.E-10	6.E-10	--	--	2.1E-09	1.2E-08	--	--	--
	Benzo(a)pyrene	8.8E+02	ug/kg	7.3E+00	7.3E+00	1.7E-10	9.8E-10	1.E-09	7.E-09	8.E-09	--	--	2.9E-09	1.7E-08	--	--	--
	Benzo(b)fluoranthene	9.0E+02	ug/kg	7.3E-01	7.3E-01	1.7E-10	1.0E-09	1.E-10	7.E-10	9.E-10	--	--	3.0E-09	1.8E-08	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	1.4E-10	8.0E-10	1.E-11	6.E-11	7.E-11	--	--	2.4E-09	1.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.7E-11	1.6E-10	2.E-10	1.E-09	1.E-09	--	--	4.7E-10	2.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.4E+02	ug/kg	7.3E-01	7.3E-01	1.2E-10	7.2E-10	9.E-11	5.E-10	6.E-10	--	--	2.2E-09	1.3E-08	--	--	--
	Naphthalene	3.9E+01	ug/kg	--	--	7.4E-12	4.3E-11	--	--	--	2.0E-02	2.0E-02	1.3E-10	7.5E-10	6.E-09	4.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+02	ug/kg	1.4E-02	1.4E-02	1.4E-10	1.0E-09	2.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	2.4E-09	1.8E-08	1.E-07	9.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.5E+02	ug/kg	4.0E-01	4.0E-01	1.7E-10	5.0E-10	7.E-11	2.E-10	3.E-10	5.0E-03	5.0E-03	2.9E-09	8.8E-09	6.E-07	2.E-06	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	3.1E-11	1.7E-10	6.E-11	3.E-10	4.E-10	2.0E-05	2.0E-05	5.5E-10	3.0E-09	3.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	1.8E-16	4.6E-15	2.E-11	6.E-10	6.E-10	1.0E-09	1.0E-09	3.2E-15	8.1E-14	3.E-06	8.E-05	0.00008
	Total PCB TEQ	1.9E+00	pg/g	1.3E+05	1.3E+05	4.0E-16	2.1E-15	5.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	6.9E-15	3.7E-14	7.E-06	4.E-05	0.00004
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	7.0E-14	5.3E-13	1.E-12	9.E-12	1.E-11	3.0E-05	3.0E-05	1.2E-12	9.3E-12	4.E-08	3.E-07	0.0000003
	Dieldrin	8.9E-02	ug/kg	1.6E+01	1.6E+01	1.3E-14	9.9E-14	2.E-13	2.E-12	2.E-12	5.0E-05	5.0E-05	2.3E-13	1.7E-12	5.E-09	3.E-08	0.00000004
	Total DDT	5.4E+00	ug/kg	3.4E-01	3.4E-01	2.4E-13	6.1E-12	8.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	4.2E-12	1.1E-10	8.E-09	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.03

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 4.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	1.6E-10	4.0E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.8E-09	7.0E-08	9.E-06	2.E-04	0.0002
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	9.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	7.5E+00	ug/kg	--	--	1.1E-12	8.4E-12	--	--	--	3.0E-04	3.0E-04	1.9E-11	1.5E-10	6.E-08	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	6.2E-10	8.E-11	5.E-10	5.E-10	--	--	1.9E-09	1.1E-08	--	--	--
	Benzo(a)pyrene	7.6E+02	ug/kg	7.3E+00	7.3E+00	1.5E-10	8.5E-10	1.E-09	6.E-09	7.E-09	--	--	2.5E-09	1.5E-08	--	--	--
	Benzo(b)fluoranthene	6.6E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	7.4E-10	9.E-11	5.E-10	6.E-10	--	--	2.2E-09	1.3E-08	--	--	--
	Benzo(k)fluoranthene	2.9E+02	ug/kg	7.3E-02	7.3E-02	5.6E-11	3.3E-10	4.E-12	2.E-11	3.E-11	--	--	9.8E-10	5.7E-09	--	--	--
	Dibenzo(a,h)anthracene	8.5E+01	ug/kg	7.3E+00	7.3E+00	1.6E-11	9.5E-11	1.E-10	7.E-10	8.E-10	--	--	2.8E-10	1.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	6.7E-10	8.E-11	5.E-10	6.E-10	--	--	2.0E-09	1.2E-08	--	--	--
	Naphthalene	1.6E+02	ug/kg	--	--	3.1E-11	1.8E-10	--	--	--	2.0E-02	2.0E-02	5.5E-10	3.2E-09	3.E-08	2.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.0E+01	ug/kg	1.4E-02	1.4E-02	7.3E-12	5.5E-11	1.E-13	8.E-13	9.E-13	2.0E-02	2.0E-02	1.3E-10	9.7E-10	6.E-09	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	6.3E-13	1.9E-12	3.E-13	8.E-13	1.E-12	5.0E-03	5.0E-03	1.1E-11	3.3E-11	2.E-09	7.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	5.1E-12	2.7E-11	1.E-11	5.E-11	7.E-11	2.0E-05	2.0E-05	8.9E-11	4.8E-10	4.E-06	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	1.2E-16	2.9E-15	2.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	2.0E-15	5.1E-14	2.E-06	5.E-05	0.00005
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	2.9E-16	1.6E-15	4.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	5.1E-15	2.8E-14	5.E-06	3.E-05	0.00003
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	2.5E-14	1.9E-13	4.E-13	3.E-12	4.E-12	3.0E-05	3.0E-05	4.3E-13	3.3E-12	1.E-08	1.E-07	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	2.0E-14	1.5E-13	3.E-13	2.E-12	3.E-12	5.0E-05	5.0E-05	3.4E-13	2.6E-12	7.E-09	5.E-08	0.0000001
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	2.0E-13	5.1E-12	7.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	3.5E-12	8.9E-11	7.E-09	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.03
RM 4.5 East	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.4E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.1E-09	7.8E-08	1.E-05	3.E-04	0.0003
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	7.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	4.1E+01	ug/kg	--	--	6.0E-12	4.5E-11	--	--	--	3.0E-04	3.0E-04	1.0E-10	7.9E-10	3.E-07	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+03	ug/kg	7.3E-01	7.3E-01	6.4E-10	3.7E-09	5.E-10	3.E-09	3.E-09	--	--	1.1E-08	6.5E-08	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	8.2E-10	4.8E-09	6.E-09	4.E-08	4.E-08	--	--	1.4E-08	8.4E-08	--	--	--
	Benzo(b)fluoranthene	3.8E+03	ug/kg	7.3E-01	7.3E-01	7.2E-10	4.2E-09	5.E-10	3.E-09	4.E-09	--	--	1.3E-08	7.4E-08	--	--	--
	Benzo(k)fluoranthene	3.4E+03	ug/kg	7.3E-02	7.3E-02	6.5E-10	3.8E-09	5.E-11	3.E-10	3.E-10	--	--	1.1E-08	6.6E-08	--	--	--

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	1.4E-10	7.9E-10	1.E-09	6.E-09	7.E-09	--	--	2.4E-09	1.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+03	ug/kg	7.3E-01	7.3E-01	5.8E-10	3.4E-09	4.E-10	2.E-09	3.E-09	--	--	1.0E-08	5.9E-08	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	2.8E-11	1.6E-10	--	--	--	2.0E-02	2.0E-02	4.9E-10	2.9E-09	2.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.3E+01	ug/kg	1.4E-02	1.4E-02	1.2E-11	9.3E-11	2.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	2.2E-10	1.6E-09	1.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.8E+00	ug/kg	4.0E-01	4.0E-01	6.6E-13	2.0E-12	3.E-13	8.E-13	1.E-12	5.0E-03	5.0E-03	1.1E-11	3.5E-11	2.E-09	7.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	7.1E-12	3.9E-11	1.E-11	8.E-11	9.E-11	2.0E-05	2.0E-05	1.2E-10	6.8E-10	6.E-06	3.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	1.2E-17	3.1E-16	2.E-12	4.E-11	4.E-11	1.0E-09	1.0E-09	2.1E-16	5.4E-15	2.E-07	5.E-06	0.00001
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	6.7E-17	3.6E-16	9.E-12	5.E-11	6.E-11	1.0E-09	1.0E-09	1.2E-15	6.3E-15	1.E-06	6.E-06	0.00001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	1.6E-14	1.2E-13	3.E-13	2.E-12	2.E-12	3.0E-05	3.0E-05	2.8E-13	2.1E-12	9.E-09	7.E-08	0.0000001
	Dieldrin	5.8E-02	ug/kg	1.6E+01	1.6E+01	8.6E-15	6.5E-14	1.E-13	1.E-12	1.E-12	5.0E-05	5.0E-05	1.5E-13	1.1E-12	3.E-09	2.E-08	0.00000003
	Total DDT	4.9E+00	ug/kg	3.4E-01	3.4E-01	2.2E-13	5.4E-12	7.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	3.8E-12	9.5E-11	8.E-09	2.E-07	0.0000002
Exposure Point Total										6.E-08							0.03
RM 5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.4E-10	3.6E-09	2.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	2.5E-09	6.4E-08	8.E-06	2.E-04	0.0002
	Mercury	5.2E-02	mg/kg	--	--	0.0E+00	5.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	2.7E-12	2.0E-11	--	--	--	3.0E-04	3.0E-04	4.6E-11	3.5E-10	2.E-07	1.E-06	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	6.6E-10	8.E-11	5.E-10	6.E-10	--	--	2.0E-09	1.2E-08	--	--	--
	Benzo(a)pyrene	7.9E+02	ug/kg	7.3E+00	7.3E+00	1.5E-10	8.9E-10	1.E-09	6.E-09	8.E-09	--	--	2.7E-09	1.6E-08	--	--	--
	Benzo(b)fluoranthene	5.7E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	6.3E-10	8.E-11	5.E-10	5.E-10	--	--	1.9E-09	1.1E-08	--	--	--
	Benzo(k)fluoranthene	4.1E+02	ug/kg	7.3E-02	7.3E-02	7.9E-11	4.6E-10	6.E-12	3.E-11	4.E-11	--	--	1.4E-09	8.1E-09	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	1.6E-11	9.1E-11	1.E-10	7.E-10	8.E-10	--	--	2.7E-10	1.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	6.6E-10	8.E-11	5.E-10	6.E-10	--	--	2.0E-09	1.1E-08	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	2.6E-11	1.5E-10	--	--	--	2.0E-02	2.0E-02	4.6E-10	2.7E-09	2.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	1.0E-11	7.9E-11	1.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	1.8E-10	1.4E-09	9.E-09	7.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.1E+01	ug/kg	4.0E-01	4.0E-01	7.7E-12	2.3E-11	3.E-12	9.E-12	1.E-11	5.0E-03	5.0E-03	1.3E-10	4.1E-10	3.E-08	8.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	3.5E-12	1.9E-11	7.E-12	4.E-11	4.E-11	2.0E-05	2.0E-05	6.1E-11	3.3E-10	3.E-06	2.E-05	0.00002

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	1.3E+05	1.3E+05	1.5E-16	3.9E-15	2.E-11	5.E-10	5.E-10	1.0E-09	1.0E-09	2.7E-15	6.8E-14	3.E-06	7.E-05	0.00007
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	2.4E-16	1.3E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	4.2E-15	2.3E-14	4.E-06	2.E-05	0.00003
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	6.5E-14	4.9E-13	1.E-12	8.E-12	1.E-11	3.0E-05	3.0E-05	1.1E-12	8.6E-12	4.E-08	3.E-07	0.0000003
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	2.2E-14	1.6E-13	3.E-13	3.E-12	3.E-12	5.0E-05	5.0E-05	3.8E-13	2.9E-12	8.E-09	6.E-08	0.0000001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	5.1E-13	1.3E-11	2.E-13	4.E-12	5.E-12	5.0E-04	5.0E-04	9.0E-12	2.3E-10	2.E-08	5.E-07	0.0000005
Exposure Point Total										2.E-08							0.03
RM 5 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.4E-10	3.6E-09	2.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	2.5E-09	6.3E-08	8.E-06	2.E-04	0.000220
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	5.7E+01	ug/kg	--	--	8.4E-12	6.4E-11	--	--	--	3.0E-04	3.0E-04	1.5E-10	1.1E-09	5.E-07	4.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	4.1E-11	2.4E-10	3.E-11	2.E-10	2.E-10	--	--	7.2E-10	4.2E-09	--	--	--
	Benzo(a)pyrene	3.0E+02	ug/kg	7.3E+00	7.3E+00	5.7E-11	3.3E-10	4.E-10	2.E-09	3.E-09	--	--	1.0E-09	5.8E-09	--	--	--
	Benzo(b)fluoranthene	3.2E+02	ug/kg	7.3E-01	7.3E-01	6.1E-11	3.6E-10	4.E-11	3.E-10	3.E-10	--	--	1.1E-09	6.2E-09	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	2.9E-11	1.7E-10	2.E-12	1.E-11	1.E-11	--	--	5.1E-10	3.0E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	8.2E-12	4.8E-11	6.E-11	3.E-10	4.E-10	--	--	1.4E-10	8.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+02	ug/kg	7.3E-01	7.3E-01	4.6E-11	2.7E-10	3.E-11	2.E-10	2.E-10	--	--	8.1E-10	4.7E-09	--	--	--
	Naphthalene	5.5E+01	ug/kg	--	--	1.0E-11	6.1E-11	--	--	--	2.0E-02	2.0E-02	1.8E-10	1.1E-09	9.E-09	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.5E+01	ug/kg	1.4E-02	1.4E-02	1.3E-11	9.5E-11	2.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	2.2E-10	1.7E-09	1.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	6.5E+00	ug/kg	4.0E-01	4.0E-01	2.4E-12	7.3E-12	1.E-12	3.E-12	4.E-12	5.0E-03	5.0E-03	4.2E-11	1.3E-10	8.E-09	3.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+01	ug/kg	2.0E+00	2.0E+00	4.1E-12	2.2E-11	8.E-12	4.E-11	5.E-11	2.0E-05	2.0E-05	7.1E-11	3.8E-10	4.E-06	2.E-05	0.00002
	Pesticides																
	Aldrin	1.9E-01	ug/kg	1.7E+01	1.7E+01	2.8E-14	2.1E-13	5.E-13	4.E-12	4.E-12	3.0E-05	3.0E-05	4.9E-13	3.7E-12	2.E-08	1.E-07	0.0000001
	Dieldrin	1.9E-01	ug/kg	1.6E+01	1.6E+01	2.8E-14	2.1E-13	4.E-13	3.E-12	4.E-12	5.0E-05	5.0E-05	4.9E-13	3.7E-12	1.E-08	7.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	6.1E-14	1.5E-12	2.E-14	5.E-13	5.E-13	5.0E-04	5.0E-04	1.1E-12	2.7E-11	2.E-09	5.E-08	0.0000001
Exposure Point Total										1.E-08							0.03
RM 5.5 West	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	1.9E-10	4.8E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.3E-09	8.3E-08	1.E-05	3.E-04	0.0003
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	9.2E+01	mg/kg	--	--	0.0E+00	1.0E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.8E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	2.6E-12	1.9E-11	--	--	--	3.0E-04	3.0E-04	4.5E-11	3.4E-10	1.E-07	1.E-06	0.000001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	2.6E-10	1.5E-09	2.E-10	1.E-09	1.E-09	--	--	4.5E-09	2.6E-08	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	3.6E-10	2.1E-09	3.E-09	2.E-08	2.E-08	--	--	6.3E-09	3.7E-08	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	2.9E-10	1.7E-09	2.E-10	1.E-09	1.E-09	--	--	5.2E-09	3.0E-08	--	--	--
	Benzo(k)fluoranthene	7.5E+02	ug/kg	7.3E-02	7.3E-02	1.4E-10	8.4E-10	1.E-11	6.E-11	7.E-11	--	--	2.5E-09	1.5E-08	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	3.3E-11	1.9E-10	2.E-10	1.E-09	2.E-09	--	--	5.7E-10	3.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	2.8E-10	1.7E-09	2.E-10	1.E-09	1.E-09	--	--	5.0E-09	2.9E-08	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	2.3E-11	1.3E-10	--	--	--	2.0E-02	2.0E-02	3.9E-10	2.3E-09	2.E-08	1.E-07	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.4E+01	ug/kg	1.4E-02	1.4E-02	1.1E-11	8.3E-11	2.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	1.9E-10	1.5E-09	1.E-08	7.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.2E+01	ug/kg	4.0E-01	4.0E-01	4.5E-12	1.4E-11	2.E-12	5.E-12	7.E-12	5.0E-03	5.0E-03	7.8E-11	2.4E-10	2.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	6.7E-12	3.6E-11	1.E-11	7.E-11	9.E-11	2.0E-05	2.0E-05	1.2E-10	6.3E-10	6.E-06	3.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	6.5E-17	1.6E-15	8.E-12	2.E-10	2.E-10	1.0E-09	1.0E-09	1.1E-15	2.9E-14	1.E-06	3.E-05	0.00003
	Total PCB TEQ	5.8E-01	pg/g	1.3E+05	1.3E+05	1.2E-16	6.5E-16	2.E-11	8.E-11	1.E-10	1.0E-09	1.0E-09	2.1E-15	1.1E-14	2.E-06	1.E-05	0.00001
	Pesticides																
	Aldrin	4.2E-01	ug/kg	1.7E+01	1.7E+01	6.2E-14	4.7E-13	1.E-12	8.E-12	9.E-12	3.0E-05	3.0E-05	1.1E-12	8.2E-12	4.E-08	3.E-07	0.0000003
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	4.6E-14	3.5E-13	7.E-13	6.E-12	6.E-12	5.0E-05	5.0E-05	8.1E-13	6.1E-12	2.E-08	1.E-07	0.0000001
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	8.5E-13	2.1E-11	3.E-13	7.E-12	8.E-12	5.0E-04	5.0E-04	1.5E-11	3.8E-10	3.E-08	8.E-07	0.000001
Exposure Point Total										3.E-08							0.03
RM 5.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	2.6E-10	6.4E-09	4.E-10	1.E-08	1.E-08	3.0E-04	3.0E-04	4.5E-09	1.1E-07	1.E-05	4.E-04	0.0004
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	2.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.4E-09	0.E+00	4.E-05	0.00004
	Vanadium	8.5E+01	mg/kg	--	--	0.0E+00	9.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.7E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.7E+02	ug/kg	--	--	2.6E-11	1.9E-10	--	--	--	3.0E-04	3.0E-04	4.5E-10	3.4E-09	1.E-06	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.6E+02	ug/kg	7.3E-01	7.3E-01	8.9E-11	5.2E-10	6.E-11	4.E-10	4.E-10	--	--	1.6E-09	9.0E-09	--	--	--
	Benzo(a)pyrene	5.6E+02	ug/kg	7.3E+00	7.3E+00	1.1E-10	6.3E-10	8.E-10	5.E-09	5.E-09	--	--	1.9E-09	1.1E-08	--	--	--
	Benzo(b)fluoranthene	6.8E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	7.6E-10	9.E-11	6.E-10	6.E-10	--	--	2.3E-09	1.3E-08	--	--	--
	Benzo(k)fluoranthene	2.6E+02	ug/kg	7.3E-02	7.3E-02	5.0E-11	2.9E-10	4.E-12	2.E-11	3.E-11	--	--	8.8E-10	5.1E-09	--	--	--
	Dibenzo(a,h)anthracene	8.8E+01	ug/kg	7.3E+00	7.3E+00	1.7E-11	9.8E-11	1.E-10	7.E-10	8.E-10	--	--	3.0E-10	1.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.3E+02	ug/kg	7.3E-01	7.3E-01	8.2E-11	4.8E-10	6.E-11	3.E-10	4.E-10	--	--	1.4E-09	8.3E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	2.6E-11	1.5E-10	--	--	--	2.0E-02	2.0E-02	4.5E-10	2.6E-09	2.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	3.8E-11	2.9E-10	5.E-13	4.E-12	5.E-12	2.0E-02	2.0E-02	6.6E-10	5.0E-09	3.E-08	3.E-07	0.0000003

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	5.0E-12	1.5E-11	2.E-12	6.E-12	8.E-12	5.0E-03	5.0E-03	8.7E-11	2.6E-10	2.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+02	ug/kg	2.0E+00	2.0E+00	2.2E-11	1.2E-10	4.E-11	2.E-10	3.E-10	2.0E-05	2.0E-05	3.8E-10	2.1E-09	2.E-05	1.E-04	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	1.3E+05	1.3E+05	2.0E-16	5.0E-15	3.E-11	6.E-10	7.E-10	1.0E-09	1.0E-09	3.4E-15	8.7E-14	3.E-06	9.E-05	0.00009
	Total PCB TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	4.2E-16	2.3E-15	5.E-11	3.E-10	4.E-10	1.0E-09	1.0E-09	7.4E-15	4.0E-14	7.E-06	4.E-05	0.00005
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	6.0E-14	4.6E-13	1.E-12	8.E-12	9.E-12	3.0E-05	3.0E-05	1.1E-12	8.0E-12	4.E-08	3.E-07	0.0000003
	Dieldrin	4.7E-01	ug/kg	1.6E+01	1.6E+01	7.0E-14	5.3E-13	1.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	1.2E-12	9.2E-12	2.E-08	2.E-07	0.0000002
	Total DDT	8.2E+00	ug/kg	3.4E-01	3.4E-01	3.6E-13	9.2E-12	1.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	6.4E-12	1.6E-10	1.E-08	3.E-07	0.0000003
Exposure Point Total										2.E-08							0.02
RM 6 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.6E-10	4.1E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.8E-09	7.2E-08	9.E-06	2.E-04	0.0002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.2E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	1.3E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.3E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.9E-12	1.4E-11	--	--	--	3.0E-04	3.0E-04	3.3E-11	2.5E-10	1.E-07	8.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+04	ug/kg	7.3E-01	7.3E-01	4.9E-09	2.8E-08	4.E-09	2.E-08	2.E-08	--	--	8.5E-08	5.0E-07	--	--	--
	Benzo(a)pyrene	3.1E+04	ug/kg	7.3E+00	7.3E+00	5.9E-09	3.5E-08	4.E-08	3.E-07	3.E-07	--	--	1.0E-07	6.1E-07	--	--	--
	Benzo(b)fluoranthene	2.2E+04	ug/kg	7.3E-01	7.3E-01	4.3E-09	2.5E-08	3.E-09	2.E-08	2.E-08	--	--	7.5E-08	4.4E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+04	ug/kg	7.3E-02	7.3E-02	2.7E-09	1.6E-08	2.E-10	1.E-09	1.E-09	--	--	4.7E-08	2.7E-07	--	--	--
	Dibenzo(a,h)anthracene	2.9E+03	ug/kg	7.3E+00	7.3E+00	5.6E-10	3.3E-09	4.E-09	2.E-08	3.E-08	--	--	9.8E-09	5.7E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+04	ug/kg	7.3E-01	7.3E-01	4.1E-09	2.4E-08	3.E-09	2.E-08	2.E-08	--	--	7.1E-08	4.1E-07	--	--	--
	Naphthalene	1.1E+04	ug/kg	--	--	2.1E-09	1.2E-08	--	--	--	2.0E-02	2.0E-02	3.6E-08	2.1E-07	2.E-06	1.E-05	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.2E+02	ug/kg	1.4E-02	1.4E-02	3.2E-11	2.5E-10	5.E-13	3.E-12	4.E-12	2.0E-02	2.0E-02	5.7E-10	4.3E-09	3.E-08	2.E-07	0.0000002
	Phenols																
	Pentachlorophenol	2.2E+01	ug/kg	4.0E-01	4.0E-01	8.1E-12	2.5E-11	3.E-12	1.E-11	1.E-11	5.0E-03	5.0E-03	1.4E-10	4.3E-10	3.E-08	9.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+01	ug/kg	2.0E+00	2.0E+00	8.8E-12	4.8E-11	2.E-11	1.E-10	1.E-10	2.0E-05	2.0E-05	1.5E-10	8.3E-10	8.E-06	4.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	6.8E-17	1.7E-15	9.E-12	2.E-10	2.E-10	1.0E-09	1.0E-09	1.2E-15	3.0E-14	1.E-06	3.E-05	0.00003
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	3.0E-16	1.6E-15	4.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	5.2E-15	2.8E-14	5.E-06	3.E-05	0.00003
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	1.8E-13	1.4E-12	3.E-12	2.E-11	3.E-11	3.0E-05	3.0E-05	3.2E-12	2.4E-11	1.E-07	8.E-07	0.000001
	Dieldrin	1.1E+00	ug/kg	1.6E+01	1.6E+01	1.7E-13	1.3E-12	3.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	2.9E-12	2.2E-11	6.E-08	4.E-07	0.0000005
	Total DDT	3.6E+01	ug/kg	3.4E-01	3.4E-01	1.6E-12	4.0E-11	5.E-13	1.E-11	1.E-11	5.0E-04	5.0E-04	2.8E-11	7.0E-10	6.E-08	1.E-06	0.000001
Exposure Point Total										4.E-07							0.03

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 6 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.6E-10	4.1E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.9E-09	7.2E-08	1.E-05	2.E-04	0.0003
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	3.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.6E-09	0.E+00	6.E-05	0.00006
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	1.0E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.8E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.8E+02	ug/kg	--	--	2.6E-11	2.0E-10	--	--	--	3.0E-04	3.0E-04	4.6E-10	3.5E-09	2.E-06	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+02	ug/kg	7.3E-01	7.3E-01	1.0E-10	5.9E-10	7.E-11	4.E-10	5.E-10	--	--	1.8E-09	1.0E-08	--	--	--
	Benzo(a)pyrene	7.5E+02	ug/kg	7.3E+00	7.3E+00	1.4E-10	8.4E-10	1.E-09	6.E-09	7.E-09	--	--	2.5E-09	1.5E-08	--	--	--
	Benzo(b)fluoranthene	7.3E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	8.1E-10	1.E-10	6.E-10	7.E-10	--	--	2.4E-09	1.4E-08	--	--	--
	Benzo(k)fluoranthene	4.6E+02	ug/kg	7.3E-02	7.3E-02	8.8E-11	5.2E-10	6.E-12	4.E-11	4.E-11	--	--	1.5E-09	9.0E-09	--	--	--
	Dibenzo(a,h)anthracene	9.6E+01	ug/kg	7.3E+00	7.3E+00	1.8E-11	1.1E-10	1.E-10	8.E-10	9.E-10	--	--	3.2E-10	1.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.2E+02	ug/kg	7.3E-01	7.3E-01	8.1E-11	4.7E-10	6.E-11	3.E-10	4.E-10	--	--	1.4E-09	8.2E-09	--	--	--
	Naphthalene	2.5E+02	ug/kg	--	--	4.8E-11	2.8E-10	--	--	--	2.0E-02	2.0E-02	8.3E-10	4.9E-09	4.E-08	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	1.2E-11	9.1E-11	2.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	2.1E-10	1.6E-09	1.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	7.7E+00	ug/kg	4.0E-01	4.0E-01	2.8E-12	8.6E-12	1.E-12	3.E-12	5.E-12	5.0E-03	5.0E-03	5.0E-11	1.5E-10	1.E-08	3.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	1.6E-11	8.6E-11	3.E-11	2.E-10	2.E-10	2.0E-05	2.0E-05	2.8E-10	1.5E-09	1.E-05	7.E-05	0.00009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	1.3E+05	1.3E+05	1.4E-16	3.5E-15	2.E-11	5.E-10	5.E-10	1.0E-09	1.0E-09	2.5E-15	6.2E-14	2.E-06	6.E-05	0.00006
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	2.6E-16	1.4E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	4.5E-15	2.4E-14	4.E-06	2.E-05	0.00003
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	6.0E-14	4.6E-13	1.E-12	8.E-12	9.E-12	3.0E-05	3.0E-05	1.1E-12	8.0E-12	4.E-08	3.E-07	0.0000003
	Dieldrin	4.4E-02	ug/kg	1.6E+01	1.6E+01	6.6E-15	5.0E-14	1.E-13	8.E-13	9.E-13	5.0E-05	5.0E-05	1.1E-13	8.7E-13	2.E-09	2.E-08	0.00000002
	Total DDT	2.9E+00	ug/kg	3.4E-01	3.4E-01	1.3E-13	3.3E-12	4.E-14	1.E-12	1.E-12	5.0E-04	5.0E-04	2.3E-12	5.7E-11	5.E-09	1.E-07	0.0000001
Exposure Point Total										2.E-08							0.03
RM 6.5 West	**Metals**																
	Arsenic	7.4E+00	mg/kg	1.5E+00	1.5E+00	3.3E-10	8.3E-09	5.E-10	1.E-08	1.E-08	3.0E-04	3.0E-04	5.7E-09	1.5E-07	2.E-05	5.E-04	0.0005
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.1E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	1.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.4E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	3.9E-12	2.9E-11	--	--	--	3.0E-04	3.0E-04	6.8E-11	5.1E-10	2.E-07	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.4E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	8.3E-10	1.E-10	6.E-10	7.E-10	--	--	2.5E-09	1.5E-08	--	--	--
	Benzo(a)pyrene	9.1E+02	ug/kg	7.3E+00	7.3E+00	1.7E-10	1.0E-09	1.E-09	7.E-09	9.E-09	--	--	3.1E-09	1.8E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+03	ug/kg	7.3E-01	7.3E-01	1.9E-10	1.1E-09	1.E-10	8.E-10	1.E-09	--	--	3.4E-09	2.0E-08	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	7.8E-11	4.5E-10	6.E-12	3.E-11	4.E-11	--	--	1.4E-09	7.9E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	3.2E-11	1.9E-10	2.E-10	1.E-09	2.E-09	--	--	5.7E-10	3.3E-09	--	--	--

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	6.2E+02	ug/kg	7.3E-01	7.3E-01	1.2E-10	7.0E-10	9.E-11	5.E-10	6.E-10	--	--	2.1E-09	1.2E-08	--	--	--
	Naphthalene	1.1E+02	ug/kg	--	--	2.0E-11	1.2E-10	--	--	--	2.0E-02	2.0E-02	3.5E-10	2.1E-09	2.E-08	1.E-07	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+01	ug/kg	1.4E-02	1.4E-02	1.2E-11	9.1E-11	2.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	2.1E-10	1.6E-09	1.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	5.9E-13	1.8E-12	2.E-13	7.E-13	9.E-13	5.0E-03	5.0E-03	1.0E-11	3.1E-11	2.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	6.4E+01	ug/kg	2.0E+00	2.0E+00	1.3E-11	7.1E-11	3.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	2.3E-10	1.2E-09	1.E-05	6.E-05	0.00007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	1.3E+05	1.3E+05	9.2E-16	2.3E-14	1.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	1.6E-14	4.1E-13	2.E-05	4.E-04	0.0004
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	3.7E-16	2.0E-15	5.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	6.5E-15	3.5E-14	6.E-06	4.E-05	0.00004
	Pesticides																
	Aldrin	1.7E+00	ug/kg	1.7E+01	1.7E+01	2.6E-13	1.9E-12	4.E-12	3.E-11	4.E-11	3.0E-05	3.0E-05	4.5E-12	3.4E-11	1.E-07	1.E-06	0.000001
	Dieldrin	5.4E-01	ug/kg	1.6E+01	1.6E+01	8.0E-14	6.1E-13	1.E-12	1.E-11	1.E-11	5.0E-05	5.0E-05	1.4E-12	1.1E-11	3.E-08	2.E-07	0.0000002
	Total DDT	9.2E+01	ug/kg	3.4E-01	3.4E-01	4.1E-12	1.0E-10	1.E-12	4.E-11	4.E-11	5.0E-04	5.0E-04	7.1E-11	1.8E-09	1.E-07	4.E-06	0.000004
Exposure Point Total										3.E-08							0.03
RM 6.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.7E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.2E-09	8.2E-08	1.E-05	3.E-04	0.0003
	Mercury	2.2E+00	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.2E-08	0.E+00	4.E-04	0.0004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	6.3E-12	4.8E-11	--	--	--	3.0E-04	3.0E-04	1.1E-10	8.4E-10	4.E-07	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+02	ug/kg	7.3E-01	7.3E-01	2.1E-11	1.2E-10	2.E-11	9.E-11	1.E-10	--	--	3.6E-10	2.1E-09	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.7E-11	9.6E-11	1.E-10	7.E-10	8.E-10	--	--	2.9E-10	1.7E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	2.2E-11	1.3E-10	2.E-11	9.E-11	1.E-10	--	--	3.8E-10	2.2E-09	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	1.2E-11	6.8E-11	9.E-13	5.E-12	6.E-12	--	--	2.0E-10	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	2.8E-12	1.7E-11	2.E-11	1.E-10	1.E-10	--	--	5.0E-11	2.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	6.5E-11	8.E-12	5.E-11	6.E-11	--	--	2.0E-10	1.1E-09	--	--	--
	Naphthalene	6.5E+01	ug/kg	--	--	1.2E-11	7.2E-11	--	--	--	2.0E-02	2.0E-02	2.2E-10	1.3E-09	1.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	1.4E-11	1.0E-10	2.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	2.4E-10	1.8E-09	1.E-08	9.E-08	0.0000001
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	1.4E-12	4.4E-12	6.E-13	2.E-12	2.E-12	5.0E-03	5.0E-03	2.5E-11	7.7E-11	5.E-09	2.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+02	ug/kg	2.0E+00	2.0E+00	4.2E-11	2.3E-10	8.E-11	5.E-10	5.E-10	2.0E-05	2.0E-05	7.3E-10	4.0E-09	4.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	1.3E+05	1.3E+05	8.9E-16	2.2E-14	1.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	1.6E-14	3.9E-13	2.E-05	4.E-04	0.0004
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	6.2E-16	3.4E-15	8.E-11	4.E-10	5.E-10	1.0E-09	1.0E-09	1.1E-14	5.9E-14	1.E-05	6.E-05	0.00007

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	7.6E-02	ug/kg	1.7E+01	1.7E+01	1.1E-14	8.5E-14	2.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	2.0E-13	1.5E-12	7.E-09	5.E-08	0.0000001
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	2.2E-14	1.7E-13	4.E-13	3.E-12	3.E-12	5.0E-05	5.0E-05	3.9E-13	2.9E-12	8.E-09	6.E-08	0.0000001
	Total DDT	1.5E+01	ug/kg	3.4E-01	3.4E-01	6.7E-13	1.7E-11	2.E-13	6.E-12	6.E-12	5.0E-04	5.0E-04	1.2E-11	2.9E-10	2.E-08	6.E-07	0.000001
Exposure Point Total										1.E-08							0.03
RM 7 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.6E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.2E-09	8.1E-08	1.E-05	3.E-04	0.0003
	Mercury	8.1E-02	mg/kg	--	--	0.0E+00	9.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	6.0E+00	ug/kg	--	--	8.8E-13	6.7E-12	--	--	--	3.0E-04	3.0E-04	1.5E-11	1.2E-10	5.E-08	4.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.6E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	6.3E-10	8.E-11	5.E-10	5.E-10	--	--	1.9E-09	1.1E-08	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	8.9E-11	5.2E-10	7.E-10	4.E-09	4.E-09	--	--	1.6E-09	9.1E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+03	ug/kg	7.3E-01	7.3E-01	2.1E-10	1.2E-09	1.E-10	9.E-10	1.E-09	--	--	3.6E-09	2.1E-08	--	--	--
	Benzo(k)fluoranthene	3.9E+02	ug/kg	7.3E-02	7.3E-02	7.5E-11	4.4E-10	5.E-12	3.E-11	4.E-11	--	--	1.3E-09	7.6E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	2.5E-11	1.4E-10	2.E-10	1.E-09	1.E-09	--	--	4.3E-10	2.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	7.1E-11	4.1E-10	5.E-11	3.E-10	4.E-10	--	--	1.2E-09	7.2E-09	--	--	--
	Naphthalene	8.8E+00	ug/kg	--	--	1.7E-12	9.8E-12	--	--	--	2.0E-02	2.0E-02	3.0E-11	1.7E-10	1.E-09	9.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.1E+02	ug/kg	1.4E-02	1.4E-02	3.1E-11	2.3E-10	4.E-13	3.E-12	4.E-12	2.0E-02	2.0E-02	5.4E-10	4.1E-09	3.E-08	2.E-07	0.0000002
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	1.0E-11	3.1E-11	4.E-12	1.E-11	2.E-11	5.0E-03	5.0E-03	1.8E-10	5.4E-10	4.E-08	1.E-07	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.1E+01	ug/kg	2.0E+00	2.0E+00	1.5E-11	7.9E-11	3.E-11	2.E-10	2.E-10	2.0E-05	2.0E-05	2.6E-10	1.4E-09	1.E-05	7.E-05	0.00008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	1.3E+05	1.3E+05	7.3E-14	1.9E-12	1.E-08	2.E-07	3.E-07	1.0E-09	1.0E-09	1.3E-12	3.2E-11	1.E-03	3.E-02	0.03
	Total PCB TEQ	7.7E+00	pg/g	1.3E+05	1.3E+05	1.6E-15	8.6E-15	2.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	2.8E-14	1.5E-13	3.E-05	1.E-04	0.0002
	Pesticides																
	Aldrin	2.7E+01	ug/kg	1.7E+01	1.7E+01	3.9E-12	3.0E-11	7.E-11	5.E-10	6.E-10	3.0E-05	3.0E-05	6.9E-11	5.2E-10	2.E-06	2.E-05	0.00002
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	1.9E-13	1.4E-12	3.E-12	2.E-11	3.E-11	5.0E-05	5.0E-05	3.3E-12	2.5E-11	7.E-08	5.E-07	0.000001
	Total DDT	2.3E+03	ug/kg	3.4E-01	3.4E-01	1.0E-10	2.6E-09	4.E-11	9.E-10	9.E-10	5.0E-04	5.0E-04	1.8E-09	4.6E-08	4.E-06	9.E-05	0.0001
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	5.5E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	9.6E-07	0.E+00	1.E-03	0.001
Exposure Point Total										3.E-07							0.06
RM 7 East	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	4.5E-10	1.1E-08	7.E-10	2.E-08	2.E-08	3.0E-04	3.0E-04	7.8E-09	2.0E-07	3.E-05	7.E-04	0.0007
	Mercury	5.8E-02	mg/kg	--	--	0.0E+00	6.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	2.6E+02	ug/kg	--	--	3.9E-11	3.0E-10	--	--	--	3.0E-04	3.0E-04	6.8E-10	5.2E-09	2.E-06	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.4E-11	1.4E-10	2.E-11	1.E-10	1.E-10	--	--	4.1E-10	2.4E-09	--	--	--
	Benzo(a)pyrene	1.6E+02	ug/kg	7.3E+00	7.3E+00	3.0E-11	1.8E-10	2.E-10	1.E-09	2.E-09	--	--	5.3E-10	3.1E-09	--	--	--
	Benzo(b)fluoranthene	2.1E+02	ug/kg	7.3E-01	7.3E-01	4.0E-11	2.3E-10	3.E-11	2.E-10	2.E-10	--	--	7.1E-10	4.1E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	2.2E-11	1.3E-10	2.E-12	9.E-12	1.E-11	--	--	3.8E-10	2.2E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	8.2E-12	4.8E-11	6.E-11	3.E-10	4.E-10	--	--	1.4E-10	8.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	2.0E-11	1.2E-10	1.E-11	9.E-11	1.E-10	--	--	3.6E-10	2.1E-09	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	4.2E-12	2.4E-11	--	--	--	2.0E-02	2.0E-02	7.3E-11	4.3E-10	4.E-09	2.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+02	ug/kg	1.4E-02	1.4E-02	4.5E-11	3.4E-10	6.E-13	5.E-12	5.E-12	2.0E-02	2.0E-02	7.8E-10	5.9E-09	4.E-08	3.E-07	0.0000003
	Phenols																
	Pentachlorophenol	7.7E+01	ug/kg	4.0E-01	4.0E-01	2.8E-11	8.6E-11	1.E-11	3.E-11	5.E-11	5.0E-03	5.0E-03	5.0E-10	1.5E-09	1.E-07	3.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.2E+01	ug/kg	2.0E+00	2.0E+00	8.7E-12	4.7E-11	2.E-11	9.E-11	1.E-10	2.0E-05	2.0E-05	1.5E-10	8.2E-10	8.E-06	4.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	7.4E-16	1.9E-14	1.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	1.3E-14	3.3E-13	1.E-05	3.E-04	0.0003
	Total PCB TEQ	5.5E-01	pg/g	1.3E+05	1.3E+05	1.1E-16	6.2E-16	1.E-11	8.E-11	1.E-10	1.0E-09	1.0E-09	2.0E-15	1.1E-14	2.E-06	1.E-05	0.00001
	Pesticides																
	Aldrin	1.3E-01	ug/kg	1.7E+01	1.7E+01	2.0E-14	1.5E-13	3.E-13	3.E-12	3.E-12	3.0E-05	3.0E-05	3.4E-13	2.6E-12	1.E-08	9.E-08	0.0000001
	Dieldrin	8.2E-02	ug/kg	1.6E+01	1.6E+01	1.2E-14	9.1E-14	2.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	2.1E-13	1.6E-12	4.E-09	3.E-08	0.00000004
	Total DDT	3.6E+00	ug/kg	3.4E-01	3.4E-01	1.6E-13	4.0E-12	5.E-14	1.E-12	1.E-12	5.0E-04	5.0E-04	2.8E-12	7.0E-11	6.E-09	1.E-07	0.0000001
Exposure Point Total										2.E-08							0.03
RM 7.5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.4E-10	3.6E-09	2.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	2.5E-09	6.3E-08	8.E-06	2.E-04	0.0002
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	8.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	5.4E+00	ug/kg	--	--	8.0E-13	6.0E-12	--	--	--	3.0E-04	3.0E-04	1.4E-11	1.1E-10	5.E-08	4.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	2.8E-11	1.7E-10	2.E-11	1.E-10	1.E-10	--	--	5.0E-10	2.9E-09	--	--	--
	Benzo(a)pyrene	1.3E+02	ug/kg	7.3E+00	7.3E+00	2.5E-11	1.4E-10	2.E-10	1.E-09	1.E-09	--	--	4.3E-10	2.5E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	3.3E-11	1.9E-10	2.E-11	1.E-10	2.E-10	--	--	5.7E-10	3.3E-09	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	1.2E-11	6.8E-11	9.E-13	5.E-12	6.E-12	--	--	2.0E-10	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	3.8E-12	2.2E-11	3.E-11	2.E-10	2.E-10	--	--	6.7E-11	3.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.4E+01	ug/kg	7.3E-01	7.3E-01	1.6E-11	9.4E-11	1.E-11	7.E-11	8.E-11	--	--	2.8E-10	1.6E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	4.8E-12	2.8E-11	--	--	--	2.0E-02	2.0E-02	8.4E-11	4.9E-10	4.E-09	2.E-08	0.00000003

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	2.1E-11	1.6E-10	3.E-13	2.E-12	3.E-12	2.0E-02	2.0E-02	3.7E-10	2.8E-09	2.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	5.6E-13	1.7E-12	2.E-13	7.E-13	9.E-13	5.0E-03	5.0E-03	9.9E-12	3.0E-11	2.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	8.6E+01	ug/kg	2.0E+00	2.0E+00	1.8E-11	9.6E-11	4.E-11	2.E-10	2.E-10	2.0E-05	2.0E-05	3.1E-10	1.7E-09	2.E-05	8.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	4.1E-17	1.0E-15	5.E-12	1.E-10	1.E-10	1.0E-09	1.0E-09	7.2E-16	1.8E-14	7.E-07	2.E-05	0.00002
	Total PCB TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	1.4E-16	7.4E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	2.4E-15	1.3E-14	2.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	1.8E-01	ug/kg	1.7E+01	1.7E+01	2.7E-14	2.1E-13	5.E-13	4.E-12	4.E-12	3.0E-05	3.0E-05	4.8E-13	3.6E-12	2.E-08	1.E-07	0.0000001
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	2.6E-14	2.0E-13	4.E-13	3.E-12	4.E-12	5.0E-05	5.0E-05	4.6E-13	3.5E-12	9.E-09	7.E-08	0.0000001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	9.3E-13	2.3E-11	3.E-13	8.E-12	8.E-12	5.0E-04	5.0E-04	1.6E-11	4.1E-10	3.E-08	8.E-07	0.000001
Exposure Point Total										8.E-09							0.03
RM 7.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	1.5E-10	3.7E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.5E-09	6.4E-08	8.E-06	2.E-04	0.0002
	Mercury	7.6E-02	mg/kg	--	--	0.0E+00	8.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.6E+02	ug/kg	--	--	2.4E-11	1.8E-10	--	--	--	3.0E-04	3.0E-04	4.2E-10	3.2E-09	1.E-06	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	4.9E-12	2.9E-11	4.E-12	2.E-11	2.E-11	--	--	8.6E-11	5.0E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	4.9E-12	2.9E-11	4.E-11	2.E-10	2.E-10	--	--	8.6E-11	5.0E-10	--	--	--
	Benzo(b)fluoranthene	3.2E+01	ug/kg	7.3E-01	7.3E-01	6.2E-12	3.6E-11	5.E-12	3.E-11	3.E-11	--	--	1.1E-10	6.3E-10	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	3.8E-12	2.2E-11	3.E-13	2.E-12	2.E-12	--	--	6.7E-11	3.9E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	1.8E-12	1.0E-11	1.E-11	7.E-11	9.E-11	--	--	3.1E-11	1.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-12	2.0E-11	3.E-12	1.E-11	2.E-11	--	--	6.0E-11	3.5E-10	--	--	--
	Naphthalene	6.1E+00	ug/kg	--	--	1.2E-12	6.8E-12	--	--	--	2.0E-02	2.0E-02	2.0E-11	1.2E-10	1.E-09	6.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.1E+02	ug/kg	1.4E-02	1.4E-02	9.0E-11	6.8E-10	1.E-12	1.E-11	1.E-11	2.0E-02	2.0E-02	1.6E-09	1.2E-08	8.E-08	6.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	6.5E-12	3.5E-11	1.E-11	7.E-11	8.E-11	2.0E-05	2.0E-05	1.1E-10	6.2E-10	6.E-06	3.E-05	0.00004
	Pesticides																
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	2.2E-14	1.6E-13	3.E-13	3.E-12	3.E-12	5.0E-05	5.0E-05	3.8E-13	2.9E-12	8.E-09	6.E-08	0.0000001
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	4.7E-14	1.2E-12	2.E-14	4.E-13	4.E-13	5.0E-04	5.0E-04	8.2E-13	2.1E-11	2.E-09	4.E-08	0.00000004
Exposure Point Total										6.E-09							0.03
RM 8 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.6E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.2E-09	8.1E-08	1.E-05	3.E-04	0.0003
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	1.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.2E-09	0.E+00	3.E-05	0.00003
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.8E-06	0.E+00	3.E-02	0.03

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	2.0E-12	1.5E-11	--	--	--	3.0E-04	3.0E-04	3.4E-11	2.6E-10	1.E-07	9.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	3.4E-11	2.0E-10	2.E-11	1.E-10	2.E-10	--	--	5.9E-10	3.5E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	3.2E-11	1.9E-10	2.E-10	1.E-09	2.E-09	--	--	5.6E-10	3.3E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	4.4E-11	2.6E-10	3.E-11	2.E-10	2.E-10	--	--	7.7E-10	4.5E-09	--	--	--
	Benzo(k)fluoranthene	5.0E+01	ug/kg	7.3E-02	7.3E-02	9.7E-12	5.6E-11	7.E-13	4.E-12	5.E-12	--	--	1.7E-10	9.9E-10	--	--	--
	Dibenzo(a,h)anthracene	3.1E+01	ug/kg	7.3E+00	7.3E+00	5.9E-12	3.4E-11	4.E-11	3.E-10	3.E-10	--	--	1.0E-10	6.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	2.2E-11	1.3E-10	2.E-11	9.E-11	1.E-10	--	--	3.8E-10	2.2E-09	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	9.8E-12	5.7E-11	--	--	--	2.0E-02	2.0E-02	1.7E-10	1.0E-09	9.E-09	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.0E+02	ug/kg	1.4E-02	1.4E-02	8.9E-11	6.7E-10	1.E-12	9.E-12	1.E-11	2.0E-02	2.0E-02	1.6E-09	1.2E-08	8.E-08	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	1.2E-12	3.5E-12	5.E-13	1.E-12	2.E-12	5.0E-03	5.0E-03	2.0E-11	6.1E-11	4.E-09	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	2.5E-11	1.3E-10	5.E-11	3.E-10	3.E-10	2.0E-05	2.0E-05	4.3E-10	2.3E-09	2.E-05	1.E-04	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	1.2E-17	2.9E-16	2.E-12	4.E-11	4.E-11	1.0E-09	1.0E-09	2.0E-16	5.1E-15	2.E-07	5.E-06	0.00001
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	7.3E-16	4.0E-15	1.E-10	5.E-10	6.E-10	1.0E-09	1.0E-09	1.3E-14	6.9E-14	1.E-05	7.E-05	0.00008
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	5.9E-15	4.5E-14	1.E-13	8.E-13	9.E-13	3.0E-05	3.0E-05	1.0E-13	7.9E-13	3.E-09	3.E-08	0.00000003
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	2.9E-13	2.2E-12	5.E-12	4.E-11	4.E-11	5.0E-05	5.0E-05	5.1E-12	3.9E-11	1.E-07	8.E-07	0.000001
	Total DDT	6.5E+00	ug/kg	3.4E-01	3.4E-01	2.9E-13	7.3E-12	1.E-13	2.E-12	3.E-12	5.0E-04	5.0E-04	5.0E-12	1.3E-10	1.E-08	3.E-07	0.0000003
Exposure Point Total										1.E-08							0.03
RM 8 East	**Metals**																
	Arsenic	6.2E+00	mg/kg	1.5E+00	1.5E+00	2.7E-10	6.9E-09	4.E-10	1.E-08	1.E-08	3.0E-04	3.0E-04	4.8E-09	1.2E-07	2.E-05	4.E-04	0.0004
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	3.5E-10	2.7E-09	--	--	--	3.0E-04	3.0E-04	6.1E-09	4.7E-08	2.E-05	2.E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.7E+02	ug/kg	7.3E-01	7.3E-01	3.2E-11	1.9E-10	2.E-11	1.E-10	2.E-10	--	--	5.6E-10	3.3E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	3.3E-11	2.0E-10	2.E-10	1.E-09	2.E-09	--	--	5.9E-10	3.4E-09	--	--	--
	Benzo(b)fluoranthene	2.0E+02	ug/kg	7.3E-01	7.3E-01	3.8E-11	2.2E-10	3.E-11	2.E-10	2.E-10	--	--	6.6E-10	3.9E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	2.5E-11	1.4E-10	2.E-12	1.E-11	1.E-11	--	--	4.3E-10	2.5E-09	--	--	--
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	4.9E-12	2.9E-11	4.E-11	2.E-10	2.E-10	--	--	8.6E-11	5.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.3E-11	1.4E-10	2.E-11	1.E-10	1.E-10	--	--	4.1E-10	2.4E-09	--	--	--
	Naphthalene	1.6E+01	ug/kg	--	--	3.1E-12	1.8E-11	--	--	--	2.0E-02	2.0E-02	5.5E-11	3.2E-10	3.E-09	2.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.7E+02	ug/kg	1.4E-02	1.4E-02	1.1E-10	8.7E-10	2.E-12	1.E-11	1.E-11	2.0E-02	2.0E-02	2.0E-09	1.5E-08	1.E-07	8.E-07	0.000001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	4.9E-12	1.5E-11	2.E-12	6.E-12	8.E-12	5.0E-03	5.0E-03	8.5E-11	2.6E-10	2.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+02	ug/kg	2.0E+00	2.0E+00	3.6E-11	1.9E-10	7.E-11	4.E-10	5.E-10	2.0E-05	2.0E-05	6.2E-10	3.4E-09	3.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	4.1E-17	1.0E-15	5.E-12	1.E-10	1.E-10	1.0E-09	1.0E-09	7.2E-16	1.8E-14	7.E-07	2.E-05	0.00002
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	1.2E-15	6.5E-15	2.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	2.1E-14	1.1E-13	2.E-05	1.E-04	0.0001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	1.7E-14	1.3E-13	3.E-13	2.E-12	2.E-12	3.0E-05	3.0E-05	2.9E-13	2.2E-12	1.E-08	7.E-08	0.0000001
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	1.2E-13	8.8E-13	2.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	2.0E-12	1.5E-11	4.E-08	3.E-07	0.0000003
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	4.7E-13	1.2E-11	2.E-13	4.E-12	4.E-12	5.0E-04	5.0E-04	8.2E-12	2.1E-10	2.E-08	4.E-07	0.0000004
Exposure Point Total										1.E-08							0.03
RM 8 SIL	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	2.4E-10	6.0E-09	4.E-10	9.E-09	9.E-09	3.0E-04	3.0E-04	4.2E-09	1.1E-07	1.E-05	4.E-04	0.0004
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	2.2E+03	ug/kg	--	--	3.3E-10	2.5E-09	--	--	--	3.0E-04	3.0E-04	5.8E-09	4.4E-08	2.E-05	1.E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.4E+02	ug/kg	7.3E-01	7.3E-01	4.6E-11	2.7E-10	3.E-11	2.E-10	2.E-10	--	--	8.0E-10	4.7E-09	--	--	--
	Benzo(a)pyrene	2.0E+02	ug/kg	7.3E+00	7.3E+00	3.8E-11	2.2E-10	3.E-10	2.E-09	2.E-09	--	--	6.6E-10	3.8E-09	--	--	--
	Benzo(b)fluoranthene	3.8E+02	ug/kg	7.3E-01	7.3E-01	7.3E-11	4.2E-10	5.E-11	3.E-10	4.E-10	--	--	1.3E-09	7.4E-09	--	--	--
	Benzo(k)fluoranthene	2.1E+02	ug/kg	7.3E-02	7.3E-02	4.0E-11	2.3E-10	3.E-12	2.E-11	2.E-11	--	--	6.9E-10	4.0E-09	--	--	--
	Dibenzo(a,h)anthracene	3.6E+01	ug/kg	7.3E+00	7.3E+00	6.8E-12	4.0E-11	5.E-11	3.E-10	3.E-10	--	--	1.2E-10	6.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.4E-11	1.4E-10	2.E-11	1.E-10	1.E-10	--	--	4.2E-10	2.4E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	4.8E-12	2.8E-11	--	--	--	2.0E-02	2.0E-02	8.5E-11	4.9E-10	4.E-09	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+03	ug/kg	1.4E-02	1.4E-02	1.2E-09	9.1E-09	2.E-11	1.E-10	1.E-10	2.0E-02	2.0E-02	2.1E-08	1.6E-07	1.E-06	8.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.9E+01	ug/kg	4.0E-01	4.0E-01	1.5E-11	4.4E-11	6.E-12	2.E-11	2.E-11	5.0E-03	5.0E-03	2.5E-10	7.7E-10	5.E-08	2.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+02	ug/kg	2.0E+00	2.0E+00	5.8E-11	3.1E-10	1.E-10	6.E-10	7.E-10	2.0E-05	2.0E-05	1.0E-09	5.5E-09	5.E-05	3.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	1.3E+05	1.3E+05	2.8E-16	7.0E-15	4.E-11	9.E-10	1.E-09	1.0E-09	1.0E-09	4.9E-15	1.2E-13	5.E-06	1.E-04	0.0001
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	2.5E-15	1.3E-14	3.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	4.4E-14	2.4E-13	4.E-05	2.E-04	0.0003
	Pesticides																
	Aldrin	6.2E-01	ug/kg	1.7E+01	1.7E+01	9.1E-14	6.9E-13	2.E-12	1.E-11	1.E-11	3.0E-05	3.0E-05	1.6E-12	1.2E-11	5.E-08	4.E-07	0.0000005
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	2.0E-13	1.5E-12	3.E-12	2.E-11	3.E-11	5.0E-05	5.0E-05	3.6E-12	2.7E-11	7.E-08	5.E-07	0.000001
	Total DDT	5.2E+00	ug/kg	3.4E-01	3.4E-01	2.3E-13	5.9E-12	8.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	4.1E-12	1.0E-10	8.E-09	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.03

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8.5 West	**Metals**																
	Arsenic	6.7E+00	mg/kg	1.5E+00	1.5E+00	3.0E-10	7.5E-09	4.E-10	1.E-08	1.E-08	3.0E-04	3.0E-04	5.2E-09	1.3E-07	2.E-05	4.E-04	0.0005
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	2.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-09	0.E+00	4.E-05	0.00004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.9E-12	1.4E-11	--	--	--	3.0E-04	3.0E-04	3.3E-11	2.5E-10	1.E-07	8.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+01	ug/kg	7.3E-01	7.3E-01	1.8E-11	1.0E-10	1.E-11	8.E-11	9.E-11	--	--	3.1E-10	1.8E-09	--	--	--
	Benzo(a)pyrene	9.1E+01	ug/kg	7.3E+00	7.3E+00	1.7E-11	1.0E-10	1.E-10	7.E-10	9.E-10	--	--	3.0E-10	1.8E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	2.5E-11	1.5E-10	2.E-11	1.E-10	1.E-10	--	--	4.4E-10	2.6E-09	--	--	--
	Benzo(k)fluoranthene	5.5E+01	ug/kg	7.3E-02	7.3E-02	1.1E-11	6.2E-11	8.E-13	5.E-12	5.E-12	--	--	1.9E-10	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	2.2E-12	1.3E-11	2.E-11	9.E-11	1.E-10	--	--	3.8E-11	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.2E+01	ug/kg	7.3E-01	7.3E-01	1.0E-11	5.8E-11	7.E-12	4.E-11	5.E-11	--	--	1.7E-10	1.0E-09	--	--	--
	Naphthalene	2.4E+01	ug/kg	--	--	4.7E-12	2.7E-11	--	--	--	2.0E-02	2.0E-02	8.2E-11	4.8E-10	4.E-09	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.3E+02	ug/kg	1.4E-02	1.4E-02	9.3E-11	7.1E-10	1.E-12	1.E-11	1.E-11	2.0E-02	2.0E-02	1.6E-09	1.2E-08	8.E-08	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.8E+00	ug/kg	4.0E-01	4.0E-01	1.0E-12	3.1E-12	4.E-13	1.E-12	2.E-12	5.0E-03	5.0E-03	1.8E-11	5.4E-11	4.E-09	1.E-08	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.4E+03	ug/kg	2.0E+00	2.0E+00	2.9E-10	1.5E-09	6.E-10	3.E-09	4.E-09	2.0E-05	2.0E-05	5.0E-09	2.7E-08	2.E-04	1.E-03	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	1.3E+05	1.3E+05	2.2E-16	5.6E-15	3.E-11	7.E-10	8.E-10	1.0E-09	1.0E-09	3.9E-15	9.8E-14	4.E-06	1.E-04	0.0001
	Total PCB TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	6.8E-15	3.7E-14	9.E-10	5.E-09	6.E-09	1.0E-09	1.0E-09	1.2E-13	6.4E-13	1.E-04	6.E-04	0.0008
	Pesticides																
	Aldrin	1.1E+01	ug/kg	1.7E+01	1.7E+01	1.6E-12	1.2E-11	3.E-11	2.E-10	2.E-10	3.0E-05	3.0E-05	2.8E-11	2.1E-10	9.E-07	7.E-06	0.00001
	Dieldrin	1.5E+01	ug/kg	1.6E+01	1.6E+01	2.2E-12	1.7E-11	4.E-11	3.E-10	3.E-10	5.0E-05	5.0E-05	3.8E-11	2.9E-10	8.E-07	6.E-06	0.00001
	Total DDT	6.0E+00	ug/kg	3.4E-01	3.4E-01	2.7E-13	6.8E-12	9.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	4.7E-12	1.2E-10	9.E-09	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.03
RM 8.5 East	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	2.1E-10	5.2E-09	3.E-10	8.E-09	8.E-09	3.0E-04	3.0E-04	3.6E-09	9.2E-08	1.E-05	3.E-04	0.0003
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	2.3E+01	ug/kg	--	--	3.5E-12	2.6E-11	--	--	--	3.0E-04	3.0E-04	6.0E-11	4.6E-10	2.E-07	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.1E+01	ug/kg	7.3E-01	7.3E-01	7.9E-12	4.6E-11	6.E-12	3.E-11	4.E-11	--	--	1.4E-10	8.1E-10	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	8.8E-12	5.2E-11	6.E-11	4.E-10	4.E-10	--	--	1.5E-10	9.0E-10	--	--	--
	Benzo(b)fluoranthene	7.1E+01	ug/kg	7.3E-01	7.3E-01	1.4E-11	7.9E-11	1.E-11	6.E-11	7.E-11	--	--	2.4E-10	1.4E-09	--	--	--
	Benzo(k)fluoranthene	3.6E+01	ug/kg	7.3E-02	7.3E-02	6.8E-12	4.0E-11	5.E-13	3.E-12	3.E-12	--	--	1.2E-10	7.0E-10	--	--	--
	Dibenzo(a,h)anthracene	8.3E+00	ug/kg	7.3E+00	7.3E+00	1.6E-12	9.3E-12	1.E-11	7.E-11	8.E-11	--	--	2.8E-11	1.6E-10	--	--	--

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	7.6E-12	4.4E-11	6.E-12	3.E-11	4.E-11	--	--	1.3E-10	7.7E-10	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	3.8E-12	2.2E-11	--	--	--	2.0E-02	2.0E-02	6.6E-11	3.8E-10	3.E-09	2.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.5E+02	ug/kg	1.4E-02	1.4E-02	6.7E-11	5.0E-10	9.E-13	7.E-12	8.E-12	2.0E-02	2.0E-02	1.2E-09	8.8E-09	6.E-08	4.E-07	0.0000005
	Polychlorinated Biphenyls																
	Total Aroclors	4.6E+01	ug/kg	2.0E+00	2.0E+00	9.6E-12	5.2E-11	2.E-11	1.E-10	1.E-10	2.0E-05	2.0E-05	1.7E-10	9.0E-10	8.E-06	5.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	2.8E-17	7.0E-16	4.E-12	9.E-11	1.E-10	1.0E-09	1.0E-09	4.9E-16	1.2E-14	5.E-07	1.E-05	0.00001
	Total PCB TEQ	4.2E-01	pg/g	1.3E+05	1.3E+05	8.7E-17	4.7E-16	1.E-11	6.E-11	7.E-11	1.0E-09	1.0E-09	1.5E-15	8.3E-15	2.E-06	8.E-06	0.00001
	Pesticides																
	Aldrin	3.2E-02	ug/kg	1.7E+01	1.7E+01	4.7E-15	3.6E-14	8.E-14	6.E-13	7.E-13	3.0E-05	3.0E-05	8.3E-14	6.3E-13	3.E-09	2.E-08	0.00000002
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	2.0E-14	1.5E-13	3.E-13	2.E-12	3.E-12	5.0E-05	5.0E-05	3.5E-13	2.6E-12	7.E-09	5.E-08	0.0000001
	Total DDT	1.5E+00	ug/kg	3.4E-01	3.4E-01	6.6E-14	1.7E-12	2.E-14	6.E-13	6.E-13	5.0E-04	5.0E-04	1.2E-12	2.9E-11	2.E-09	6.E-08	0.0000001
Exposure Point Total										9.E-09							0.03
RM 9 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.6E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.2E-09	8.1E-08	1.E-05	3.E-04	0.0003
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	9.9E+00	ug/kg	--	--	1.5E-12	1.1E-11	--	--	--	3.0E-04	3.0E-04	2.5E-11	1.9E-10	8.E-08	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	3.0E-11	1.7E-10	2.E-11	1.E-10	1.E-10	--	--	5.2E-10	3.0E-09	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	2.0E-11	1.2E-10	1.E-10	8.E-10	1.E-09	--	--	3.5E-10	2.0E-09	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	3.1E-11	1.8E-10	2.E-11	1.E-10	2.E-10	--	--	5.4E-10	3.1E-09	--	--	--
	Benzo(k)fluoranthene	6.2E+01	ug/kg	7.3E-02	7.3E-02	1.2E-11	6.9E-11	9.E-13	5.E-12	6.E-12	--	--	2.1E-10	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	1.8E+01	ug/kg	7.3E+00	7.3E+00	3.4E-12	2.0E-11	2.E-11	1.E-10	2.E-10	--	--	5.9E-11	3.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	1.3E-11	7.5E-11	9.E-12	5.E-11	6.E-11	--	--	2.2E-10	1.3E-09	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	3.2E-12	1.9E-11	--	--	--	2.0E-02	2.0E-02	5.7E-11	3.3E-10	3.E-09	2.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	2.6E-11	1.9E-10	4.E-13	3.E-12	3.E-12	2.0E-02	2.0E-02	4.5E-10	3.4E-09	2.E-08	2.E-07	0.0000002
	Phenols																
	Pentachlorophenol	4.7E+00	ug/kg	4.0E-01	4.0E-01	1.7E-12	5.2E-12	7.E-13	2.E-12	3.E-12	5.0E-03	5.0E-03	3.0E-11	9.1E-11	6.E-09	2.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+02	ug/kg	2.0E+00	2.0E+00	9.4E-11	5.1E-10	2.E-10	1.E-09	1.E-09	2.0E-05	2.0E-05	1.6E-09	8.9E-09	8.E-05	4.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	1.7E-16	4.4E-15	2.E-11	6.E-10	6.E-10	1.0E-09	1.0E-09	3.0E-15	7.7E-14	3.E-06	8.E-05	0.00008
	Total PCB TEQ	1.6E+01	pg/g	1.3E+05	1.3E+05	3.2E-15	1.7E-14	4.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	5.7E-14	3.1E-13	6.E-05	3.E-04	0.0004

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	2.2E-01	ug/kg	1.7E+01	1.7E+01	3.3E-14	2.5E-13	6.E-13	4.E-12	5.E-12	3.0E-05	3.0E-05	5.8E-13	4.4E-12	2.E-08	1.E-07	0.0000002
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	3.0E-14	2.3E-13	5.E-13	4.E-12	4.E-12	5.0E-05	5.0E-05	5.3E-13	4.0E-12	1.E-08	8.E-08	0.0000001
	Total DDT	4.4E+00	ug/kg	3.4E-01	3.4E-01	1.9E-13	4.9E-12	7.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	3.4E-12	8.6E-11	7.E-09	2.E-07	0.0000002
Exposure Point Total										1.E-08							0.03
RM 9 East	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.7E-10	4.2E-09	3.E-10	6.E-09	7.E-09	3.0E-04	3.0E-04	2.9E-09	7.4E-08	1.E-05	2.E-04	0.0003
	Mercury	5.0E-02	mg/kg	--	--	0.0E+00	5.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-10	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+01	ug/kg	7.3E-01	7.3E-01	2.0E-12	1.1E-11	1.E-12	8.E-12	1.E-11	--	--	3.4E-11	2.0E-10	--	--	--
	Benzo(a)pyrene	1.3E+01	ug/kg	7.3E+00	7.3E+00	2.4E-12	1.4E-11	2.E-11	1.E-10	1.E-10	--	--	4.2E-11	2.5E-10	--	--	--
	Benzo(b)fluoranthene	1.8E+01	ug/kg	7.3E-01	7.3E-01	3.5E-12	2.0E-11	3.E-12	1.E-11	2.E-11	--	--	6.1E-11	3.5E-10	--	--	--
	Benzo(k)fluoranthene	8.3E+00	ug/kg	7.3E-02	7.3E-02	1.6E-12	9.2E-12	1.E-13	7.E-13	8.E-13	--	--	2.8E-11	1.6E-10	--	--	--
	Dibenzo(a,h)anthracene	2.1E+00	ug/kg	7.3E+00	7.3E+00	4.1E-13	2.4E-12	3.E-12	2.E-11	2.E-11	--	--	7.2E-12	4.2E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	2.0E-12	1.2E-11	1.E-12	9.E-12	1.E-11	--	--	3.6E-11	2.1E-10	--	--	--
	Naphthalene	2.7E+00	ug/kg	--	--	5.2E-13	3.0E-12	--	--	--	2.0E-02	2.0E-02	9.1E-12	5.3E-11	5.E-10	3.E-09	0.000000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.6E+02	ug/kg	1.4E-02	1.4E-02	5.3E-11	4.0E-10	7.E-13	6.E-12	6.E-12	2.0E-02	2.0E-02	9.3E-10	7.0E-09	5.E-08	4.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	1.1E-11	5.8E-11	2.E-11	1.E-10	1.E-10	2.0E-05	2.0E-05	1.9E-10	1.0E-09	9.E-06	5.E-05	0.00006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	9.6E-18	2.4E-16	1.E-12	3.E-11	3.E-11	1.0E-09	1.0E-09	1.7E-16	4.2E-15	2.E-07	4.E-06	0.000004
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	1.3E-16	7.0E-16	2.E-11	9.E-11	1.E-10	1.0E-09	1.0E-09	2.3E-15	1.2E-14	2.E-06	1.E-05	0.00001
	Pesticides																
	Dieldrin	8.8E-02	ug/kg	1.6E+01	1.6E+01	1.3E-14	9.8E-14	2.E-13	2.E-12	2.E-12	5.0E-05	5.0E-05	2.3E-13	1.7E-12	5.E-09	3.E-08	0.00000004
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	6.4E-14	1.6E-12	2.E-14	5.E-13	6.E-13	5.0E-04	5.0E-04	1.1E-12	2.8E-11	2.E-09	6.E-08	0.0000001
Exposure Point Total										7.E-09							0.0003
RM 9.5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.7E-10	4.2E-09	3.E-10	6.E-09	7.E-09	3.0E-04	3.0E-04	2.9E-09	7.4E-08	1.E-05	2.E-04	0.0003
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	7.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	1.5E-12	1.1E-11	--	--	--	3.0E-04	3.0E-04	2.6E-11	2.0E-10	9.E-08	7.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.3E-11	1.4E-10	2.E-11	1.E-10	1.E-10	--	--	4.1E-10	2.4E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	3.2E-11	1.9E-10	2.E-10	1.E-09	2.E-09	--	--	5.6E-10	3.2E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	4.4E-11	2.6E-10	3.E-11	2.E-10	2.E-10	--	--	7.7E-10	4.5E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	2.0E-11	1.2E-10	1.E-12	8.E-12	1.E-11	--	--	3.5E-10	2.0E-09	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	6.1E-12	3.6E-11	4.E-11	3.E-10	3.E-10	--	--	1.1E-10	6.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.7E-11	1.5E-10	2.E-11	1.E-10	1.E-10	--	--	4.6E-10	2.7E-09	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	7.9E-12	4.6E-11	--	--	--	2.0E-02	2.0E-02	1.4E-10	8.0E-10	7.E-09	4.E-08	0.00000005

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.6E+02	ug/kg	1.4E-02	1.4E-02	1.3E-10	9.6E-10	2.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	2.2E-09	1.7E-08	1.E-07	8.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	4.1E-12	1.2E-11	2.E-12	5.E-12	7.E-12	5.0E-03	5.0E-03	7.2E-11	2.2E-10	1.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+02	ug/kg	2.0E+00	2.0E+00	4.4E-11	2.4E-10	9.E-11	5.E-10	6.E-10	2.0E-05	2.0E-05	7.6E-10	4.1E-09	4.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	1.3E+05	1.3E+05	3.8E-16	9.6E-15	5.E-11	1.E-09	1.E-09	1.0E-09	1.0E-09	6.6E-15	1.7E-13	7.E-06	2.E-04	0.0002
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	7.5E-16	4.1E-15	1.E-10	5.E-10	6.E-10	1.0E-09	1.0E-09	1.3E-14	7.1E-14	1.E-05	7.E-05	0.00008
	Pesticides																
	Aldrin	5.8E-01	ug/kg	1.7E+01	1.7E+01	8.6E-14	6.5E-13	1.E-12	1.E-11	1.E-11	3.0E-05	3.0E-05	1.5E-12	1.1E-11	5.E-08	4.E-07	0.0000004
	Dieldrin	6.1E-01	ug/kg	1.6E+01	1.6E+01	9.0E-14	6.8E-13	1.E-12	1.E-11	1.E-11	5.0E-05	5.0E-05	1.6E-12	1.2E-11	3.E-08	2.E-07	0.0000003
	Total DDT	3.1E+00	ug/kg	3.4E-01	3.4E-01	1.4E-13	3.4E-12	5.E-14	1.E-12	1.E-12	5.0E-04	5.0E-04	2.4E-12	6.0E-11	5.E-09	1.E-07	0.0000001
Exposure Point Total										1.E-08							0.0008
RM 9.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	1.5E-10	3.7E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.5E-09	6.4E-08	8.E-06	2.E-04	0.0002
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	7.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	2.6E+00	ug/kg	--	--	3.8E-13	2.9E-12	--	--	--	3.0E-04	3.0E-04	6.6E-12	5.0E-11	2.E-08	2.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+01	ug/kg	7.3E-01	7.3E-01	4.2E-12	2.4E-11	3.E-12	2.E-11	2.E-11	--	--	7.3E-11	4.3E-10	--	--	--
	Benzo(a)pyrene	2.5E+01	ug/kg	7.3E+00	7.3E+00	4.7E-12	2.7E-11	3.E-11	2.E-10	2.E-10	--	--	8.3E-11	4.8E-10	--	--	--
	Benzo(b)fluoranthene	2.9E+01	ug/kg	7.3E-01	7.3E-01	5.6E-12	3.3E-11	4.E-12	2.E-11	3.E-11	--	--	9.8E-11	5.7E-10	--	--	--
	Benzo(k)fluoranthene	1.7E+01	ug/kg	7.3E-02	7.3E-02	3.3E-12	1.9E-11	2.E-13	1.E-12	2.E-12	--	--	5.7E-11	3.3E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	8.4E-13	4.9E-12	6.E-12	4.E-11	4.E-11	--	--	1.5E-11	8.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+01	ug/kg	7.3E-01	7.3E-01	3.8E-12	2.2E-11	3.E-12	2.E-11	2.E-11	--	--	6.6E-11	3.9E-10	--	--	--
	Naphthalene	3.4E+00	ug/kg	--	--	6.5E-13	3.8E-12	--	--	--	2.0E-02	2.0E-02	1.1E-11	6.6E-11	6.E-10	3.E-09	0.000000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.6E+02	ug/kg	1.4E-02	1.4E-02	2.4E-11	1.8E-10	3.E-13	3.E-12	3.E-12	2.0E-02	2.0E-02	4.3E-10	3.2E-09	2.E-08	2.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.1E+00	ug/kg	4.0E-01	4.0E-01	4.1E-13	1.3E-12	2.E-13	5.E-13	7.E-13	5.0E-03	5.0E-03	7.2E-12	2.2E-11	1.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+01	ug/kg	2.0E+00	2.0E+00	8.3E-12	4.5E-11	2.E-11	9.E-11	1.E-10	2.0E-05	2.0E-05	1.5E-10	7.9E-10	7.E-06	4.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	1.3E+05	1.3E+05	3.9E-17	9.9E-16	5.E-12	1.E-10	1.E-10	1.0E-09	1.0E-09	6.9E-16	1.7E-14	7.E-07	2.E-05	0.00002
	Total PCB TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	5.4E-17	2.9E-16	7.E-12	4.E-11	4.E-11	1.0E-09	1.0E-09	9.4E-16	5.1E-15	9.E-07	5.E-06	0.00001
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	1.3E-14	1.0E-13	2.E-13	2.E-12	2.E-12	3.0E-05	3.0E-05	2.4E-13	1.8E-12	8.E-09	6.E-08	0.0000001
	Dieldrin	3.0E-02	ug/kg	1.6E+01	1.6E+01	4.4E-15	3.3E-14	7.E-14	5.E-13	6.E-13	5.0E-05	5.0E-05	7.6E-14	5.8E-13	2.E-09	1.E-08	0.00000001
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	5.0E-14	1.3E-12	2.E-14	4.E-13	4.E-13	5.0E-04	5.0E-04	8.8E-13	2.2E-11	2.E-09	4.E-08	0.00000005
Exposure Point Total										6.E-09							0.0003

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 10 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	4.5E-10	1.1E-08	7.E-10	2.E-08	2.E-08	3.0E-04	3.0E-04	7.9E-09	2.0E-07	3.E-05	7.E-04	0.0007
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	2.4E+00	ug/kg	--	--	3.6E-13	2.7E-12	--	--	--	3.0E-04	3.0E-04	6.3E-12	4.8E-11	2.E-08	2.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.7E-11	1.6E-10	2.E-11	1.E-10	1.E-10	--	--	4.7E-10	2.8E-09	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	2.9E-11	1.7E-10	2.E-10	1.E-09	1.E-09	--	--	5.0E-10	2.9E-09	--	--	--
	Benzo(b)fluoranthene	1.9E+02	ug/kg	7.3E-01	7.3E-01	3.6E-11	2.1E-10	3.E-11	2.E-10	2.E-10	--	--	6.3E-10	3.7E-09	--	--	--
	Benzo(k)fluoranthene	7.9E+01	ug/kg	7.3E-02	7.3E-02	1.5E-11	8.8E-11	1.E-12	6.E-12	8.E-12	--	--	2.6E-10	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	3.5E+01	ug/kg	7.3E+00	7.3E+00	6.8E-12	4.0E-11	5.E-11	3.E-10	3.E-10	--	--	1.2E-10	6.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.7E-11	1.5E-10	2.E-11	1.E-10	1.E-10	--	--	4.6E-10	2.7E-09	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	3.8E-12	2.2E-11	--	--	--	2.0E-02	2.0E-02	6.6E-11	3.8E-10	3.E-09	2.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	1.8E-11	1.3E-10	2.E-13	2.E-12	2.E-12	2.0E-02	2.0E-02	3.1E-10	2.4E-09	2.E-08	1.E-07	0.0000001
	Phenols																
	Pentachlorophenol	3.0E+00	ug/kg	4.0E-01	4.0E-01	1.1E-12	3.3E-12	4.E-13	1.E-12	2.E-12	5.0E-03	5.0E-03	1.9E-11	5.8E-11	4.E-09	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	3.8E-11	2.0E-10	8.E-11	4.E-10	5.E-10	2.0E-05	2.0E-05	6.6E-10	3.6E-09	3.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	1.3E+05	1.3E+05	2.3E-16	5.7E-15	3.E-11	7.E-10	8.E-10	1.0E-09	1.0E-09	4.0E-15	1.0E-13	4.E-06	1.E-04	0.0001
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	3.8E-16	2.0E-15	5.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	6.6E-15	3.6E-14	7.E-06	4.E-05	0.00004
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	2.2E-14	1.6E-13	4.E-13	3.E-12	3.E-12	3.0E-05	3.0E-05	3.8E-13	2.9E-12	1.E-08	1.E-07	0.0000001
	Total DDT	4.7E+00	ug/kg	3.4E-01	3.4E-01	2.1E-13	5.2E-12	7.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	3.6E-12	9.2E-11	7.E-09	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.001
RM 10 East	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	1.3E-10	3.4E-09	2.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	2.4E-09	6.0E-08	8.E-06	2.E-04	0.0002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.2E-11	1.3E-10	2.E-11	9.E-11	1.E-10	--	--	3.9E-10	2.3E-09	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.8E-11	1.6E-10	2.E-10	1.E-09	1.E-09	--	--	4.9E-10	2.8E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	3.3E-11	1.9E-10	2.E-11	1.E-10	2.E-10	--	--	5.8E-10	3.4E-09	--	--	--
	Benzo(k)fluoranthene	6.3E+01	ug/kg	7.3E-02	7.3E-02	1.2E-11	7.0E-11	9.E-13	5.E-12	6.E-12	--	--	2.1E-10	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	4.5E-12	2.6E-11	3.E-11	2.E-10	2.E-10	--	--	7.8E-11	4.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.3E-11	1.3E-10	2.E-11	1.E-10	1.E-10	--	--	4.0E-10	2.3E-09	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	2.4E-12	1.4E-11	--	--	--	2.0E-02	2.0E-02	4.2E-11	2.4E-10	2.E-09	1.E-08	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	1.9E-11	1.4E-10	3.E-13	2.E-12	2.E-12	2.0E-02	2.0E-02	3.3E-10	2.5E-09	2.E-08	1.E-07	0.0000001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	2.6E+00	ug/kg	4.0E-01	4.0E-01	9.7E-13	2.9E-12	4.E-13	1.E-12	2.E-12	5.0E-03	5.0E-03	1.7E-11	5.1E-11	3.E-09	1.E-08	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.4E+01	ug/kg	2.0E+00	2.0E+00	7.1E-12	3.8E-11	1.E-11	8.E-11	9.E-11	2.0E-05	2.0E-05	1.2E-10	6.7E-10	6.E-06	3.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	2.4E-17	6.1E-16	3.E-12	8.E-11	8.E-11	1.0E-09	1.0E-09	4.2E-16	1.1E-14	4.E-07	1.E-05	0.00001
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	1.4E-16	7.7E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	2.5E-15	1.3E-14	2.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	5.9E-15	4.5E-14	1.E-13	8.E-13	9.E-13	3.0E-05	3.0E-05	1.0E-13	7.9E-13	3.E-09	3.E-08	0.00000003
	Dieldrin	4.7E-02	ug/kg	1.6E+01	1.6E+01	7.0E-15	5.3E-14	1.E-13	8.E-13	1.E-12	5.0E-05	5.0E-05	1.2E-13	9.2E-13	2.E-09	2.E-08	0.00000002
	Total DDT	5.3E-01	ug/kg	3.4E-01	3.4E-01	2.3E-14	5.9E-13	8.E-15	2.E-13	2.E-13	5.0E-04	5.0E-04	4.1E-13	1.0E-11	8.E-10	2.E-08	0.00000002
Exposure Point Total										8.E-09							0.0003
RM 10.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.8E-10	4.4E-09	3.E-10	7.E-09	7.E-09	3.0E-04	3.0E-04	3.1E-09	7.8E-08	1.E-05	3.E-04	0.0003
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	7.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.8E+01	ug/kg	7.3E-01	7.3E-01	5.3E-12	3.1E-11	4.E-12	2.E-11	3.E-11	--	--	9.3E-11	5.4E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	5.1E-12	3.0E-11	4.E-11	2.E-10	3.E-10	--	--	8.9E-11	5.2E-10	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	6.8E-12	4.0E-11	5.E-12	3.E-11	3.E-11	--	--	1.2E-10	6.9E-10	--	--	--
	Benzo(k)fluoranthene	1.3E+01	ug/kg	7.3E-02	7.3E-02	2.5E-12	1.4E-11	2.E-13	1.E-12	1.E-12	--	--	4.3E-11	2.5E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	8.5E-13	4.9E-12	6.E-12	4.E-11	4.E-11	--	--	1.5E-11	8.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+01	ug/kg	7.3E-01	7.3E-01	4.1E-12	2.4E-11	3.E-12	2.E-11	2.E-11	--	--	7.2E-11	4.2E-10	--	--	--
	Naphthalene	2.7E+01	ug/kg	--	--	5.2E-12	3.0E-11	--	--	--	2.0E-02	2.0E-02	9.1E-11	5.3E-10	5.E-09	3.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	2.0E-11	1.5E-10	3.E-13	2.E-12	2.E-12	2.0E-02	2.0E-02	3.5E-10	2.7E-09	2.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	8.6E+00	ug/kg	4.0E-01	4.0E-01	3.2E-12	9.6E-12	1.E-12	4.E-12	5.E-12	5.0E-03	5.0E-03	5.5E-11	1.7E-10	1.E-08	3.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	6.6E-12	3.5E-11	1.E-11	7.E-11	8.E-11	2.0E-05	2.0E-05	1.1E-10	6.2E-10	6.E-06	3.E-05	0.00004
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	1.4E-16	7.7E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	2.5E-15	1.3E-14	2.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	3.0E-14	2.3E-13	5.E-13	4.E-12	4.E-12	3.0E-05	3.0E-05	5.2E-13	3.9E-12	2.E-08	1.E-07	0.0000001
	Total DDT	1.7E+00	ug/kg	3.4E-01	3.4E-01	7.4E-14	1.9E-12	3.E-14	6.E-13	7.E-13	5.0E-04	5.0E-04	1.3E-12	3.3E-11	3.E-09	7.E-08	0.0000001
Exposure Point Total										8.E-09							0.0003
RM 10.5 East	**Metals**																
	Arsenic	3.1E+00	mg/kg	1.5E+00	1.5E+00	1.4E-10	3.4E-09	2.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	2.4E-09	6.0E-08	8.E-06	2.E-04	0.00021
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	6.8E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.9E+01	ug/kg	7.3E-01	7.3E-01	7.4E-12	4.3E-11	5.E-12	3.E-11	4.E-11	--	--	1.3E-10	7.6E-10	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	6.5E-12	3.8E-11	5.E-11	3.E-10	3.E-10	--	--	1.1E-10	6.6E-10	--	--	--
	Benzo(b)fluoranthene	5.0E+01	ug/kg	7.3E-01	7.3E-01	9.6E-12	5.6E-11	7.E-12	4.E-11	5.E-11	--	--	1.7E-10	9.8E-10	--	--	--
	Benzo(k)fluoranthene	2.5E+01	ug/kg	7.3E-02	7.3E-02	4.8E-12	2.8E-11	4.E-13	2.E-12	2.E-12	--	--	8.5E-11	4.9E-10	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	1.1E-12	6.2E-12	8.E-12	4.E-11	5.E-11	--	--	1.8E-11	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	5.3E-12	3.1E-11	4.E-12	2.E-11	3.E-11	--	--	9.2E-11	5.4E-10	--	--	--
	Naphthalene	3.5E+00	ug/kg	--	--	6.8E-13	3.9E-12	--	--	--	2.0E-02	2.0E-02	1.2E-11	6.9E-11	6.E-10	3.E-09	0.000000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	6.8E-12	5.1E-11	9.E-14	7.E-13	8.E-13	2.0E-02	2.0E-02	1.2E-10	9.0E-10	6.E-09	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	1.2E-12	3.6E-12	5.E-13	1.E-12	2.E-12	5.0E-03	5.0E-03	2.1E-11	6.2E-11	4.E-09	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	1.1E-11	5.8E-11	2.E-11	1.E-10	1.E-10	2.0E-05	2.0E-05	1.9E-10	1.0E-09	9.E-06	5.E-05	0.00006
	Dioxin/Furan																
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	7.3E-17	4.0E-16	1.E-11	5.E-11	6.E-11	1.0E-09	1.0E-09	1.3E-15	6.9E-15	1.E-06	7.E-06	0.00001
	Pesticides																
	Total DDT	2.8E+00	ug/kg	3.4E-01	3.4E-01	1.2E-13	3.1E-12	4.E-14	1.E-12	1.E-12	5.0E-04	5.0E-04	2.2E-12	5.5E-11	4.E-09	1.E-07	0.0000001
Exposure Point Total										6.E-09							0.0003
RM 11 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	1.5E-10	3.8E-09	2.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	2.6E-09	6.7E-08	9.E-06	2.E-04	0.0002
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	6.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+01	ug/kg	7.3E-01	7.3E-01	1.2E-11	7.0E-11	9.E-12	5.E-11	6.E-11	--	--	2.1E-10	1.2E-09	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	1.3E-11	7.4E-11	9.E-11	5.E-10	6.E-10	--	--	2.2E-10	1.3E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	7.7E-12	4.5E-11	6.E-12	3.E-11	4.E-11	--	--	1.3E-10	7.8E-10	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	7.1E-12	4.1E-11	5.E-13	3.E-12	4.E-12	--	--	1.2E-10	7.2E-10	--	--	--
	Dibenzo(a,h)anthracene	8.8E+00	ug/kg	7.3E+00	7.3E+00	1.7E-12	9.8E-12	1.E-11	7.E-11	8.E-11	--	--	3.0E-11	1.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+01	ug/kg	7.3E-01	7.3E-01	7.7E-12	4.5E-11	6.E-12	3.E-11	4.E-11	--	--	1.4E-10	7.9E-10	--	--	--
	Naphthalene	5.4E+01	ug/kg	--	--	1.0E-11	6.0E-11	--	--	--	2.0E-02	2.0E-02	1.8E-10	1.1E-09	9.E-09	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+02	ug/kg	1.4E-02	1.4E-02	5.5E-11	4.2E-10	8.E-13	6.E-12	7.E-12	2.0E-02	2.0E-02	9.6E-10	7.3E-09	5.E-08	4.E-07	0.0000004
	Phenols																
	Pentachlorophenol	9.8E-01	ug/kg	4.0E-01	4.0E-01	3.6E-13	1.1E-12	1.E-13	4.E-13	6.E-13	5.0E-03	5.0E-03	6.3E-12	1.9E-11	1.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+01	ug/kg	2.0E+00	2.0E+00	5.7E-12	3.1E-11	1.E-11	6.E-11	7.E-11	2.0E-05	2.0E-05	1.0E-10	5.4E-10	5.E-06	3.E-05	0.00003
	Pesticides																
	Dieldrin	5.7E-01	ug/kg	1.6E+01	1.6E+01	8.3E-14	6.3E-13	1.E-12	1.E-11	1.E-11	5.0E-05	5.0E-05	1.5E-12	1.1E-11	3.E-08	2.E-07	0.0000003
	Total DDT	1.3E+00	ug/kg	3.4E-01	3.4E-01	5.8E-14	1.5E-12	2.E-14	5.E-13	5.E-13	5.0E-04	5.0E-04	1.0E-12	2.6E-11	2.E-09	5.E-08	0.0000001
Exposure Point Total										7.E-09							0.0003

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 11 East	**Metals**																
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	1.2E-10	3.0E-09	2.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	2.1E-09	5.3E-08	7.E-06	2.E-04	0.0002
	Mercury	7.0E-02	mg/kg	--	--	0.0E+00	7.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	5.9E-13	4.5E-12	--	--	--	3.0E-04	3.0E-04	1.0E-11	7.8E-11	3.E-08	3.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	8.3E+01	ug/kg	7.3E-01	7.3E-01	1.6E-11	9.3E-11	1.E-11	7.E-11	8.E-11	--	--	2.8E-10	1.6E-09	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	1.1E-11	6.2E-11	8.E-11	5.E-10	5.E-10	--	--	1.9E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	2.5E-11	1.4E-10	2.E-11	1.E-10	1.E-10	--	--	4.3E-10	2.5E-09	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	7.1E-12	4.1E-11	5.E-13	3.E-12	4.E-12	--	--	1.2E-10	7.2E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	2.3E-12	1.4E-11	2.E-11	1.E-10	1.E-10	--	--	4.1E-11	2.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	7.3E-12	4.3E-11	5.E-12	3.E-11	4.E-11	--	--	1.3E-10	7.5E-10	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	2.3E-12	1.3E-11	--	--	--	2.0E-02	2.0E-02	4.0E-11	2.3E-10	2.E-09	1.E-08	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.4E+01	ug/kg	1.4E-02	1.4E-02	1.4E-11	1.0E-10	2.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	2.4E-10	1.8E-09	1.E-08	9.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.7E+00	ug/kg	4.0E-01	4.0E-01	9.8E-13	3.0E-12	4.E-13	1.E-12	2.E-12	5.0E-03	5.0E-03	1.7E-11	5.2E-11	3.E-09	1.E-08	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+03	ug/kg	2.0E+00	2.0E+00	2.3E-10	1.3E-09	5.E-10	3.E-09	3.E-09	2.0E-05	2.0E-05	4.1E-09	2.2E-08	2.E-04	1.E-03	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	9.0E-17	2.3E-15	1.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	1.6E-15	4.0E-14	2.E-06	4.E-05	0.00004
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	2.6E-15	1.4E-14	3.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	4.5E-14	2.4E-13	4.E-05	2.E-04	0.0003
	Pesticides																
	Total DDT	9.9E+01	ug/kg	3.4E-01	3.4E-01	4.4E-12	1.1E-10	1.E-12	4.E-11	4.E-11	5.0E-04	5.0E-04	7.7E-11	1.9E-09	2.E-07	4.E-06	0.000004
Exposure Point Total										1.E-08							0.002
RM 11.5 West	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	1.3E-10	3.3E-09	2.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	2.3E-09	5.8E-08	8.E-06	2.E-04	0.0002
	Mercury	3.0E-02	mg/kg	--	--	0.0E+00	3.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-10	0.E+00	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.5E+00	ug/kg	7.3E-01	7.3E-01	1.8E-12	1.1E-11	1.E-12	8.E-12	9.E-12	--	--	3.2E-11	1.9E-10	--	--	--
	Benzo(a)pyrene	1.1E+01	ug/kg	7.3E+00	7.3E+00	2.0E-12	1.2E-11	1.E-11	9.E-11	1.E-10	--	--	3.5E-11	2.1E-10	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	1.9E-12	1.1E-11	1.E-12	8.E-12	9.E-12	--	--	3.3E-11	1.9E-10	--	--	--
	Benzo(k)fluoranthene	6.4E+00	ug/kg	7.3E-02	7.3E-02	1.2E-12	7.1E-12	9.E-14	5.E-13	6.E-13	--	--	2.1E-11	1.3E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+00	ug/kg	7.3E+00	7.3E+00	2.2E-13	1.3E-12	2.E-12	1.E-11	1.E-11	--	--	3.9E-12	2.3E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	7.4E+00	ug/kg	7.3E-01	7.3E-01	1.4E-12	8.3E-12	1.E-12	6.E-12	7.E-12	--	--	2.5E-11	1.4E-10	--	--	--
	Naphthalene	3.3E+00	ug/kg	--	--	6.4E-13	3.7E-12	--	--	--	2.0E-02	2.0E-02	1.1E-11	6.5E-11	6.E-10	3.E-09	0.000000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	2.7E-11	2.0E-10	4.E-13	3.E-12	3.E-12	2.0E-02	2.0E-02	4.7E-10	3.5E-09	2.E-08	2.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	2.5E-12	1.4E-11	5.E-12	3.E-11	3.E-11	2.0E-05	2.0E-05	4.4E-11	2.4E-10	2.E-06	1.E-05	0.00001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	7.8E-18	2.0E-16	1.E-12	3.E-11	3.E-11	1.0E-09	1.0E-09	1.4E-16	3.5E-15	1.E-07	3.E-06	0.000004
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	6.1E-17	3.3E-16	8.E-12	4.E-11	5.E-11	1.0E-09	1.0E-09	1.1E-15	5.8E-15	1.E-06	6.E-06	0.00001
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	1.3E-14	1.0E-13	2.E-13	2.E-12	2.E-12	5.0E-05	5.0E-05	2.3E-13	1.8E-12	5.E-09	4.E-08	0.00000004
	Total DDT	9.8E-01	ug/kg	3.4E-01	3.4E-01	4.3E-14	1.1E-12	1.E-14	4.E-13	4.E-13	5.0E-04	5.0E-04	7.6E-13	1.9E-11	2.E-09	4.E-08	0.00000004
Exposure Point Total										5.E-09							0.0002
RM 12 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.4E-10	3.5E-09	2.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	2.4E-09	6.2E-08	8.E-06	2.E-04	0.0002
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	3.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-09	0.E+00	6.E-05	0.00006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	5.0E-11	2.9E-10	4.E-11	2.E-10	2.E-10	--	--	8.7E-10	5.1E-09	--	--	--
	Benzo(a)pyrene	4.1E+02	ug/kg	7.3E+00	7.3E+00	7.9E-11	4.6E-10	6.E-10	3.E-09	4.E-09	--	--	1.4E-09	8.0E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	6.7E-11	3.9E-10	5.E-11	3.E-10	3.E-10	--	--	1.2E-09	6.9E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	2.3E-11	1.3E-10	2.E-12	1.E-11	1.E-11	--	--	4.0E-10	2.3E-09	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	6.2E-12	3.6E-11	5.E-11	3.E-10	3.E-10	--	--	1.1E-10	6.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.4E+02	ug/kg	7.3E-01	7.3E-01	6.4E-11	3.7E-10	5.E-11	3.E-10	3.E-10	--	--	1.1E-09	6.6E-09	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	8.6E-12	5.0E-11	--	--	--	2.0E-02	2.0E-02	1.5E-10	8.8E-10	8.E-09	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.0E+01	ug/kg	1.4E-02	1.4E-02	1.2E-11	8.9E-11	2.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	2.1E-10	1.6E-09	1.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	1.2E-12	3.8E-12	5.E-13	2.E-12	2.E-12	5.0E-03	5.0E-03	2.2E-11	6.6E-11	4.E-09	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	1.4E-11	7.8E-11	3.E-11	2.E-10	2.E-10	2.0E-05	2.0E-05	2.5E-10	1.4E-09	1.E-05	7.E-05	0.00008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	7.4E-18	1.9E-16	1.E-12	2.E-11	3.E-11	1.0E-09	1.0E-09	1.3E-16	3.3E-15	1.E-07	3.E-06	0.000003
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	9.4E-17	5.1E-16	1.E-11	7.E-11	8.E-11	1.0E-09	1.0E-09	1.6E-15	8.9E-15	2.E-06	9.E-06	0.00001
	Pesticides																
	Aldrin	3.2E-01	ug/kg	1.7E+01	1.7E+01	4.7E-14	3.6E-13	8.E-13	6.E-12	7.E-12	3.0E-05	3.0E-05	8.3E-13	6.3E-12	3.E-08	2.E-07	0.0000002
	Total DDT	5.9E+00	ug/kg	3.4E-01	3.4E-01	2.6E-13	6.6E-12	9.E-14	2.E-12	2.E-12	5.0E-04	5.0E-04	4.6E-12	1.2E-10	9.E-09	2.E-07	0.0000002
Exposure Point Total										1.E-08							0.0004
RM 12 East	**Metals**																
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	1.0E-10	2.5E-09	2.E-10	4.E-09	4.E-09	3.0E-04	3.0E-04	1.8E-09	4.4E-08	6.E-06	1.E-04	0.0002
	Mercury	4.5E-02	mg/kg	--	--	0.0E+00	5.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.7E-10	0.E+00	9.E-06	0.00001
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	5.8E-13	4.4E-12	--	--	--	3.0E-04	3.0E-04	1.0E-11	7.7E-11	3.E-08	3.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	3.5E-12	2.0E-11	3.E-12	1.E-11	2.E-11	--	--	6.0E-11	3.5E-10	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	3.6E-12	2.1E-11	3.E-11	2.E-10	2.E-10	--	--	6.2E-11	3.6E-10	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	5.1E-12	3.0E-11	4.E-12	2.E-11	3.E-11	--	--	8.9E-11	5.2E-10	--	--	--
	Benzo(k)fluoranthene	7.8E+00	ug/kg	7.3E-02	7.3E-02	1.5E-12	8.7E-12	1.E-13	6.E-13	7.E-13	--	--	2.6E-11	1.5E-10	--	--	--
	Dibenzo(a,h)anthracene	4.0E+00	ug/kg	7.3E+00	7.3E+00	7.6E-13	4.4E-12	6.E-12	3.E-11	4.E-11	--	--	1.3E-11	7.7E-11	--	--	--

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	3.1E-12	1.8E-11	2.E-12	1.E-11	2.E-11	--	--	5.4E-11	3.1E-10	--	--	--
	Naphthalene	2.6E+01	ug/kg	--	--	5.0E-12	2.9E-11	--	--	--	2.0E-02	2.0E-02	8.7E-11	5.0E-10	4.E-09	3.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+03	ug/kg	1.4E-02	1.4E-02	1.4E-09	1.0E-08	2.E-11	1.E-10	2.E-10	2.0E-02	2.0E-02	2.4E-08	1.8E-07	1.E-06	9.E-06	0.00001
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	6.1E-13	1.9E-12	2.E-13	7.E-13	1.E-12	5.0E-03	5.0E-03	1.1E-11	3.2E-11	2.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.6E+02	ug/kg	2.0E+00	2.0E+00	3.3E-11	1.8E-10	7.E-11	4.E-10	4.E-10	2.0E-05	2.0E-05	5.8E-10	3.1E-09	3.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	7.7E-17	1.9E-15	1.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	1.3E-15	3.4E-14	1.E-06	3.E-05	0.00004
	Total PCB TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	8.0E-16	4.3E-15	1.E-10	6.E-10	7.E-10	1.0E-09	1.0E-09	1.4E-14	7.6E-14	1.E-05	8.E-05	0.00009
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	4.2E-13	1.1E-11	1.E-13	4.E-12	4.E-12	5.0E-04	5.0E-04	7.3E-12	1.8E-10	1.E-08	4.E-07	0.0000004
Exposure Point Total										6.E-09							0.0005
Study Area-wide[c]	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	2.1E-10	5.2E-09	3.E-10	8.E-09	8.E-09	3.0E-04	3.0E-04	3.6E-09	9.2E-08	1.E-05	3.E-04	0.0003
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	1.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.3E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	6.1E+02	ug/kg	--	--	9.0E-11	6.8E-10	--	--	--	3.0E-04	3.0E-04	1.6E-09	1.2E-08	5.E-06	4.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+03	ug/kg	7.3E-01	7.3E-01	2.7E-10	1.6E-09	2.E-10	1.E-09	1.E-09	--	--	4.8E-09	2.8E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	3.4E-10	2.0E-09	2.E-09	1.E-08	2.E-08	--	--	5.9E-09	3.4E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	2.7E-10	1.6E-09	2.E-10	1.E-09	1.E-09	--	--	4.7E-09	2.8E-08	--	--	--
	Benzo(k)fluoranthene	9.3E+02	ug/kg	7.3E-02	7.3E-02	1.8E-10	1.0E-09	1.E-11	8.E-11	9.E-11	--	--	3.1E-09	1.8E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	3.7E-11	2.1E-10	3.E-10	2.E-09	2.E-09	--	--	6.4E-10	3.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+03	ug/kg	7.3E-01	7.3E-01	2.3E-10	1.4E-09	2.E-10	1.E-09	1.E-09	--	--	4.1E-09	2.4E-08	--	--	--
	Naphthalene	5.0E+02	ug/kg	--	--	9.7E-11	5.6E-10	--	--	--	2.0E-02	2.0E-02	1.7E-09	9.9E-09	8.E-08	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.6E+02	ug/kg	1.4E-02	1.4E-02	1.4E-10	1.1E-09	2.E-12	2.E-11	2.E-11	2.0E-02	2.0E-02	2.5E-09	1.9E-08	1.E-07	9.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.2E+01	ug/kg	4.0E-01	4.0E-01	1.2E-11	3.6E-11	5.E-12	1.E-11	2.E-11	5.0E-03	5.0E-03	2.1E-10	6.3E-10	4.E-08	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+02	ug/kg	2.0E+00	2.0E+00	3.9E-11	2.1E-10	8.E-11	4.E-10	5.E-10	2.0E-05	2.0E-05	6.8E-10	3.7E-09	3.E-05	2.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	1.3E+05	1.3E+05	4.5E-15	1.1E-13	6.E-10	1.E-08	2.E-08	1.0E-09	1.0E-09	7.9E-14	2.0E-12	8.E-05	2.E-03	0.002
	Total PCB TEQ	6.6E+00	pg/g	1.3E+05	1.3E+05	1.4E-15	7.3E-15	2.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	2.4E-14	1.3E-13	2.E-05	1.E-04	0.0002
	Pesticides																
	Aldrin	2.4E+00	ug/kg	1.7E+01	1.7E+01	3.6E-13	2.7E-12	6.E-12	5.E-11	5.E-11	3.0E-05	3.0E-05	6.3E-12	4.8E-11	2.E-07	2.E-06	0.000002
	Dieldrin	2.1E+00	ug/kg	1.6E+01	1.6E+01	3.1E-13	2.4E-12	5.E-12	4.E-11	4.E-11	5.0E-05	5.0E-05	5.5E-12	4.2E-11	1.E-07	8.E-07	0.000001
	Total DDT	1.4E+02	ug/kg	3.4E-01	3.4E-01	6.1E-12	1.5E-10	2.E-12	5.E-11	5.E-11	5.0E-04	5.0E-04	1.1E-10	2.7E-09	2.E-07	5.E-06	0.00001

TABLE 5-20.
Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: In-water Worker
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	5.5E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	9.6E-07	0.E+00	1.E-03	0.001
Exposure Point Total										5.E-08							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	2.4E-07	6.7E-07	4.E-07	1.E-06	1.E-06	3.0E-04	3.0E-04	2.4E-07	6.7E-07	8.E-04	2.E-03	0.003
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	9.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.6E-09	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	1.3E-10	1.1E-10	--	--	--	3.0E-04	3.0E-04	1.3E-10	1.1E-10	4.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	2.9E-08	1.9E-08	2.E-08	1.E-08	4.E-08	--	--	2.9E-08	1.9E-08	--	--	--
	Benzo(a)pyrene	2.4E+02	ug/kg	7.3E+00	7.3E+00	4.7E-08	3.1E-08	3.E-07	2.E-07	6.E-07	--	--	4.7E-08	3.1E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	4.5E-08	2.9E-08	3.E-08	2.E-08	5.E-08	--	--	4.5E-08	2.9E-08	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	1.5E-08	9.8E-09	1.E-09	7.E-10	2.E-09	--	--	1.5E-08	9.8E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	4.8E-09	3.1E-09	4.E-08	2.E-08	6.E-08	--	--	4.8E-09	3.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+02	ug/kg	7.3E-01	7.3E-01	3.9E-08	2.5E-08	3.E-08	2.E-08	5.E-08	--	--	3.9E-08	2.5E-08	--	--	--
	Naphthalene	2.9E+01	ug/kg	--	--	5.7E-09	3.7E-09	--	--	--	2.0E-02	2.0E-02	5.7E-09	3.7E-09	3.E-07	2.E-07	0.0000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+01	ug/kg	1.4E-02	1.4E-02	6.6E-09	5.6E-09	9.E-11	8.E-11	2.E-10	2.0E-02	2.0E-02	6.6E-09	5.6E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	4.5E-10	1.5E-10	2.E-10	6.E-11	2.E-10	5.0E-03	5.0E-03	4.5E-10	1.5E-10	9.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	3.6E-09	2.2E-09	7.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	3.6E-09	2.2E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	1.3E+05	1.3E+05	1.2E-13	3.4E-13	2.E-08	4.E-08	6.E-08	1.0E-09	1.0E-09	1.2E-13	3.4E-13	1.E-04	3.E-04	0.0005
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	6.7E-14	4.0E-14	9.E-09	5.E-09	1.E-08	1.0E-09	1.0E-09	6.7E-14	4.0E-14	7.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	5.6E-11	4.7E-11	1.E-09	8.E-10	2.E-09	3.0E-05	3.0E-05	5.6E-11	4.7E-11	2.E-06	2.E-06	0.000003
	Total DDT	4.6E+00	ug/kg	3.4E-01	3.4E-01	2.1E-10	5.8E-10	7.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	2.1E-10	5.8E-10	4.E-07	1.E-06	0.000002
Exposure Point Total[c]										2.E-06							0.004
RM 1 East	**Metals**																
	Arsenic	5.7E+00	mg/kg	1.5E+00	1.5E+00	2.6E-07	7.3E-07	4.E-07	1.E-06	1.E-06	3.0E-04	3.0E-04	2.6E-07	7.3E-07	9.E-04	2.E-03	0.003
	Mercury	7.1E+00	mg/kg	--	--	0.0E+00	9.0E-07	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.0E-07	0.E+00	9.E-03	0.009
	Butyltins																
	Tributyltin ion	1.2E+00	ug/kg	--	--	1.8E-10	1.5E-10	--	--	--	3.0E-04	3.0E-04	1.8E-10	1.5E-10	6.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+01	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.7E-09	8.E-09	5.E-09	1.E-08	--	--	1.0E-08	6.7E-09	--	--	--
	Benzo(a)pyrene	8.1E+01	ug/kg	7.3E+00	7.3E+00	1.6E-08	1.0E-08	1.E-07	8.E-08	2.E-07	--	--	1.6E-08	1.0E-08	--	--	--
	Benzo(b)fluoranthene	6.9E+01	ug/kg	7.3E-01	7.3E-01	1.4E-08	8.8E-09	1.E-08	6.E-09	2.E-08	--	--	1.4E-08	8.8E-09	--	--	--
	Benzo(k)fluoranthene	4.8E+01	ug/kg	7.3E-02	7.3E-02	9.4E-09	6.1E-09	7.E-10	4.E-10	1.E-09	--	--	9.4E-09	6.1E-09	--	--	--
	Dibenzo(a,h)anthracene	9.1E+00	ug/kg	7.3E+00	7.3E+00	1.8E-09	1.2E-09	1.E-08	8.E-09	2.E-08	--	--	1.8E-09	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+01	ug/kg	7.3E-01	7.3E-01	1.1E-08	7.2E-09	8.E-09	5.E-09	1.E-08	--	--	1.1E-08	7.2E-09	--	--	--
	Naphthalene	2.3E+01	ug/kg	--	--	4.5E-09	2.9E-09	--	--	--	2.0E-02	2.0E-02	4.5E-09	2.9E-09	2.E-07	1.E-07	0.0000004

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	1.1E-08	9.0E-09	2.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	1.1E-08	9.0E-09	5.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	9.4E-10	3.2E-10	4.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	9.4E-10	3.2E-10	2.E-07	6.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+02	ug/kg	2.0E+00	2.0E+00	1.1E-07	6.5E-08	2.E-07	1.E-07	3.E-07	2.0E-05	2.0E-05	1.1E-07	6.5E-08	5.E-03	3.E-03	0.009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.3E+05	1.3E+05	3.4E-14	9.5E-14	4.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	3.4E-14	9.5E-14	3.E-05	9.E-05	0.0001
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	5.7E-14	3.5E-14	7.E-09	4.E-09	1.E-08	1.0E-09	1.0E-09	5.7E-14	3.5E-14	6.E-05	3.E-05	0.00009
	Pesticides																
	Total DDT	4.0E+00	ug/kg	3.4E-01	3.4E-01	1.8E-10	5.1E-10	6.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	1.8E-10	5.1E-10	4.E-07	1.E-06	0.000001
Exposure Point Total										2.E-06							0.02
RM 1.5 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	2.0E-07	5.6E-07	3.E-07	8.E-07	1.E-06	3.0E-04	3.0E-04	2.0E-07	5.6E-07	7.E-04	2.E-03	0.003
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	8.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.6E-09	0.E+00	9.E-05	0.00009
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+01	ug/kg	7.3E-01	7.3E-01	6.5E-09	4.2E-09	5.E-09	3.E-09	8.E-09	--	--	6.5E-09	4.2E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	9.4E-09	6.1E-09	7.E-08	4.E-08	1.E-07	--	--	9.4E-09	6.1E-09	--	--	--
	Benzo(b)fluoranthene	4.1E+01	ug/kg	7.3E-01	7.3E-01	8.1E-09	5.2E-09	6.E-09	4.E-09	1.E-08	--	--	8.1E-09	5.2E-09	--	--	--
	Benzo(k)fluoranthene	3.4E+01	ug/kg	7.3E-02	7.3E-02	6.7E-09	4.3E-09	5.E-10	3.E-10	8.E-10	--	--	6.7E-09	4.3E-09	--	--	--
	Dibenzo(a,h)anthracene	5.9E+00	ug/kg	7.3E+00	7.3E+00	1.2E-09	7.5E-10	8.E-09	5.E-09	1.E-08	--	--	1.2E-09	7.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	7.3E-09	4.7E-09	5.E-09	3.E-09	9.E-09	--	--	7.3E-09	4.7E-09	--	--	--
	Naphthalene	9.6E+00	ug/kg	--	--	1.9E-09	1.2E-09	--	--	--	2.0E-02	2.0E-02	1.9E-09	1.2E-09	9.E-08	6.E-08	0.0000002
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	5.7E-10	1.9E-10	2.E-10	8.E-11	3.E-10	5.0E-03	5.0E-03	5.7E-10	1.9E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	4.6E-09	2.8E-09	9.E-09	6.E-09	1.E-08	2.0E-05	2.0E-05	4.6E-09	2.8E-09	2.E-04	1.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	1.3E+05	1.3E+05	4.3E-15	1.2E-14	6.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	4.3E-15	1.2E-14	4.E-06	1.E-05	0.00002
	Pesticides																
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	4.9E-11	1.4E-10	2.E-11	5.E-11	6.E-11	5.0E-04	5.0E-04	4.9E-11	1.4E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										1.E-06							0.003
RM 1.5 East	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	2.4E-07	6.9E-07	4.E-07	1.E-06	1.E-06	3.0E-04	3.0E-04	2.4E-07	6.9E-07	8.E-04	2.E-03	0.003
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.6E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-08	0.E+00	2.E-04	0.0002
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	5.6E-11	4.7E-11	--	--	--	3.0E-04	3.0E-04	5.6E-11	4.7E-11	2.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+02	ug/kg	7.3E-01	7.3E-01	1.8E-07	1.2E-07	1.E-07	9.E-08	2.E-07	--	--	1.8E-07	1.2E-07	--	--	--
	Benzo(a)pyrene	1.4E+03	ug/kg	7.3E+00	7.3E+00	2.8E-07	1.8E-07	2.E-06	1.E-06	3.E-06	--	--	2.8E-07	1.8E-07	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	8.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.0E-07	1.E-07	8.E-08	2.E-07	--	--	1.6E-07	1.0E-07	--	--	--
	Benzo(k)fluoranthene	8.2E+02	ug/kg	7.3E-02	7.3E-02	1.6E-07	1.0E-07	1.E-08	8.E-09	2.E-08	--	--	1.6E-07	1.0E-07	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.8E-08	1.8E-08	2.E-07	1.E-07	3.E-07	--	--	2.8E-08	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+03	ug/kg	7.3E-01	7.3E-01	2.0E-07	1.3E-07	1.E-07	9.E-08	2.E-07	--	--	2.0E-07	1.3E-07	--	--	--
	Naphthalene	3.7E+02	ug/kg	--	--	7.3E-08	4.7E-08	--	--	--	2.0E-02	2.0E-02	7.3E-08	4.7E-08	4.E-06	2.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	2.6E-08	2.2E-08	4.E-10	3.E-10	7.E-10	2.0E-02	2.0E-02	2.6E-08	2.2E-08	1.E-06	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	4.1E+00	ug/kg	4.0E-01	4.0E-01	1.5E-09	5.2E-10	6.E-10	2.E-10	8.E-10	5.0E-03	5.0E-03	1.5E-09	5.2E-10	3.E-07	1.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.1E+01	ug/kg	2.0E+00	2.0E+00	8.6E-09	5.2E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	8.6E-09	5.2E-09	4.E-04	3.E-04	0.0007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	8.2E-14	2.3E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	8.2E-14	2.3E-13	8.E-05	2.E-04	0.0003
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	1.0E-11	8.8E-12	2.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	1.0E-11	8.8E-12	2.E-07	2.E-07	0.0000004
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	9.9E-10	2.8E-09	3.E-10	9.E-10	1.E-09	5.0E-04	5.0E-04	9.9E-10	2.8E-09	2.E-06	6.E-06	0.00001
Exposure Point Total										6.E-06							0.004
RM 2 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	4.9E-07	3.E-07	7.E-07	1.E-06	3.0E-04	3.0E-04	1.7E-07	4.9E-07	6.E-04	2.E-03	0.002
	Mercury	7.8E-02	mg/kg	--	--	0.0E+00	9.9E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.9E-09	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	3.2E-10	2.7E-10	--	--	--	3.0E-04	3.0E-04	3.2E-10	2.7E-10	1.E-06	9.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+01	ug/kg	7.3E-01	7.3E-01	1.1E-08	7.0E-09	8.E-09	5.E-09	1.E-08	--	--	1.1E-08	7.0E-09	--	--	--
	Benzo(a)pyrene	9.8E+01	ug/kg	7.3E+00	7.3E+00	1.9E-08	1.3E-08	1.E-07	9.E-08	2.E-07	--	--	1.9E-08	1.3E-08	--	--	--
	Benzo(b)fluoranthene	9.8E+01	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	1.9E-08	1.2E-08	--	--	--
	Benzo(k)fluoranthene	3.2E+01	ug/kg	7.3E-02	7.3E-02	6.3E-09	4.1E-09	5.E-10	3.E-10	8.E-10	--	--	6.3E-09	4.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.0E+01	ug/kg	7.3E+00	7.3E+00	2.0E-09	1.3E-09	1.E-08	1.E-08	2.E-08	--	--	2.0E-09	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.1E+01	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	8.E-09	2.E-08	--	--	1.6E-08	1.0E-08	--	--	--
	Naphthalene	1.0E+01	ug/kg	--	--	2.0E-09	1.3E-09	--	--	--	2.0E-02	2.0E-02	2.0E-09	1.3E-09	1.E-07	6.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.8E+01	ug/kg	1.4E-02	1.4E-02	7.2E-09	6.1E-09	1.E-10	9.E-11	2.E-10	2.0E-02	2.0E-02	7.2E-09	6.1E-09	4.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	3.9E-09	2.3E-09	8.E-09	5.E-09	1.E-08	2.0E-05	2.0E-05	3.9E-09	2.3E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	1.3E+05	1.3E+05	9.9E-14	2.8E-13	1.E-08	4.E-08	5.E-08	1.0E-09	1.0E-09	9.9E-14	2.8E-13	1.E-04	3.E-04	0.0004

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	5.4E-11	4.6E-11	9.E-10	8.E-10	2.E-09	3.0E-05	3.0E-05	5.4E-11	4.6E-11	2.E-06	2.E-06	0.000003
	Dieldrin	2.7E-01	ug/kg	1.6E+01	1.6E+01	4.1E-11	3.4E-11	7.E-10	5.E-10	1.E-09	5.0E-05	5.0E-05	4.1E-11	3.4E-11	8.E-07	7.E-07	0.000001
	Total DDT	3.2E+00	ug/kg	3.4E-01	3.4E-01	1.4E-10	4.0E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	1.4E-10	4.0E-10	3.E-07	8.E-07	0.000001
Exposure Point Total										1.E-06							0.003
RM 2 East	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	1.9E-07	5.4E-07	3.E-07	8.E-07	1.E-06	3.0E-04	3.0E-04	1.9E-07	5.4E-07	6.E-04	2.E-03	0.002
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	1.2E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-08	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	3.7E+00	ug/kg	--	--	5.6E-10	4.7E-10	--	--	--	3.0E-04	3.0E-04	5.6E-10	4.7E-10	2.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	1.9E-08	1.2E-08	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	2.4E-08	1.5E-08	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	2.6E-08	1.7E-08	2.E-08	1.E-08	3.E-08	--	--	2.6E-08	1.7E-08	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	1.5E-08	9.8E-09	1.E-09	7.E-10	2.E-09	--	--	1.5E-08	9.8E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	4.6E-09	3.0E-09	3.E-08	2.E-08	6.E-08	--	--	4.6E-09	3.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.3E-08	2.E-08	1.E-08	3.E-08	--	--	2.1E-08	1.3E-08	--	--	--
	Naphthalene	2.1E+01	ug/kg	--	--	4.1E-09	2.7E-09	--	--	--	2.0E-02	2.0E-02	4.1E-09	2.7E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	1.8E-08	1.5E-08	3.E-10	2.E-10	5.E-10	2.0E-02	2.0E-02	1.8E-08	1.5E-08	9.E-07	8.E-07	0.000002
	Phenols																
	Pentachlorophenol	2.2E+00	ug/kg	4.0E-01	4.0E-01	8.3E-10	2.8E-10	3.E-10	1.E-10	4.E-10	5.0E-03	5.0E-03	8.3E-10	2.8E-10	2.E-07	6.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+03	ug/kg	2.0E+00	2.0E+00	3.2E-07	1.9E-07	6.E-07	4.E-07	1.E-06	2.0E-05	2.0E-05	3.2E-07	1.9E-07	2.E-02	1.E-02	0.03
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	1.3E+05	1.3E+05	1.8E-13	5.1E-13	2.E-08	7.E-08	9.E-08	1.0E-09	1.0E-09	1.8E-13	5.1E-13	2.E-04	5.E-04	0.0007
	Total PCB TEQ	8.5E+01	pg/g	1.3E+05	1.3E+05	1.8E-11	1.1E-11	2.E-06	1.E-06	4.E-06	1.0E-09	1.0E-09	1.8E-11	1.1E-11	2.E-02	1.E-02	0.03
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	1.1E-10	8.8E-11	2.E-09	2.E-09	3.E-09	3.0E-05	3.0E-05	1.1E-10	8.8E-11	4.E-06	3.E-06	0.00001
	Dieldrin	1.2E+00	ug/kg	1.6E+01	1.6E+01	1.9E-10	1.6E-10	3.E-09	3.E-09	6.E-09	5.0E-05	5.0E-05	1.9E-10	1.6E-10	4.E-06	3.E-06	0.00001
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	1.9E-10	5.3E-10	6.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	1.9E-10	5.3E-10	4.E-07	1.E-06	0.000001
Exposure Point Total										6.E-06							0.06
RM 2.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	2.1E-07	6.0E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.1E-07	6.0E-07	7.E-04	2.E-03	0.003
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	1.2E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-08	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	3.5E-10	2.9E-10	--	--	--	3.0E-04	3.0E-04	3.5E-10	2.9E-10	1.E-06	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	6.0E-08	3.9E-08	4.E-08	3.E-08	7.E-08	--	--	6.0E-08	3.9E-08	--	--	--
	Benzo(a)pyrene	5.5E+02	ug/kg	7.3E+00	7.3E+00	1.1E-07	7.0E-08	8.E-07	5.E-07	1.E-06	--	--	1.1E-07	7.0E-08	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	7.8E-08	5.0E-08	6.E-08	4.E-08	9.E-08	--	--	7.8E-08	5.0E-08	--	--	--
	Benzo(k)fluoranthene	2.5E+02	ug/kg	7.3E-02	7.3E-02	5.0E-08	3.2E-08	4.E-09	2.E-09	6.E-09	--	--	5.0E-08	3.2E-08	--	--	--
	Dibenzo(a,h)anthracene	6.4E+01	ug/kg	7.3E+00	7.3E+00	1.3E-08	8.1E-09	9.E-08	6.E-08	2.E-07	--	--	1.3E-08	8.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+02	ug/kg	7.3E-01	7.3E-01	9.2E-08	6.0E-08	7.E-08	4.E-08	1.E-07	--	--	9.2E-08	6.0E-08	--	--	--
	Naphthalene	7.6E+01	ug/kg	--	--	1.5E-08	9.7E-09	--	--	--	2.0E-02	2.0E-02	1.5E-08	9.7E-09	7.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.3E+01	ug/kg	1.4E-02	1.4E-02	6.5E-09	5.5E-09	9.E-11	8.E-11	2.E-10	2.0E-02	2.0E-02	6.5E-09	5.5E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	4.5E-10	1.5E-10	2.E-10	6.E-11	2.E-10	5.0E-03	5.0E-03	4.5E-10	1.5E-10	9.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	4.5E-09	2.7E-09	9.E-09	5.E-09	1.E-08	2.0E-05	2.0E-05	4.5E-09	2.7E-09	2.E-04	1.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	1.9E-14	5.3E-14	2.E-09	7.E-09	9.E-09	1.0E-09	1.0E-09	1.9E-14	5.3E-14	2.E-05	5.E-05	0.00007
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	4.4E-14	2.6E-14	6.E-09	3.E-09	9.E-09	1.0E-09	1.0E-09	4.4E-14	2.6E-14	4.E-05	3.E-05	0.00007
	Pesticides																
	Aldrin	2.6E-01	ug/kg	1.7E+01	1.7E+01	3.9E-11	3.3E-11	7.E-10	6.E-10	1.E-09	3.0E-05	3.0E-05	3.9E-11	3.3E-11	1.E-06	1.E-06	0.000002
	Dieldrin	2.2E-01	ug/kg	1.6E+01	1.6E+01	3.3E-11	2.8E-11	5.E-10	4.E-10	1.E-09	5.0E-05	5.0E-05	3.3E-11	2.8E-11	7.E-07	6.E-07	0.000001
	Total DDT	3.4E+00	ug/kg	3.4E-01	3.4E-01	1.5E-10	4.3E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	1.5E-10	4.3E-10	3.E-07	9.E-07	0.000001
Exposure Point Total										3.E-06							0.003
RM 2.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.1E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.2E-07	6.1E-07	7.E-04	2.E-03	0.003
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	1.2E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-08	0.E+00	1.E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+03	ug/kg	7.3E-01	7.3E-01	1.1E-06	7.4E-07	8.E-07	5.E-07	1.E-06	--	--	1.1E-06	7.4E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	8.9E-07	5.8E-07	6.E-06	4.E-06	1.E-05	--	--	8.9E-07	5.8E-07	--	--	--
	Benzo(b)fluoranthene	3.9E+03	ug/kg	7.3E-01	7.3E-01	7.7E-07	5.0E-07	6.E-07	4.E-07	9.E-07	--	--	7.7E-07	5.0E-07	--	--	--
	Benzo(k)fluoranthene	1.2E+03	ug/kg	7.3E-02	7.3E-02	2.4E-07	1.6E-07	2.E-08	1.E-08	3.E-08	--	--	2.4E-07	1.6E-07	--	--	--
	Dibenzo(a,h)anthracene	4.5E+02	ug/kg	7.3E+00	7.3E+00	8.8E-08	5.7E-08	6.E-07	4.E-07	1.E-06	--	--	8.8E-08	5.7E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	5.0E-07	3.3E-07	4.E-07	2.E-07	6.E-07	--	--	5.0E-07	3.3E-07	--	--	--
	Naphthalene	2.8E+02	ug/kg	--	--	5.5E-08	3.5E-08	--	--	--	2.0E-02	2.0E-02	5.5E-08	3.5E-08	3.E-06	2.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	1.6E-08	1.3E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	1.6E-08	1.3E-08	8.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	5.7E+01	ug/kg	4.0E-01	4.0E-01	2.2E-08	7.3E-09	9.E-09	3.E-09	1.E-08	5.0E-03	5.0E-03	2.2E-08	7.3E-09	4.E-06	1.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	1.6E-08	9.9E-09	3.E-08	2.E-08	5.E-08	2.0E-05	2.0E-05	1.6E-08	9.9E-09	8.E-04	5.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	4.8E-14	1.3E-13	6.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	4.8E-14	1.3E-13	5.E-05	1.E-04	0.0002
	Total PCB TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	7.0E-13	4.2E-13	9.E-08	5.E-08	1.E-07	1.0E-09	1.0E-09	7.0E-13	4.2E-13	7.E-04	4.E-04	0.001

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	7.5E-01	ug/kg	1.7E+01	1.7E+01	1.1E-10	9.6E-11	2.E-09	2.E-09	4.E-09	3.0E-05	3.0E-05	1.1E-10	9.6E-11	4.E-06	3.E-06	0.00001
	Dieldrin	3.3E-01	ug/kg	1.6E+01	1.6E+01	5.0E-11	4.2E-11	8.E-10	7.E-10	1.E-09	5.0E-05	5.0E-05	5.0E-11	4.2E-11	1.E-06	8.E-07	0.000002
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	5.1E-10	1.4E-09	2.E-10	5.E-10	7.E-10	5.0E-04	5.0E-04	5.1E-10	1.4E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										2.E-05							0.006
RM 2.5 MC	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.1E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.2E-07	6.1E-07	7.E-04	2.E-03	0.003
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.6E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-08	0.E+00	2.E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	6.0E-08	3.9E-08	4.E-08	3.E-08	7.E-08	--	--	6.0E-08	3.9E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	9.6E-08	6.2E-08	7.E-07	5.E-07	1.E-06	--	--	9.6E-08	6.2E-08	--	--	--
	Benzo(b)fluoranthene	4.5E+02	ug/kg	7.3E-01	7.3E-01	8.8E-08	5.7E-08	6.E-08	4.E-08	1.E-07	--	--	8.8E-08	5.7E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	2.8E-08	1.8E-08	2.E-09	1.E-09	3.E-09	--	--	2.8E-08	1.8E-08	--	--	--
	Dibenzo(a,h)anthracene	4.7E+01	ug/kg	7.3E+00	7.3E+00	9.3E-09	6.0E-09	7.E-08	4.E-08	1.E-07	--	--	9.3E-09	6.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+02	ug/kg	7.3E-01	7.3E-01	7.4E-08	4.8E-08	5.E-08	4.E-08	9.E-08	--	--	7.4E-08	4.8E-08	--	--	--
	Naphthalene	9.9E+01	ug/kg	--	--	1.9E-08	1.3E-08	--	--	--	2.0E-02	2.0E-02	1.9E-08	1.3E-08	1.E-06	6.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	1.4E-08	1.2E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	1.4E-08	1.2E-08	7.E-07	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	6.0E-10	2.0E-10	2.E-10	8.E-11	3.E-10	5.0E-03	5.0E-03	6.0E-10	2.0E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	8.2E-09	4.9E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	8.2E-09	4.9E-09	4.E-04	2.E-04	0.0007
	Pesticides																
	Aldrin	6.5E-01	ug/kg	1.7E+01	1.7E+01	9.8E-11	8.3E-11	2.E-09	1.E-09	3.E-09	3.0E-05	3.0E-05	9.8E-11	8.3E-11	3.E-06	3.E-06	0.00001
	Dieldrin	9.7E-01	ug/kg	1.6E+01	1.6E+01	1.5E-10	1.2E-10	2.E-09	2.E-09	4.E-09	5.0E-05	5.0E-05	1.5E-10	1.2E-10	3.E-06	2.E-06	0.00001
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	5.0E-10	1.4E-09	2.E-10	5.E-10	6.E-10	5.0E-04	5.0E-04	5.0E-10	1.4E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										3.E-06							0.004
RM 3 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.9E-07	5.2E-07	3.E-07	8.E-07	1.E-06	3.0E-04	3.0E-04	1.9E-07	5.2E-07	6.E-04	2.E-03	0.002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.4E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-08	0.E+00	1.E-04	0.0001
	Vanadium	9.3E+01	mg/kg	--	--	0.0E+00	1.2E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	2.7E-09	2.3E-09	--	--	--	3.0E-04	3.0E-04	2.7E-09	2.3E-09	9.E-06	8.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.7E+02	ug/kg	7.3E-01	7.3E-01	9.2E-08	5.9E-08	7.E-08	4.E-08	1.E-07	--	--	9.2E-08	5.9E-08	--	--	--
	Benzo(a)pyrene	7.1E+02	ug/kg	7.3E+00	7.3E+00	1.4E-07	9.0E-08	1.E-06	7.E-07	2.E-06	--	--	1.4E-07	9.0E-08	--	--	--
	Benzo(b)fluoranthene	6.0E+02	ug/kg	7.3E-01	7.3E-01	1.2E-07	7.7E-08	9.E-08	6.E-08	1.E-07	--	--	1.2E-07	7.7E-08	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	7.8E-08	5.1E-08	6.E-09	4.E-09	9.E-09	--	--	7.8E-08	5.1E-08	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	1.6E-08	1.0E-08	1.E-07	8.E-08	2.E-07	--	--	1.6E-08	1.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	9.4E-08	6.1E-08	7.E-08	4.E-08	1.E-07	--	--	9.4E-08	6.1E-08	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Naphthalene	2.2E+02	ug/kg	--	--	4.4E-08	2.8E-08	--	--	--	2.0E-02	2.0E-02	4.4E-08	2.8E-08	2.E-06	1.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	8.7E-09	7.3E-09	1.E-10	1.E-10	2.E-10	2.0E-02	2.0E-02	8.7E-09	7.3E-09	4.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.1E+02	ug/kg	4.0E-01	4.0E-01	4.2E-08	1.4E-08	2.E-08	6.E-09	2.E-08	5.0E-03	5.0E-03	4.2E-08	1.4E-08	8.E-06	3.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	3.7E-09	2.2E-09	7.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	3.7E-09	2.2E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	7.5E-14	2.1E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	7.5E-14	2.1E-13	7.E-05	2.E-04	0.0003
	Total PCB TEQ	4.4E-01	pg/g	1.3E+05	1.3E+05	9.4E-14	5.6E-14	1.E-08	7.E-09	2.E-08	1.0E-09	1.0E-09	9.4E-14	5.6E-14	9.E-05	6.E-05	0.0002
	Pesticides																
	Aldrin	5.2E-01	ug/kg	1.7E+01	1.7E+01	7.9E-11	6.6E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	7.9E-11	6.6E-11	3.E-06	2.E-06	0.000005
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	2.0E-10	1.7E-10	3.E-09	3.E-09	6.E-09	5.0E-05	5.0E-05	2.0E-10	1.7E-10	4.E-06	3.E-06	0.00001
	Total DDT	2.1E+02	ug/kg	3.4E-01	3.4E-01	9.6E-09	2.7E-08	3.E-09	9.E-09	1.E-08	5.0E-04	5.0E-04	9.6E-09	2.7E-08	2.E-05	5.E-05	0.00007
Exposure Point Total										3.E-06							0.2
RM 3 East	**Metals**																
	Arsenic	5.5E+00	mg/kg	1.5E+00	1.5E+00	2.5E-07	6.9E-07	4.E-07	1.E-06	1.E-06	3.0E-04	3.0E-04	2.5E-07	6.9E-07	8.E-04	2.E-03	0.003
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	9.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.5E-09	0.E+00	9.E-05	0.00009
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.6E+01	ug/kg	--	--	2.4E-09	2.0E-09	--	--	--	3.0E-04	3.0E-04	2.4E-09	2.0E-09	8.E-06	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	1.8E-08	2.E-08	1.E-08	3.E-08	--	--	2.8E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.7E-08	1.7E-08	2.E-07	1.E-07	3.E-07	--	--	2.7E-08	1.7E-08	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	3.1E-08	2.0E-08	2.E-08	1.E-08	4.E-08	--	--	3.1E-08	2.0E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	2.2E-08	1.4E-08	2.E-09	1.E-09	3.E-09	--	--	2.2E-08	1.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	3.3E-09	2.1E-09	2.E-08	2.E-08	4.E-08	--	--	3.3E-09	2.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+01	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	1.6E-08	1.1E-08	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	3.3E-09	2.1E-09	--	--	--	2.0E-02	2.0E-02	3.3E-09	2.1E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.8E+01	ug/kg	1.4E-02	1.4E-02	1.3E-08	1.1E-08	2.E-10	2.E-10	3.E-10	2.0E-02	2.0E-02	1.3E-08	1.1E-08	7.E-07	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.6E+00	ug/kg	4.0E-01	4.0E-01	1.7E-09	5.9E-10	7.E-10	2.E-10	9.E-10	5.0E-03	5.0E-03	1.7E-09	5.9E-10	3.E-07	1.E-07	0.0000005
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	4.8E-09	2.9E-09	1.E-08	6.E-09	2.E-08	2.0E-05	2.0E-05	4.8E-09	2.9E-09	2.E-04	1.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	2.4E-13	6.8E-13	3.E-08	9.E-08	1.E-07	1.0E-09	1.0E-09	2.4E-13	6.8E-13	2.E-04	7.E-04	0.0009
	Total PCB TEQ	1.0E-01	pg/g	1.3E+05	1.3E+05	2.1E-14	1.3E-14	3.E-09	2.E-09	4.E-09	1.0E-09	1.0E-09	2.1E-14	1.3E-14	2.E-05	1.E-05	0.00003

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	6.0E-11	5.0E-11	1.E-09	9.E-10	2.E-09	3.0E-05	3.0E-05	6.0E-11	5.0E-11	2.E-06	2.E-06	0.000004
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	3.0E-11	2.5E-11	5.E-10	4.E-10	9.E-10	5.0E-05	5.0E-05	3.0E-11	2.5E-11	6.E-07	5.E-07	0.000001
	Total DDT	3.8E+00	ug/kg	3.4E-01	3.4E-01	1.7E-10	4.8E-10	6.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	1.7E-10	4.8E-10	3.E-07	1.E-06	0.000001
Exposure Point Total										2.E-06							0.2
RM 3.5 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	4.7E-07	1.3E-06	7.E-07	2.E-06	3.E-06	3.0E-04	3.0E-04	4.7E-07	1.3E-06	2.E-03	4.E-03	0.006
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.5E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	1.2E-08	1.0E-08	--	--	--	3.0E-04	3.0E-04	1.2E-08	1.0E-08	4.E-05	3.E-05	0.00008
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+03	ug/kg	7.3E-01	7.3E-01	3.5E-07	2.2E-07	3.E-07	2.E-07	4.E-07	--	--	3.5E-07	2.2E-07	--	--	--
	Benzo(a)pyrene	2.6E+03	ug/kg	7.3E+00	7.3E+00	5.0E-07	3.2E-07	4.E-06	2.E-06	6.E-06	--	--	5.0E-07	3.2E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	4.5E-07	2.9E-07	3.E-07	2.E-07	5.E-07	--	--	4.5E-07	2.9E-07	--	--	--
	Benzo(k)fluoranthene	8.0E+02	ug/kg	7.3E-02	7.3E-02	1.6E-07	1.0E-07	1.E-08	7.E-09	2.E-08	--	--	1.6E-07	1.0E-07	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	1.5E-08	9.5E-09	1.E-07	7.E-08	2.E-07	--	--	1.5E-08	9.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+03	ug/kg	7.3E-01	7.3E-01	4.0E-07	2.6E-07	3.E-07	2.E-07	5.E-07	--	--	4.0E-07	2.6E-07	--	--	--
	Naphthalene	5.2E+02	ug/kg	--	--	1.0E-07	6.6E-08	--	--	--	2.0E-02	2.0E-02	1.0E-07	6.6E-08	5.E-06	3.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	1.2E-08	1.0E-08	2.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	1.2E-08	1.0E-08	6.E-07	5.E-07	0.00000
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	5.6E-09	1.9E-09	2.E-09	7.E-10	3.E-09	5.0E-03	5.0E-03	5.6E-09	1.9E-09	1.E-06	4.E-07	0.00000
	Polychlorinated Biphenyls																
	Total Aroclors	2.7E+01	ug/kg	2.0E+00	2.0E+00	5.7E-09	3.4E-09	1.E-08	7.E-09	2.E-08	2.0E-05	2.0E-05	5.7E-09	3.4E-09	3.E-04	2.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	7.3E-14	2.0E-13	9.E-09	3.E-08	4.E-08	1.0E-09	1.0E-09	7.3E-14	2.0E-13	7.E-05	2.E-04	0.0003
	Total PCB TEQ	7.7E-01	pg/g	1.3E+05	1.3E+05	1.6E-13	9.9E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	1.6E-13	9.9E-14	2.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	7.4E-11	6.2E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	7.4E-11	6.2E-11	2.E-06	2.E-06	0.000005
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	2.8E-11	2.3E-11	4.E-10	4.E-10	8.E-10	5.0E-05	5.0E-05	2.8E-11	2.3E-11	6.E-07	5.E-07	0.000001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	9.5E-10	2.7E-09	3.E-10	9.E-10	1.E-09	5.0E-04	5.0E-04	9.5E-10	2.7E-09	2.E-06	5.E-06	0.00001
Exposure Point Total										1.E-05							0.2
RM 3.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.1E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.2E-07	6.1E-07	7.E-04	2.E-03	0.003
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.6E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.9E+04	ug/kg	--	--	2.9E-06	2.4E-06	--	--	--	3.0E-04	3.0E-04	2.9E-06	2.4E-06	1.E-02	8.E-03	0.02

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+03	ug/kg	7.3E-01	7.3E-01	2.4E-07	1.6E-07	2.E-07	1.E-07	3.E-07	--	--	2.4E-07	1.6E-07	--	--	--
	Benzo(a)pyrene	8.7E+02	ug/kg	7.3E+00	7.3E+00	1.7E-07	1.1E-07	1.E-06	8.E-07	2.E-06	--	--	1.7E-07	1.1E-07	--	--	--
	Benzo(b)fluoranthene	1.3E+03	ug/kg	7.3E-01	7.3E-01	2.6E-07	1.7E-07	2.E-07	1.E-07	3.E-07	--	--	2.6E-07	1.7E-07	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	1.4E-07	9.0E-08	1.E-08	7.E-09	2.E-08	--	--	1.4E-07	9.0E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	2.6E-08	1.7E-08	2.E-07	1.E-07	3.E-07	--	--	2.6E-08	1.7E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	6.5E-08	4.2E-08	5.E-08	3.E-08	8.E-08	--	--	6.5E-08	4.2E-08	--	--	--
	Naphthalene	1.8E+01	ug/kg	--	--	3.6E-09	2.3E-09	--	--	--	2.0E-02	2.0E-02	3.6E-09	2.3E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.9E+03	ug/kg	1.4E-02	1.4E-02	1.0E-06	8.8E-07	1.E-08	1.E-08	3.E-08	2.0E-02	2.0E-02	1.0E-06	8.8E-07	5.E-05	4.E-05	0.0001
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	9.4E-10	3.2E-10	4.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	9.4E-10	3.2E-10	2.E-07	6.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+03	ug/kg	2.0E+00	2.0E+00	3.5E-07	2.1E-07	7.E-07	4.E-07	1.E-06	2.0E-05	2.0E-05	3.5E-07	2.1E-07	2.E-02	1.E-02	0.03
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	1.3E+05	1.3E+05	5.1E-13	1.4E-12	7.E-08	2.E-07	3.E-07	1.0E-09	1.0E-09	5.1E-13	1.4E-12	5.E-04	1.E-03	0.002
	Total PCB TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	2.4E-11	1.5E-11	3.E-06	2.E-06	5.E-06	1.0E-09	1.0E-09	2.4E-11	1.5E-11	2.E-02	1.E-02	0.04
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	7.5E-11	6.3E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	7.5E-11	6.3E-11	2.E-06	2.E-06	0.000005
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	2.2E-11	1.9E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	2.2E-11	1.9E-11	4.E-07	4.E-07	0.000001
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	1.2E-09	3.5E-09	4.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	1.2E-09	3.5E-09	2.E-06	7.E-06	0.00001
Exposure Point Total										1.E-05							0.3
RM 4 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	2.0E-07	5.6E-07	3.E-07	8.E-07	1.E-06	3.0E-04	3.0E-04	2.0E-07	5.6E-07	7.E-04	2.E-03	0.003
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	1.8E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	8.2E+00	ug/kg	--	--	1.2E-09	1.0E-09	--	--	--	3.0E-04	3.0E-04	1.2E-09	1.0E-09	4.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.0E+02	ug/kg	7.3E-01	7.3E-01	1.8E-07	1.1E-07	1.E-07	8.E-08	2.E-07	--	--	1.8E-07	1.1E-07	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	1.1E-07	7.4E-08	8.E-07	5.E-07	1.E-06	--	--	1.1E-07	7.4E-08	--	--	--
	Benzo(b)fluoranthene	5.2E+02	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.6E-08	7.E-08	5.E-08	1.E-07	--	--	1.0E-07	6.6E-08	--	--	--
	Benzo(k)fluoranthene	3.2E+02	ug/kg	7.3E-02	7.3E-02	6.2E-08	4.0E-08	5.E-09	3.E-09	7.E-09	--	--	6.2E-08	4.0E-08	--	--	--
	Dibenzo(a,h)anthracene	8.9E+01	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.1E-08	1.E-07	8.E-08	2.E-07	--	--	1.8E-08	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+02	ug/kg	7.3E-01	7.3E-01	9.1E-08	5.9E-08	7.E-08	4.E-08	1.E-07	--	--	9.1E-08	5.9E-08	--	--	--
	Naphthalene	1.9E+02	ug/kg	--	--	3.8E-08	2.4E-08	--	--	--	2.0E-02	2.0E-02	3.8E-08	2.4E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	1.1E-08	9.1E-09	2.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	1.1E-08	9.1E-09	5.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	6.7E+00	ug/kg	4.0E-01	4.0E-01	2.5E-09	8.5E-10	1.E-09	3.E-10	1.E-09	5.0E-03	5.0E-03	2.5E-09	8.5E-10	5.E-07	2.E-07	0.000001

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	2.6E+01	ug/kg	2.0E+00	2.0E+00	5.6E-09	3.4E-09	1.E-08	7.E-09	2.E-08	2.0E-05	2.0E-05	5.6E-09	3.4E-09	3.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	1.5E-13	4.1E-13	2.E-08	5.E-08	7.E-08	1.0E-09	1.0E-09	1.5E-13	4.1E-13	1.E-04	4.E-04	0.0006
	Total PCB TEQ	6.5E-01	pg/g	1.3E+05	1.3E+05	1.4E-13	8.3E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	1.4E-13	8.3E-14	1.E-04	8.E-05	0.0002
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	7.4E-11	6.2E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	7.4E-11	6.2E-11	2.E-06	2.E-06	0.000005
	Dieldrin	2.8E-01	ug/kg	1.6E+01	1.6E+01	4.2E-11	3.6E-11	7.E-10	6.E-10	1.E-09	5.0E-05	5.0E-05	4.2E-11	3.6E-11	8.E-07	7.E-07	0.000002
	Total DDT	5.6E+01	ug/kg	3.4E-01	3.4E-01	2.5E-09	7.1E-09	9.E-10	2.E-09	3.E-09	5.0E-04	5.0E-04	2.5E-09	7.1E-09	5.E-06	1.E-05	0.00002
Exposure Point Total										3.E-06							0.2
RM 4 East	**Metals**																
	Arsenic	5.6E+00	mg/kg	1.5E+00	1.5E+00	2.5E-07	7.2E-07	4.E-07	1.E-06	1.E-06	3.0E-04	3.0E-04	2.5E-07	7.2E-07	8.E-04	2.E-03	0.003
	Mercury	9.6E-02	mg/kg	--	--	0.0E+00	1.2E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	3.6E+01	ug/kg	--	--	5.5E-09	4.6E-09	--	--	--	3.0E-04	3.0E-04	5.5E-09	4.6E-09	2.E-05	2.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	3.1E-07	2.0E-07	2.E-07	1.E-07	4.E-07	--	--	3.1E-07	2.0E-07	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	4.4E-07	2.8E-07	3.E-06	2.E-06	5.E-06	--	--	4.4E-07	2.8E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	4.5E-07	2.9E-07	3.E-07	2.E-07	5.E-07	--	--	4.5E-07	2.9E-07	--	--	--
	Benzo(k)fluoranthene	1.8E+03	ug/kg	7.3E-02	7.3E-02	3.6E-07	2.3E-07	3.E-08	2.E-08	4.E-08	--	--	3.6E-07	2.3E-07	--	--	--
	Dibenzo(a,h)anthracene	3.7E+02	ug/kg	7.3E+00	7.3E+00	7.2E-08	4.6E-08	5.E-07	3.E-07	9.E-07	--	--	7.2E-08	4.6E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	3.3E-07	2.1E-07	2.E-07	2.E-07	4.E-07	--	--	3.3E-07	2.1E-07	--	--	--
	Naphthalene	7.4E+01	ug/kg	--	--	1.5E-08	9.4E-09	--	--	--	2.0E-02	2.0E-02	1.5E-08	9.4E-09	7.E-07	5.E-07	0.00000
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+03	ug/kg	1.4E-02	1.4E-02	4.9E-07	4.2E-07	7.E-09	6.E-09	1.E-08	2.0E-02	2.0E-02	4.9E-07	4.2E-07	2.E-05	2.E-05	0.00005
	Phenols																
	Pentachlorophenol	4.3E+03	ug/kg	4.0E-01	4.0E-01	1.6E-06	5.5E-07	7.E-07	2.E-07	9.E-07	5.0E-03	5.0E-03	1.6E-06	5.5E-07	3.E-04	1.E-04	0.0004
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	7.6E-08	4.6E-08	2.E-07	9.E-08	2.E-07	2.0E-05	2.0E-05	7.6E-08	4.6E-08	4.E-03	2.E-03	0.006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	1.3E+05	1.3E+05	3.1E-13	8.8E-13	4.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	3.1E-13	8.8E-13	3.E-04	9.E-04	0.001
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	7.1E-13	4.3E-13	9.E-08	6.E-08	1.E-07	1.0E-09	1.0E-09	7.1E-13	4.3E-13	7.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	7.9E-01	ug/kg	1.7E+01	1.7E+01	1.2E-10	1.0E-10	2.E-09	2.E-09	4.E-09	3.0E-05	3.0E-05	1.2E-10	1.0E-10	4.E-06	3.E-06	0.00001
	Dieldrin	1.6E-01	ug/kg	1.6E+01	1.6E+01	2.4E-11	2.0E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	2.4E-11	2.0E-11	5.E-07	4.E-07	0.000001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	5.4E-10	1.5E-09	2.E-10	5.E-10	7.E-10	5.0E-04	5.0E-04	5.4E-10	1.5E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										1.E-05							0.2

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 4.5 West	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.2E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.2E-07	6.2E-07	7.E-04	2.E-03	0.003
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	2.2E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.2E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.4E+01	ug/kg	--	--	2.1E-09	1.8E-09	--	--	--	3.0E-04	3.0E-04	2.1E-09	1.8E-09	7.E-06	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	3.1E-07	2.0E-07	2.E-07	1.E-07	4.E-07	--	--	3.1E-07	2.0E-07	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	4.2E-07	2.7E-07	3.E-06	2.E-06	5.E-06	--	--	4.2E-07	2.7E-07	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	2.9E-07	1.9E-07	2.E-07	1.E-07	4.E-07	--	--	2.9E-07	1.9E-07	--	--	--
	Benzo(k)fluoranthene	6.2E+02	ug/kg	7.3E-02	7.3E-02	1.2E-07	7.9E-08	9.E-09	6.E-09	1.E-08	--	--	1.2E-07	7.9E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	4.5E-08	2.9E-08	3.E-07	2.E-07	5.E-07	--	--	4.5E-08	2.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	3.3E-07	2.1E-07	2.E-07	2.E-07	4.E-07	--	--	3.3E-07	2.1E-07	--	--	--
	Naphthalene	3.9E+02	ug/kg	--	--	7.7E-08	5.0E-08	--	--	--	2.0E-02	2.0E-02	7.7E-08	5.0E-08	4.E-06	2.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.0E+01	ug/kg	1.4E-02	1.4E-02	1.1E-08	8.9E-09	1.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	1.1E-08	8.9E-09	5.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.3E+00	ug/kg	4.0E-01	4.0E-01	8.5E-10	2.9E-10	3.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	8.5E-10	2.9E-10	2.E-07	6.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+01	ug/kg	2.0E+00	2.0E+00	8.1E-09	4.9E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	8.1E-09	4.9E-09	4.E-04	2.E-04	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	1.3E+05	1.3E+05	3.1E-13	8.7E-13	4.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	3.1E-13	8.7E-13	3.E-04	9.E-04	0.001
	Total PCB TEQ	2.5E+00	pg/g	1.3E+05	1.3E+05	5.3E-13	3.2E-13	7.E-08	4.E-08	1.E-07	1.0E-09	1.0E-09	5.3E-13	3.2E-13	5.E-04	3.E-04	0.0008
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	1.8E-10	1.5E-10	3.E-09	3.E-09	6.E-09	3.0E-05	3.0E-05	1.8E-10	1.5E-10	6.E-06	5.E-06	0.00001
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	2.8E-11	2.3E-11	4.E-10	4.E-10	8.E-10	5.0E-05	5.0E-05	2.8E-11	2.3E-11	6.E-07	5.E-07	0.000001
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	1.2E-09	3.5E-09	4.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	1.2E-09	3.5E-09	2.E-06	7.E-06	0.00001
Exposure Point Total										8.E-06							0.2
RM 4.5 East	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.3E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.2E-07	6.3E-07	7.E-04	2.E-03	0.003
	Mercury	7.3E-02	mg/kg	--	--	0.0E+00	9.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.3E-09	0.E+00	9.E-05	0.00009
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	7.2E+01	ug/kg	--	--	1.1E-08	9.2E-09	--	--	--	3.0E-04	3.0E-04	1.1E-08	9.2E-09	4.E-05	3.E-05	0.00007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+04	ug/kg	7.3E-01	7.3E-01	3.9E-06	2.5E-06	3.E-06	2.E-06	5.E-06	--	--	3.9E-06	2.5E-06	--	--	--
	Benzo(a)pyrene	8.7E+03	ug/kg	7.3E+00	7.3E+00	1.7E-06	1.1E-06	1.E-05	8.E-06	2.E-05	--	--	1.7E-06	1.1E-06	--	--	--
	Benzo(b)fluoranthene	7.5E+03	ug/kg	7.3E-01	7.3E-01	1.5E-06	9.6E-07	1.E-06	7.E-07	2.E-06	--	--	1.5E-06	9.6E-07	--	--	--
	Benzo(k)fluoranthene	6.9E+03	ug/kg	7.3E-02	7.3E-02	1.4E-06	8.8E-07	1.E-07	6.E-08	2.E-07	--	--	1.4E-06	8.8E-07	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.4E+03	ug/kg	7.3E+00	7.3E+00	2.8E-07	1.8E-07	2.E-06	1.E-06	3.E-06	--	--	2.8E-07	1.8E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E+03	ug/kg	7.3E-01	7.3E-01	1.2E-06	7.7E-07	9.E-07	6.E-07	1.E-06	--	--	1.2E-06	7.7E-07	--	--	--
	Naphthalene	4.4E+02	ug/kg	--	--	8.6E-08	5.6E-08	--	--	--	2.0E-02	2.0E-02	8.6E-08	5.6E-08	4.E-06	3.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	1.9E-08	1.6E-08	3.E-10	2.E-10	5.E-10	2.0E-02	2.0E-02	1.9E-08	1.6E-08	9.E-07	8.E-07	0.000002
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	1.2E-09	4.1E-10	5.E-10	2.E-10	6.E-10	5.0E-03	5.0E-03	1.2E-09	4.1E-10	2.E-07	8.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+01	ug/kg	2.0E+00	2.0E+00	9.3E-09	5.6E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	9.3E-09	5.6E-09	5.E-04	3.E-04	0.0007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	1.3E-14	3.5E-14	2.E-09	5.E-09	6.E-09	1.0E-09	1.0E-09	1.3E-14	3.5E-14	1.E-05	4.E-05	0.00005
	Total PCB TEQ	3.4E-01	pg/g	1.3E+05	1.3E+05	7.1E-14	4.3E-14	9.E-09	6.E-09	1.E-08	1.0E-09	1.0E-09	7.1E-14	4.3E-14	7.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	2.3E-11	1.9E-11	4.E-10	3.E-10	7.E-10	3.0E-05	3.0E-05	2.3E-11	1.9E-11	8.E-07	6.E-07	0.000001
	Dieldrin	8.4E-02	ug/kg	1.6E+01	1.6E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	1.3E-11	1.1E-11	3.E-07	2.E-07	0.0000005
	Total DDT	8.7E+00	ug/kg	3.4E-01	3.4E-01	3.9E-10	1.1E-09	1.E-10	4.E-10	5.E-10	5.0E-04	5.0E-04	3.9E-10	1.1E-09	8.E-07	2.E-06	0.000003
Exposure Point Total										3.E-05							0.2
RM 5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	4.8E-07	3.E-07	7.E-07	1.E-06	3.0E-04	3.0E-04	1.7E-07	4.8E-07	6.E-04	2.E-03	0.002
	Mercury	6.0E-02	mg/kg	--	--	0.0E+00	7.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.7E-09	0.E+00	8.E-05	0.00008
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	2.1E+01	ug/kg	--	--	3.2E-09	2.7E-09	--	--	--	3.0E-04	3.0E-04	3.2E-09	2.7E-09	1.E-05	9.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E+03	ug/kg	7.3E-01	7.3E-01	6.7E-07	4.4E-07	5.E-07	3.E-07	8.E-07	--	--	6.7E-07	4.4E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	8.8E-07	5.7E-07	6.E-06	4.E-06	1.E-05	--	--	8.8E-07	5.7E-07	--	--	--
	Benzo(b)fluoranthene	3.0E+03	ug/kg	7.3E-01	7.3E-01	5.9E-07	3.8E-07	4.E-07	3.E-07	7.E-07	--	--	5.9E-07	3.8E-07	--	--	--
	Benzo(k)fluoranthene	5.7E+02	ug/kg	7.3E-02	7.3E-02	1.1E-07	7.3E-08	8.E-09	5.E-09	1.E-08	--	--	1.1E-07	7.3E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	4.5E-08	2.9E-08	3.E-07	2.E-07	5.E-07	--	--	4.5E-08	2.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+03	ug/kg	7.3E-01	7.3E-01	6.4E-07	4.2E-07	5.E-07	3.E-07	8.E-07	--	--	6.4E-07	4.2E-07	--	--	--
	Naphthalene	4.2E+02	ug/kg	--	--	8.3E-08	5.4E-08	--	--	--	2.0E-02	2.0E-02	8.3E-08	5.4E-08	4.E-06	3.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+01	ug/kg	1.4E-02	1.4E-02	1.4E-08	1.2E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	1.4E-08	1.2E-08	7.E-07	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	6.9E-09	2.3E-09	3.E-09	9.E-10	4.E-09	5.0E-03	5.0E-03	6.9E-09	2.3E-09	1.E-06	5.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	5.3E-09	3.2E-09	1.E-08	6.E-09	2.E-08	2.0E-05	2.0E-05	5.3E-09	3.2E-09	3.E-04	2.E-04	0.0004

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	2.5E-13	6.9E-13	3.E-08	9.E-08	1.E-07	1.0E-09	1.0E-09	2.5E-13	6.9E-13	2.E-04	7.E-04	0.0009
	Total PCB TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	4.4E-13	2.7E-13	6.E-08	3.E-08	9.E-08	1.0E-09	1.0E-09	4.4E-13	2.7E-13	4.E-04	3.E-04	0.0007
	Pesticides																
	Aldrin	1.9E+00	ug/kg	1.7E+01	1.7E+01	2.9E-10	2.4E-10	5.E-09	4.E-09	9.E-09	3.0E-05	3.0E-05	2.9E-10	2.4E-10	1.E-05	8.E-06	0.00002
	Dieldrin	7.8E-01	ug/kg	1.6E+01	1.6E+01	1.2E-10	9.9E-11	2.E-09	2.E-09	3.E-09	5.0E-05	5.0E-05	1.2E-10	9.9E-11	2.E-06	2.E-06	0.000004
	Total DDT	8.2E+01	ug/kg	3.4E-01	3.4E-01	3.7E-09	1.0E-08	1.E-09	4.E-09	5.E-09	5.0E-04	5.0E-04	3.7E-09	1.0E-08	7.E-06	2.E-05	0.00003
Exposure Point Total										1.E-05							0.2
RM 5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	4.7E-07	2.E-07	7.E-07	9.E-07	3.0E-04	3.0E-04	1.7E-07	4.7E-07	6.E-04	2.E-03	0.002
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	1.1E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.2E+02	ug/kg	--	--	1.8E-08	1.5E-08	--	--	--	3.0E-04	3.0E-04	1.8E-08	1.5E-08	6.E-05	5.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+02	ug/kg	7.3E-01	7.3E-01	6.5E-08	4.2E-08	5.E-08	3.E-08	8.E-08	--	--	6.5E-08	4.2E-08	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	9.3E-08	6.0E-08	7.E-07	4.E-07	1.E-06	--	--	9.3E-08	6.0E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	1.3E-07	8.5E-08	1.E-07	6.E-08	2.E-07	--	--	1.3E-07	8.5E-08	--	--	--
	Benzo(k)fluoranthene	3.0E+02	ug/kg	7.3E-02	7.3E-02	6.0E-08	3.9E-08	4.E-09	3.E-09	7.E-09	--	--	6.0E-08	3.9E-08	--	--	--
	Dibenzo(a,h)anthracene	9.1E+01	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.2E-08	1.E-07	8.E-08	2.E-07	--	--	1.8E-08	1.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	9.5E-08	6.1E-08	7.E-08	4.E-08	1.E-07	--	--	9.5E-08	6.1E-08	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	2.6E-08	1.7E-08	--	--	--	2.0E-02	2.0E-02	2.6E-08	1.7E-08	1.E-06	9.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	2.0E-08	1.7E-08	3.E-10	2.E-10	5.E-10	2.0E-02	2.0E-02	2.0E-08	1.7E-08	1.E-06	8.E-07	0.000002
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	5.1E-09	1.7E-09	2.E-09	7.E-10	3.E-09	5.0E-03	5.0E-03	5.1E-09	1.7E-09	1.E-06	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	5.4E-09	3.2E-09	1.E-08	6.E-09	2.E-08	2.0E-05	2.0E-05	5.4E-09	3.2E-09	3.E-04	2.E-04	0.0004
	Pesticides																
	Aldrin	8.0E-01	ug/kg	1.7E+01	1.7E+01	1.2E-10	1.0E-10	2.E-09	2.E-09	4.E-09	3.0E-05	3.0E-05	1.2E-10	1.0E-10	4.E-06	3.E-06	0.00001
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	1.2E-10	1.0E-10	2.E-09	2.E-09	4.E-09	5.0E-05	5.0E-05	1.2E-10	1.0E-10	2.E-06	2.E-06	0.000004
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	8.5E-11	2.4E-10	3.E-11	8.E-11	1.E-10	5.0E-04	5.0E-04	8.5E-11	2.4E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										3.E-06							0.2
RM 5.5 West	**Metals**																
	Arsenic	6.1E+00	mg/kg	1.5E+00	1.5E+00	2.8E-07	7.7E-07	4.E-07	1.E-06	2.E-06	3.0E-04	3.0E-04	2.8E-07	7.7E-07	9.E-04	3.E-03	0.003
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	1.0E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	6.6E-09	5.5E-09	--	--	--	3.0E-04	3.0E-04	6.6E-09	5.5E-09	2.E-05	2.E-05	0.00004

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+03	ug/kg	7.3E-01	7.3E-01	6.0E-07	3.9E-07	4.E-07	3.E-07	7.E-07	--	--	6.0E-07	3.9E-07	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	8.5E-07	5.5E-07	6.E-06	4.E-06	1.E-05	--	--	8.5E-07	5.5E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+03	ug/kg	7.3E-01	7.3E-01	6.1E-07	3.9E-07	4.E-07	3.E-07	7.E-07	--	--	6.1E-07	3.9E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	4.0E-07	2.6E-07	3.E-08	2.E-08	5.E-08	--	--	4.0E-07	2.6E-07	--	--	--
	Dibenzo(a,h)anthracene	3.5E+02	ug/kg	7.3E+00	7.3E+00	6.9E-08	4.5E-08	5.E-07	3.E-07	8.E-07	--	--	6.9E-08	4.5E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.5E+03	ug/kg	7.3E-01	7.3E-01	6.8E-07	4.4E-07	5.E-07	3.E-07	8.E-07	--	--	6.8E-07	4.4E-07	--	--	--
	Naphthalene	3.3E+02	ug/kg	--	--	6.5E-08	4.2E-08	--	--	--	2.0E-02	2.0E-02	6.5E-08	4.2E-08	3.E-06	2.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+01	ug/kg	1.4E-02	1.4E-02	2.7E-09	2.3E-09	4.E-11	3.E-11	7.E-11	2.0E-02	2.0E-02	2.7E-09	2.3E-09	1.E-07	1.E-07	0.0000003
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	6.8E-09	2.3E-09	3.E-09	9.E-10	4.E-09	5.0E-03	5.0E-03	6.8E-09	2.3E-09	1.E-06	5.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+01	ug/kg	2.0E+00	2.0E+00	1.1E-08	6.5E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	1.1E-08	6.5E-09	5.E-04	3.E-04	0.0009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	1.3E+05	1.3E+05	1.1E-13	3.0E-13	1.E-08	4.E-08	5.E-08	1.0E-09	1.0E-09	1.1E-13	3.0E-13	1.E-04	3.E-04	0.0004
	Total PCB TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	2.3E-13	1.4E-13	3.E-08	2.E-08	5.E-08	1.0E-09	1.0E-09	2.3E-13	1.4E-13	2.E-04	1.E-04	0.0004
	Pesticides																
	Aldrin	6.7E-01	ug/kg	1.7E+01	1.7E+01	1.0E-10	8.5E-11	2.E-09	1.E-09	3.E-09	3.0E-05	3.0E-05	1.0E-10	8.5E-11	3.E-06	3.E-06	0.00001
	Dieldrin	4.1E-01	ug/kg	1.6E+01	1.6E+01	6.2E-11	5.2E-11	1.E-09	8.E-10	2.E-09	5.0E-05	5.0E-05	6.2E-11	5.2E-11	1.E-06	1.E-06	0.000002
	Total DDT	6.2E+01	ug/kg	3.4E-01	3.4E-01	2.8E-09	7.8E-09	9.E-10	3.E-09	4.E-09	5.0E-04	5.0E-04	2.8E-09	7.8E-09	6.E-06	2.E-05	0.00002
Exposure Point Total										2.E-05							0.2
RM 5.5 East	**Metals**																
	Arsenic	8.9E+00	mg/kg	1.5E+00	1.5E+00	4.0E-07	1.1E-06	6.E-07	2.E-06	2.E-06	3.0E-04	3.0E-04	4.0E-07	1.1E-06	1.E-03	4.E-03	0.005
	Mercury	6.7E-01	mg/kg	--	--	0.0E+00	8.5E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.5E-08	0.E+00	8.E-04	0.0008
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	1.2E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	3.2E+02	ug/kg	--	--	4.8E-08	4.1E-08	--	--	--	3.0E-04	3.0E-04	4.8E-08	4.1E-08	2.E-04	1.E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.7E+02	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.3E-08	8.E-08	5.E-08	1.E-07	--	--	1.1E-07	7.3E-08	--	--	--
	Benzo(a)pyrene	7.0E+02	ug/kg	7.3E+00	7.3E+00	1.4E-07	8.9E-08	1.E-06	6.E-07	2.E-06	--	--	1.4E-07	8.9E-08	--	--	--
	Benzo(b)fluoranthene	8.4E+02	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.1E-07	1.E-07	8.E-08	2.E-07	--	--	1.6E-07	1.1E-07	--	--	--
	Benzo(k)fluoranthene	4.4E+02	ug/kg	7.3E-02	7.3E-02	8.7E-08	5.6E-08	6.E-09	4.E-09	1.E-08	--	--	8.7E-08	5.6E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.7E-08	1.8E-08	2.E-07	1.E-07	3.E-07	--	--	2.7E-08	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+02	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.7E-08	8.E-08	5.E-08	1.E-07	--	--	1.0E-07	6.7E-08	--	--	--
	Naphthalene	3.5E+02	ug/kg	--	--	6.9E-08	4.5E-08	--	--	--	2.0E-02	2.0E-02	6.9E-08	4.5E-08	3.E-06	2.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+02	ug/kg	1.4E-02	1.4E-02	5.0E-08	4.2E-08	7.E-10	6.E-10	1.E-09	2.0E-02	2.0E-02	5.0E-08	4.2E-08	2.E-06	2.E-06	0.000005

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	6.6E-09	2.2E-09	3.E-09	9.E-10	4.E-09	5.0E-03	5.0E-03	6.6E-09	2.2E-09	1.E-06	4.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	3.8E-08	2.3E-08	8.E-08	5.E-08	1.E-07	2.0E-05	2.0E-05	3.8E-08	2.3E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	1.3E+05	1.3E+05	4.0E-13	1.1E-12	5.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	4.0E-13	1.1E-12	4.E-04	1.E-03	0.002
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	1.2E-12	7.4E-13	2.E-07	1.E-07	3.E-07	1.0E-09	1.0E-09	1.2E-12	7.4E-13	1.E-03	7.E-04	0.002
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	6.0E-11	5.1E-11	1.E-09	9.E-10	2.E-09	3.0E-05	3.0E-05	6.0E-11	5.1E-11	2.E-06	2.E-06	0.000004
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	9.0E-11	7.6E-11	1.E-09	1.E-09	3.E-09	5.0E-05	5.0E-05	9.0E-11	7.6E-11	2.E-06	2.E-06	0.000003
	Total DDT	2.0E+01	ug/kg	3.4E-01	3.4E-01	8.9E-10	2.5E-09	3.E-10	9.E-10	1.E-09	5.0E-04	5.0E-04	8.9E-10	2.5E-09	2.E-06	5.E-06	0.00001
Exposure Point Total										5.E-06							0.2
RM 6 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.9E-07	5.2E-07	3.E-07	8.E-07	1.E-06	3.0E-04	3.0E-04	1.9E-07	5.2E-07	6.E-04	2.E-03	0.002
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	1.8E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.3E+02	mg/kg	--	--	0.0E+00	1.6E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.6E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	2.0E+01	ug/kg	--	--	3.0E-09	2.5E-09	--	--	--	3.0E-04	3.0E-04	3.0E-09	2.5E-09	1.E-05	8.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+04	ug/kg	7.3E-01	7.3E-01	9.4E-06	6.1E-06	7.E-06	4.E-06	1.E-05	--	--	9.4E-06	6.1E-06	--	--	--
	Benzo(a)pyrene	5.8E+04	ug/kg	7.3E+00	7.3E+00	1.1E-05	7.3E-06	8.E-05	5.E-05	1.E-04	--	--	1.1E-05	7.3E-06	--	--	--
	Benzo(b)fluoranthene	4.3E+04	ug/kg	7.3E-01	7.3E-01	8.4E-06	5.4E-06	6.E-06	4.E-06	1.E-05	--	--	8.4E-06	5.4E-06	--	--	--
	Benzo(k)fluoranthene	2.7E+04	ug/kg	7.3E-02	7.3E-02	5.3E-06	3.4E-06	4.E-07	3.E-07	6.E-07	--	--	5.3E-06	3.4E-06	--	--	--
	Dibenzo(a,h)anthracene	5.4E+03	ug/kg	7.3E+00	7.3E+00	1.1E-06	6.8E-07	8.E-06	5.E-06	1.E-05	--	--	1.1E-06	6.8E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+04	ug/kg	7.3E-01	7.3E-01	7.9E-06	5.1E-06	6.E-06	4.E-06	9.E-06	--	--	7.9E-06	5.1E-06	--	--	--
	Naphthalene	4.4E+04	ug/kg	--	--	8.7E-06	5.6E-06	--	--	--	2.0E-02	2.0E-02	8.7E-06	5.6E-06	4.E-04	3.E-04	0.0007
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.8E+02	ug/kg	1.4E-02	1.4E-02	5.7E-08	4.8E-08	8.E-10	7.E-10	1.E-09	2.0E-02	2.0E-02	5.7E-08	4.8E-08	3.E-06	2.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.5E+01	ug/kg	4.0E-01	4.0E-01	1.3E-08	4.4E-09	5.E-09	2.E-09	7.E-09	5.0E-03	5.0E-03	1.3E-08	4.4E-09	3.E-06	9.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	6.1E+01	ug/kg	2.0E+00	2.0E+00	1.3E-08	7.8E-09	3.E-08	2.E-08	4.E-08	2.0E-05	2.0E-05	1.3E-08	7.8E-09	6.E-04	4.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	6.9E-14	1.9E-13	9.E-09	3.E-08	3.E-08	1.0E-09	1.0E-09	6.9E-14	1.9E-13	7.E-05	2.E-04	0.0003
	Total PCB TEQ	2.8E+00	pg/g	1.3E+05	1.3E+05	6.0E-13	3.6E-13	8.E-08	5.E-08	1.E-07	1.0E-09	1.0E-09	6.0E-13	3.6E-13	6.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	2.3E+00	ug/kg	1.7E+01	1.7E+01	3.5E-10	3.0E-10	6.E-09	5.E-09	1.E-08	3.0E-05	3.0E-05	3.5E-10	3.0E-10	1.E-05	1.E-05	0.00002
	Dieldrin	1.8E+00	ug/kg	1.6E+01	1.6E+01	2.8E-10	2.3E-10	4.E-09	4.E-09	8.E-09	5.0E-05	5.0E-05	2.8E-10	2.3E-10	6.E-06	5.E-06	0.00001
	Total DDT	8.1E+01	ug/kg	3.4E-01	3.4E-01	3.7E-09	1.0E-08	1.E-09	4.E-09	5.E-09	5.0E-04	5.0E-04	3.7E-09	1.0E-08	7.E-06	2.E-05	0.00003
Exposure Point Total										2.E-04							0.2

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 6 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	2.0E-07	5.5E-07	3.E-07	8.E-07	1.E-06	3.0E-04	3.0E-04	2.0E-07	5.5E-07	7.E-04	2.E-03	0.003
	Mercury	4.0E-01	mg/kg	--	--	0.0E+00	5.1E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.1E-08	0.E+00	5.E-04	0.0005
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	1.2E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	3.5E+02	ug/kg	--	--	5.3E-08	4.5E-08	--	--	--	3.0E-04	3.0E-04	5.3E-08	4.5E-08	2.E-04	1.E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	2.6E-07	1.7E-07	2.E-07	1.E-07	3.E-07	--	--	2.6E-07	1.7E-07	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	3.8E-07	2.5E-07	3.E-06	2.E-06	5.E-06	--	--	3.8E-07	2.5E-07	--	--	--
	Benzo(b)fluoranthene	3.3E+03	ug/kg	7.3E-01	7.3E-01	6.4E-07	4.1E-07	5.E-07	3.E-07	8.E-07	--	--	6.4E-07	4.1E-07	--	--	--
	Benzo(k)fluoranthene	2.5E+03	ug/kg	7.3E-02	7.3E-02	5.0E-07	3.2E-07	4.E-08	2.E-08	6.E-08	--	--	5.0E-07	3.2E-07	--	--	--
	Dibenzo(a,h)anthracene	2.7E+02	ug/kg	7.3E+00	7.3E+00	5.3E-08	3.4E-08	4.E-07	3.E-07	6.E-07	--	--	5.3E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+03	ug/kg	7.3E-01	7.3E-01	2.2E-07	1.4E-07	2.E-07	1.E-07	3.E-07	--	--	2.2E-07	1.4E-07	--	--	--
	Naphthalene	8.4E+02	ug/kg	--	--	1.6E-07	1.1E-07	--	--	--	2.0E-02	2.0E-02	1.6E-07	1.1E-07	8.E-06	5.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	2.1E-08	1.8E-08	3.E-10	2.E-10	5.E-10	2.0E-02	2.0E-02	2.1E-08	1.8E-08	1.E-06	9.E-07	0.000002
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	1.7E-08	5.6E-09	7.E-09	2.E-09	9.E-09	5.0E-03	5.0E-03	1.7E-08	5.6E-09	3.E-06	1.E-06	0.000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	3.7E-08	2.2E-08	7.E-08	4.E-08	1.E-07	2.0E-05	2.0E-05	3.7E-08	2.2E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	1.9E-13	5.2E-13	2.E-08	7.E-08	9.E-08	1.0E-09	1.0E-09	1.9E-13	5.2E-13	2.E-04	5.E-04	0.0007
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	7.2E-13	4.3E-13	9.E-08	6.E-08	1.E-07	1.0E-09	1.0E-09	7.2E-13	4.3E-13	7.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	6.4E-01	ug/kg	1.7E+01	1.7E+01	9.6E-11	8.1E-11	2.E-09	1.E-09	3.E-09	3.0E-05	3.0E-05	9.6E-11	8.1E-11	3.E-06	3.E-06	0.00001
	Dieldrin	1.0E-01	ug/kg	1.6E+01	1.6E+01	1.5E-11	1.3E-11	2.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	1.5E-11	1.3E-11	3.E-07	3.E-07	0.000001
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	1.9E-10	5.4E-10	7.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	1.9E-10	5.4E-10	4.E-07	1.E-06	0.000001
Exposure Point Total										8.E-06							0.2
RM 6.5 West	**Metals**																
	Arsenic	1.4E+01	mg/kg	1.5E+00	1.5E+00	6.4E-07	1.8E-06	1.E-06	3.E-06	4.E-06	3.0E-04	3.0E-04	6.4E-07	1.8E-06	2.E-03	6.E-03	0.008
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.6E-08	0.E+00	3.E-04	0.0003
	Vanadium	1.4E+02	mg/kg	--	--	0.0E+00	1.8E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.8E-05	0.E+00	3.E-01	0.3
	Butyltins																
	Tributyltin ion	4.6E+01	ug/kg	--	--	7.0E-09	5.9E-09	--	--	--	3.0E-04	3.0E-04	7.0E-09	5.9E-09	2.E-05	2.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+03	ug/kg	7.3E-01	7.3E-01	2.0E-07	1.3E-07	1.E-07	9.E-08	2.E-07	--	--	2.0E-07	1.3E-07	--	--	--
	Benzo(a)pyrene	1.2E+03	ug/kg	7.3E+00	7.3E+00	2.4E-07	1.6E-07	2.E-06	1.E-06	3.E-06	--	--	2.4E-07	1.6E-07	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	2.7E-07	1.8E-07	2.E-07	1.E-07	3.E-07	--	--	2.7E-07	1.8E-07	--	--	--
	Benzo(k)fluoranthene	6.6E+02	ug/kg	7.3E-02	7.3E-02	1.3E-07	8.4E-08	9.E-09	6.E-09	2.E-08	--	--	1.3E-07	8.4E-08	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	4.2E+02	ug/kg	7.3E+00	7.3E+00	8.3E-08	5.4E-08	6.E-07	4.E-07	1.E-06	--	--	8.3E-08	5.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.1E-07	1.E-07	8.E-08	2.E-07	--	--	1.6E-07	1.1E-07	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	2.7E-08	1.8E-08	--	--	--	2.0E-02	2.0E-02	2.7E-08	1.8E-08	1.E-06	9.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	1.6E-08	1.3E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	1.6E-08	1.3E-08	8.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.4E+00	ug/kg	4.0E-01	4.0E-01	9.1E-10	3.1E-10	4.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	9.1E-10	3.1E-10	2.E-07	6.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	9.1E+01	ug/kg	2.0E+00	2.0E+00	1.9E-08	1.2E-08	4.E-08	2.E-08	6.E-08	2.0E-05	2.0E-05	1.9E-08	1.2E-08	1.E-03	6.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	5.1E-12	1.4E-11	7.E-07	2.E-06	3.E-06	1.0E-09	1.0E-09	5.1E-12	1.4E-11	5.E-03	1.E-02	0.02
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	6.3E-13	3.8E-13	8.E-08	5.E-08	1.E-07	1.0E-09	1.0E-09	6.3E-13	3.8E-13	6.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	2.5E+00	ug/kg	1.7E+01	1.7E+01	3.8E-10	3.2E-10	6.E-09	5.E-09	1.E-08	3.0E-05	3.0E-05	3.8E-10	3.2E-10	1.E-05	1.E-05	0.00002
	Dieldrin	5.9E-01	ug/kg	1.6E+01	1.6E+01	8.9E-11	7.5E-11	1.E-09	1.E-09	3.E-09	5.0E-05	5.0E-05	8.9E-11	7.5E-11	2.E-06	2.E-06	0.000003
	Total DDT	1.7E+02	ug/kg	3.4E-01	3.4E-01	7.6E-09	2.1E-08	3.E-09	7.E-09	1.E-08	5.0E-04	5.0E-04	7.6E-09	2.1E-08	2.E-05	4.E-05	0.00006
Exposure Point Total										1.E-05							0.3
RM 6.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	2.6E-07	7.4E-07	4.E-07	1.E-06	2.E-06	3.0E-04	3.0E-04	2.6E-07	7.4E-07	9.E-04	2.E-03	0.003
	Mercury	1.4E+01	mg/kg	--	--	0.0E+00	1.8E-06	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-06	0.E+00	2.E-02	0.02
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.1E+02	ug/kg	--	--	1.6E-08	1.3E-08	--	--	--	3.0E-04	3.0E-04	1.6E-08	1.3E-08	5.E-05	4.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.3E+02	ug/kg	7.3E-01	7.3E-01	4.6E-08	3.0E-08	3.E-08	2.E-08	6.E-08	--	--	4.6E-08	3.0E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	2.9E-08	1.9E-08	2.E-07	1.E-07	3.E-07	--	--	2.9E-08	1.9E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	4.6E-08	3.0E-08	3.E-08	2.E-08	6.E-08	--	--	4.6E-08	3.0E-08	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	2.9E-08	1.9E-08	2.E-09	1.E-09	3.E-09	--	--	2.9E-08	1.9E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+01	ug/kg	7.3E+00	7.3E+00	3.7E-09	2.4E-09	3.E-08	2.E-08	4.E-08	--	--	3.7E-09	2.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.3E-08	1.E-08	1.E-08	2.E-08	--	--	2.0E-08	1.3E-08	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	2.4E-08	1.6E-08	--	--	--	2.0E-02	2.0E-02	2.4E-08	1.6E-08	1.E-06	8.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	1.9E-08	1.6E-08	3.E-10	2.E-10	5.E-10	2.0E-02	2.0E-02	1.9E-08	1.6E-08	9.E-07	8.E-07	0.000002
	Phenols																
	Pentachlorophenol	4.9E+00	ug/kg	4.0E-01	4.0E-01	1.9E-09	6.3E-10	7.E-10	3.E-10	1.E-09	5.0E-03	5.0E-03	1.9E-09	6.3E-10	4.E-07	1.E-07	0.0000005
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+03	ug/kg	2.0E+00	2.0E+00	2.8E-07	1.7E-07	6.E-07	3.E-07	9.E-07	2.0E-05	2.0E-05	2.8E-07	1.7E-07	1.E-02	8.E-03	0.02
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	1.3E+05	1.3E+05	4.0E-12	1.1E-11	5.E-07	1.E-06	2.E-06	1.0E-09	1.0E-09	4.0E-12	1.1E-11	4.E-03	1.E-02	0.02
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	2.8E-12	1.7E-12	4.E-07	2.E-07	6.E-07	1.0E-09	1.0E-09	2.8E-12	1.7E-12	3.E-03	2.E-03	0.005

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	4.4E-11	3.7E-11	7.E-10	6.E-10	1.E-09	3.0E-05	3.0E-05	4.4E-11	3.7E-11	1.E-06	1.E-06	0.000003
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	3.0E-11	2.5E-11	5.E-10	4.E-10	9.E-10	5.0E-05	5.0E-05	3.0E-11	2.5E-11	6.E-07	5.E-07	0.000001
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	5.8E-09	1.6E-08	2.E-09	6.E-09	8.E-09	5.0E-04	5.0E-04	5.8E-09	1.6E-08	1.E-05	3.E-05	0.00004
Exposure Point Total										6.E-06							0.3
RM 7 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	2.4E-07	6.7E-07	4.E-07	1.E-06	1.E-06	3.0E-04	3.0E-04	2.4E-07	6.7E-07	8.E-04	2.E-03	0.003
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.4E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	6.4E+00	ug/kg	--	--	9.7E-10	8.1E-10	--	--	--	3.0E-04	3.0E-04	9.7E-10	8.1E-10	3.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+03	ug/kg	7.3E-01	7.3E-01	4.4E-07	2.8E-07	3.E-07	2.E-07	5.E-07	--	--	4.4E-07	2.8E-07	--	--	--
	Benzo(a)pyrene	1.7E+03	ug/kg	7.3E+00	7.3E+00	3.3E-07	2.2E-07	2.E-06	2.E-06	4.E-06	--	--	3.3E-07	2.2E-07	--	--	--
	Benzo(b)fluoranthene	4.5E+03	ug/kg	7.3E-01	7.3E-01	8.8E-07	5.7E-07	6.E-07	4.E-07	1.E-06	--	--	8.8E-07	5.7E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+03	ug/kg	7.3E-02	7.3E-02	2.8E-07	1.8E-07	2.E-08	1.E-08	3.E-08	--	--	2.8E-07	1.8E-07	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	1.4E-07	9.0E-08	1.E-06	7.E-07	2.E-06	--	--	1.4E-07	9.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+03	ug/kg	7.3E-01	7.3E-01	2.7E-07	1.8E-07	2.E-07	1.E-07	3.E-07	--	--	2.7E-07	1.8E-07	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	2.2E-09	1.4E-09	--	--	--	2.0E-02	2.0E-02	2.2E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.7E+02	ug/kg	1.4E-02	1.4E-02	4.1E-08	3.5E-08	6.E-10	5.E-10	1.E-09	2.0E-02	2.0E-02	4.1E-08	3.5E-08	2.E-06	2.E-06	0.000004
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	1.7E-08	5.6E-09	7.E-09	2.E-09	9.E-09	5.0E-03	5.0E-03	1.7E-08	5.6E-09	3.E-06	1.E-06	0.000004
	Polychlorinated Biphenyls																
	Total Aroclors	9.3E+01	ug/kg	2.0E+00	2.0E+00	2.0E-08	1.2E-08	4.E-08	2.E-08	6.E-08	2.0E-05	2.0E-05	2.0E-08	1.2E-08	1.E-03	6.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	1.3E+05	1.3E+05	6.4E-10	1.8E-09	8.E-05	2.E-04	3.E-04	1.0E-09	1.0E-09	6.4E-10	1.8E-09	6.E-01	2.E+00	2
	Total PCB TEQ	2.7E+01	pg/g	1.3E+05	1.3E+05	5.6E-12	3.4E-12	7.E-07	4.E-07	1.E-06	1.0E-09	1.0E-09	5.6E-12	3.4E-12	6.E-03	3.E-03	0.009
	Pesticides																
	Aldrin	1.9E+02	ug/kg	1.7E+01	1.7E+01	2.9E-08	2.4E-08	5.E-07	4.E-07	9.E-07	3.0E-05	3.0E-05	2.9E-08	2.4E-08	1.E-03	8.E-04	0.002
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	3.1E-10	2.6E-10	5.E-09	4.E-09	9.E-09	5.0E-05	5.0E-05	3.1E-10	2.6E-10	6.E-06	5.E-06	0.00001
	Total DDT	6.3E+03	ug/kg	3.4E-01	3.4E-01	2.9E-07	8.0E-07	1.E-07	3.E-07	4.E-07	5.0E-04	5.0E-04	2.9E-07	8.0E-07	6.E-04	2.E-03	0.002
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	3.5E-05	--	--	--	7.0E-04	7.0E-04	0.0E+00	3.5E-05	0.E+00	5.E-02	0.05
Exposure Point Total										3.E-04							3
RM 7 East	**Metals**																
	Arsenic	1.5E+01	mg/kg	1.5E+00	1.5E+00	6.7E-07	1.9E-06	1.E-06	3.E-06	4.E-06	3.0E-04	3.0E-04	6.7E-07	1.9E-06	2.E-03	6.E-03	0.008
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	8.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.6E-09	0.E+00	9.E-05	0.00009
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.0E+03	ug/kg	--	--	1.6E-07	1.3E-07	--	--	--	3.0E-04	3.0E-04	1.6E-07	1.3E-07	5.E-04	4.E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.2E+02	ug/kg	7.3E-01	7.3E-01	8.2E-08	5.3E-08	6.E-08	4.E-08	1.E-07	--	--	8.2E-08	5.3E-08	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	1.1E-07	7.4E-08	8.E-07	5.E-07	1.E-06	--	--	1.1E-07	7.4E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	1.3E-07	8.5E-08	1.E-07	6.E-08	2.E-07	--	--	1.3E-07	8.5E-08	--	--	--
	Benzo(k)fluoranthene	6.5E+02	ug/kg	7.3E-02	7.3E-02	1.3E-07	8.2E-08	9.E-09	6.E-09	2.E-08	--	--	1.3E-07	8.2E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	3.7E-08	2.4E-08	3.E-07	2.E-07	4.E-07	--	--	3.7E-08	2.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+02	ug/kg	7.3E-01	7.3E-01	7.7E-08	5.0E-08	6.E-08	4.E-08	9.E-08	--	--	7.7E-08	5.0E-08	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	8.9E-09	5.7E-09	--	--	--	2.0E-02	2.0E-02	8.9E-09	5.7E-09	4.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	2.0E-07	1.7E-07	3.E-09	2.E-09	5.E-09	2.0E-02	2.0E-02	2.0E-07	1.7E-07	1.E-05	8.E-06	0.00002
	Phenols																
	Pentachlorophenol	1.2E+02	ug/kg	4.0E-01	4.0E-01	4.5E-08	1.5E-08	2.E-08	6.E-09	2.E-08	5.0E-03	5.0E-03	4.5E-08	1.5E-08	9.E-06	3.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	1.5E-08	8.9E-09	3.E-08	2.E-08	5.E-08	2.0E-05	2.0E-05	1.5E-08	8.9E-09	7.E-04	4.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	1.3E+05	1.3E+05	1.8E-12	5.1E-12	2.E-07	7.E-07	9.E-07	1.0E-09	1.0E-09	1.8E-12	5.1E-12	2.E-03	5.E-03	0.007
	Total PCB TEQ	7.4E-01	pg/g	1.3E+05	1.3E+05	1.6E-13	9.4E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	1.6E-13	9.4E-14	2.E-04	9.E-05	0.0003
	Pesticides																
	Aldrin	4.6E-01	ug/kg	1.7E+01	1.7E+01	7.0E-11	5.9E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	7.0E-11	5.9E-11	2.E-06	2.E-06	0.000004
	Dieldrin	1.2E-01	ug/kg	1.6E+01	1.6E+01	1.7E-11	1.5E-11	3.E-10	2.E-10	5.E-10	5.0E-05	5.0E-05	1.7E-11	1.5E-11	3.E-07	3.E-07	0.000001
	Total DDT	1.3E+01	ug/kg	3.4E-01	3.4E-01	5.8E-10	1.6E-09	2.E-10	6.E-10	8.E-10	5.0E-04	5.0E-04	5.8E-10	1.6E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										7.E-06							0.2
RM 7.5 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	4.7E-07	2.E-07	7.E-07	1.E-06	3.0E-04	3.0E-04	1.7E-07	4.7E-07	6.E-04	2.E-03	0.002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	1.7E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	9.7E+00	ug/kg	--	--	1.5E-09	1.2E-09	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.2E-09	5.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+02	ug/kg	7.3E-01	7.3E-01	8.5E-08	5.5E-08	6.E-08	4.E-08	1.E-07	--	--	8.5E-08	5.5E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	6.7E-08	4.4E-08	5.E-07	3.E-07	8.E-07	--	--	6.7E-08	4.4E-08	--	--	--
	Benzo(b)fluoranthene	4.6E+02	ug/kg	7.3E-01	7.3E-01	9.1E-08	5.9E-08	7.E-08	4.E-08	1.E-07	--	--	9.1E-08	5.9E-08	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	2.5E-08	1.6E-08	2.E-09	1.E-09	3.E-09	--	--	2.5E-08	1.6E-08	--	--	--
	Dibenzo(a,h)anthracene	5.0E+01	ug/kg	7.3E+00	7.3E+00	9.8E-09	6.3E-09	7.E-08	5.E-08	1.E-07	--	--	9.8E-09	6.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E+02	ug/kg	7.3E-01	7.3E-01	3.7E-08	2.4E-08	3.E-08	2.E-08	4.E-08	--	--	3.7E-08	2.4E-08	--	--	--
	Naphthalene	3.3E+01	ug/kg	--	--	6.5E-09	4.2E-09	--	--	--	2.0E-02	2.0E-02	6.5E-09	4.2E-09	3.E-07	2.E-07	0.000001

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	2.8E-08	2.3E-08	4.E-10	3.E-10	7.E-10	2.0E-02	2.0E-02	2.8E-08	2.3E-08	1.E-06	1.E-06	0.000003
	Phenols																
	Pentachlorophenol	2.1E+00	ug/kg	4.0E-01	4.0E-01	7.8E-10	2.6E-10	3.E-10	1.E-10	4.E-10	5.0E-03	5.0E-03	7.8E-10	2.6E-10	2.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+02	ug/kg	2.0E+00	2.0E+00	5.3E-08	3.2E-08	1.E-07	6.E-08	2.E-07	2.0E-05	2.0E-05	5.3E-08	3.2E-08	3.E-03	2.E-03	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	1.2E-13	3.3E-13	2.E-08	4.E-08	6.E-08	1.0E-09	1.0E-09	1.2E-13	3.3E-13	1.E-04	3.E-04	0.0005
	Total PCB TEQ	9.2E-01	pg/g	1.3E+05	1.3E+05	2.0E-13	1.2E-13	3.E-08	2.E-08	4.E-08	1.0E-09	1.0E-09	2.0E-13	1.2E-13	2.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	4.3E-11	3.6E-11	7.E-10	6.E-10	1.E-09	3.0E-05	3.0E-05	4.3E-11	3.6E-11	1.E-06	1.E-06	0.000003
	Dieldrin	7.7E-01	ug/kg	1.6E+01	1.6E+01	1.2E-10	9.8E-11	2.E-09	2.E-09	3.E-09	5.0E-05	5.0E-05	1.2E-10	9.8E-11	2.E-06	2.E-06	0.000004
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	5.8E-09	1.6E-08	2.E-09	6.E-09	8.E-09	5.0E-04	5.0E-04	5.8E-09	1.6E-08	1.E-05	3.E-05	0.00004
Exposure Point Total										2.E-06							0.2
RM 7.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.9E-07	5.3E-07	3.E-07	8.E-07	1.E-06	3.0E-04	3.0E-04	1.9E-07	5.3E-07	6.E-04	2.E-03	0.002
	Mercury	1.0E-01	mg/kg	--	--	0.0E+00	1.3E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	2.3E+02	ug/kg	--	--	3.4E-08	2.9E-08	--	--	--	3.0E-04	3.0E-04	3.4E-08	2.9E-08	1.E-04	1.E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.0E+01	ug/kg	7.3E-01	7.3E-01	7.8E-09	5.0E-09	6.E-09	4.E-09	9.E-09	--	--	7.8E-09	5.0E-09	--	--	--
	Benzo(a)pyrene	3.5E+01	ug/kg	7.3E+00	7.3E+00	6.9E-09	4.5E-09	5.E-08	3.E-08	8.E-08	--	--	6.9E-09	4.5E-09	--	--	--
	Benzo(b)fluoranthene	4.4E+01	ug/kg	7.3E-01	7.3E-01	8.7E-09	5.6E-09	6.E-09	4.E-09	1.E-08	--	--	8.7E-09	5.6E-09	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	6.1E-09	3.9E-09	4.E-10	3.E-10	7.E-10	--	--	6.1E-09	3.9E-09	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	2.1E-09	1.4E-09	2.E-08	1.E-08	3.E-08	--	--	2.1E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+01	ug/kg	7.3E-01	7.3E-01	4.7E-09	3.0E-09	3.E-09	2.E-09	6.E-09	--	--	4.7E-09	3.0E-09	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	2.2E-09	1.4E-09	--	--	--	2.0E-02	2.0E-02	2.2E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+03	ug/kg	1.4E-02	1.4E-02	5.5E-07	4.6E-07	8.E-09	7.E-09	1.E-08	2.0E-02	2.0E-02	5.5E-07	4.6E-07	3.E-05	2.E-05	0.00005
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+01	ug/kg	2.0E+00	2.0E+00	9.5E-09	5.7E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	9.5E-09	5.7E-09	5.E-04	3.E-04	0.0008
	Pesticides																
	Dieldrin	3.4E-01	ug/kg	1.6E+01	1.6E+01	5.1E-11	4.3E-11	8.E-10	7.E-10	2.E-09	5.0E-05	5.0E-05	5.1E-11	4.3E-11	1.E-06	9.E-07	0.000002
	Total DDT	3.3E+00	ug/kg	3.4E-01	3.4E-01	1.5E-10	4.2E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	1.5E-10	4.2E-10	3.E-07	8.E-07	0.000001
Exposure Point Total										1.E-06							0.2
RM 8 West	**Metals**																
	Arsenic	8.0E+00	mg/kg	1.5E+00	1.5E+00	3.6E-07	1.0E-06	5.E-07	2.E-06	2.E-06	3.0E-04	3.0E-04	3.6E-07	1.0E-06	1.E-03	3.E-03	0.005
	Mercury	3.3E-01	mg/kg	--	--	0.0E+00	4.1E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.1E-08	0.E+00	4.E-04	0.0004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	2.5E+01	ug/kg	--	--	3.7E-09	3.1E-09	--	--	--	3.0E-04	3.0E-04	3.7E-09	3.1E-09	1.E-05	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.0E-08	8.E-08	5.E-08	1.E-07	--	--	1.1E-07	7.0E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	9.6E-08	6.2E-08	7.E-07	5.E-07	1.E-06	--	--	9.6E-08	6.2E-08	--	--	--
	Benzo(b)fluoranthene	6.9E+02	ug/kg	7.3E-01	7.3E-01	1.4E-07	8.7E-08	1.E-07	6.E-08	2.E-07	--	--	1.4E-07	8.7E-08	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	2.4E-08	1.6E-08	2.E-09	1.E-09	3.E-09	--	--	2.4E-08	1.6E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.7E-08	1.8E-08	2.E-07	1.E-07	3.E-07	--	--	2.7E-08	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	6.2E-08	4.0E-08	5.E-08	3.E-08	7.E-08	--	--	6.2E-08	4.0E-08	--	--	--
	Naphthalene	8.1E+01	ug/kg	--	--	1.6E-08	1.0E-08	--	--	--	2.0E-02	2.0E-02	1.6E-08	1.0E-08	8.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+03	ug/kg	1.4E-02	1.4E-02	4.5E-07	3.8E-07	6.E-09	5.E-09	1.E-08	2.0E-02	2.0E-02	4.5E-07	3.8E-07	2.E-05	2.E-05	0.00004
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	5.7E-09	1.9E-09	2.E-09	8.E-10	3.E-09	5.0E-03	5.0E-03	5.7E-09	1.9E-09	1.E-06	4.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+02	ug/kg	2.0E+00	2.0E+00	8.5E-08	5.1E-08	2.E-07	1.E-07	3.E-07	2.0E-05	2.0E-05	8.5E-08	5.1E-08	4.E-03	3.E-03	0.007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.3E+05	1.3E+05	1.9E-14	5.4E-14	3.E-09	7.E-09	1.E-08	1.0E-09	1.0E-09	1.9E-14	5.4E-14	2.E-05	5.E-05	0.00007
	Total PCB TEQ	6.1E+00	pg/g	1.3E+05	1.3E+05	1.3E-12	7.7E-13	2.E-07	1.E-07	3.E-07	1.0E-09	1.0E-09	1.3E-12	7.7E-13	1.E-03	8.E-04	0.002
	Pesticides																
	Aldrin	1.2E-01	ug/kg	1.7E+01	1.7E+01	1.7E-11	1.5E-11	3.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	1.7E-11	1.5E-11	6.E-07	5.E-07	0.000001
	Dieldrin	4.6E+00	ug/kg	1.6E+01	1.6E+01	6.9E-10	5.8E-10	1.E-08	9.E-09	2.E-08	5.0E-05	5.0E-05	6.9E-10	5.8E-10	1.E-05	1.E-05	0.00003
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	9.6E-10	2.7E-09	3.E-10	9.E-10	1.E-09	5.0E-04	5.0E-04	9.6E-10	2.7E-09	2.E-06	5.E-06	0.00001
Exposure Point Total										5.E-06							0.2
RM 8 East	**Metals**																
	Arsenic	9.1E+00	mg/kg	1.5E+00	1.5E+00	4.1E-07	1.2E-06	6.E-07	2.E-06	2.E-06	3.0E-04	3.0E-04	4.1E-07	1.2E-06	1.E-03	4.E-03	0.005
	Mercury	2.2E-01	mg/kg	--	--	0.0E+00	2.8E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.8E-08	0.E+00	3.E-04	0.0003
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	5.8E+03	ug/kg	--	--	8.8E-07	7.4E-07	--	--	--	3.0E-04	3.0E-04	8.8E-07	7.4E-07	3.E-03	2.E-03	0.005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+02	ug/kg	7.3E-01	7.3E-01	9.7E-08	6.3E-08	7.E-08	5.E-08	1.E-07	--	--	9.7E-08	6.3E-08	--	--	--
	Benzo(a)pyrene	5.3E+02	ug/kg	7.3E+00	7.3E+00	1.0E-07	6.7E-08	8.E-07	5.E-07	1.E-06	--	--	1.0E-07	6.7E-08	--	--	--
	Benzo(b)fluoranthene	5.5E+02	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.0E-08	8.E-08	5.E-08	1.E-07	--	--	1.1E-07	7.0E-08	--	--	--
	Benzo(k)fluoranthene	3.7E+02	ug/kg	7.3E-02	7.3E-02	7.2E-08	4.7E-08	5.E-09	3.E-09	9.E-09	--	--	7.2E-08	4.7E-08	--	--	--
	Dibenzo(a,h)anthracene	4.0E+01	ug/kg	7.3E+00	7.3E+00	7.9E-09	5.1E-09	6.E-08	4.E-08	1.E-07	--	--	7.9E-09	5.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	7.2E-08	4.7E-08	5.E-08	3.E-08	9.E-08	--	--	7.2E-08	4.7E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	4.3E-09	2.8E-09	--	--	--	2.0E-02	2.0E-02	4.3E-09	2.8E-09	2.E-07	1.E-07	0.0000004

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	2.0E-07	1.7E-07	3.E-09	2.E-09	5.E-09	2.0E-02	2.0E-02	2.0E-07	1.7E-07	1.E-05	8.E-06	0.00002
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	1.0E-08	3.4E-09	4.E-09	1.E-09	5.E-09	5.0E-03	5.0E-03	1.0E-08	3.4E-09	2.E-06	7.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	5.8E+02	ug/kg	2.0E+00	2.0E+00	1.2E-07	7.4E-08	2.E-07	1.E-07	4.E-07	2.0E-05	2.0E-05	1.2E-07	7.4E-08	6.E-03	4.E-03	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	9.4E-14	2.6E-13	1.E-08	3.E-08	5.E-08	1.0E-09	1.0E-09	9.4E-14	2.6E-13	9.E-05	3.E-04	0.0004
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	3.7E-12	2.2E-12	5.E-07	3.E-07	8.E-07	1.0E-09	1.0E-09	3.7E-12	2.2E-12	4.E-03	2.E-03	0.006
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	6.7E-11	5.6E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	6.7E-11	5.6E-11	2.E-06	2.E-06	0.000004
	Dieldrin	4.7E+00	ug/kg	1.6E+01	1.6E+01	7.0E-10	5.9E-10	1.E-08	9.E-09	2.E-08	5.0E-05	5.0E-05	7.0E-10	5.9E-10	1.E-05	1.E-05	0.00003
	Total DDT	9.4E+01	ug/kg	3.4E-01	3.4E-01	4.2E-09	1.2E-08	1.E-09	4.E-09	5.E-09	5.0E-04	5.0E-04	4.2E-09	1.2E-08	8.E-06	2.E-05	0.00003
Exposure Point Total										5.E-06							0.2
RM 8 SIL	**Metals**																
	Arsenic	5.9E+00	mg/kg	1.5E+00	1.5E+00	2.7E-07	7.6E-07	4.E-07	1.E-06	2.E-06	3.0E-04	3.0E-04	2.7E-07	7.6E-07	9.E-04	3.E-03	0.003
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	1.8E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	1.6E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.6E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	2.1E+04	ug/kg	--	--	3.2E-06	2.7E-06	--	--	--	3.0E-04	3.0E-04	3.2E-06	2.7E-06	1.E-02	9.E-03	0.02
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.4E+02	ug/kg	7.3E-01	7.3E-01	1.1E-07	6.8E-08	8.E-08	5.E-08	1.E-07	--	--	1.1E-07	6.8E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	7.1E-08	4.6E-08	5.E-07	3.E-07	8.E-07	--	--	7.1E-08	4.6E-08	--	--	--
	Benzo(b)fluoranthene	7.0E+02	ug/kg	7.3E-01	7.3E-01	1.4E-07	8.9E-08	1.E-07	6.E-08	2.E-07	--	--	1.4E-07	8.9E-08	--	--	--
	Benzo(k)fluoranthene	3.5E+02	ug/kg	7.3E-02	7.3E-02	6.8E-08	4.4E-08	5.E-09	3.E-09	8.E-09	--	--	6.8E-08	4.4E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+01	ug/kg	7.3E+00	7.3E+00	1.4E-08	9.1E-09	1.E-07	7.E-08	2.E-07	--	--	1.4E-08	9.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+02	ug/kg	7.3E-01	7.3E-01	4.1E-08	2.6E-08	3.E-08	2.E-08	5.E-08	--	--	4.1E-08	2.6E-08	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	6.0E-09	3.9E-09	--	--	--	2.0E-02	2.0E-02	6.0E-09	3.9E-09	3.E-07	2.E-07	0.0000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.1E+04	ug/kg	1.4E-02	1.4E-02	6.2E-06	5.2E-06	9.E-08	7.E-08	2.E-07	2.0E-02	2.0E-02	6.2E-06	5.2E-06	3.E-04	3.E-04	0.0006
	Phenols																
	Pentachlorophenol	3.3E+01	ug/kg	4.0E-01	4.0E-01	1.2E-08	4.1E-09	5.E-09	2.E-09	7.E-09	5.0E-03	5.0E-03	1.2E-08	4.1E-09	2.E-06	8.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	5.3E+02	ug/kg	2.0E+00	2.0E+00	1.1E-07	6.7E-08	2.E-07	1.E-07	4.E-07	2.0E-05	2.0E-05	1.1E-07	6.7E-08	6.E-03	3.E-03	0.009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	1.5E-12	4.2E-12	2.E-07	5.E-07	7.E-07	1.0E-09	1.0E-09	1.5E-12	4.2E-12	1.E-03	4.E-03	0.006
	Total PCB TEQ	8.8E+01	pg/g	1.3E+05	1.3E+05	1.9E-11	1.1E-11	2.E-06	1.E-06	4.E-06	1.0E-09	1.0E-09	1.9E-11	1.1E-11	2.E-02	1.E-02	0.03

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	5.4E-11	4.5E-11	9.E-10	8.E-10	2.E-09	3.0E-05	3.0E-05	5.4E-11	4.5E-11	2.E-06	2.E-06	0.000003
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	2.1E-10	1.8E-10	3.E-09	3.E-09	6.E-09	5.0E-05	5.0E-05	2.1E-10	1.8E-10	4.E-06	4.E-06	0.00001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	5.4E-10	1.5E-09	2.E-10	5.E-10	7.E-10	5.0E-04	5.0E-04	5.4E-10	1.5E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										8.E-06							0.3
RM 8.5 West	**Metals**																
	Arsenic	1.2E+01	mg/kg	1.5E+00	1.5E+00	5.3E-07	1.5E-06	8.E-07	2.E-06	3.E-06	3.0E-04	3.0E-04	5.3E-07	1.5E-06	2.E-03	5.E-03	0.007
	Mercury	4.7E-01	mg/kg	--	--	0.0E+00	6.0E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.0E-08	0.E+00	6.E-04	0.0006
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	2.5E-09	2.1E-09	--	--	--	3.0E-04	3.0E-04	2.5E-09	2.1E-09	8.E-06	7.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	3.5E-08	2.3E-08	3.E-08	2.E-08	4.E-08	--	--	3.5E-08	2.3E-08	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	4.4E-08	2.8E-08	3.E-07	2.E-07	5.E-07	--	--	4.4E-08	2.8E-08	--	--	--
	Benzo(b)fluoranthene	1.8E+02	ug/kg	7.3E-01	7.3E-01	3.6E-08	2.3E-08	3.E-08	2.E-08	4.E-08	--	--	3.6E-08	2.3E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	2.2E-08	1.4E-08	2.E-09	1.E-09	3.E-09	--	--	2.2E-08	1.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	3.3E-09	2.1E-09	2.E-08	2.E-08	4.E-08	--	--	3.3E-09	2.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	7.6E+01	ug/kg	7.3E-01	7.3E-01	1.5E-08	9.6E-09	1.E-08	7.E-09	2.E-08	--	--	1.5E-08	9.6E-09	--	--	--
	Naphthalene	3.7E+01	ug/kg	--	--	7.2E-09	4.7E-09	--	--	--	2.0E-02	2.0E-02	7.2E-09	4.7E-09	4.E-07	2.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+03	ug/kg	1.4E-02	1.4E-02	2.6E-07	2.2E-07	4.E-09	3.E-09	7.E-09	2.0E-02	2.0E-02	2.6E-07	2.2E-07	1.E-05	1.E-05	0.00002
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	1.5E-09	4.9E-10	6.E-10	2.E-10	8.E-10	5.0E-03	5.0E-03	1.5E-09	4.9E-10	3.E-07	1.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	8.5E+03	ug/kg	2.0E+00	2.0E+00	1.8E-06	1.1E-06	4.E-06	2.E-06	6.E-06	2.0E-05	2.0E-05	1.8E-06	1.1E-06	9.E-02	5.E-02	0.1
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	1.3E+05	1.3E+05	8.2E-13	2.3E-12	1.E-07	3.E-07	4.E-07	1.0E-09	1.0E-09	8.2E-13	2.3E-12	8.E-04	2.E-03	0.003
	Total PCB TEQ	2.4E+02	pg/g	1.3E+05	1.3E+05	5.1E-11	3.0E-11	7.E-06	4.E-06	1.E-05	1.0E-09	1.0E-09	5.1E-11	3.0E-11	5.E-02	3.E-02	0.08
	Pesticides																
	Aldrin	3.2E+01	ug/kg	1.7E+01	1.7E+01	4.9E-09	4.1E-09	8.E-08	7.E-08	2.E-07	3.0E-05	3.0E-05	4.9E-09	4.1E-09	2.E-04	1.E-04	0.0003
	Dieldrin	3.9E+01	ug/kg	1.6E+01	1.6E+01	5.8E-09	4.9E-09	9.E-08	8.E-08	2.E-07	5.0E-05	5.0E-05	5.8E-09	4.9E-09	1.E-04	1.E-04	0.0002
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	1.0E-09	2.8E-09	3.E-10	1.E-09	1.E-09	5.0E-04	5.0E-04	1.0E-09	2.8E-09	2.E-06	6.E-06	0.00001
Exposure Point Total										2.E-05							0.4
RM 8.5 East	**Metals**																
	Arsenic	9.0E+00	mg/kg	1.5E+00	1.5E+00	4.1E-07	1.2E-06	6.E-07	2.E-06	2.E-06	3.0E-04	3.0E-04	4.1E-07	1.2E-06	1.E-03	4.E-03	0.005
	Mercury	1.8E-01	mg/kg	--	--	0.0E+00	2.3E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	3.1E+01	ug/kg	--	--	4.6E-09	3.9E-09	--	--	--	3.0E-04	3.0E-04	4.6E-09	3.9E-09	2.E-05	1.E-05	0.00003

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	1.9E-08	1.2E-08	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	2.0E-08	1.3E-08	1.E-07	9.E-08	2.E-07	--	--	2.0E-08	1.3E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.7E-08	2.E-08	1.E-08	3.E-08	--	--	2.7E-08	1.7E-08	--	--	--
	Benzo(k)fluoranthene	9.8E+01	ug/kg	7.3E-02	7.3E-02	1.9E-08	1.2E-08	1.E-09	9.E-10	2.E-09	--	--	1.9E-08	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	2.3E-09	1.5E-09	2.E-08	1.E-08	3.E-08	--	--	2.3E-09	1.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.0E+01	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	1.6E-08	1.0E-08	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	2.9E-08	1.9E-08	--	--	--	2.0E-02	2.0E-02	2.9E-08	1.9E-08	1.E-06	9.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+02	ug/kg	1.4E-02	1.4E-02	1.4E-07	1.2E-07	2.E-09	2.E-09	4.E-09	2.0E-02	2.0E-02	1.4E-07	1.2E-07	7.E-06	6.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.2E+01	ug/kg	2.0E+00	2.0E+00	1.5E-08	9.2E-09	3.E-08	2.E-08	5.E-08	2.0E-05	2.0E-05	1.5E-08	9.2E-09	8.E-04	5.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	1.3E+05	1.3E+05	4.3E-14	1.2E-13	6.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	4.3E-14	1.2E-13	4.E-05	1.E-04	0.0002
	Total PCB TEQ	5.9E-01	pg/g	1.3E+05	1.3E+05	1.3E-13	7.5E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	1.3E-13	7.5E-14	1.E-04	8.E-05	0.0002
	Pesticides																
	Aldrin	4.1E-02	ug/kg	1.7E+01	1.7E+01	6.2E-12	5.2E-12	1.E-10	9.E-11	2.E-10	3.0E-05	3.0E-05	6.2E-12	5.2E-12	2.E-07	2.E-07	0.0000004
	Dieldrin	4.4E-01	ug/kg	1.6E+01	1.6E+01	6.6E-11	5.6E-11	1.E-09	9.E-10	2.E-09	5.0E-05	5.0E-05	6.6E-11	5.6E-11	1.E-06	1.E-06	0.000002
	Total DDT	2.3E+00	ug/kg	3.4E-01	3.4E-01	1.0E-10	2.9E-10	4.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	1.0E-10	2.9E-10	2.E-07	6.E-07	0.000001
Exposure Point Total										3.E-06							0.2
RM 9 West	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.3E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.2E-07	6.3E-07	7.E-04	2.E-03	0.003
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	3.0E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.0E-08	0.E+00	3.E-04	0.0003
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.4E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	2.5E-09	2.1E-09	--	--	--	3.0E-04	3.0E-04	2.5E-09	2.1E-09	8.E-06	7.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	6.2E-08	4.0E-08	5.E-08	3.E-08	7.E-08	--	--	6.2E-08	4.0E-08	--	--	--
	Benzo(a)pyrene	1.9E+02	ug/kg	7.3E+00	7.3E+00	3.8E-08	2.4E-08	3.E-07	2.E-07	5.E-07	--	--	3.8E-08	2.4E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	6.0E-08	3.9E-08	4.E-08	3.E-08	7.E-08	--	--	6.0E-08	3.9E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	2.2E-08	1.5E-08	2.E-09	1.E-09	3.E-09	--	--	2.2E-08	1.5E-08	--	--	--
	Dibenzo(a,h)anthracene	4.8E+01	ug/kg	7.3E+00	7.3E+00	9.4E-09	6.1E-09	7.E-08	4.E-08	1.E-07	--	--	9.4E-09	6.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	2.3E-08	1.5E-08	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	4.9E-09	3.2E-09	--	--	--	2.0E-02	2.0E-02	4.9E-09	3.2E-09	2.E-07	2.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+02	ug/kg	1.4E-02	1.4E-02	6.7E-08	5.6E-08	9.E-10	8.E-10	2.E-09	2.0E-02	2.0E-02	6.7E-08	5.6E-08	3.E-06	3.E-06	0.00001
	Phenols																
	Pentachlorophenol	4.5E+01	ug/kg	4.0E-01	4.0E-01	1.7E-08	5.7E-09	7.E-09	2.E-09	9.E-09	5.0E-03	5.0E-03	1.7E-08	5.7E-09	3.E-06	1.E-06	0.000005

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+03	ug/kg	2.0E+00	2.0E+00	4.9E-07	3.0E-07	1.E-06	6.E-07	2.E-06	2.0E-05	2.0E-05	4.9E-07	3.0E-07	2.E-02	1.E-02	0.04
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	1.3E+05	1.3E+05	2.7E-13	7.6E-13	4.E-08	1.E-07	1.E-07	1.0E-09	1.0E-09	2.7E-13	7.6E-13	3.E-04	8.E-04	0.001
	Total PCB TEQ	3.2E+01	pg/g	1.3E+05	1.3E+05	6.8E-12	4.1E-12	9.E-07	5.E-07	1.E-06	1.0E-09	1.0E-09	6.8E-12	4.1E-12	7.E-03	4.E-03	0.01
	Pesticides																
	Aldrin	1.4E+00	ug/kg	1.7E+01	1.7E+01	2.1E-10	1.8E-10	4.E-09	3.E-09	7.E-09	3.0E-05	3.0E-05	2.1E-10	1.8E-10	7.E-06	6.E-06	0.00001
	Dieldrin	6.3E-01	ug/kg	1.6E+01	1.6E+01	9.5E-11	8.0E-11	2.E-09	1.E-09	3.E-09	5.0E-05	5.0E-05	9.5E-11	8.0E-11	2.E-06	2.E-06	0.000003
	Total DDT	9.9E+00	ug/kg	3.4E-01	3.4E-01	4.5E-10	1.3E-09	2.E-10	4.E-10	6.E-10	5.0E-04	5.0E-04	4.5E-10	1.3E-09	9.E-07	3.E-06	0.000003
Exposure Point Total										5.E-06							0.3
RM 9 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.1E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.2E-07	6.1E-07	7.E-04	2.E-03	0.003
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	7.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.8E-09	0.E+00	8.E-05	0.00008
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.8E-09	2.E-09	1.E-09	3.E-09	--	--	2.7E-09	1.8E-09	--	--	--
	Benzo(a)pyrene	1.7E+01	ug/kg	7.3E+00	7.3E+00	3.4E-09	2.2E-09	3.E-08	2.E-08	4.E-08	--	--	3.4E-09	2.2E-09	--	--	--
	Benzo(b)fluoranthene	2.4E+01	ug/kg	7.3E-01	7.3E-01	4.7E-09	3.0E-09	3.E-09	2.E-09	6.E-09	--	--	4.7E-09	3.0E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+01	ug/kg	7.3E-02	7.3E-02	2.1E-09	1.3E-09	2.E-10	1.E-10	2.E-10	--	--	2.1E-09	1.3E-09	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	5.7E-10	3.7E-10	4.E-09	3.E-09	7.E-09	--	--	5.7E-10	3.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.8E-09	2.E-09	1.E-09	3.E-09	--	--	2.8E-09	1.8E-09	--	--	--
	Naphthalene	8.9E+00	ug/kg	--	--	1.7E-09	1.1E-09	--	--	--	2.0E-02	2.0E-02	1.7E-09	1.1E-09	9.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.0E+03	ug/kg	1.4E-02	1.4E-02	3.0E-07	2.5E-07	4.E-09	4.E-09	8.E-09	2.0E-02	2.0E-02	3.0E-07	2.5E-07	1.E-05	1.E-05	0.00003
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	2.1E-08	1.3E-08	4.E-08	3.E-08	7.E-08	2.0E-05	2.0E-05	2.1E-08	1.3E-08	1.E-03	6.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	9.8E-15	2.7E-14	1.E-09	4.E-09	5.E-09	1.0E-09	1.0E-09	9.8E-15	2.7E-14	1.E-05	3.E-05	0.00004
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	1.3E-13	8.0E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	1.3E-13	8.0E-14	1.E-04	8.E-05	0.0002
	Pesticides																
	Dieldrin	2.6E-01	ug/kg	1.6E+01	1.6E+01	3.9E-11	3.3E-11	6.E-10	5.E-10	1.E-09	5.0E-05	5.0E-05	3.9E-11	3.3E-11	8.E-07	7.E-07	0.000001
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	8.8E-11	2.5E-10	3.E-11	8.E-11	1.E-10	5.0E-04	5.0E-04	8.8E-11	2.5E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										1.E-06							0.005
RM 9.5 West	**Metals**																
	Arsenic	4.5E+00	mg/kg	1.5E+00	1.5E+00	2.0E-07	5.7E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.0E-07	5.7E-07	7.E-04	2.E-03	0.003
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	9.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.5E-09	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	1.5E-09	1.3E-09	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.3E-09	5.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	5.0E-08	3.3E-08	4.E-08	2.E-08	6.E-08	--	--	5.0E-08	3.3E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	7.1E-08	4.6E-08	5.E-07	3.E-07	8.E-07	--	--	7.1E-08	4.6E-08	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	5.3E+02	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.7E-08	8.E-08	5.E-08	1.E-07	--	--	1.0E-07	6.7E-08	--	--	--
	Benzo(k)fluoranthene	2.4E+02	ug/kg	7.3E-02	7.3E-02	4.6E-08	3.0E-08	3.E-09	2.E-09	6.E-09	--	--	4.6E-08	3.0E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	2.6E-08	1.7E-08	2.E-07	1.E-07	3.E-07	--	--	2.6E-08	1.7E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	5.9E-08	3.8E-08	4.E-08	3.E-08	7.E-08	--	--	5.9E-08	3.8E-08	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	4.4E-08	2.8E-08	--	--	--	2.0E-02	2.0E-02	4.4E-08	2.8E-08	2.E-06	1.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.4E+03	ug/kg	1.4E-02	1.4E-02	3.6E-07	3.0E-07	5.E-09	4.E-09	9.E-09	2.0E-02	2.0E-02	3.6E-07	3.0E-07	2.E-05	2.E-05	0.00003
	Phenols																
	Pentachlorophenol	9.8E+01	ug/kg	4.0E-01	4.0E-01	3.7E-08	1.2E-08	1.E-08	5.E-09	2.E-08	5.0E-03	5.0E-03	3.7E-08	1.2E-08	7.E-06	2.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	3.0E+02	ug/kg	2.0E+00	2.0E+00	6.4E-08	3.8E-08	1.E-07	8.E-08	2.E-07	2.0E-05	2.0E-05	6.4E-08	3.8E-08	3.E-03	2.E-03	0.005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	7.5E-13	2.1E-12	1.E-07	3.E-07	4.E-07	1.0E-09	1.0E-09	7.5E-13	2.1E-12	7.E-04	2.E-03	0.003
	Total PCB TEQ	4.8E+00	pg/g	1.3E+05	1.3E+05	1.0E-12	6.1E-13	1.E-07	8.E-08	2.E-07	1.0E-09	1.0E-09	1.0E-12	6.1E-13	1.E-03	6.E-04	0.002
	Pesticides																
	Aldrin	2.8E+00	ug/kg	1.7E+01	1.7E+01	4.2E-10	3.5E-10	7.E-09	6.E-09	1.E-08	3.0E-05	3.0E-05	4.2E-10	3.5E-10	1.E-05	1.E-05	0.00003
	Dieldrin	4.9E+00	ug/kg	1.6E+01	1.6E+01	7.3E-10	6.2E-10	1.E-08	1.E-08	2.E-08	5.0E-05	5.0E-05	7.3E-10	6.2E-10	1.E-05	1.E-05	0.00003
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	2.0E-10	5.7E-10	7.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	2.0E-10	5.7E-10	4.E-07	1.E-06	0.000002
Exposure Point Total										3.E-06							0.01
RM 9.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	4.6E-07	2.E-07	7.E-07	9.E-07	3.0E-04	3.0E-04	1.7E-07	4.6E-07	6.E-04	2.E-03	0.002
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.6E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-08	0.E+00	2.E-04	0.0002
	Butyltins																
	Tributyltin ion	3.6E+00	ug/kg	--	--	5.4E-10	4.6E-10	--	--	--	3.0E-04	3.0E-04	5.4E-10	4.6E-10	2.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+01	ug/kg	7.3E-01	7.3E-01	5.9E-09	3.8E-09	4.E-09	3.E-09	7.E-09	--	--	5.9E-09	3.8E-09	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	6.8E-09	4.4E-09	5.E-08	3.E-08	8.E-08	--	--	6.8E-09	4.4E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	7.8E-09	5.1E-09	6.E-09	4.E-09	9.E-09	--	--	7.8E-09	5.1E-09	--	--	--
	Benzo(k)fluoranthene	2.4E+01	ug/kg	7.3E-02	7.3E-02	4.7E-09	3.0E-09	3.E-10	2.E-10	6.E-10	--	--	4.7E-09	3.0E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	1.8E-09	1.2E-09	1.E-08	8.E-09	2.E-08	--	--	1.8E-09	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	5.4E-09	3.5E-09	4.E-09	3.E-09	6.E-09	--	--	5.4E-09	3.5E-09	--	--	--
	Naphthalene	4.8E+00	ug/kg	--	--	9.5E-10	6.1E-10	--	--	--	2.0E-02	2.0E-02	9.5E-10	6.1E-10	5.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	3.9E-08	3.3E-08	5.E-10	5.E-10	1.E-09	2.0E-02	2.0E-02	3.9E-08	3.3E-08	2.E-06	2.E-06	0.000004
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	1.3E-09	4.3E-10	5.E-10	2.E-10	7.E-10	5.0E-03	5.0E-03	1.3E-09	4.3E-10	3.E-07	9.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	1.2E-08	7.1E-09	2.E-08	1.E-08	4.E-08	2.0E-05	2.0E-05	1.2E-08	7.1E-09	6.E-04	4.E-04	0.001

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	5.2E-14	1.5E-13	7.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	5.2E-14	1.5E-13	5.E-05	1.E-04	0.0002
	Total PCB TEQ	3.3E-01	pg/g	1.3E+05	1.3E+05	6.9E-14	4.2E-14	9.E-09	5.E-09	1.E-08	1.0E-09	1.0E-09	6.9E-14	4.2E-14	7.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	7.1E-11	6.0E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	7.1E-11	6.0E-11	2.E-06	2.E-06	0.000004
	Dieldrin	4.3E-02	ug/kg	1.6E+01	1.6E+01	6.5E-12	5.5E-12	1.E-10	9.E-11	2.E-10	5.0E-05	5.0E-05	6.5E-12	5.5E-12	1.E-07	1.E-07	0.0000002
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	7.0E-11	2.0E-10	2.E-11	7.E-11	9.E-11	5.0E-04	5.0E-04	7.0E-11	2.0E-10	1.E-07	4.E-07	0.000001
Exposure Point Total										1.E-06							0.004
RM 10 West	**Metals**																
	Arsenic	2.9E+01	mg/kg	1.5E+00	1.5E+00	1.3E-06	3.7E-06	2.E-06	6.E-06	7.E-06	3.0E-04	3.0E-04	1.3E-06	3.7E-06	4.E-03	1.E-02	0.02
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.4E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-08	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	3.4E+00	ug/kg	--	--	5.1E-10	4.3E-10	--	--	--	3.0E-04	3.0E-04	5.1E-10	4.3E-10	2.E-06	1.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	6.3E-08	4.1E-08	5.E-08	3.E-08	8.E-08	--	--	6.3E-08	4.1E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	6.7E-08	4.3E-08	5.E-07	3.E-07	8.E-07	--	--	6.7E-08	4.3E-08	--	--	--
	Benzo(b)fluoranthene	4.3E+02	ug/kg	7.3E-01	7.3E-01	8.5E-08	5.5E-08	6.E-08	4.E-08	1.E-07	--	--	8.5E-08	5.5E-08	--	--	--
	Benzo(k)fluoranthene	1.8E+02	ug/kg	7.3E-02	7.3E-02	3.6E-08	2.3E-08	3.E-09	2.E-09	4.E-09	--	--	3.6E-08	2.3E-08	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	1.5E-08	9.5E-09	1.E-07	7.E-08	2.E-07	--	--	1.5E-08	9.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	6.0E-08	3.9E-08	4.E-08	3.E-08	7.E-08	--	--	6.0E-08	3.9E-08	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	1.2E-08	7.4E-09	--	--	--	2.0E-02	2.0E-02	1.2E-08	7.4E-09	6.E-07	4.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	2.8E-08	2.3E-08	4.E-10	3.E-10	7.E-10	2.0E-02	2.0E-02	2.8E-08	2.3E-08	1.E-06	1.E-06	0.000003
	Phenols																
	Pentachlorophenol	7.5E+00	ug/kg	4.0E-01	4.0E-01	2.8E-09	9.5E-10	1.E-09	4.E-10	2.E-09	5.0E-03	5.0E-03	2.8E-09	9.5E-10	6.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+02	ug/kg	2.0E+00	2.0E+00	9.4E-08	5.6E-08	2.E-07	1.E-07	3.E-07	2.0E-05	2.0E-05	9.4E-08	5.6E-08	5.E-03	3.E-03	0.008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	1.3E+05	1.3E+05	4.5E-13	1.3E-12	6.E-08	2.E-07	2.E-07	1.0E-09	1.0E-09	4.5E-13	1.3E-12	4.E-04	1.E-03	0.002
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	6.3E-13	3.8E-13	8.E-08	5.E-08	1.E-07	1.0E-09	1.0E-09	6.3E-13	3.8E-13	6.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	7.6E-11	6.4E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	7.6E-11	6.4E-11	3.E-06	2.E-06	0.000005
	Total DDT	6.7E+00	ug/kg	3.4E-01	3.4E-01	3.0E-10	8.5E-10	1.E-10	3.E-10	4.E-10	5.0E-04	5.0E-04	3.0E-10	8.5E-10	6.E-07	2.E-06	0.000002
Exposure Point Total										9.E-06							0.03
RM 10 East	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	1.6E-07	4.5E-07	2.E-07	7.E-07	9.E-07	3.0E-04	3.0E-04	1.6E-07	4.5E-07	5.E-04	1.E-03	0.002
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	1.1E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.7E+02	ug/kg	7.3E-01	7.3E-01	5.4E-08	3.5E-08	4.E-08	3.E-08	6.E-08	--	--	5.4E-08	3.5E-08	--	--	--
	Benzo(a)pyrene	3.5E+02	ug/kg	7.3E+00	7.3E+00	6.9E-08	4.5E-08	5.E-07	3.E-07	8.E-07	--	--	6.9E-08	4.5E-08	--	--	--

[a] Cancer Risk Calculations and Noncancer Hazard Calculations
[b] Total Cancer Risk and Total Noncancer HQ

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	7.9E-08	5.1E-08	6.E-08	4.E-08	1.E-07	--	--	7.9E-08	5.1E-08	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	2.0E-08	1.3E-08	1.E-09	1.E-09	2.E-09	--	--	2.0E-08	1.3E-08	--	--	--
	Dibenzo(a,h)anthracene	5.2E+01	ug/kg	7.3E+00	7.3E+00	1.0E-08	6.6E-09	7.E-08	5.E-08	1.E-07	--	--	1.0E-08	6.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	5.4E-08	3.5E-08	4.E-08	3.E-08	7.E-08	--	--	5.4E-08	3.5E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	4.4E-09	2.8E-09	--	--	--	2.0E-02	2.0E-02	4.4E-09	2.8E-09	2.E-07	1.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	2.9E-08	2.4E-08	4.E-10	3.E-10	7.E-10	2.0E-02	2.0E-02	2.9E-08	2.4E-08	1.E-06	1.E-06	0.000003
	Phenols																
	Pentachlorophenol	3.3E+00	ug/kg	4.0E-01	4.0E-01	1.2E-09	4.2E-10	5.E-10	2.E-10	7.E-10	5.0E-03	5.0E-03	1.2E-09	4.2E-10	2.E-07	8.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.8E+01	ug/kg	2.0E+00	2.0E+00	1.0E-08	6.1E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	1.0E-08	6.1E-09	5.E-04	3.E-04	0.0008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	2.5E-14	6.9E-14	3.E-09	9.E-09	1.E-08	1.0E-09	1.0E-09	2.5E-14	6.9E-14	2.E-05	7.E-05	0.00009
	Total PCB TEQ	8.0E-01	pg/g	1.3E+05	1.3E+05	1.7E-13	1.0E-13	2.E-08	1.E-08	4.E-08	1.0E-09	1.0E-09	1.7E-13	1.0E-13	2.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	8.3E-02	ug/kg	1.7E+01	1.7E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	1.3E-11	1.1E-11	4.E-07	4.E-07	0.000001
	Dieldrin	9.4E-02	ug/kg	1.6E+01	1.6E+01	1.4E-11	1.2E-11	2.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	1.4E-11	1.2E-11	3.E-07	2.E-07	0.000001
	Total DDT	7.7E-01	ug/kg	3.4E-01	3.4E-01	3.5E-11	9.8E-11	1.E-11	3.E-11	5.E-11	5.0E-04	5.0E-04	3.5E-11	9.8E-11	7.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-06							0.003
RM 10.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	2.1E-07	6.0E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	2.1E-07	6.0E-07	7.E-04	2.E-03	0.003
	Lead	1.4E+01	mg/kg	NL	NL	0.0E+00	1.8E-06	NL	NL	--	--	--	0.0E+00	1.8E-06	--	--	--
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	9.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-09	0.E+00	1.E-04	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E+01	ug/kg	7.3E-01	7.3E-01	1.2E-08	7.7E-09	9.E-09	6.E-09	1.E-08	--	--	1.2E-08	7.7E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	9.4E-09	6.1E-09	7.E-08	4.E-08	1.E-07	--	--	9.4E-09	6.1E-09	--	--	--
	Benzo(b)fluoranthene	6.8E+01	ug/kg	7.3E-01	7.3E-01	1.3E-08	8.6E-09	1.E-08	6.E-09	2.E-08	--	--	1.3E-08	8.6E-09	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	4.0E-09	2.6E-09	3.E-10	2.E-10	5.E-10	--	--	4.0E-09	2.6E-09	--	--	--
	Dibenzo(a,h)anthracene	7.9E+00	ug/kg	7.3E+00	7.3E+00	1.6E-09	1.0E-09	1.E-08	7.E-09	2.E-08	--	--	1.6E-09	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	7.3E-09	4.8E-09	5.E-09	3.E-09	9.E-09	--	--	7.3E-09	4.8E-09	--	--	--
	Naphthalene	2.6E+02	ug/kg	--	--	5.1E-08	3.3E-08	--	--	--	2.0E-02	2.0E-02	5.1E-08	3.3E-08	3.E-06	2.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.5E+02	ug/kg	1.4E-02	1.4E-02	3.7E-08	3.1E-08	5.E-10	4.E-10	1.E-09	2.0E-02	2.0E-02	3.7E-08	3.1E-08	2.E-06	2.E-06	0.000003
	Phenols																
	Pentachlorophenol	3.8E+01	ug/kg	4.0E-01	4.0E-01	1.4E-08	4.8E-09	6.E-09	2.E-09	8.E-09	5.0E-03	5.0E-03	1.4E-08	4.8E-09	3.E-06	1.E-06	0.000004
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	8.2E-09	5.0E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	8.2E-09	5.0E-09	4.E-04	2.E-04	0.0007
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	1.5E-13	8.8E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	1.5E-13	8.8E-14	1.E-04	9.E-05	0.0002

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	9.3E-01	ug/kg	1.7E+01	1.7E+01	1.4E-10	1.2E-10	2.E-09	2.E-09	4.E-09	3.0E-05	3.0E-05	1.4E-10	1.2E-10	5.E-06	4.E-06	0.00001
	Total DDT	2.7E+00	ug/kg	3.4E-01	3.4E-01	1.2E-10	3.4E-10	4.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	1.2E-10	3.4E-10	2.E-07	7.E-07	0.000001
Exposure Point Total										1.E-06							0.004
RM 10.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	1.5E-07	4.2E-07	2.E-07	6.E-07	9.E-07	3.0E-04	3.0E-04	1.5E-07	4.2E-07	5.E-04	1.E-03	0.002
	Mercury	7.4E-02	mg/kg	--	--	0.0E+00	9.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.4E-09	0.E+00	9.E-05	0.00009
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.3E-08	1.E-08	9.E-09	2.E-08	--	--	2.0E-08	1.3E-08	--	--	--
	Benzo(a)pyrene	7.1E+01	ug/kg	7.3E+00	7.3E+00	1.4E-08	9.0E-09	1.E-07	7.E-08	2.E-07	--	--	1.4E-08	9.0E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.4E-08	2.E-08	1.E-08	3.E-08	--	--	2.2E-08	1.4E-08	--	--	--
	Benzo(k)fluoranthene	7.2E+01	ug/kg	7.3E-02	7.3E-02	1.4E-08	9.1E-09	1.E-09	7.E-10	2.E-09	--	--	1.4E-08	9.1E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	1.8E-09	1.2E-09	1.E-08	9.E-09	2.E-08	--	--	1.8E-09	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	9.2E-09	5.9E-09	7.E-09	4.E-09	1.E-08	--	--	9.2E-09	5.9E-09	--	--	--
	Naphthalene	5.2E+00	ug/kg	--	--	1.0E-09	6.6E-10	--	--	--	2.0E-02	2.0E-02	1.0E-09	6.6E-10	5.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	1.7E-08	1.4E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	1.7E-08	1.4E-08	8.E-07	7.E-07	0.000002
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	4.2E-09	1.4E-09	2.E-09	6.E-10	2.E-09	5.0E-03	5.0E-03	4.2E-09	1.4E-09	8.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	3.3E-08	2.0E-08	7.E-08	4.E-08	1.E-07	2.0E-05	2.0E-05	3.3E-08	2.0E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total PCB TEQ	3.9E-01	pg/g	1.3E+05	1.3E+05	8.2E-14	4.9E-14	1.E-08	6.E-09	2.E-08	1.0E-09	1.0E-09	8.2E-14	4.9E-14	8.E-05	5.E-05	0.0001
	Pesticides																
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	5.5E-10	1.5E-09	2.E-10	5.E-10	7.E-10	5.0E-04	5.0E-04	5.5E-10	1.5E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										1.E-06							0.005
RM 11 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	1.6E-07	4.6E-07	2.E-07	7.E-07	9.E-07	3.0E-04	3.0E-04	1.6E-07	4.6E-07	5.E-04	2.E-03	0.002
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	8.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.7E-09	0.E+00	9.E-05	0.00009
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+02	ug/kg	7.3E-01	7.3E-01	3.9E-08	2.5E-08	3.E-08	2.E-08	5.E-08	--	--	3.9E-08	2.5E-08	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	4.3E-08	2.8E-08	3.E-07	2.E-07	5.E-07	--	--	4.3E-08	2.8E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.3E-08	1.E-08	9.E-09	2.E-08	--	--	2.0E-08	1.3E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	2.1E-08	1.3E-08	2.E-09	1.E-09	2.E-09	--	--	2.1E-08	1.3E-08	--	--	--
	Dibenzo(a,h)anthracene	2.7E+01	ug/kg	7.3E+00	7.3E+00	5.3E-09	3.4E-09	4.E-08	2.E-08	6.E-08	--	--	5.3E-09	3.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	2.3E-08	1.5E-08	--	--	--
	Naphthalene	3.2E+02	ug/kg	--	--	6.3E-08	4.1E-08	--	--	--	2.0E-02	2.0E-02	6.3E-08	4.1E-08	3.E-06	2.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.0E+03	ug/kg	1.4E-02	1.4E-02	1.6E-07	1.3E-07	2.E-09	2.E-09	4.E-09	2.0E-02	2.0E-02	1.6E-07	1.3E-07	8.E-06	7.E-06	0.00001

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	1.2E-09	3.9E-10	5.E-10	2.E-10	6.E-10	5.0E-03	5.0E-03	1.2E-09	3.9E-10	2.E-07	8.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	7.3E-09	4.4E-09	1.E-08	9.E-09	2.E-08	2.0E-05	2.0E-05	7.3E-09	4.4E-09	4.E-04	2.E-04	0.0006
	Pesticides																
	Dieldrin	2.5E+00	ug/kg	1.6E+01	1.6E+01	3.8E-10	3.2E-10	6.E-09	5.E-09	1.E-08	5.0E-05	5.0E-05	3.8E-10	3.2E-10	8.E-06	6.E-06	0.00001
	Total DDT	2.1E+00	ug/kg	3.4E-01	3.4E-01	9.5E-11	2.7E-10	3.E-11	9.E-11	1.E-10	5.0E-04	5.0E-04	9.5E-11	2.7E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										2.E-06							0.003
RM 11 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.5E-07	4.1E-07	2.E-07	6.E-07	8.E-07	3.0E-04	3.0E-04	1.5E-07	4.1E-07	5.E-04	1.E-03	0.002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.4E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-08	0.E+00	1.E-04	0.0001
	Butyltins																
	Tributyltin ion	5.8E+00	ug/kg	--	--	8.8E-10	7.4E-10	--	--	--	3.0E-04	3.0E-04	8.8E-10	7.4E-10	3.E-06	2.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+02	ug/kg	7.3E-01	7.3E-01	3.1E-08	2.0E-08	2.E-08	1.E-08	4.E-08	--	--	3.1E-08	2.0E-08	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	2.4E-08	1.5E-08	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	4.9E-08	3.2E-08	4.E-08	2.E-08	6.E-08	--	--	4.9E-08	3.2E-08	--	--	--
	Benzo(k)fluoranthene	9.4E+01	ug/kg	7.3E-02	7.3E-02	1.8E-08	1.2E-08	1.E-09	9.E-10	2.E-09	--	--	1.8E-08	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	3.9E-09	2.5E-09	3.E-08	2.E-08	5.E-08	--	--	3.9E-09	2.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+01	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.8E-09	8.E-09	5.E-09	1.E-08	--	--	1.0E-08	6.8E-09	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	5.9E-09	3.8E-09	--	--	--	2.0E-02	2.0E-02	5.9E-09	3.8E-09	3.E-07	2.E-07	0.0000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	2.1E-08	1.8E-08	3.E-10	2.E-10	5.E-10	2.0E-02	2.0E-02	2.1E-08	1.8E-08	1.E-06	9.E-07	0.000002
	Phenols																
	Pentachlorophenol	8.7E+00	ug/kg	4.0E-01	4.0E-01	3.3E-09	1.1E-09	1.E-09	4.E-10	2.E-09	5.0E-03	5.0E-03	3.3E-09	1.1E-09	7.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+03	ug/kg	2.0E+00	2.0E+00	8.1E-07	4.9E-07	2.E-06	1.E-06	3.E-06	2.0E-05	2.0E-05	8.1E-07	4.9E-07	4.E-02	2.E-02	0.07
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.4E-13	3.8E-13	2.E-08	5.E-08	7.E-08	1.0E-09	1.0E-09	1.4E-13	3.8E-13	1.E-04	4.E-04	0.0005
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	6.6E-12	4.0E-12	9.E-07	5.E-07	1.E-06	1.0E-09	1.0E-09	6.6E-12	4.0E-12	7.E-03	4.E-03	0.01
	Pesticides																
	Total DDT	3.8E+02	ug/kg	3.4E-01	3.4E-01	1.7E-08	4.9E-08	6.E-09	2.E-08	2.E-08	5.0E-04	5.0E-04	1.7E-08	4.9E-08	3.E-05	1.E-04	0.0001
Exposure Point Total										5.E-06							0.08
RM 11.5 West	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	1.6E-07	4.5E-07	2.E-07	7.E-07	9.E-07	3.0E-04	3.0E-04	1.6E-07	4.5E-07	5.E-04	1.E-03	0.002
	Mercury	3.1E-02	mg/kg	--	--	0.0E+00	3.9E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-09	0.E+00	4.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+01	ug/kg	7.3E-01	7.3E-01	3.1E-09	2.0E-09	2.E-09	1.E-09	4.E-09	--	--	3.1E-09	2.0E-09	--	--	--
	Benzo(a)pyrene	1.8E+01	ug/kg	7.3E+00	7.3E+00	3.5E-09	2.3E-09	3.E-08	2.E-08	4.E-08	--	--	3.5E-09	2.3E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+01	ug/kg	7.3E-01	7.3E-01	3.3E-09	2.2E-09	2.E-09	2.E-09	4.E-09	--	--	3.3E-09	2.2E-09	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	1.4E+01	ug/kg	7.3E-02	7.3E-02	2.8E-09	1.8E-09	2.E-10	1.E-10	3.E-10	--	--	2.8E-09	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	5.7E-10	3.7E-10	4.E-09	3.E-09	7.E-09	--	--	5.7E-10	3.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.8E-09	2.E-09	1.E-09	3.E-09	--	--	2.8E-09	1.8E-09	--	--	--
	Naphthalene	6.4E+00	ug/kg	--	--	1.3E-09	8.1E-10	--	--	--	2.0E-02	2.0E-02	1.3E-09	8.1E-10	6.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.2E+02	ug/kg	1.4E-02	1.4E-02	7.9E-08	6.6E-08	1.E-09	9.E-10	2.E-09	2.0E-02	2.0E-02	7.9E-08	6.6E-08	4.E-06	3.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	2.4E+01	ug/kg	2.0E+00	2.0E+00	5.0E-09	3.0E-09	1.E-08	6.E-09	2.E-08	2.0E-05	2.0E-05	5.0E-09	3.0E-09	3.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	8.0E-15	2.2E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	8.0E-15	2.2E-14	8.E-06	2.E-05	0.00003
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	6.2E-14	3.7E-14	8.E-09	5.E-09	1.E-08	1.0E-09	1.0E-09	6.2E-14	3.7E-14	6.E-05	4.E-05	0.0001
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	1.4E-11	1.1E-11	2.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	1.4E-11	1.1E-11	3.E-07	2.E-07	0.000001
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	8.7E-11	2.5E-10	3.E-11	8.E-11	1.E-10	5.0E-04	5.0E-04	8.7E-11	2.5E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										1.E-06							0.003
RM 12 West	**Metals**																
	Arsenic	3.9E+00	mg/kg	1.5E+00	1.5E+00	1.7E-07	4.9E-07	3.E-07	7.E-07	1.E-06	3.0E-04	3.0E-04	1.7E-07	4.9E-07	6.E-04	2.E-03	0.002
	Mercury	7.4E-01	mg/kg	--	--	0.0E+00	9.4E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.4E-08	0.E+00	9.E-04	0.0009
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+03	ug/kg	7.3E-01	7.3E-01	2.2E-07	1.4E-07	2.E-07	1.E-07	3.E-07	--	--	2.2E-07	1.4E-07	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	3.5E-07	2.3E-07	3.E-06	2.E-06	4.E-06	--	--	3.5E-07	2.3E-07	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	2.8E-07	1.8E-07	2.E-07	1.E-07	3.E-07	--	--	2.8E-07	1.8E-07	--	--	--
	Benzo(k)fluoranthene	5.9E+02	ug/kg	7.3E-02	7.3E-02	1.2E-07	7.6E-08	9.E-09	6.E-09	1.E-08	--	--	1.2E-07	7.6E-08	--	--	--
	Dibenzo(a,h)anthracene	2.1E+02	ug/kg	7.3E+00	7.3E+00	4.1E-08	2.7E-08	3.E-07	2.E-07	5.E-07	--	--	4.1E-08	2.7E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	2.9E-07	1.9E-07	2.E-07	1.E-07	3.E-07	--	--	2.9E-07	1.9E-07	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	2.9E-08	1.9E-08	--	--	--	2.0E-02	2.0E-02	2.9E-08	1.9E-08	1.E-06	9.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	2.9E-08	2.4E-08	4.E-10	3.E-10	7.E-10	2.0E-02	2.0E-02	2.9E-08	2.4E-08	1.E-06	1.E-06	0.000003
	Phenols																
	Pentachlorophenol	2.0E+01	ug/kg	4.0E-01	4.0E-01	7.6E-09	2.5E-09	3.E-09	1.E-09	4.E-09	5.0E-03	5.0E-03	7.6E-09	2.5E-09	2.E-06	5.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	2.6E-08	1.5E-08	5.E-08	3.E-08	8.E-08	2.0E-05	2.0E-05	2.6E-08	1.5E-08	1.E-03	8.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	7.5E-15	2.1E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	7.5E-15	2.1E-14	8.E-06	2.E-05	0.00003
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	9.6E-14	5.8E-14	1.E-08	7.E-09	2.E-08	1.0E-09	1.0E-09	9.6E-14	5.8E-14	1.E-04	6.E-05	0.0002
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	1.1E-10	8.9E-11	2.E-09	2.E-09	3.E-09	3.0E-05	3.0E-05	1.1E-10	8.9E-11	4.E-06	3.E-06	0.00001
	Total DDT	9.5E+00	ug/kg	3.4E-01	3.4E-01	4.3E-10	1.2E-09	1.E-10	4.E-10	6.E-10	5.0E-04	5.0E-04	4.3E-10	1.2E-09	9.E-07	2.E-06	0.000003
Exposure Point Total										7.E-06							0.005

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 12 East	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	1.2E-07	3.3E-07	2.E-07	5.E-07	7.E-07	3.0E-04	3.0E-04	1.2E-07	3.3E-07	4.E-04	1.E-03	0.002
	Mercury	6.5E-02	mg/kg	--	--	0.0E+00	8.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.3E-09	0.E+00	8.E-05	0.00008
	Butyltins																
	Tributyltin ion	4.8E+00	ug/kg	--	--	7.3E-10	6.1E-10	--	--	--	3.0E-04	3.0E-04	7.3E-10	6.1E-10	2.E-06	2.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	3.5E-09	2.3E-09	3.E-09	2.E-09	4.E-09	--	--	3.5E-09	2.3E-09	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	3.7E-09	2.4E-09	3.E-08	2.E-08	4.E-08	--	--	3.7E-09	2.4E-09	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	5.3E-09	3.4E-09	4.E-09	3.E-09	6.E-09	--	--	5.3E-09	3.4E-09	--	--	--
	Benzo(k)fluoranthene	8.4E+00	ug/kg	7.3E-02	7.3E-02	1.7E-09	1.1E-09	1.E-10	8.E-11	2.E-10	--	--	1.7E-09	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	4.5E+00	ug/kg	7.3E+00	7.3E+00	8.8E-10	5.7E-10	6.E-09	4.E-09	1.E-08	--	--	8.8E-10	5.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+01	ug/kg	7.3E-01	7.3E-01	3.3E-09	2.2E-09	2.E-09	2.E-09	4.E-09	--	--	3.3E-09	2.2E-09	--	--	--
	Naphthalene	4.2E+01	ug/kg	--	--	8.3E-09	5.3E-09	--	--	--	2.0E-02	2.0E-02	8.3E-09	5.3E-09	4.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+04	ug/kg	1.4E-02	1.4E-02	2.7E-06	2.3E-06	4.E-08	3.E-08	7.E-08	2.0E-02	2.0E-02	2.7E-06	2.3E-06	1.E-04	1.E-04	0.0003
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	1.2E-09	4.1E-10	5.E-10	2.E-10	6.E-10	5.0E-03	5.0E-03	1.2E-09	4.1E-10	2.E-07	8.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	3.8E-08	2.3E-08	8.E-08	5.E-08	1.E-07	2.0E-05	2.0E-05	3.8E-08	2.3E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	7.9E-14	2.2E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	7.9E-14	2.2E-13	8.E-05	2.E-04	0.0003
	Total PCB TEQ	4.6E+00	pg/g	1.3E+05	1.3E+05	9.6E-13	5.8E-13	1.E-07	8.E-08	2.E-07	1.0E-09	1.0E-09	9.6E-13	5.8E-13	1.E-03	6.E-04	0.002
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	4.3E-10	1.2E-09	1.E-10	4.E-10	6.E-10	5.0E-04	5.0E-04	4.3E-10	1.2E-09	9.E-07	2.E-06	0.000003
Exposure Point Total										1.E-06							0.007
Study Area-wide[d]	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	2.3E-07	6.4E-07	3.E-07	1.E-06	1.E-06	3.0E-04	3.0E-04	2.3E-07	6.4E-07	8.E-04	2.E-03	0.003
	Mercury	3.0E-01	mg/kg	--	--	0.0E+00	3.8E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.8E-08	0.E+00	4.E-04	0.0004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.3E-05	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	3.6E-07	3.0E-07	--	--	--	3.0E-04	3.0E-04	3.6E-07	3.0E-07	1.E-03	1.E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+03	ug/kg	7.3E-01	7.3E-01	6.1E-07	3.9E-07	4.E-07	3.E-07	7.E-07	--	--	6.1E-07	3.9E-07	--	--	--
	Benzo(a)pyrene	3.7E+03	ug/kg	7.3E+00	7.3E+00	7.3E-07	4.8E-07	5.E-06	3.E-06	9.E-06	--	--	7.3E-07	4.8E-07	--	--	--
	Benzo(b)fluoranthene	2.9E+03	ug/kg	7.3E-01	7.3E-01	5.7E-07	3.7E-07	4.E-07	3.E-07	7.E-07	--	--	5.7E-07	3.7E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	3.9E-07	2.5E-07	3.E-08	2.E-08	5.E-08	--	--	3.9E-07	2.5E-07	--	--	--
	Dibenzo(a,h)anthracene	3.8E+02	ug/kg	7.3E+00	7.3E+00	7.5E-08	4.8E-08	5.E-07	4.E-07	9.E-07	--	--	7.5E-08	4.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	5.1E-07	3.3E-07	4.E-07	2.E-07	6.E-07	--	--	5.1E-07	3.3E-07	--	--	--

TABLE 5-21.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Naphthalene	1.5E+03	ug/kg	--	--	2.9E-07	1.9E-07	--	--	--	2.0E-02	2.0E-02	2.9E-07	1.9E-07	1.E-05	9.E-06	0.00002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.9E+03	ug/kg	1.4E-02	1.4E-02	4.4E-07	3.7E-07	6.E-09	5.E-09	1.E-08	2.0E-02	2.0E-02	4.4E-07	3.7E-07	2.E-05	2.E-05	0.00004
	Phenols																
	Pentachlorophenol	5.6E+01	ug/kg	4.0E-01	4.0E-01	2.1E-08	7.1E-09	8.E-09	3.E-09	1.E-08	5.0E-03	5.0E-03	2.1E-08	7.1E-09	4.E-06	1.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	7.6E-08	4.6E-08	2.E-07	9.E-08	2.E-07	2.0E-05	2.0E-05	7.6E-08	4.6E-08	4.E-03	2.E-03	0.006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	1.3E+05	1.3E+05	3.0E-11	8.4E-11	4.E-06	1.E-05	1.E-05	1.0E-09	1.0E-09	3.0E-11	8.4E-11	3.E-02	8.E-02	0.1
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	3.6E-12	2.1E-12	5.E-07	3.E-07	7.E-07	1.0E-09	1.0E-09	3.6E-12	2.1E-12	4.E-03	2.E-03	0.006
	Pesticides																
	Aldrin	5.8E+00	ug/kg	1.7E+01	1.7E+01	8.8E-10	7.4E-10	1.E-08	1.E-08	3.E-08	3.0E-05	3.0E-05	8.8E-10	7.4E-10	3.E-05	2.E-05	0.00005
	Dieldrin	2.8E+00	ug/kg	1.6E+01	1.6E+01	4.2E-10	3.6E-10	7.E-09	6.E-09	1.E-08	5.0E-05	5.0E-05	4.2E-10	3.6E-10	8.E-06	7.E-06	0.00002
	Total DDT	3.7E+02	ug/kg	3.4E-01	3.4E-01	1.7E-08	4.8E-08	6.E-09	2.E-08	2.E-08	5.0E-04	5.0E-04	1.7E-08	4.8E-08	3.E-05	1.E-04	0.0001
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	3.5E-05	--	--	--	7.0E-04	7.0E-04	0.0E+00	3.5E-05	0.E+00	5.E-02	0.05
Exposure Point Total										3.E-05							0.4

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	7.6E-09	4.6E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	6.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	5.1E-12	9.2E-12	--	--	--	3.0E-04	3.0E-04	1.2E-11	2.1E-11	4.E-08	7.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+01	ug/kg	7.3E-01	7.3E-01	3.9E-10	5.5E-10	3.E-10	4.E-10	7.E-10	--	--	9.2E-10	1.3E-09	--	--	--
	Benzo(a)pyrene	7.4E+01	ug/kg	7.3E+00	7.3E+00	5.8E-10	8.1E-10	4.E-09	6.E-09	1.E-08	--	--	1.4E-09	1.9E-09	--	--	--
	Benzo(b)fluoranthene	7.4E+01	ug/kg	7.3E-01	7.3E-01	5.8E-10	8.0E-10	4.E-10	6.E-10	1.E-09	--	--	1.4E-09	1.9E-09	--	--	--
	Benzo(k)fluoranthene	3.0E+01	ug/kg	7.3E-02	7.3E-02	2.4E-10	3.3E-10	2.E-11	2.E-11	4.E-11	--	--	5.5E-10	7.7E-10	--	--	--
	Dibenzo(a,h)anthracene	9.4E+00	ug/kg	7.3E+00	7.3E+00	7.4E-11	1.0E-10	5.E-10	7.E-10	1.E-09	--	--	1.7E-10	2.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.8E+01	ug/kg	7.3E-01	7.3E-01	4.5E-10	6.3E-10	3.E-10	5.E-10	8.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	1.0E-10	1.4E-10	--	--	--	2.0E-02	2.0E-02	2.4E-10	3.3E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+01	ug/kg	1.4E-02	1.4E-02	1.1E-10	2.0E-10	2.E-12	3.E-12	4.E-12	2.0E-02	2.0E-02	2.6E-10	4.7E-10	1.E-08	2.E-08	0.00000004
	Phenols																
	Pentachlorophenol	7.2E-01	ug/kg	4.0E-01	4.0E-01	1.1E-11	7.8E-12	4.E-12	3.E-12	7.E-12	5.0E-03	5.0E-03	2.5E-11	1.8E-11	5.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	9.6E-11	1.2E-10	2.E-10	2.E-10	4.E-10	2.0E-05	2.0E-05	2.2E-10	2.9E-10	1.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	1.3E+05	1.3E+05	1.4E-15	8.3E-15	2.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	3.2E-15	1.9E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	2.7E-15	3.5E-15	3.E-10	4.E-10	8.E-10	1.0E-09	1.0E-09	6.3E-15	8.1E-15	6.E-06	8.E-06	0.00001
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	1.0E-12	1.9E-12	2.E-11	3.E-11	5.E-11	3.0E-05	3.0E-05	2.4E-12	4.4E-12	8.E-08	1.E-07	0.0000002
	Total DDT	2.5E+00	ug/kg	3.4E-01	3.4E-01	4.5E-12	2.7E-11	2.E-12	9.E-12	1.E-11	5.0E-04	5.0E-04	1.1E-11	6.3E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total[b]										1.E-07							0.0005
RM 1 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	7.4E-09	4.5E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.7E-08	1.0E-07	6.E-05	3.E-04	0.0004
	Mercury	1.4E+00	mg/kg	--	--	0.0E+00	1.6E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-08	0.E+00	4.E-04	0.0004
	Butyltins																
	Tributyltin ion	1.1E+00	ug/kg	--	--	6.6E-12	1.2E-11	--	--	--	3.0E-04	3.0E-04	1.6E-11	2.8E-11	5.E-08	9.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.4E-10	2.E-10	3.E-10	4.E-10	--	--	5.8E-10	8.0E-10	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	3.6E-10	5.1E-10	3.E-09	4.E-09	6.E-09	--	--	8.5E-10	1.2E-09	--	--	--
	Benzo(b)fluoranthene	4.2E+01	ug/kg	7.3E-01	7.3E-01	3.3E-10	4.6E-10	2.E-10	3.E-10	6.E-10	--	--	7.7E-10	1.1E-09	--	--	--
	Benzo(k)fluoranthene	2.7E+01	ug/kg	7.3E-02	7.3E-02	2.1E-10	2.9E-10	2.E-11	2.E-11	4.E-11	--	--	4.9E-10	6.7E-10	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	4.3E-11	6.0E-11	3.E-10	4.E-10	8.E-10	--	--	1.0E-10	1.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+01	ug/kg	7.3E-01	7.3E-01	2.6E-10	3.6E-10	2.E-10	3.E-10	5.E-10	--	--	6.0E-10	8.4E-10	--	--	--
	Naphthalene	8.3E+00	ug/kg	--	--	6.5E-11	9.0E-11	--	--	--	2.0E-02	2.0E-02	1.5E-10	2.1E-10	8.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	2.4E-10	4.3E-10	3.E-12	6.E-12	9.E-12	2.0E-02	2.0E-02	5.6E-10	1.0E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	7.6E-01	ug/kg	4.0E-01	4.0E-01	1.1E-11	8.2E-12	5.E-12	3.E-12	8.E-12	5.0E-03	5.0E-03	2.7E-11	1.9E-11	5.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	8.7E-10	1.1E-09	2.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	2.0E-09	2.6E-09	1.E-04	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	8.5E-16	5.1E-15	1.E-10	7.E-10	8.E-10	1.0E-09	1.0E-09	2.0E-15	1.2E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	2.3E-15	2.9E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	5.3E-15	6.8E-15	5.E-06	7.E-06	0.00001
	Pesticides																
	Total DDT	1.8E+00	ug/kg	3.4E-01	3.4E-01	3.2E-12	2.0E-11	1.E-12	7.E-12	8.E-12	5.0E-04	5.0E-04	7.6E-12	4.6E-11	2.E-08	9.E-08	0.0000001
Exposure Point Total										9.E-08							0.001
RM 1.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	6.5E-09	3.9E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.5E-08	9.2E-08	5.E-05	3.E-04	0.0004
	Mercury	5.1E-02	mg/kg	--	--	0.0E+00	5.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.9E+01	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.0E-10	1.E-10	1.E-10	3.E-10	--	--	3.4E-10	4.7E-10	--	--	--
	Benzo(a)pyrene	2.7E+01	ug/kg	7.3E+00	7.3E+00	2.1E-10	2.9E-10	2.E-09	2.E-09	4.E-09	--	--	4.9E-10	6.9E-10	--	--	--
	Benzo(b)fluoranthene	2.3E+01	ug/kg	7.3E-01	7.3E-01	1.8E-10	2.5E-10	1.E-10	2.E-10	3.E-10	--	--	4.2E-10	5.9E-10	--	--	--
	Benzo(k)fluoranthene	1.9E+01	ug/kg	7.3E-02	7.3E-02	1.5E-10	2.1E-10	1.E-11	2.E-11	3.E-11	--	--	3.5E-10	4.9E-10	--	--	--
	Dibenzo(a,h)anthracene	3.3E+00	ug/kg	7.3E+00	7.3E+00	2.6E-11	3.5E-11	2.E-10	3.E-10	4.E-10	--	--	6.0E-11	8.3E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+01	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.3E-10	1.E-10	2.E-10	3.E-10	--	--	3.9E-10	5.4E-10	--	--	--
	Naphthalene	5.3E+00	ug/kg	--	--	4.2E-11	5.8E-11	--	--	--	2.0E-02	2.0E-02	9.8E-11	1.4E-10	5.E-09	7.E-09	0.00000001
	Phenols																
	Pentachlorophenol	8.1E-01	ug/kg	4.0E-01	4.0E-01	1.2E-11	8.8E-12	5.E-12	4.E-12	8.E-12	5.0E-03	5.0E-03	2.8E-11	2.0E-11	6.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	9.8E-11	1.3E-10	2.E-10	3.E-10	4.E-10	2.0E-05	2.0E-05	2.3E-10	2.9E-10	1.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	1.3E+05	1.3E+05	1.5E-16	9.3E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	3.6E-16	2.2E-15	4.E-07	2.E-06	0.000003
	Pesticides																
	Total DDT	7.9E-01	ug/kg	3.4E-01	3.4E-01	1.4E-12	8.6E-12	5.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	3.4E-12	2.0E-11	7.E-09	4.E-08	0.00000005
Exposure Point Total										7.E-08							0.0004

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1.5 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	7.9E-09	4.8E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	6.4E-02	mg/kg	--	--	0.0E+00	7.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	2.2E-12	4.0E-12	--	--	--	3.0E-04	3.0E-04	5.2E-12	9.4E-12	2.E-08	3.E-08	0.00000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	2.0E-09	2.7E-09	1.E-09	2.E-09	3.E-09	--	--	4.6E-09	6.3E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	2.9E-09	4.0E-09	2.E-08	3.E-08	5.E-08	--	--	6.7E-09	9.3E-09	--	--	--
	Benzo(b)fluoranthene	2.2E+02	ug/kg	7.3E-01	7.3E-01	1.7E-09	2.4E-09	1.E-09	2.E-09	3.E-09	--	--	4.0E-09	5.6E-09	--	--	--
	Benzo(k)fluoranthene	2.2E+02	ug/kg	7.3E-02	7.3E-02	1.7E-09	2.3E-09	1.E-10	2.E-10	3.E-10	--	--	3.9E-09	5.5E-09	--	--	--
	Dibenzo(a,h)anthracene	3.7E+01	ug/kg	7.3E+00	7.3E+00	2.9E-10	4.0E-10	2.E-09	3.E-09	5.E-09	--	--	6.8E-10	9.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	2.9E-09	2.E-09	2.E-09	4.E-09	--	--	4.8E-09	6.7E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	7.7E-10	1.1E-09	--	--	--	2.0E-02	2.0E-02	1.8E-09	2.5E-09	9.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	4.3E-10	7.8E-10	6.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.0E-09	1.8E-09	5.E-08	9.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	2.5E-11	1.8E-11	1.E-11	7.E-12	2.E-11	5.0E-03	5.0E-03	5.8E-11	4.1E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	1.8E-10	2.4E-10	4.E-10	5.E-10	8.E-10	2.0E-05	2.0E-05	4.3E-10	5.5E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	1.3E+05	1.3E+05	1.0E-15	6.3E-15	1.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	2.4E-15	1.5E-14	2.E-06	1.E-05	0.00002
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	8.9E-16	1.1E-15	1.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	2.1E-15	2.7E-15	2.E-06	3.E-06	0.000005
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	4.2E-13	7.5E-13	7.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	9.7E-13	1.8E-12	2.E-08	4.E-08	0.0000001
	Total DDT	6.8E+00	ug/kg	3.4E-01	3.4E-01	1.2E-11	7.4E-11	4.E-12	3.E-11	3.E-11	5.0E-04	5.0E-04	2.9E-11	1.7E-10	6.E-08	3.E-07	0.0000004
Exposure Point Total										2.E-07							0.0005
RM 2 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	6.2E-09	3.7E-08	9.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	1.4E-08	8.7E-08	5.E-05	3.E-04	0.0003
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	6.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	1.3E-11	2.3E-11	--	--	--	3.0E-04	3.0E-04	3.0E-11	5.3E-11	1.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	2.4E-10	3.3E-10	2.E-10	2.E-10	4.E-10	--	--	5.6E-10	7.8E-10	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	4.3E-10	6.0E-10	3.E-09	4.E-09	8.E-09	--	--	1.0E-09	1.4E-09	--	--	--
	Benzo(b)fluoranthene	5.6E+01	ug/kg	7.3E-01	7.3E-01	4.4E-10	6.1E-10	3.E-10	4.E-10	8.E-10	--	--	1.0E-09	1.4E-09	--	--	--
	Benzo(k)fluoranthene	1.8E+01	ug/kg	7.3E-02	7.3E-02	1.4E-10	1.9E-10	1.E-11	1.E-11	2.E-11	--	--	3.3E-10	4.5E-10	--	--	--
	Dibenzo(a,h)anthracene	6.1E+00	ug/kg	7.3E+00	7.3E+00	4.8E-11	6.6E-11	3.E-10	5.E-10	8.E-10	--	--	1.1E-10	1.5E-10	--	--	--

[a] Cancer Risk Calculations and Noncancer Hazard Calculations

[b] Total Cancer Risk and Total Noncancer HQ

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	4.6E+01	ug/kg	7.3E-01	7.3E-01	3.6E-10	5.0E-10	3.E-10	4.E-10	6.E-10	--	--	8.4E-10	1.2E-09	--	--	--
	Naphthalene	7.2E+00	ug/kg	--	--	5.6E-11	7.8E-11	--	--	--	2.0E-02	2.0E-02	1.3E-10	1.8E-10	7.E-09	9.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+01	ug/kg	1.4E-02	1.4E-02	2.0E-10	3.6E-10	3.E-12	5.E-12	8.E-12	2.0E-02	2.0E-02	4.7E-10	8.4E-10	2.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+01	ug/kg	2.0E+00	2.0E+00	1.1E-10	1.4E-10	2.E-10	3.E-10	5.E-10	2.0E-05	2.0E-05	2.6E-10	3.3E-10	1.E-05	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	1.3E+05	1.3E+05	1.5E-15	8.9E-15	2.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	3.4E-15	2.1E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	2.5E-01	pg/g	1.3E+05	1.3E+05	2.1E-15	2.7E-15	3.E-10	4.E-10	6.E-10	1.0E-09	1.0E-09	4.9E-15	6.4E-15	5.E-06	6.E-06	0.00001
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	5.5E-13	9.9E-13	9.E-12	2.E-11	3.E-11	3.0E-05	3.0E-05	1.3E-12	2.3E-12	4.E-08	8.E-08	0.0000001
	Dieldrin	1.1E-01	ug/kg	1.6E+01	1.6E+01	6.9E-13	1.2E-12	1.E-11	2.E-11	3.E-11	5.0E-05	5.0E-05	1.6E-12	2.9E-12	3.E-08	6.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	2.5E-12	1.5E-11	8.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	5.8E-12	3.5E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										8.E-08							0.0004
RM 2 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	7.4E-09	4.4E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.7E-08	1.0E-07	6.E-05	3.E-04	0.0004
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	9.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.1E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	2.7E+00	ug/kg	--	--	1.6E-11	2.9E-11	--	--	--	3.0E-04	3.0E-04	3.7E-11	6.7E-11	1.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+01	ug/kg	7.3E-01	7.3E-01	4.5E-10	6.3E-10	3.E-10	5.E-10	8.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	6.8E-10	9.4E-10	5.E-09	7.E-09	1.E-08	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(b)fluoranthene	9.4E+01	ug/kg	7.3E-01	7.3E-01	7.4E-10	1.0E-09	5.E-10	7.E-10	1.E-09	--	--	1.7E-09	2.4E-09	--	--	--
	Benzo(k)fluoranthene	4.1E+01	ug/kg	7.3E-02	7.3E-02	3.2E-10	4.5E-10	2.E-11	3.E-11	6.E-11	--	--	7.6E-10	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+01	ug/kg	7.3E+00	7.3E+00	1.0E-10	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	2.4E-10	3.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	7.5E+01	ug/kg	7.3E-01	7.3E-01	5.9E-10	8.2E-10	4.E-10	6.E-10	1.E-09	--	--	1.4E-09	1.9E-09	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	1.1E-10	1.6E-10	--	--	--	2.0E-02	2.0E-02	2.7E-10	3.7E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.9E+01	ug/kg	1.4E-02	1.4E-02	6.0E-10	1.1E-09	8.E-12	2.E-11	2.E-11	2.0E-02	2.0E-02	1.4E-09	2.5E-09	7.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	5.3E-01	ug/kg	4.0E-01	4.0E-01	8.1E-12	5.8E-12	3.E-12	2.E-12	6.E-12	5.0E-03	5.0E-03	1.9E-11	1.4E-11	4.E-09	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+02	ug/kg	2.0E+00	2.0E+00	3.7E-09	4.7E-09	7.E-09	9.E-09	2.E-08	2.0E-05	2.0E-05	8.5E-09	1.1E-08	4.E-04	5.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	2.2E-15	1.3E-14	3.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	5.2E-15	3.1E-14	5.E-06	3.E-05	0.00004
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	1.1E-13	1.5E-13	1.E-08	2.E-08	3.E-08	1.0E-09	1.0E-09	2.6E-13	3.4E-13	3.E-04	3.E-04	0.0006

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	2.8E-12	5.1E-12	5.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	6.6E-12	1.2E-11	2.E-07	4.E-07	0.000001
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	3.6E-12	6.5E-12	6.E-11	1.E-10	2.E-10	5.0E-05	5.0E-05	8.4E-12	1.5E-11	2.E-07	3.E-07	0.0000005
	Total DDT	2.6E+00	ug/kg	3.4E-01	3.4E-01	4.7E-12	2.8E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	1.1E-11	6.6E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										1.E-07							0.002
RM 2.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	7.3E-09	4.4E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.7E-08	1.0E-07	6.E-05	3.E-04	0.0004
	Mercury	5.5E-02	mg/kg	--	--	0.0E+00	6.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	1.4E-11	2.5E-11	--	--	--	3.0E-04	3.0E-04	3.2E-11	5.9E-11	1.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	2.2E-09	1.E-09	2.E-09	3.E-09	--	--	3.8E-09	5.2E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	2.9E-09	4.0E-09	2.E-08	3.E-08	5.E-08	--	--	6.8E-09	9.4E-09	--	--	--
	Benzo(b)fluoranthene	2.8E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	3.0E-09	2.E-09	2.E-09	4.E-09	--	--	5.0E-09	7.0E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	9.8E-10	1.4E-09	7.E-11	1.E-10	2.E-10	--	--	2.3E-09	3.2E-09	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	3.2E-10	4.5E-10	2.E-09	3.E-09	6.E-09	--	--	7.5E-10	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.1E+02	ug/kg	7.3E-01	7.3E-01	2.4E-09	3.4E-09	2.E-09	2.E-09	4.E-09	--	--	5.7E-09	7.9E-09	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	3.2E-10	4.4E-10	--	--	--	2.0E-02	2.0E-02	7.4E-10	1.0E-09	4.E-08	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.5E+01	ug/kg	1.4E-02	1.4E-02	9.3E-11	1.7E-10	1.E-12	2.E-12	4.E-12	2.0E-02	2.0E-02	2.2E-10	3.9E-10	1.E-08	2.E-08	0.00000003
	Phenols																
	Pentachlorophenol	4.5E-01	ug/kg	4.0E-01	4.0E-01	6.7E-12	4.9E-12	3.E-12	2.E-12	5.E-12	5.0E-03	5.0E-03	1.6E-11	1.1E-11	3.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	9.1E-11	1.2E-10	2.E-10	2.E-10	4.E-10	2.0E-05	2.0E-05	2.1E-10	2.7E-10	1.E-05	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	4.8E-16	2.9E-15	6.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	1.1E-15	6.8E-15	1.E-06	7.E-06	0.00001
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	1.7E-15	2.3E-15	2.E-10	3.E-10	5.E-10	1.0E-09	1.0E-09	4.1E-15	5.3E-15	4.E-06	5.E-06	0.00001
	Pesticides																
	Aldrin	9.3E-02	ug/kg	1.7E+01	1.7E+01	5.6E-13	1.0E-12	1.E-11	2.E-11	3.E-11	3.0E-05	3.0E-05	1.3E-12	2.4E-12	4.E-08	8.E-08	0.0000001
	Dieldrin	1.4E-01	ug/kg	1.6E+01	1.6E+01	8.3E-13	1.5E-12	1.E-11	2.E-11	4.E-11	5.0E-05	5.0E-05	1.9E-12	3.5E-12	4.E-08	7.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	2.6E-12	1.6E-11	9.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	6.1E-12	3.7E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										1.E-07							0.0005
RM 2.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	7.6E-09	4.6E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+02	ug/kg	7.3E-01	7.3E-01	4.6E-09	6.4E-09	3.E-09	5.E-09	8.E-09	--	--	1.1E-08	1.5E-08	--	--	--
	Benzo(a)pyrene	4.8E+02	ug/kg	7.3E+00	7.3E+00	3.8E-09	5.2E-09	3.E-08	4.E-08	7.E-08	--	--	8.8E-09	1.2E-08	--	--	--
	Benzo(b)fluoranthene	4.4E+02	ug/kg	7.3E-01	7.3E-01	3.5E-09	4.8E-09	3.E-09	4.E-09	6.E-09	--	--	8.1E-09	1.1E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	1.1E-09	1.5E-09	8.E-11	1.E-10	2.E-10	--	--	2.6E-09	3.6E-09	--	--	--
	Dibenzo(a,h)anthracene	4.9E+01	ug/kg	7.3E+00	7.3E+00	3.8E-10	5.3E-10	3.E-09	4.E-09	7.E-09	--	--	9.0E-10	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	3.1E-09	2.E-09	2.E-09	4.E-09	--	--	5.2E-09	7.2E-09	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	4.0E-10	5.5E-10	--	--	--	2.0E-02	2.0E-02	9.3E-10	1.3E-09	5.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.8E+01	ug/kg	1.4E-02	1.4E-02	4.7E-10	8.5E-10	7.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.1E-09	2.0E-09	5.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	4.3E+00	ug/kg	4.0E-01	4.0E-01	6.4E-11	4.6E-11	3.E-11	2.E-11	4.E-11	5.0E-03	5.0E-03	1.5E-10	1.1E-10	3.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	4.7E-10	6.1E-10	9.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	1.1E-09	1.4E-09	6.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	1.2E-15	7.2E-15	2.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	2.8E-15	1.7E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	1.3E+00	pg/g	1.3E+05	1.3E+05	1.1E-14	1.5E-14	1.E-09	2.E-09	3.E-09	1.0E-09	1.0E-09	2.6E-14	3.4E-14	3.E-05	3.E-05	0.00006
	Pesticides																
	Aldrin	5.1E-01	ug/kg	1.7E+01	1.7E+01	3.1E-12	5.5E-12	5.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	7.1E-12	1.3E-11	2.E-07	4.E-07	0.000001
	Dieldrin	1.7E-01	ug/kg	1.6E+01	1.6E+01	1.0E-12	1.8E-12	2.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	2.3E-12	4.2E-12	5.E-08	8.E-08	0.0000001
	Total DDT	2.4E+00	ug/kg	3.4E-01	3.4E-01	4.3E-12	2.6E-11	1.E-12	9.E-12	1.E-11	5.0E-04	5.0E-04	1.0E-11	6.1E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										2.E-07							0.0006
RM 2.5 MC	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	7.7E-09	4.6E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	8.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.0E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.7E-09	2.3E-09	1.E-09	2.E-09	3.E-09	--	--	3.9E-09	5.4E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	2.7E-09	3.7E-09	2.E-08	3.E-08	5.E-08	--	--	6.3E-09	8.7E-09	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	3.4E-09	2.E-09	2.E-09	4.E-09	--	--	5.7E-09	8.0E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	7.9E-10	1.1E-09	6.E-11	8.E-11	1.E-10	--	--	1.8E-09	2.5E-09	--	--	--
	Dibenzo(a,h)anthracene	3.4E+01	ug/kg	7.3E+00	7.3E+00	2.6E-10	3.7E-10	2.E-09	3.E-09	5.E-09	--	--	6.2E-10	8.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	2.8E-09	1.E-09	2.E-09	4.E-09	--	--	4.8E-09	6.6E-09	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	4.6E-10	6.4E-10	--	--	--	2.0E-02	2.0E-02	1.1E-09	1.5E-09	5.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	3.5E-10	6.3E-10	5.E-12	9.E-12	1.E-11	2.0E-02	2.0E-02	8.1E-10	1.5E-09	4.E-08	7.E-08	0.0000001

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	5.5E-01	ug/kg	4.0E-01	4.0E-01	8.3E-12	6.0E-12	3.E-12	2.E-12	6.E-12	5.0E-03	5.0E-03	1.9E-11	1.4E-11	4.E-09	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	2.1E-10	2.8E-10	4.E-10	6.E-10	1.E-09	2.0E-05	2.0E-05	5.0E-10	6.4E-10	3.E-05	3.E-05	0.00006
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	1.2E-12	2.2E-12	2.E-11	4.E-11	6.E-11	3.0E-05	3.0E-05	2.9E-12	5.2E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	1.9E-12	3.3E-12	3.E-11	5.E-11	8.E-11	5.0E-05	5.0E-05	4.3E-12	7.8E-12	9.E-08	2.E-07	0.0000002
	Total DDT	3.7E+00	ug/kg	3.4E-01	3.4E-01	6.8E-12	4.1E-11	2.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	1.6E-11	9.5E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										1.E-07							0.0005
RM 3 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	6.6E-09	4.0E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.5E-08	9.3E-08	5.E-05	3.E-04	0.0004
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	8.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.0E-09	0.E+00	2.E-05	0.00002
	Vanadium	8.6E+01	mg/kg	--	--	0.0E+00	9.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.2E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	6.2E-11	1.1E-10	--	--	--	3.0E-04	3.0E-04	1.5E-10	2.6E-10	5.E-07	9.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	2.3E-09	3.2E-09	2.E-09	2.E-09	4.E-09	--	--	5.3E-09	7.4E-09	--	--	--
	Benzo(a)pyrene	4.6E+02	ug/kg	7.3E+00	7.3E+00	3.6E-09	5.0E-09	3.E-08	4.E-08	6.E-08	--	--	8.5E-09	1.2E-08	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	3.1E-09	4.3E-09	2.E-09	3.E-09	5.E-09	--	--	7.2E-09	1.0E-08	--	--	--
	Benzo(k)fluoranthene	2.3E+02	ug/kg	7.3E-02	7.3E-02	1.8E-09	2.5E-09	1.E-10	2.E-10	3.E-10	--	--	4.2E-09	5.9E-09	--	--	--
	Dibenzo(a,h)anthracene	5.3E+01	ug/kg	7.3E+00	7.3E+00	4.1E-10	5.7E-10	3.E-09	4.E-09	7.E-09	--	--	9.7E-10	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	2.6E-09	3.6E-09	2.E-09	3.E-09	4.E-09	--	--	6.0E-09	8.3E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	7.7E-10	1.1E-09	--	--	--	2.0E-02	2.0E-02	1.8E-09	2.5E-09	9.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	2.4E-10	4.4E-10	3.E-12	6.E-12	1.E-11	2.0E-02	2.0E-02	5.7E-10	1.0E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.6E+01	ug/kg	4.0E-01	4.0E-01	2.5E-10	1.8E-10	1.E-10	7.E-11	2.E-10	5.0E-03	5.0E-03	5.8E-10	4.2E-10	1.E-07	8.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	9.5E-11	1.2E-10	2.E-10	2.E-10	4.E-10	2.0E-05	2.0E-05	2.2E-10	2.9E-10	1.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	1.3E+05	1.1E-15	6.6E-15	1.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	2.6E-15	1.5E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	3.5E-15	4.5E-15	5.E-10	6.E-10	1.E-09	1.0E-09	1.0E-09	8.1E-15	1.0E-14	8.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	3.5E-01	ug/kg	1.7E+01	1.7E+01	2.1E-12	3.8E-12	4.E-11	7.E-11	1.E-10	3.0E-05	3.0E-05	5.0E-12	9.0E-12	2.E-07	3.E-07	0.0000005
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	1.2E-12	2.1E-12	2.E-11	3.E-11	5.E-11	5.0E-05	5.0E-05	2.8E-12	5.0E-12	6.E-08	1.E-07	0.0000002
	Total DDT	2.8E+01	ug/kg	3.4E-01	3.4E-01	5.1E-11	3.1E-10	2.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	1.2E-10	7.2E-10	2.E-07	1.E-06	0.000002
Exposure Point Total										2.E-07							0.03

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	7.5E-09	4.5E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.7E-08	1.0E-07	6.E-05	3.E-04	0.0004
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	6.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	8.8E+01	mg/kg	--	--	0.0E+00	9.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.2E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	8.3E+00	ug/kg	--	--	5.0E-11	9.0E-11	--	--	--	3.0E-04	3.0E-04	1.2E-10	2.1E-10	4.E-07	7.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	6.1E-10	8.4E-10	4.E-10	6.E-10	1.E-09	--	--	1.4E-09	2.0E-09	--	--	--
	Benzo(a)pyrene	8.4E+01	ug/kg	7.3E+00	7.3E+00	6.6E-10	9.1E-10	5.E-09	7.E-09	1.E-08	--	--	1.5E-09	2.1E-09	--	--	--
	Benzo(b)fluoranthene	9.9E+01	ug/kg	7.3E-01	7.3E-01	7.8E-10	1.1E-09	6.E-10	8.E-10	1.E-09	--	--	1.8E-09	2.5E-09	--	--	--
	Benzo(k)fluoranthene	6.0E+01	ug/kg	7.3E-02	7.3E-02	4.7E-10	6.6E-10	3.E-11	5.E-11	8.E-11	--	--	1.1E-09	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.1E-10	1.5E-10	8.E-10	1.E-09	2.E-09	--	--	2.5E-10	3.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	5.3E-10	7.4E-10	4.E-10	5.E-10	9.E-10	--	--	1.2E-09	1.7E-09	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	9.9E-11	1.4E-10	--	--	--	2.0E-02	2.0E-02	2.3E-10	3.2E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.5E+01	ug/kg	1.4E-02	1.4E-02	3.9E-10	7.0E-10	5.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	9.1E-10	1.6E-09	5.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.9E+00	ug/kg	4.0E-01	4.0E-01	2.9E-11	2.1E-11	1.E-11	8.E-12	2.E-11	5.0E-03	5.0E-03	6.8E-11	4.9E-11	1.E-08	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+01	ug/kg	2.0E+00	2.0E+00	1.6E-10	2.1E-10	3.E-10	4.E-10	7.E-10	2.0E-05	2.0E-05	3.8E-10	4.8E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	1.3E+05	1.3E+05	5.2E-15	3.1E-14	7.E-10	4.E-09	5.E-09	1.0E-09	1.0E-09	1.2E-14	7.3E-14	1.E-05	7.E-05	0.00008
	Total PCB TEQ	7.7E-02	pg/g	1.3E+05	1.3E+05	6.5E-16	8.3E-16	8.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	1.5E-15	1.9E-15	2.E-06	2.E-06	0.000003
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.7E-12	3.1E-12	3.E-11	5.E-11	8.E-11	3.0E-05	3.0E-05	4.0E-12	7.3E-12	1.E-07	2.E-07	0.0000004
	Dieldrin	5.7E-02	ug/kg	1.6E+01	1.6E+01	3.5E-13	6.3E-13	6.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	8.1E-13	1.5E-12	2.E-08	3.E-08	0.00000005
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	2.9E-12	1.7E-11	1.E-12	6.E-12	7.E-12	5.0E-04	5.0E-04	6.7E-12	4.0E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										1.E-07							0.03
RM 3.5 West	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	1.0E-08	6.3E-08	2.E-08	9.E-08	1.E-07	3.0E-04	3.0E-04	2.4E-08	1.5E-07	8.E-05	5.E-04	0.0006
	Mercury	7.1E-02	mg/kg	--	--	0.0E+00	7.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.5E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	4.9E-10	8.8E-10	--	--	--	3.0E-04	3.0E-04	1.1E-09	2.1E-09	4.E-06	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	2.0E-09	2.8E-09	1.E-09	2.E-09	4.E-09	--	--	4.8E-09	6.6E-09	--	--	--
	Benzo(a)pyrene	3.9E+02	ug/kg	7.3E+00	7.3E+00	3.1E-09	4.3E-09	2.E-08	3.E-08	5.E-08	--	--	7.2E-09	1.0E-08	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	2.7E-09	3.8E-09	2.E-09	3.E-09	5.E-09	--	--	6.4E-09	8.9E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	1.1E-09	1.6E-09	8.E-11	1.E-10	2.E-10	--	--	2.6E-09	3.7E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	3.4E-10	4.7E-10	2.E-09	3.E-09	6.E-09	--	--	7.9E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	3.5E-09	2.E-09	3.E-09	4.E-09	--	--	5.9E-09	8.2E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	1.0E-09	1.4E-09	--	--	--	2.0E-02	2.0E-02	2.4E-09	3.4E-09	1.E-07	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	2.8E-10	5.1E-10	4.E-12	7.E-12	1.E-11	2.0E-02	2.0E-02	6.5E-10	1.2E-09	3.E-08	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	3.7E-11	2.7E-11	1.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	8.7E-11	6.3E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	1.9E-10	2.5E-10	4.E-10	5.E-10	9.E-10	2.0E-05	2.0E-05	4.5E-10	5.8E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	1.3E+05	1.3E+05	1.6E-15	9.9E-15	2.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	3.8E-15	2.3E-14	4.E-06	2.E-05	0.00003
	Total PCB TEQ	5.1E-01	pg/g	1.3E+05	1.3E+05	4.3E-15	5.6E-15	6.E-10	7.E-10	1.E-09	1.0E-09	1.0E-09	1.0E-14	1.3E-14	1.E-05	1.E-05	0.00002
	Pesticides																
	Aldrin	2.7E-01	ug/kg	1.7E+01	1.7E+01	1.6E-12	2.9E-12	3.E-11	5.E-11	8.E-11	3.0E-05	3.0E-05	3.7E-12	6.7E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	7.6E-13	1.4E-12	1.E-11	2.E-11	3.E-11	5.0E-05	5.0E-05	1.8E-12	3.2E-12	4.E-08	6.E-08	0.0000001
	Total DDT	5.8E+00	ug/kg	3.4E-01	3.4E-01	1.1E-11	6.3E-11	4.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	2.5E-11	1.5E-10	5.E-08	3.E-07	0.0000003
Exposure Point Total										2.E-07							0.04
RM 3.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	6.7E-09	4.0E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.6E-08	9.4E-08	5.E-05	3.E-04	0.0004
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	8.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.0E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.5E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	1.8E+03	ug/kg	--	--	1.1E-08	1.9E-08	--	--	--	3.0E-04	3.0E-04	2.5E-08	4.5E-08	8.E-05	2.E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	2.3E-09	3.2E-09	2.E-09	2.E-09	4.E-09	--	--	5.3E-09	7.4E-09	--	--	--
	Benzo(a)pyrene	2.5E+02	ug/kg	7.3E+00	7.3E+00	1.9E-09	2.7E-09	1.E-08	2.E-08	3.E-08	--	--	4.5E-09	6.3E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	2.8E-09	3.8E-09	2.E-09	3.E-09	5.E-09	--	--	6.4E-09	8.9E-09	--	--	--
	Benzo(k)fluoranthene	1.7E+02	ug/kg	7.3E-02	7.3E-02	1.3E-09	1.9E-09	1.E-10	1.E-10	2.E-10	--	--	3.1E-09	4.3E-09	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	3.2E-10	4.5E-10	2.E-09	3.E-09	6.E-09	--	--	7.5E-10	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.6E-09	9.E-10	1.E-09	2.E-09	--	--	2.7E-09	3.8E-09	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	1.1E-10	1.5E-10	--	--	--	2.0E-02	2.0E-02	2.6E-10	3.5E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	8.0E-09	1.4E-08	1.E-10	2.E-10	3.E-10	2.0E-02	2.0E-02	1.9E-08	3.4E-08	9.E-07	2.E-06	0.000003

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	2.0E+00	ug/kg	4.0E-01	4.0E-01	3.1E-11	2.2E-11	1.E-11	9.E-12	2.E-11	5.0E-03	5.0E-03	7.1E-11	5.1E-11	1.E-08	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+02	ug/kg	2.0E+00	2.0E+00	3.2E-09	4.1E-09	6.E-09	8.E-09	1.E-08	2.0E-05	2.0E-05	7.4E-09	9.5E-09	4.E-04	5.E-04	0.0008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	6.0E-15	3.6E-14	8.E-10	5.E-09	6.E-09	1.0E-09	1.0E-09	1.4E-14	8.5E-14	1.E-05	8.E-05	0.0001
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.5E-13	1.9E-13	2.E-08	2.E-08	4.E-08	1.0E-09	1.0E-09	3.4E-13	4.4E-13	3.E-04	4.E-04	0.0008
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	2.3E-12	4.1E-12	4.E-11	7.E-11	1.E-10	3.0E-05	3.0E-05	5.3E-12	9.5E-12	2.E-07	3.E-07	0.0000005
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	7.6E-13	1.4E-12	1.E-11	2.E-11	3.E-11	5.0E-05	5.0E-05	1.8E-12	3.2E-12	4.E-08	6.E-08	0.0000001
	Total DDT	6.2E+00	ug/kg	3.4E-01	3.4E-01	1.1E-11	6.7E-11	4.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	2.6E-11	1.6E-10	5.E-08	3.E-07	0.0000004
Exposure Point Total										2.E-07							0.04
RM 4 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	6.1E-09	3.7E-08	9.E-09	6.E-08	6.E-08	3.0E-04	3.0E-04	1.4E-08	8.6E-08	5.E-05	3.E-04	0.0003
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	9.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.1E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.6E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	6.1E+00	ug/kg	--	--	3.7E-11	6.7E-11	--	--	--	3.0E-04	3.0E-04	8.6E-11	1.6E-10	3.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	2.0E-09	2.8E-09	1.E-09	2.E-09	3.E-09	--	--	4.7E-09	6.5E-09	--	--	--
	Benzo(a)pyrene	4.0E+02	ug/kg	7.3E+00	7.3E+00	3.1E-09	4.3E-09	2.E-08	3.E-08	5.E-08	--	--	7.3E-09	1.0E-08	--	--	--
	Benzo(b)fluoranthene	3.6E+02	ug/kg	7.3E-01	7.3E-01	2.8E-09	3.9E-09	2.E-09	3.E-09	5.E-09	--	--	6.5E-09	9.1E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	1.0E-09	1.4E-09	8.E-11	1.E-10	2.E-10	--	--	2.4E-09	3.4E-09	--	--	--
	Dibenzo(a,h)anthracene	4.4E+01	ug/kg	7.3E+00	7.3E+00	3.5E-10	4.8E-10	3.E-09	3.E-09	6.E-09	--	--	8.1E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	3.4E-09	2.E-09	3.E-09	4.E-09	--	--	5.8E-09	8.0E-09	--	--	--
	Naphthalene	7.7E+01	ug/kg	--	--	6.1E-10	8.4E-10	--	--	--	2.0E-02	2.0E-02	1.4E-09	2.0E-09	7.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.2E+01	ug/kg	1.4E-02	1.4E-02	2.5E-10	4.5E-10	4.E-12	6.E-12	1.E-11	2.0E-02	2.0E-02	5.9E-10	1.1E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	4.5E+00	ug/kg	4.0E-01	4.0E-01	6.8E-11	4.9E-11	3.E-11	2.E-11	5.E-11	5.0E-03	5.0E-03	1.6E-10	1.1E-10	3.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	1.8E-10	2.3E-10	4.E-10	5.E-10	8.E-10	2.0E-05	2.0E-05	4.2E-10	5.4E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	2.9E-15	1.8E-14	4.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	6.9E-15	4.1E-14	7.E-06	4.E-05	0.00005
	Total PCB TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	4.0E-15	5.1E-15	5.E-10	7.E-10	1.E-09	1.0E-09	1.0E-09	9.3E-15	1.2E-14	9.E-06	1.E-05	0.00002

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	3.9E-01	ug/kg	1.7E+01	1.7E+01	2.3E-12	4.2E-12	4.E-11	7.E-11	1.E-10	3.0E-05	3.0E-05	5.5E-12	9.9E-12	2.E-07	3.E-07	0.000001
	Dieldrin	7.1E-02	ug/kg	1.6E+01	1.6E+01	4.3E-13	7.8E-13	7.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	1.0E-12	1.8E-12	2.E-08	4.E-08	0.0000001
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	3.4E-11	2.1E-10	1.E-11	7.E-11	8.E-11	5.0E-04	5.0E-04	8.0E-11	4.8E-10	2.E-07	1.E-06	0.000001
Exposure Point Total										1.E-07							0.04
RM 4 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	7.7E-09	4.6E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	6.6E-02	mg/kg	--	--	0.0E+00	7.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	1.6E-10	2.9E-10	--	--	--	3.0E-04	3.0E-04	3.7E-10	6.7E-10	1.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.3E+02	ug/kg	7.3E-01	7.3E-01	5.0E-09	6.9E-09	4.E-09	5.E-09	9.E-09	--	--	1.2E-08	1.6E-08	--	--	--
	Benzo(a)pyrene	8.8E+02	ug/kg	7.3E+00	7.3E+00	6.9E-09	9.5E-09	5.E-08	7.E-08	1.E-07	--	--	1.6E-08	2.2E-08	--	--	--
	Benzo(b)fluoranthene	9.0E+02	ug/kg	7.3E-01	7.3E-01	7.1E-09	9.9E-09	5.E-09	7.E-09	1.E-08	--	--	1.7E-08	2.3E-08	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	5.6E-09	7.8E-09	4.E-10	6.E-10	1.E-09	--	--	1.3E-08	1.8E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	1.1E-09	1.5E-09	8.E-09	1.E-08	2.E-08	--	--	2.6E-09	3.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.4E+02	ug/kg	7.3E-01	7.3E-01	5.0E-09	7.0E-09	4.E-09	5.E-09	9.E-09	--	--	1.2E-08	1.6E-08	--	--	--
	Naphthalene	3.9E+01	ug/kg	--	--	3.0E-10	4.2E-10	--	--	--	2.0E-02	2.0E-02	7.1E-10	9.8E-10	4.E-08	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+02	ug/kg	1.4E-02	1.4E-02	5.5E-09	1.0E-08	8.E-11	1.E-10	2.E-10	2.0E-02	2.0E-02	1.3E-08	2.3E-08	6.E-07	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	4.5E+02	ug/kg	4.0E-01	4.0E-01	6.8E-09	4.9E-09	3.E-09	2.E-09	5.E-09	5.0E-03	5.0E-03	1.6E-08	1.1E-08	3.E-06	2.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	1.3E-09	1.6E-09	3.E-09	3.E-09	6.E-09	2.0E-05	2.0E-05	3.0E-09	3.8E-09	1.E-04	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	7.5E-15	4.5E-14	1.E-09	6.E-09	7.E-09	1.0E-09	1.0E-09	1.7E-14	1.1E-13	2.E-05	1.E-04	0.0001
	Total PCB TEQ	1.9E+00	pg/g	1.3E+05	1.3E+05	1.6E-14	2.1E-14	2.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	3.8E-14	4.9E-14	4.E-05	5.E-05	0.00009
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	2.9E-12	5.2E-12	5.E-11	9.E-11	1.E-10	3.0E-05	3.0E-05	6.7E-12	1.2E-11	2.E-07	4.E-07	0.000001
	Dieldrin	8.9E-02	ug/kg	1.6E+01	1.6E+01	5.4E-13	9.7E-13	9.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	1.3E-12	2.3E-12	3.E-08	5.E-08	0.0000001
	Total DDT	5.4E+00	ug/kg	3.4E-01	3.4E-01	9.8E-12	5.9E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	2.3E-11	1.4E-10	5.E-08	3.E-07	0.0000003
Exposure Point Total										3.E-07							0.04
RM 4.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	6.5E-09	3.9E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.5E-08	9.1E-08	5.E-05	3.E-04	0.0004
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	9.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.2E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	7.5E+00	ug/kg	--	--	4.5E-11	8.2E-11	--	--	--	3.0E-04	3.0E-04	1.1E-10	1.9E-10	4.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	4.3E-09	6.0E-09	3.E-09	4.E-09	8.E-09	--	--	1.0E-08	1.4E-08	--	--	--
	Benzo(a)pyrene	7.6E+02	ug/kg	7.3E+00	7.3E+00	6.0E-09	8.3E-09	4.E-08	6.E-08	1.E-07	--	--	1.4E-08	1.9E-08	--	--	--
	Benzo(b)fluoranthene	6.6E+02	ug/kg	7.3E-01	7.3E-01	5.2E-09	7.2E-09	4.E-09	5.E-09	9.E-09	--	--	1.2E-08	1.7E-08	--	--	--
	Benzo(k)fluoranthene	2.9E+02	ug/kg	7.3E-02	7.3E-02	2.3E-09	3.2E-09	2.E-10	2.E-10	4.E-10	--	--	5.3E-09	7.4E-09	--	--	--
	Dibenzo(a,h)anthracene	8.5E+01	ug/kg	7.3E+00	7.3E+00	6.6E-10	9.2E-10	5.E-09	7.E-09	1.E-08	--	--	1.6E-09	2.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	4.7E-09	6.5E-09	3.E-09	5.E-09	8.E-09	--	--	1.1E-08	1.5E-08	--	--	--
	Naphthalene	1.6E+02	ug/kg	--	--	1.3E-09	1.8E-09	--	--	--	2.0E-02	2.0E-02	3.0E-09	4.2E-09	2.E-07	2.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.0E+01	ug/kg	1.4E-02	1.4E-02	3.0E-10	5.4E-10	4.E-12	8.E-12	1.E-11	2.0E-02	2.0E-02	7.0E-10	1.3E-09	3.E-08	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	2.6E-11	1.9E-11	1.E-11	7.E-12	2.E-11	5.0E-03	5.0E-03	6.0E-11	4.4E-11	1.E-08	9.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	2.1E-10	2.7E-10	4.E-10	5.E-10	1.E-09	2.0E-05	2.0E-05	4.8E-10	6.2E-10	2.E-05	3.E-05	0.00006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	4.7E-15	2.8E-14	6.E-10	4.E-09	4.E-09	1.0E-09	1.0E-09	1.1E-14	6.6E-14	1.E-05	7.E-05	0.00008
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	1.2E-14	1.5E-14	2.E-09	2.E-09	4.E-09	1.0E-09	1.0E-09	2.8E-14	3.6E-14	3.E-05	4.E-05	0.00006
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	1.0E-12	1.8E-12	2.E-11	3.E-11	5.E-11	3.0E-05	3.0E-05	2.4E-12	4.3E-12	8.E-08	1.E-07	0.0000002
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	8.1E-13	1.5E-12	1.E-11	2.E-11	4.E-11	5.0E-05	5.0E-05	1.9E-12	3.4E-12	4.E-08	7.E-08	0.0000001
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	8.2E-12	4.9E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	1.9E-11	1.2E-10	4.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-07							0.04
RM 4.5 East	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	7.2E-09	4.3E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.7E-08	1.0E-07	6.E-05	3.E-04	0.0004
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	6.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	4.1E+01	ug/kg	--	--	2.5E-10	4.4E-10	--	--	--	3.0E-04	3.0E-04	5.7E-10	1.0E-09	2.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+03	ug/kg	7.3E-01	7.3E-01	2.6E-08	3.6E-08	2.E-08	3.E-08	5.E-08	--	--	6.1E-08	8.4E-08	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	3.4E-08	4.7E-08	2.E-07	3.E-07	6.E-07	--	--	7.9E-08	1.1E-07	--	--	--
	Benzo(b)fluoranthene	3.8E+03	ug/kg	7.3E-01	7.3E-01	3.0E-08	4.1E-08	2.E-08	3.E-08	5.E-08	--	--	6.9E-08	9.6E-08	--	--	--
	Benzo(k)fluoranthene	3.4E+03	ug/kg	7.3E-02	7.3E-02	2.7E-08	3.7E-08	2.E-09	3.E-09	5.E-09	--	--	6.2E-08	8.6E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	5.6E-09	7.7E-09	4.E-08	6.E-08	1.E-07	--	--	1.3E-08	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+03	ug/kg	7.3E-01	7.3E-01	2.4E-08	3.3E-08	2.E-08	2.E-08	4.E-08	--	--	5.6E-08	7.7E-08	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Naphthalene	1.5E+02	ug/kg	--	--	1.1E-09	1.6E-09	--	--	--	2.0E-02	2.0E-02	2.7E-09	3.7E-09	1.E-07	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.3E+01	ug/kg	1.4E-02	1.4E-02	5.0E-10	9.1E-10	7.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.2E-09	2.1E-09	6.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.8E+00	ug/kg	4.0E-01	4.0E-01	2.7E-11	1.9E-11	1.E-11	8.E-12	2.E-11	5.0E-03	5.0E-03	6.3E-11	4.5E-11	1.E-08	9.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	2.9E-10	3.8E-10	6.E-10	8.E-10	1.E-09	2.0E-05	2.0E-05	6.8E-10	8.8E-10	3.E-05	4.E-05	0.00008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	5.0E-16	3.0E-15	7.E-11	4.E-10	5.E-10	1.0E-09	1.0E-09	1.2E-15	7.0E-15	1.E-06	7.E-06	0.00001
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	2.7E-15	3.5E-15	4.E-10	5.E-10	8.E-10	1.0E-09	1.0E-09	6.4E-15	8.2E-15	6.E-06	8.E-06	0.00001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	6.5E-13	1.2E-12	1.E-11	2.E-11	3.E-11	3.0E-05	3.0E-05	1.5E-12	2.7E-12	5.E-08	9.E-08	0.0000001
	Dieldrin	5.8E-02	ug/kg	1.6E+01	1.6E+01	3.5E-13	6.3E-13	6.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	8.2E-13	1.5E-12	2.E-08	3.E-08	0.00000005
	Total DDT	4.9E+00	ug/kg	3.4E-01	3.4E-01	8.8E-12	5.3E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	2.1E-11	1.2E-10	4.E-08	2.E-07	0.0000003
Exposure Point Total										9.E-07							0.04
RM 5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	5.9E-09	3.5E-08	9.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.4E-08	8.3E-08	5.E-05	3.E-04	0.0003
	Mercury	5.2E-02	mg/kg	--	--	0.0E+00	5.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.5E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	1.1E-10	2.0E-10	--	--	--	3.0E-04	3.0E-04	2.5E-10	4.6E-10	8.E-07	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E+02	ug/kg	7.3E-01	7.3E-01	4.6E-09	6.4E-09	3.E-09	5.E-09	8.E-09	--	--	1.1E-08	1.5E-08	--	--	--
	Benzo(a)pyrene	7.9E+02	ug/kg	7.3E+00	7.3E+00	6.2E-09	8.6E-09	5.E-08	6.E-08	1.E-07	--	--	1.5E-08	2.0E-08	--	--	--
	Benzo(b)fluoranthene	5.7E+02	ug/kg	7.3E-01	7.3E-01	4.5E-09	6.2E-09	3.E-09	5.E-09	8.E-09	--	--	1.0E-08	1.4E-08	--	--	--
	Benzo(k)fluoranthene	4.1E+02	ug/kg	7.3E-02	7.3E-02	3.2E-09	4.5E-09	2.E-10	3.E-10	6.E-10	--	--	7.6E-09	1.0E-08	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	6.4E-10	8.9E-10	5.E-09	7.E-09	1.E-08	--	--	1.5E-09	2.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	4.6E-09	6.4E-09	3.E-09	5.E-09	8.E-09	--	--	1.1E-08	1.5E-08	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	1.1E-09	1.5E-09	--	--	--	2.0E-02	2.0E-02	2.5E-09	3.5E-09	1.E-07	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	4.3E-10	7.7E-10	6.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.0E-09	1.8E-09	5.E-08	9.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.1E+01	ug/kg	4.0E-01	4.0E-01	3.2E-10	2.3E-10	1.E-10	9.E-11	2.E-10	5.0E-03	5.0E-03	7.4E-10	5.3E-10	1.E-07	1.E-07	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	1.4E-10	1.8E-10	3.E-10	4.E-10	7.E-10	2.0E-05	2.0E-05	3.3E-10	4.3E-10	2.E-05	2.E-05	0.00004

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	1.3E+05	1.3E+05	6.3E-15	3.8E-14	8.E-10	5.E-09	6.E-09	1.0E-09	1.0E-09	1.5E-14	8.8E-14	1.E-05	9.E-05	0.0001
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	9.9E-15	1.3E-14	1.E-09	2.E-09	3.E-09	1.0E-09	1.0E-09	2.3E-14	3.0E-14	2.E-05	3.E-05	0.00005
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	2.7E-12	4.8E-12	5.E-11	8.E-11	1.E-10	3.0E-05	3.0E-05	6.2E-12	1.1E-11	2.E-07	4.E-07	0.000001
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	8.9E-13	1.6E-12	1.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	2.1E-12	3.7E-12	4.E-08	7.E-08	0.0000001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	2.1E-11	1.3E-10	7.E-12	4.E-11	5.E-11	5.0E-04	5.0E-04	4.9E-11	2.9E-10	1.E-07	6.E-07	0.000001
Exposure Point Total										2.E-07							0.04
RM 5 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	5.9E-09	3.5E-08	9.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.4E-08	8.2E-08	5.E-05	3.E-04	0.0003
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.6E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	5.7E+01	ug/kg	--	--	3.4E-10	6.2E-10	--	--	--	3.0E-04	3.0E-04	8.0E-10	1.5E-09	3.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.7E-09	2.3E-09	1.E-09	2.E-09	3.E-09	--	--	3.9E-09	5.4E-09	--	--	--
	Benzo(a)pyrene	3.0E+02	ug/kg	7.3E+00	7.3E+00	2.3E-09	3.2E-09	2.E-08	2.E-08	4.E-08	--	--	5.5E-09	7.6E-09	--	--	--
	Benzo(b)fluoranthene	3.2E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	3.5E-09	2.E-09	3.E-09	4.E-09	--	--	5.9E-09	8.1E-09	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	1.2E-09	1.6E-09	9.E-11	1.E-10	2.E-10	--	--	2.8E-09	3.8E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	3.4E-10	4.7E-10	2.E-09	3.E-09	6.E-09	--	--	7.9E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	2.6E-09	1.E-09	2.E-09	3.E-09	--	--	4.4E-09	6.1E-09	--	--	--
	Naphthalene	5.5E+01	ug/kg	--	--	4.3E-10	5.9E-10	--	--	--	2.0E-02	2.0E-02	1.0E-09	1.4E-09	5.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.5E+01	ug/kg	1.4E-02	1.4E-02	5.1E-10	9.3E-10	7.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.2E-09	2.2E-09	6.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	6.5E+00	ug/kg	4.0E-01	4.0E-01	9.9E-11	7.1E-11	4.E-11	3.E-11	7.E-11	5.0E-03	5.0E-03	2.3E-10	1.7E-10	5.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+01	ug/kg	2.0E+00	2.0E+00	1.7E-10	2.1E-10	3.E-10	4.E-10	8.E-10	2.0E-05	2.0E-05	3.9E-10	5.0E-10	2.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	1.9E-01	ug/kg	1.7E+01	1.7E+01	1.2E-12	2.1E-12	2.E-11	4.E-11	5.E-11	3.0E-05	3.0E-05	2.7E-12	4.8E-12	9.E-08	2.E-07	0.0000003
	Dieldrin	1.9E-01	ug/kg	1.6E+01	1.6E+01	1.1E-12	2.1E-12	2.E-11	3.E-11	5.E-11	5.0E-05	5.0E-05	2.7E-12	4.8E-12	5.E-08	1.E-07	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	2.5E-12	1.5E-11	8.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	5.8E-12	3.5E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										1.E-07							0.04
RM 5.5 West	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	7.7E-09	4.6E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.2E+01	mg/kg	--	--	0.0E+00	1.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.3E-06	0.E+00	3.E-02	0.03

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	1.1E-10	1.9E-10	--	--	--	3.0E-04	3.0E-04	2.5E-10	4.4E-10	8.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	1.0E-08	1.5E-08	8.E-09	1.E-08	2.E-08	--	--	2.4E-08	3.4E-08	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	1.5E-08	2.1E-08	1.E-07	2.E-07	3.E-07	--	--	3.5E-08	4.8E-08	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	1.2E-08	1.7E-08	9.E-09	1.E-08	2.E-08	--	--	2.8E-08	3.9E-08	--	--	--
	Benzo(k)fluoranthene	7.5E+02	ug/kg	7.3E-02	7.3E-02	5.9E-09	8.1E-09	4.E-10	6.E-10	1.E-09	--	--	1.4E-08	1.9E-08	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.8E-09	1.E-08	1.E-08	2.E-08	--	--	3.1E-09	4.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	1.2E-08	1.6E-08	9.E-09	1.E-08	2.E-08	--	--	2.7E-08	3.8E-08	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	9.2E-10	1.3E-09	--	--	--	2.0E-02	2.0E-02	2.2E-09	3.0E-09	1.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.4E+01	ug/kg	1.4E-02	1.4E-02	4.5E-10	8.1E-10	6.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.1E-09	1.9E-09	5.E-08	9.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.2E+01	ug/kg	4.0E-01	4.0E-01	1.8E-10	1.3E-10	7.E-11	5.E-11	1.E-10	5.0E-03	5.0E-03	4.3E-10	3.1E-10	9.E-08	6.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	2.7E-10	3.5E-10	5.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	6.4E-10	8.2E-10	3.E-05	4.E-05	0.00007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	2.6E-15	1.6E-14	3.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	6.2E-15	3.7E-14	6.E-06	4.E-05	0.00004
	Total PCB TEQ	5.8E-01	pg/g	1.3E+05	1.3E+05	4.9E-15	6.3E-15	6.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	1.1E-14	1.5E-14	1.E-05	1.E-05	0.00003
	Pesticides																
	Aldrin	4.2E-01	ug/kg	1.7E+01	1.7E+01	2.5E-12	4.6E-12	4.E-11	8.E-11	1.E-10	3.0E-05	3.0E-05	5.9E-12	1.1E-11	2.E-07	4.E-07	0.000001
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	1.9E-12	3.4E-12	3.E-11	5.E-11	8.E-11	5.0E-05	5.0E-05	4.4E-12	8.0E-12	9.E-08	2.E-07	0.0000002
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	3.5E-11	2.1E-10	1.E-11	7.E-11	8.E-11	5.0E-04	5.0E-04	8.1E-11	4.9E-10	2.E-07	1.E-06	0.000001
Exposure Point Total										4.E-07							0.03
RM 5.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	1.0E-08	6.3E-08	2.E-08	9.E-08	1.E-07	3.0E-04	3.0E-04	2.4E-08	1.5E-07	8.E-05	5.E-04	0.0006
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	2.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-09	0.E+00	6.E-05	0.00006
	Vanadium	8.5E+01	mg/kg	--	--	0.0E+00	9.3E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.2E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.7E+02	ug/kg	--	--	1.0E-09	1.9E-09	--	--	--	3.0E-04	3.0E-04	2.4E-09	4.4E-09	8.E-06	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.6E+02	ug/kg	7.3E-01	7.3E-01	3.6E-09	5.0E-09	3.E-09	4.E-09	6.E-09	--	--	8.5E-09	1.2E-08	--	--	--
	Benzo(a)pyrene	5.6E+02	ug/kg	7.3E+00	7.3E+00	4.4E-09	6.1E-09	3.E-08	4.E-08	8.E-08	--	--	1.0E-08	1.4E-08	--	--	--
	Benzo(b)fluoranthene	6.8E+02	ug/kg	7.3E-01	7.3E-01	5.3E-09	7.4E-09	4.E-09	5.E-09	9.E-09	--	--	1.2E-08	1.7E-08	--	--	--
	Benzo(k)fluoranthene	2.6E+02	ug/kg	7.3E-02	7.3E-02	2.1E-09	2.9E-09	2.E-10	2.E-10	4.E-10	--	--	4.8E-09	6.7E-09	--	--	--
	Dibenzo(a,h)anthracene	8.8E+01	ug/kg	7.3E+00	7.3E+00	6.9E-10	9.6E-10	5.E-09	7.E-09	1.E-08	--	--	1.6E-09	2.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.3E+02	ug/kg	7.3E-01	7.3E-01	3.3E-09	4.6E-09	2.E-09	3.E-09	6.E-09	--	--	7.8E-09	1.1E-08	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Naphthalene	1.3E+02	ug/kg	--	--	1.1E-09	1.5E-09	--	--	--	2.0E-02	2.0E-02	2.5E-09	3.4E-09	1.E-07	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	1.6E-09	2.8E-09	2.E-11	4.E-11	6.E-11	2.0E-02	2.0E-02	3.6E-09	6.5E-09	2.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	2.0E-10	1.5E-10	8.E-11	6.E-11	1.E-10	5.0E-03	5.0E-03	4.8E-10	3.4E-10	1.E-07	7.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+02	ug/kg	2.0E+00	2.0E+00	8.9E-10	1.1E-09	2.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	2.1E-09	2.7E-09	1.E-04	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	1.3E+05	1.3E+05	8.1E-15	4.9E-14	1.E-09	6.E-09	7.E-09	1.0E-09	1.0E-09	1.9E-14	1.1E-13	2.E-05	1.E-04	0.0001
	Total PCB TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	1.7E-14	2.2E-14	2.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	4.0E-14	5.2E-14	4.E-05	5.E-05	0.00009
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	2.5E-12	4.5E-12	4.E-11	8.E-11	1.E-10	3.0E-05	3.0E-05	5.8E-12	1.0E-11	2.E-07	3.E-07	0.000001
	Dieldrin	4.7E-01	ug/kg	1.6E+01	1.6E+01	2.8E-12	5.1E-12	5.E-11	8.E-11	1.E-10	5.0E-05	5.0E-05	6.6E-12	1.2E-11	1.E-07	2.E-07	0.0000004
	Total DDT	8.2E+00	ug/kg	3.4E-01	3.4E-01	1.5E-11	9.0E-11	5.E-12	3.E-11	4.E-11	5.0E-04	5.0E-04	3.5E-11	2.1E-10	7.E-08	4.E-07	0.0000005
Exposure Point Total										2.E-07							0.03
RM 6 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	6.6E-09	4.0E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.5E-08	9.3E-08	5.E-05	3.E-04	0.0004
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.9E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	1.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	3.0E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	7.8E-11	1.4E-10	--	--	--	3.0E-04	3.0E-04	1.8E-10	3.3E-10	6.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+04	ug/kg	7.3E-01	7.3E-01	2.0E-07	2.8E-07	1.E-07	2.E-07	3.E-07	--	--	4.6E-07	6.4E-07	--	--	--
	Benzo(a)pyrene	3.1E+04	ug/kg	7.3E+00	7.3E+00	2.4E-07	3.4E-07	2.E-06	2.E-06	4.E-06	--	--	5.7E-07	7.9E-07	--	--	--
	Benzo(b)fluoranthene	2.2E+04	ug/kg	7.3E-01	7.3E-01	1.7E-07	2.4E-07	1.E-07	2.E-07	3.E-07	--	--	4.1E-07	5.7E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+04	ug/kg	7.3E-02	7.3E-02	1.1E-07	1.5E-07	8.E-09	1.E-08	2.E-08	--	--	2.6E-07	3.6E-07	--	--	--
	Dibenzo(a,h)anthracene	2.9E+03	ug/kg	7.3E+00	7.3E+00	2.3E-08	3.2E-08	2.E-07	2.E-07	4.E-07	--	--	5.3E-08	7.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+04	ug/kg	7.3E-01	7.3E-01	1.7E-07	2.3E-07	1.E-07	2.E-07	3.E-07	--	--	3.9E-07	5.4E-07	--	--	--
	Naphthalene	1.1E+04	ug/kg	--	--	8.5E-08	1.2E-07	--	--	--	2.0E-02	2.0E-02	2.0E-07	2.8E-07	1.E-05	1.E-05	0.00002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.2E+02	ug/kg	1.4E-02	1.4E-02	1.3E-09	2.4E-09	2.E-11	3.E-11	5.E-11	2.0E-02	2.0E-02	3.1E-09	5.6E-09	2.E-07	3.E-07	0.0000004
	Phenols																
	Pentachlorophenol	2.2E+01	ug/kg	4.0E-01	4.0E-01	3.3E-10	2.4E-10	1.E-10	1.E-10	2.E-10	5.0E-03	5.0E-03	7.8E-10	5.6E-10	2.E-07	1.E-07	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+01	ug/kg	2.0E+00	2.0E+00	3.6E-10	4.6E-10	7.E-10	9.E-10	2.E-09	2.0E-05	2.0E-05	8.4E-10	1.1E-09	4.E-05	5.E-05	0.0001

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	2.8E-15	1.7E-14	4.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	6.5E-15	3.9E-14	6.E-06	4.E-05	0.00005
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	1.2E-14	1.6E-14	2.E-09	2.E-09	4.E-09	1.0E-09	1.0E-09	2.8E-14	3.7E-14	3.E-05	4.E-05	0.00006
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	7.5E-12	1.4E-11	1.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	1.8E-11	3.2E-11	6.E-07	1.E-06	0.000002
	Dieldrin	1.1E+00	ug/kg	1.6E+01	1.6E+01	6.8E-12	1.2E-11	1.E-10	2.E-10	3.E-10	5.0E-05	5.0E-05	1.6E-11	2.8E-11	3.E-07	6.E-07	0.000001
	Total DDT	3.6E+01	ug/kg	3.4E-01	3.4E-01	6.5E-11	3.9E-10	2.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	1.5E-10	9.1E-10	3.E-07	2.E-06	0.000002
Exposure Point Total										6.E-06							0.04
RM 6 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	6.7E-09	4.0E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.6E-08	9.4E-08	5.E-05	3.E-04	0.0004
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	3.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.3E-09	0.E+00	7.E-05	0.00007
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	1.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.3E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.8E+02	ug/kg	--	--	1.1E-09	1.9E-09	--	--	--	3.0E-04	3.0E-04	2.5E-09	4.5E-09	8.E-06	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+02	ug/kg	7.3E-01	7.3E-01	4.2E-09	5.8E-09	3.E-09	4.E-09	7.E-09	--	--	9.7E-09	1.3E-08	--	--	--
	Benzo(a)pyrene	7.5E+02	ug/kg	7.3E+00	7.3E+00	5.9E-09	8.2E-09	4.E-08	6.E-08	1.E-07	--	--	1.4E-08	1.9E-08	--	--	--
	Benzo(b)fluoranthene	7.3E+02	ug/kg	7.3E-01	7.3E-01	5.7E-09	7.9E-09	4.E-09	6.E-09	1.E-08	--	--	1.3E-08	1.9E-08	--	--	--
	Benzo(k)fluoranthene	4.6E+02	ug/kg	7.3E-02	7.3E-02	3.6E-09	5.0E-09	3.E-10	4.E-10	6.E-10	--	--	8.5E-09	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	9.6E+01	ug/kg	7.3E+00	7.3E+00	7.5E-10	1.0E-09	5.E-09	8.E-09	1.E-08	--	--	1.8E-09	2.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.2E+02	ug/kg	7.3E-01	7.3E-01	3.3E-09	4.6E-09	2.E-09	3.E-09	6.E-09	--	--	7.7E-09	1.1E-08	--	--	--
	Naphthalene	2.5E+02	ug/kg	--	--	1.9E-09	2.7E-09	--	--	--	2.0E-02	2.0E-02	4.5E-09	6.3E-09	2.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	4.9E-10	8.9E-10	7.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.2E-09	2.1E-09	6.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	7.7E+00	ug/kg	4.0E-01	4.0E-01	1.2E-10	8.4E-11	5.E-11	3.E-11	8.E-11	5.0E-03	5.0E-03	2.7E-10	2.0E-10	5.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	6.5E-10	8.3E-10	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	1.5E-09	1.9E-09	8.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	1.3E+05	1.3E+05	5.8E-15	3.5E-14	7.E-10	4.E-09	5.E-09	1.0E-09	1.0E-09	1.3E-14	8.1E-14	1.E-05	8.E-05	0.00009
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	1.0E-14	1.3E-14	1.E-09	2.E-09	3.E-09	1.0E-09	1.0E-09	2.4E-14	3.1E-14	2.E-05	3.E-05	0.00006
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	2.5E-12	4.5E-12	4.E-11	8.E-11	1.E-10	3.0E-05	3.0E-05	5.8E-12	1.0E-11	2.E-07	3.E-07	0.000001
	Dieldrin	4.4E-02	ug/kg	1.6E+01	1.6E+01	2.7E-13	4.8E-13	4.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	6.3E-13	1.1E-12	1.E-08	2.E-08	0.00000004
	Total DDT	2.9E+00	ug/kg	3.4E-01	3.4E-01	5.3E-12	3.2E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	1.2E-11	7.4E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										2.E-07							0.03

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 6.5 West	**Metals**																
	Arsenic	7.4E+00	mg/kg	1.5E+00	1.5E+00	1.3E-08	8.1E-08	2.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	3.1E-08	1.9E-07	1.E-04	6.E-04	0.0007
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.8E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	1.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	3.1E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	1.6E-10	2.9E-10	--	--	--	3.0E-04	3.0E-04	3.7E-10	6.7E-10	1.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.4E+02	ug/kg	7.3E-01	7.3E-01	5.8E-09	8.1E-09	4.E-09	6.E-09	1.E-08	--	--	1.4E-08	1.9E-08	--	--	--
	Benzo(a)pyrene	9.1E+02	ug/kg	7.3E+00	7.3E+00	7.2E-09	9.9E-09	5.E-08	7.E-08	1.E-07	--	--	1.7E-08	2.3E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+03	ug/kg	7.3E-01	7.3E-01	8.0E-09	1.1E-08	6.E-09	8.E-09	1.E-08	--	--	1.9E-08	2.6E-08	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	3.2E-09	4.4E-09	2.E-10	3.E-10	6.E-10	--	--	7.4E-09	1.0E-08	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.8E-09	1.E-08	1.E-08	2.E-08	--	--	3.1E-09	4.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.2E+02	ug/kg	7.3E-01	7.3E-01	4.9E-09	6.8E-09	4.E-09	5.E-09	9.E-09	--	--	1.1E-08	1.6E-08	--	--	--
	Naphthalene	1.1E+02	ug/kg	--	--	8.3E-10	1.2E-09	--	--	--	2.0E-02	2.0E-02	1.9E-09	2.7E-09	1.E-07	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+01	ug/kg	1.4E-02	1.4E-02	4.9E-10	8.8E-10	7.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.1E-09	2.1E-09	6.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	2.4E-11	1.7E-11	1.E-11	7.E-12	2.E-11	5.0E-03	5.0E-03	5.6E-11	4.0E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	6.4E+01	ug/kg	2.0E+00	2.0E+00	5.4E-10	6.9E-10	1.E-09	1.E-09	2.E-09	2.0E-05	2.0E-05	1.3E-09	1.6E-09	6.E-05	8.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	1.3E+05	1.3E+05	3.8E-14	2.3E-13	5.E-09	3.E-08	3.E-08	1.0E-09	1.0E-09	8.8E-14	5.3E-13	9.E-05	5.E-04	0.0006
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	1.5E-14	2.0E-14	2.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	3.5E-14	4.6E-14	4.E-05	5.E-05	0.00008
	Pesticides																
	Aldrin	1.7E+00	ug/kg	1.7E+01	1.7E+01	1.1E-11	1.9E-11	2.E-10	3.E-10	5.E-10	3.0E-05	3.0E-05	2.5E-11	4.4E-11	8.E-07	1.E-06	0.000002
	Dieldrin	5.4E-01	ug/kg	1.6E+01	1.6E+01	3.3E-12	5.9E-12	5.E-11	9.E-11	1.E-10	5.0E-05	5.0E-05	7.6E-12	1.4E-11	2.E-07	3.E-07	0.0000004
	Total DDT	9.2E+01	ug/kg	3.4E-01	3.4E-01	1.7E-10	1.0E-09	6.E-11	3.E-10	4.E-10	5.0E-04	5.0E-04	3.9E-10	2.3E-09	8.E-07	5.E-06	0.00001
Exposure Point Total										4.E-07							0.05
RM 6.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	7.6E-09	4.5E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	2.2E+00	mg/kg	--	--	0.0E+00	2.4E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.5E-08	0.E+00	6.E-04	0.0006
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	2.6E-10	4.7E-10	--	--	--	3.0E-04	3.0E-04	6.0E-10	1.1E-09	2.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+02	ug/kg	7.3E-01	7.3E-01	8.5E-10	1.2E-09	6.E-10	9.E-10	1.E-09	--	--	2.0E-09	2.8E-09	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	6.8E-10	9.4E-10	5.E-09	7.E-09	1.E-08	--	--	1.6E-09	2.2E-09	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	8.9E-10	1.2E-09	6.E-10	9.E-10	2.E-09	--	--	2.1E-09	2.9E-09	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	4.8E-10	6.6E-10	3.E-11	5.E-11	8.E-11	--	--	1.1E-09	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	1.2E-10	1.6E-10	9.E-10	1.E-09	2.E-09	--	--	2.7E-10	3.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+01	ug/kg	7.3E-01	7.3E-01	4.6E-10	6.4E-10	3.E-10	5.E-10	8.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Naphthalene	6.5E+01	ug/kg	--	--	5.1E-10	7.0E-10	--	--	--	2.0E-02	2.0E-02	1.2E-09	1.6E-09	6.E-08	8.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	5.6E-10	1.0E-09	8.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.3E-09	2.4E-09	7.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	5.9E-11	4.3E-11	2.E-11	2.E-11	4.E-11	5.0E-03	5.0E-03	1.4E-10	1.0E-10	3.E-08	2.E-08	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+02	ug/kg	2.0E+00	2.0E+00	1.7E-09	2.2E-09	3.E-09	4.E-09	8.E-09	2.0E-05	2.0E-05	4.0E-09	5.1E-09	2.E-04	3.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	1.3E+05	1.3E+05	3.6E-14	2.2E-13	5.E-09	3.E-08	3.E-08	1.0E-09	1.0E-09	8.5E-14	5.1E-13	8.E-05	5.E-04	0.0006
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	2.6E-14	3.3E-14	3.E-09	4.E-09	8.E-09	1.0E-09	1.0E-09	6.0E-14	7.7E-14	6.E-05	8.E-05	0.0001
	Pesticides																
	Aldrin	7.6E-02	ug/kg	1.7E+01	1.7E+01	4.6E-13	8.3E-13	8.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	1.1E-12	1.9E-12	4.E-08	6.E-08	0.0000001
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	9.1E-13	1.6E-12	1.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	2.1E-12	3.8E-12	4.E-08	8.E-08	0.0000001
	Total DDT	1.5E+01	ug/kg	3.4E-01	3.4E-01	2.7E-11	1.6E-10	9.E-12	6.E-11	7.E-11	5.0E-04	5.0E-04	6.4E-11	3.8E-10	1.E-07	8.E-07	0.000001
Exposure Point Total										1.E-07							0.04
RM 7 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	7.5E-09	4.5E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	8.1E-02	mg/kg	--	--	0.0E+00	8.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.1E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.5E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	6.0E+00	ug/kg	--	--	3.6E-11	6.5E-11	--	--	--	3.0E-04	3.0E-04	8.4E-11	1.5E-10	3.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.6E+02	ug/kg	7.3E-01	7.3E-01	4.4E-09	6.1E-09	3.E-09	4.E-09	8.E-09	--	--	1.0E-08	1.4E-08	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	3.7E-09	5.1E-09	3.E-08	4.E-08	6.E-08	--	--	8.5E-09	1.2E-08	--	--	--
	Benzo(b)fluoranthene	1.1E+03	ug/kg	7.3E-01	7.3E-01	8.4E-09	1.2E-08	6.E-09	9.E-09	1.E-08	--	--	2.0E-08	2.7E-08	--	--	--
	Benzo(k)fluoranthene	3.9E+02	ug/kg	7.3E-02	7.3E-02	3.1E-09	4.3E-09	2.E-10	3.E-10	5.E-10	--	--	7.2E-09	9.9E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	1.0E-09	1.4E-09	7.E-09	1.E-08	2.E-08	--	--	2.3E-09	3.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	2.9E-09	4.0E-09	2.E-09	3.E-09	5.E-09	--	--	6.7E-09	9.4E-09	--	--	--
	Naphthalene	8.8E+00	ug/kg	--	--	6.9E-11	9.6E-11	--	--	--	2.0E-02	2.0E-02	1.6E-10	2.2E-10	8.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.1E+02	ug/kg	1.4E-02	1.4E-02	1.3E-09	2.3E-09	2.E-11	3.E-11	5.E-11	2.0E-02	2.0E-02	2.9E-09	5.3E-09	1.E-07	3.E-07	0.0000004

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	4.1E-10	3.0E-10	2.E-10	1.E-10	3.E-10	5.0E-03	5.0E-03	9.6E-10	7.0E-10	2.E-07	1.E-07	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	7.1E+01	ug/kg	2.0E+00	2.0E+00	6.0E-10	7.7E-10	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	1.4E-09	1.8E-09	7.E-05	9.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	1.3E+05	1.3E+05	3.0E-12	1.8E-11	4.E-07	2.E-06	3.E-06	1.0E-09	1.0E-09	7.0E-12	4.2E-11	7.E-03	4.E-02	0.05
	Total PCB TEQ	7.7E+00	pg/g	1.3E+05	1.3E+05	6.5E-14	8.3E-14	8.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	1.5E-13	1.9E-13	2.E-04	2.E-04	0.0003
	Pesticides																
	Aldrin	2.7E+01	ug/kg	1.7E+01	1.7E+01	1.6E-10	2.9E-10	3.E-09	5.E-09	8.E-09	3.0E-05	3.0E-05	3.8E-10	6.8E-10	1.E-05	2.E-05	0.00004
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	7.7E-12	1.4E-11	1.E-10	2.E-10	3.E-10	5.0E-05	5.0E-05	1.8E-11	3.2E-11	4.E-07	6.E-07	0.000001
	Total DDT	2.3E+03	ug/kg	3.4E-01	3.4E-01	4.3E-09	2.6E-08	1.E-09	9.E-09	1.E-08	5.0E-04	5.0E-04	9.9E-09	6.0E-08	2.E-05	1.E-04	0.0001
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	5.4E-07	--	--	--	7.0E-04	7.0E-04	0.0E+00	1.3E-06	0.E+00	2.E-03	0.002
Exposure Point Total										3.E-06							0.09
RM 7 East	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.8E-08	1.1E-07	3.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	4.3E-08	2.6E-07	1.E-04	9.E-04	0.001
	Mercury	5.8E-02	mg/kg	--	--	0.0E+00	6.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	2.6E+02	ug/kg	--	--	1.6E-09	2.9E-09	--	--	--	3.0E-04	3.0E-04	3.7E-09	6.7E-09	1.E-05	2.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	9.7E-10	1.3E-09	7.E-10	1.E-09	2.E-09	--	--	2.3E-09	3.1E-09	--	--	--
	Benzo(a)pyrene	1.6E+02	ug/kg	7.3E+00	7.3E+00	1.2E-09	1.7E-09	9.E-09	1.E-08	2.E-08	--	--	2.9E-09	4.0E-09	--	--	--
	Benzo(b)fluoranthene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	2.3E-09	1.E-09	2.E-09	3.E-09	--	--	3.8E-09	5.3E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	8.9E-10	1.2E-09	7.E-11	9.E-11	2.E-10	--	--	2.1E-09	2.9E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	3.3E-10	4.6E-10	2.E-09	3.E-09	6.E-09	--	--	7.8E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	8.3E-10	1.2E-09	6.E-10	8.E-10	1.E-09	--	--	1.9E-09	2.7E-09	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.7E-10	2.4E-10	--	--	--	2.0E-02	2.0E-02	4.0E-10	5.5E-10	2.E-08	3.E-08	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+02	ug/kg	1.4E-02	1.4E-02	1.8E-09	3.3E-09	3.E-11	5.E-11	7.E-11	2.0E-02	2.0E-02	4.3E-09	7.7E-09	2.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	7.7E+01	ug/kg	4.0E-01	4.0E-01	1.2E-09	8.4E-10	5.E-10	3.E-10	8.E-10	5.0E-03	5.0E-03	2.7E-09	2.0E-09	5.E-07	4.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.2E+01	ug/kg	2.0E+00	2.0E+00	3.5E-10	4.6E-10	7.E-10	9.E-10	2.E-09	2.0E-05	2.0E-05	8.3E-10	1.1E-09	4.E-05	5.E-05	0.00009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	3.0E-14	1.8E-13	4.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	7.1E-14	4.2E-13	7.E-05	4.E-04	0.0005
	Total PCB TEQ	5.5E-01	pg/g	1.3E+05	1.3E+05	4.7E-15	6.0E-15	6.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	1.1E-14	1.4E-14	1.E-05	1.E-05	0.00002

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	1.3E-01	ug/kg	1.7E+01	1.7E+01	8.0E-13	1.4E-12	1.E-11	2.E-11	4.E-11	3.0E-05	3.0E-05	1.9E-12	3.4E-12	6.E-08	1.E-07	0.0000002
	Dieldrin	8.2E-02	ug/kg	1.6E+01	1.6E+01	4.9E-13	8.9E-13	8.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	1.2E-12	2.1E-12	2.E-08	4.E-08	0.0000001
	Total DDT	3.6E+00	ug/kg	3.4E-01	3.4E-01	6.4E-12	3.9E-11	2.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	1.5E-11	9.0E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										3.E-07							0.04
RM 7.5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	5.9E-09	3.5E-08	9.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.4E-08	8.2E-08	5.E-05	3.E-04	0.0003
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	8.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.0E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	1.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.4E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	5.4E+00	ug/kg	--	--	3.3E-11	5.9E-11	--	--	--	3.0E-04	3.0E-04	7.6E-11	1.4E-10	3.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.6E-09	8.E-10	1.E-09	2.E-09	--	--	2.7E-09	3.8E-09	--	--	--
	Benzo(a)pyrene	1.3E+02	ug/kg	7.3E+00	7.3E+00	1.0E-09	1.4E-09	7.E-09	1.E-08	2.E-08	--	--	2.4E-09	3.3E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	1.3E-09	1.9E-09	1.E-09	1.E-09	2.E-09	--	--	3.1E-09	4.3E-09	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	4.8E-10	6.6E-10	3.E-11	5.E-11	8.E-11	--	--	1.1E-09	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	1.6E-10	2.2E-10	1.E-09	2.E-09	3.E-09	--	--	3.6E-10	5.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.4E+01	ug/kg	7.3E-01	7.3E-01	6.6E-10	9.1E-10	5.E-10	7.E-10	1.E-09	--	--	1.5E-09	2.1E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	2.0E-10	2.7E-10	--	--	--	2.0E-02	2.0E-02	4.6E-10	6.4E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	8.6E-10	1.5E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	2.0E-09	3.6E-09	1.E-07	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	2.3E-11	1.7E-11	9.E-12	7.E-12	2.E-11	5.0E-03	5.0E-03	5.4E-11	3.9E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	8.6E+01	ug/kg	2.0E+00	2.0E+00	7.3E-10	9.3E-10	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	1.7E-09	2.2E-09	8.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	1.7E-15	1.0E-14	2.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	3.9E-15	2.4E-14	4.E-06	2.E-05	0.00003
	Total PCB TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	5.6E-15	7.2E-15	7.E-10	9.E-10	2.E-09	1.0E-09	1.0E-09	1.3E-14	1.7E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	1.8E-01	ug/kg	1.7E+01	1.7E+01	1.1E-12	2.0E-12	2.E-11	3.E-11	5.E-11	3.0E-05	3.0E-05	2.6E-12	4.7E-12	9.E-08	2.E-07	0.0000002
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	1.1E-12	1.9E-12	2.E-11	3.E-11	5.E-11	5.0E-05	5.0E-05	2.5E-12	4.5E-12	5.E-08	9.E-08	0.0000001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	3.8E-11	2.3E-10	1.E-11	8.E-11	9.E-11	5.0E-04	5.0E-04	8.9E-11	5.3E-10	2.E-07	1.E-06	0.000001
Exposure Point Total										9.E-08							0.04
RM 7.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	6.0E-09	3.6E-08	9.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.4E-08	8.4E-08	5.E-05	3.E-04	0.0003
	Mercury	7.6E-02	mg/kg	--	--	0.0E+00	8.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.9E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.6E+02	ug/kg	--	--	9.8E-10	1.8E-09	--	--	--	3.0E-04	3.0E-04	2.3E-09	4.1E-09	8.E-06	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	2.0E-10	2.8E-10	1.E-10	2.E-10	3.E-10	--	--	4.7E-10	6.5E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.8E-10	1.E-09	2.E-09	4.E-09	--	--	4.7E-10	6.6E-10	--	--	--
	Benzo(b)fluoranthene	3.2E+01	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.5E-10	2.E-10	3.E-10	4.E-10	--	--	5.9E-10	8.2E-10	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	1.6E-10	2.2E-10	1.E-11	2.E-11	3.E-11	--	--	3.7E-10	5.1E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	7.2E-11	1.0E-10	5.E-10	7.E-10	1.E-09	--	--	1.7E-10	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.0E-10	1.E-10	1.E-10	2.E-10	--	--	3.3E-10	4.6E-10	--	--	--
	Naphthalene	6.1E+00	ug/kg	--	--	4.8E-11	6.6E-11	--	--	--	2.0E-02	2.0E-02	1.1E-10	1.5E-10	6.E-09	8.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.1E+02	ug/kg	1.4E-02	1.4E-02	3.7E-09	6.6E-09	5.E-11	9.E-11	1.E-10	2.0E-02	2.0E-02	8.6E-09	1.6E-08	4.E-07	8.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	2.7E-10	3.5E-10	5.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	6.3E-10	8.1E-10	3.E-05	4.E-05	0.00007
	Pesticides																
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	8.8E-13	1.6E-12	1.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	2.1E-12	3.7E-12	4.E-08	7.E-08	0.0000001
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	1.9E-12	1.2E-11	7.E-13	4.E-12	5.E-12	5.0E-04	5.0E-04	4.5E-12	2.7E-11	9.E-09	5.E-08	0.0000001
Exposure Point Total										7.E-08							0.04
RM 8 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	7.5E-09	4.5E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	1.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.2E-09	0.E+00	4.E-05	0.00004
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	1.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.4E-06	0.E+00	3.E-02	0.03
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	8.0E-11	1.4E-10	--	--	--	3.0E-04	3.0E-04	1.9E-10	3.4E-10	6.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	1.9E-09	1.E-09	1.E-09	2.E-09	--	--	3.2E-09	4.5E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.8E-09	1.E-08	1.E-08	2.E-08	--	--	3.1E-09	4.3E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.8E-09	2.5E-09	1.E-09	2.E-09	3.E-09	--	--	4.2E-09	5.8E-09	--	--	--
	Benzo(k)fluoranthene	5.0E+01	ug/kg	7.3E-02	7.3E-02	4.0E-10	5.5E-10	3.E-11	4.E-11	7.E-11	--	--	9.2E-10	1.3E-09	--	--	--
	Dibenzo(a,h)anthracene	3.1E+01	ug/kg	7.3E+00	7.3E+00	2.4E-10	3.4E-10	2.E-09	2.E-09	4.E-09	--	--	5.7E-10	7.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	8.9E-10	1.2E-09	6.E-10	9.E-10	2.E-09	--	--	2.1E-09	2.9E-09	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	4.0E-10	5.6E-10	--	--	--	2.0E-02	2.0E-02	9.4E-10	1.3E-09	5.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.0E+02	ug/kg	1.4E-02	1.4E-02	3.6E-09	6.6E-09	5.E-11	9.E-11	1.E-10	2.0E-02	2.0E-02	8.5E-09	1.5E-08	4.E-07	8.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	4.7E-11	3.4E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	1.1E-10	7.9E-11	2.E-08	2.E-08	0.00000004

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	1.0E-09	1.3E-09	2.E-09	3.E-09	5.E-09	2.0E-05	2.0E-05	2.3E-09	3.0E-09	1.E-04	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	4.8E-16	2.9E-15	6.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	1.1E-15	6.7E-15	1.E-06	7.E-06	0.00001
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	3.0E-14	3.9E-14	4.E-09	5.E-09	9.E-09	1.0E-09	1.0E-09	7.0E-14	9.0E-14	7.E-05	9.E-05	0.0002
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	2.4E-13	4.4E-13	4.E-12	7.E-12	1.E-11	3.0E-05	3.0E-05	5.7E-13	1.0E-12	2.E-08	3.E-08	0.0000001
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	1.2E-11	2.2E-11	2.E-10	3.E-10	5.E-10	5.0E-05	5.0E-05	2.8E-11	5.1E-11	6.E-07	1.E-06	0.000002
	Total DDT	6.5E+00	ug/kg	3.4E-01	3.4E-01	1.2E-11	7.1E-11	4.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	2.7E-11	1.7E-10	5.E-08	3.E-07	0.0000004
Exposure Point Total										1.E-07							0.04
RM 8 East	**Metals**																
	Arsenic	6.2E+00	mg/kg	1.5E+00	1.5E+00	1.1E-08	6.7E-08	2.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	2.6E-08	1.6E-07	9.E-05	5.E-04	0.0006
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.0E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	1.4E-08	2.6E-08	--	--	--	3.0E-04	3.0E-04	3.4E-08	6.1E-08	1.E-04	2.E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.7E+02	ug/kg	7.3E-01	7.3E-01	1.3E-09	1.8E-09	1.E-09	1.E-09	2.E-09	--	--	3.1E-09	4.2E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	1.4E-09	1.9E-09	1.E-08	1.E-08	2.E-08	--	--	3.2E-09	4.4E-09	--	--	--
	Benzo(b)fluoranthene	2.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	2.1E-09	1.E-09	2.E-09	3.E-09	--	--	3.6E-09	5.0E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	1.0E-09	1.4E-09	7.E-11	1.E-10	2.E-10	--	--	2.4E-09	3.3E-09	--	--	--
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.8E-10	1.E-09	2.E-09	4.E-09	--	--	4.7E-10	6.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	9.6E-10	1.3E-09	7.E-10	1.E-09	2.E-09	--	--	2.2E-09	3.1E-09	--	--	--
	Naphthalene	1.6E+01	ug/kg	--	--	1.3E-10	1.8E-10	--	--	--	2.0E-02	2.0E-02	3.0E-10	4.2E-10	1.E-08	2.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.7E+02	ug/kg	1.4E-02	1.4E-02	4.7E-09	8.4E-09	7.E-11	1.E-10	2.E-10	2.0E-02	2.0E-02	1.1E-08	2.0E-08	5.E-07	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	2.0E-10	1.4E-10	8.E-11	6.E-11	1.E-10	5.0E-03	5.0E-03	4.6E-10	3.4E-10	9.E-08	7.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+02	ug/kg	2.0E+00	2.0E+00	1.5E-09	1.9E-09	3.E-09	4.E-09	7.E-09	2.0E-05	2.0E-05	3.4E-09	4.4E-09	2.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	1.7E-15	1.0E-14	2.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	3.9E-15	2.4E-14	4.E-06	2.E-05	0.00003
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	4.9E-14	6.4E-14	6.E-09	8.E-09	1.E-08	1.0E-09	1.0E-09	1.2E-13	1.5E-13	1.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	6.9E-13	1.2E-12	1.E-11	2.E-11	3.E-11	3.0E-05	3.0E-05	1.6E-12	2.9E-12	5.E-08	1.E-07	0.0000002
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	4.7E-12	8.6E-12	8.E-11	1.E-10	2.E-10	5.0E-05	5.0E-05	1.1E-11	2.0E-11	2.E-07	4.E-07	0.000001
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.9E-11	1.2E-10	7.E-12	4.E-11	5.E-11	5.0E-04	5.0E-04	4.5E-11	2.7E-10	9.E-08	5.E-07	0.000001
Exposure Point Total										2.E-07							0.04

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8 SIL	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	9.8E-09	5.9E-08	1.E-08	9.E-08	1.E-07	3.0E-04	3.0E-04	2.3E-08	1.4E-07	8.E-05	5.E-04	0.0005
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.9E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	2.2E+03	ug/kg	--	--	1.3E-08	2.4E-08	--	--	--	3.0E-04	3.0E-04	3.1E-08	5.7E-08	1.E-04	2.E-04	0.0003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.4E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	2.6E-09	1.E-09	2.E-09	3.E-09	--	--	4.4E-09	6.1E-09	--	--	--
	Benzo(a)pyrene	2.0E+02	ug/kg	7.3E+00	7.3E+00	1.5E-09	2.1E-09	1.E-08	2.E-08	3.E-08	--	--	3.6E-09	5.0E-09	--	--	--
	Benzo(b)fluoranthene	3.8E+02	ug/kg	7.3E-01	7.3E-01	3.0E-09	4.1E-09	2.E-09	3.E-09	5.E-09	--	--	6.9E-09	9.6E-09	--	--	--
	Benzo(k)fluoranthene	2.1E+02	ug/kg	7.3E-02	7.3E-02	1.6E-09	2.3E-09	1.E-10	2.E-10	3.E-10	--	--	3.8E-09	5.3E-09	--	--	--
	Dibenzo(a,h)anthracene	3.6E+01	ug/kg	7.3E+00	7.3E+00	2.8E-10	3.9E-10	2.E-09	3.E-09	5.E-09	--	--	6.5E-10	9.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	9.8E-10	1.4E-09	7.E-10	1.E-09	2.E-09	--	--	2.3E-09	3.2E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	2.0E-10	2.8E-10	--	--	--	2.0E-02	2.0E-02	4.6E-10	6.4E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+03	ug/kg	1.4E-02	1.4E-02	4.9E-08	8.8E-08	7.E-10	1.E-09	2.E-09	2.0E-02	2.0E-02	1.1E-07	2.1E-07	6.E-06	1.E-05	0.00002
	Phenols																
	Pentachlorophenol	3.9E+01	ug/kg	4.0E-01	4.0E-01	5.9E-10	4.3E-10	2.E-10	2.E-10	4.E-10	5.0E-03	5.0E-03	1.4E-09	1.0E-09	3.E-07	2.E-07	0.0000005
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+02	ug/kg	2.0E+00	2.0E+00	2.4E-09	3.1E-09	5.E-09	6.E-09	1.E-08	2.0E-05	2.0E-05	5.5E-09	7.1E-09	3.E-04	4.E-04	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	1.3E+05	1.3E+05	1.1E-14	6.9E-14	1.E-09	9.E-09	1.E-08	1.0E-09	1.0E-09	2.7E-14	1.6E-13	3.E-05	2.E-04	0.0002
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	1.0E-13	1.3E-13	1.E-08	2.E-08	3.E-08	1.0E-09	1.0E-09	2.4E-13	3.1E-13	2.E-04	3.E-04	0.0005
	Pesticides																
	Aldrin	6.2E-01	ug/kg	1.7E+01	1.7E+01	3.7E-12	6.7E-12	6.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	8.7E-12	1.6E-11	3.E-07	5.E-07	0.000001
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	8.4E-12	1.5E-11	1.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	2.0E-11	3.5E-11	4.E-07	7.E-07	0.000001
	Total DDT	5.2E+00	ug/kg	3.4E-01	3.4E-01	9.5E-12	5.7E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	2.2E-11	1.3E-10	4.E-08	3.E-07	0.0000003
Exposure Point Total										2.E-07							0.04
RM 8.5 West	**Metals**																
	Arsenic	6.7E+00	mg/kg	1.5E+00	1.5E+00	1.2E-08	7.3E-08	2.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	2.8E-08	1.7E-07	9.E-05	6.E-04	0.0007
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	2.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.1E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.5E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	7.6E-11	1.4E-10	--	--	--	3.0E-04	3.0E-04	1.8E-10	3.2E-10	6.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+01	ug/kg	7.3E-01	7.3E-01	7.4E-10	1.0E-09	5.E-10	7.E-10	1.E-09	--	--	1.7E-09	2.4E-09	--	--	--
	Benzo(a)pyrene	9.1E+01	ug/kg	7.3E+00	7.3E+00	7.1E-10	9.9E-10	5.E-09	7.E-09	1.E-08	--	--	1.7E-09	2.3E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	1.0E-09	1.4E-09	7.E-10	1.E-09	2.E-09	--	--	2.4E-09	3.3E-09	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	5.5E+01	ug/kg	7.3E-02	7.3E-02	4.4E-10	6.0E-10	3.E-11	4.E-11	8.E-11	--	--	1.0E-09	1.4E-09	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	9.0E-11	1.2E-10	7.E-10	9.E-10	2.E-09	--	--	2.1E-10	2.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.2E+01	ug/kg	7.3E-01	7.3E-01	4.1E-10	5.7E-10	3.E-10	4.E-10	7.E-10	--	--	9.5E-10	1.3E-09	--	--	--
	Naphthalene	2.4E+01	ug/kg	--	--	1.9E-10	2.7E-10	--	--	--	2.0E-02	2.0E-02	4.5E-10	6.2E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.3E+02	ug/kg	1.4E-02	1.4E-02	3.8E-09	6.9E-09	5.E-11	1.E-10	1.E-10	2.0E-02	2.0E-02	8.9E-09	1.6E-08	4.E-07	8.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.8E+00	ug/kg	4.0E-01	4.0E-01	4.2E-11	3.0E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	9.7E-11	7.0E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.4E+03	ug/kg	2.0E+00	2.0E+00	1.2E-08	1.5E-08	2.E-08	3.E-08	5.E-08	2.0E-05	2.0E-05	2.7E-08	3.5E-08	1.E-03	2.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	1.3E+05	1.3E+05	9.1E-15	5.5E-14	1.E-09	7.E-09	8.E-09	1.0E-09	1.0E-09	2.1E-14	1.3E-13	2.E-05	1.E-04	0.0001
	Total PCB TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	2.8E-13	3.6E-13	4.E-08	5.E-08	8.E-08	1.0E-09	1.0E-09	6.5E-13	8.4E-13	7.E-04	8.E-04	0.001
	Pesticides																
	Aldrin	1.1E+01	ug/kg	1.7E+01	1.7E+01	6.4E-11	1.2E-10	1.E-09	2.E-09	3.E-09	3.0E-05	3.0E-05	1.5E-10	2.7E-10	5.E-06	9.E-06	0.00001
	Dieldrin	1.5E+01	ug/kg	1.6E+01	1.6E+01	9.0E-11	1.6E-10	1.E-09	3.E-09	4.E-09	5.0E-05	5.0E-05	2.1E-10	3.8E-10	4.E-06	8.E-06	0.00001
	Total DDT	6.0E+00	ug/kg	3.4E-01	3.4E-01	1.1E-11	6.6E-11	4.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	2.6E-11	1.5E-10	5.E-08	3.E-07	0.0000004
Exposure Point Total										3.E-07							0.04
RM 8.5 East	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	8.5E-09	5.1E-08	1.E-08	8.E-08	9.E-08	3.0E-04	3.0E-04	2.0E-08	1.2E-07	7.E-05	4.E-04	0.0005
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.1E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.6E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	2.3E+01	ug/kg	--	--	1.4E-10	2.5E-10	--	--	--	3.0E-04	3.0E-04	3.3E-10	5.9E-10	1.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.1E+01	ug/kg	7.3E-01	7.3E-01	3.3E-10	4.5E-10	2.E-10	3.E-10	6.E-10	--	--	7.6E-10	1.1E-09	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	3.6E-10	5.0E-10	3.E-09	4.E-09	6.E-09	--	--	8.4E-10	1.2E-09	--	--	--
	Benzo(b)fluoranthene	7.1E+01	ug/kg	7.3E-01	7.3E-01	5.5E-10	7.7E-10	4.E-10	6.E-10	1.E-09	--	--	1.3E-09	1.8E-09	--	--	--
	Benzo(k)fluoranthene	3.6E+01	ug/kg	7.3E-02	7.3E-02	2.8E-10	3.9E-10	2.E-11	3.E-11	5.E-11	--	--	6.5E-10	9.0E-10	--	--	--
	Dibenzo(a,h)anthracene	8.3E+00	ug/kg	7.3E+00	7.3E+00	6.6E-11	9.1E-11	5.E-10	7.E-10	1.E-09	--	--	1.5E-10	2.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	3.1E-10	4.3E-10	2.E-10	3.E-10	5.E-10	--	--	7.2E-10	1.0E-09	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	1.5E-10	2.1E-10	--	--	--	2.0E-02	2.0E-02	3.6E-10	5.0E-10	2.E-08	2.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.5E+02	ug/kg	1.4E-02	1.4E-02	2.7E-09	4.9E-09	4.E-11	7.E-11	1.E-10	2.0E-02	2.0E-02	6.4E-09	1.1E-08	3.E-07	6.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.6E+01	ug/kg	2.0E+00	2.0E+00	3.9E-10	5.0E-10	8.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	9.1E-10	1.2E-09	5.E-05	6.E-05	0.0001

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	1.1E-15	6.9E-15	1.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	2.7E-15	1.6E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	4.2E-01	pg/g	1.3E+05	1.3E+05	3.6E-15	4.6E-15	5.E-10	6.E-10	1.E-09	1.0E-09	1.0E-09	8.3E-15	1.1E-14	8.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	3.2E-02	ug/kg	1.7E+01	1.7E+01	1.9E-13	3.5E-13	3.E-12	6.E-12	9.E-12	3.0E-05	3.0E-05	4.5E-13	8.1E-13	2.E-08	3.E-08	0.00000004
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	8.2E-13	1.5E-12	1.E-11	2.E-11	4.E-11	5.0E-05	5.0E-05	1.9E-12	3.4E-12	4.E-08	7.E-08	0.0000001
	Total DDT	1.5E+00	ug/kg	3.4E-01	3.4E-01	2.7E-12	1.6E-11	9.E-13	6.E-12	6.E-12	5.0E-04	5.0E-04	6.3E-12	3.8E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										1.E-07							0.04
RM 9 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	7.5E-09	4.5E-08	1.E-08	7.E-08	8.E-08	3.0E-04	3.0E-04	1.8E-08	1.1E-07	6.E-05	4.E-04	0.0004
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.1E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.7E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	9.9E+00	ug/kg	--	--	6.0E-11	1.1E-10	--	--	--	3.0E-04	3.0E-04	1.4E-10	2.5E-10	5.E-07	8.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.7E-09	9.E-10	1.E-09	2.E-09	--	--	2.8E-09	3.9E-09	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	8.1E-10	1.1E-09	6.E-09	8.E-09	1.E-08	--	--	1.9E-09	2.6E-09	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	1.3E-09	1.7E-09	9.E-10	1.E-09	2.E-09	--	--	2.9E-09	4.1E-09	--	--	--
	Benzo(k)fluoranthene	6.2E+01	ug/kg	7.3E-02	7.3E-02	4.8E-10	6.7E-10	4.E-11	5.E-11	8.E-11	--	--	1.1E-09	1.6E-09	--	--	--
	Dibenzo(a,h)anthracene	1.8E+01	ug/kg	7.3E+00	7.3E+00	1.4E-10	1.9E-10	1.E-09	1.E-09	2.E-09	--	--	3.2E-10	4.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	5.2E-10	7.3E-10	4.E-10	5.E-10	9.E-10	--	--	1.2E-09	1.7E-09	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	1.3E-10	1.8E-10	--	--	--	2.0E-02	2.0E-02	3.1E-10	4.3E-10	2.E-08	2.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	1.0E-09	1.9E-09	1.E-11	3.E-11	4.E-11	2.0E-02	2.0E-02	2.4E-09	4.4E-09	1.E-07	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	4.7E+00	ug/kg	4.0E-01	4.0E-01	7.0E-11	5.1E-11	3.E-11	2.E-11	5.E-11	5.0E-03	5.0E-03	1.6E-10	1.2E-10	3.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+02	ug/kg	2.0E+00	2.0E+00	3.8E-09	4.9E-09	8.E-09	1.E-08	2.E-08	2.0E-05	2.0E-05	8.9E-09	1.2E-08	4.E-04	6.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	7.1E-15	4.3E-14	9.E-10	6.E-09	6.E-09	1.0E-09	1.0E-09	1.7E-14	1.0E-13	2.E-05	1.E-04	0.0001
	Total PCB TEQ	1.6E+01	pg/g	1.3E+05	1.3E+05	1.3E-13	1.7E-13	2.E-08	2.E-08	4.E-08	1.0E-09	1.0E-09	3.1E-13	4.0E-13	3.E-04	4.E-04	0.0007
	Pesticides																
	Aldrin	2.2E-01	ug/kg	1.7E+01	1.7E+01	1.4E-12	2.4E-12	2.E-11	4.E-11	6.E-11	3.0E-05	3.0E-05	3.2E-12	5.7E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	1.2E-12	2.2E-12	2.E-11	4.E-11	6.E-11	5.0E-05	5.0E-05	2.9E-12	5.2E-12	6.E-08	1.E-07	0.0000002
	Total DDT	4.4E+00	ug/kg	3.4E-01	3.4E-01	7.9E-12	4.8E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	1.9E-11	1.1E-10	4.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-07							0.04

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 9 East	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	6.9E-09	4.1E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.6E-08	9.7E-08	5.E-05	3.E-04	0.0004
	Mercury	5.0E-02	mg/kg	--	--	0.0E+00	5.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+01	ug/kg	7.3E-01	7.3E-01	8.0E-11	1.1E-10	6.E-11	8.E-11	1.E-10	--	--	1.9E-10	2.6E-10	--	--	--
	Benzo(a)pyrene	1.3E+01	ug/kg	7.3E+00	7.3E+00	9.9E-11	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	2.3E-10	3.2E-10	--	--	--
	Benzo(b)fluoranthene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.0E-10	1.E-10	1.E-10	2.E-10	--	--	3.3E-10	4.6E-10	--	--	--
	Benzo(k)fluoranthene	8.3E+00	ug/kg	7.3E-02	7.3E-02	6.5E-11	9.0E-11	5.E-12	7.E-12	1.E-11	--	--	1.5E-10	2.1E-10	--	--	--
	Dibenzo(a,h)anthracene	2.1E+00	ug/kg	7.3E+00	7.3E+00	1.7E-11	2.3E-11	1.E-10	2.E-10	3.E-10	--	--	3.9E-11	5.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	8.4E-11	1.2E-10	6.E-11	8.E-11	1.E-10	--	--	2.0E-10	2.7E-10	--	--	--
	Naphthalene	2.7E+00	ug/kg	--	--	2.1E-11	3.0E-11	--	--	--	2.0E-02	2.0E-02	5.0E-11	6.9E-11	2.E-09	3.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.6E+02	ug/kg	1.4E-02	1.4E-02	2.2E-09	3.9E-09	3.E-11	5.E-11	9.E-11	2.0E-02	2.0E-02	5.1E-09	9.1E-09	3.E-07	5.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	4.4E-10	5.7E-10	9.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	1.0E-09	1.3E-09	5.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	3.9E-16	2.4E-15	5.E-11	3.E-10	4.E-10	1.0E-09	1.0E-09	9.1E-16	5.5E-15	9.E-07	5.E-06	0.00001
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	5.3E-15	6.9E-15	7.E-10	9.E-10	2.E-09	1.0E-09	1.0E-09	1.2E-14	1.6E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Dieldrin	8.8E-02	ug/kg	1.6E+01	1.6E+01	5.3E-13	9.6E-13	9.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	1.2E-12	2.2E-12	2.E-08	4.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	2.6E-12	1.6E-11	9.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	6.1E-12	3.7E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										8.E-08							0.0005
RM 9.5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	6.8E-09	4.1E-08	1.E-08	6.E-08	7.E-08	3.0E-04	3.0E-04	1.6E-08	9.6E-08	5.E-05	3.E-04	0.0004
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	6.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	6.0E-11	1.1E-10	--	--	--	3.0E-04	3.0E-04	1.4E-10	2.5E-10	5.E-07	8.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	9.5E-10	1.3E-09	7.E-10	1.E-09	2.E-09	--	--	2.2E-09	3.1E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.8E-09	1.E-08	1.E-08	2.E-08	--	--	3.0E-09	4.2E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.8E-09	2.5E-09	1.E-09	2.E-09	3.E-09	--	--	4.2E-09	5.9E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	8.1E-10	1.1E-09	6.E-11	8.E-11	1.E-10	--	--	1.9E-09	2.6E-09	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	2.5E-10	3.5E-10	2.E-09	3.E-09	4.E-09	--	--	5.8E-10	8.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.5E-09	8.E-10	1.E-09	2.E-09	--	--	2.5E-09	3.5E-09	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	3.2E-10	4.5E-10	--	--	--	2.0E-02	2.0E-02	7.5E-10	1.0E-09	4.E-08	5.E-08	0.0000001

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.6E+02	ug/kg	1.4E-02	1.4E-02	5.2E-09	9.3E-09	7.E-11	1.E-10	2.E-10	2.0E-02	2.0E-02	1.2E-08	2.2E-08	6.E-07	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	1.7E-10	1.2E-10	7.E-11	5.E-11	1.E-10	5.0E-03	5.0E-03	3.9E-10	2.8E-10	8.E-08	6.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+02	ug/kg	2.0E+00	2.0E+00	1.8E-09	2.3E-09	4.E-09	5.E-09	8.E-09	2.0E-05	2.0E-05	4.2E-09	5.4E-09	2.E-04	3.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	1.3E+05	1.3E+05	1.6E-14	9.3E-14	2.E-09	1.E-08	1.E-08	1.0E-09	1.0E-09	3.6E-14	2.2E-13	4.E-05	2.E-04	0.0003
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	3.1E-14	4.0E-14	4.E-09	5.E-09	9.E-09	1.0E-09	1.0E-09	7.2E-14	9.3E-14	7.E-05	9.E-05	0.0002
	Pesticides																
	Aldrin	5.8E-01	ug/kg	1.7E+01	1.7E+01	3.5E-12	6.4E-12	6.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	8.3E-12	1.5E-11	3.E-07	5.E-07	0.000001
	Dieldrin	6.1E-01	ug/kg	1.6E+01	1.6E+01	3.7E-12	6.6E-12	6.E-11	1.E-10	2.E-10	5.0E-05	5.0E-05	8.6E-12	1.5E-11	2.E-07	3.E-07	0.0000005
	Total DDT	3.1E+00	ug/kg	3.4E-01	3.4E-01	5.5E-12	3.3E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	1.3E-11	7.8E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										1.E-07							0.001
RM 9.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	6.0E-09	3.6E-08	9.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.4E-08	8.3E-08	5.E-05	3.E-04	0.0003
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	6.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	2.6E+00	ug/kg	--	--	1.5E-11	2.8E-11	--	--	--	3.0E-04	3.0E-04	3.6E-11	6.5E-11	1.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+01	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.4E-10	1.E-10	2.E-10	3.E-10	--	--	4.0E-10	5.6E-10	--	--	--
	Benzo(a)pyrene	2.5E+01	ug/kg	7.3E+00	7.3E+00	1.9E-10	2.7E-10	1.E-09	2.E-09	3.E-09	--	--	4.5E-10	6.3E-10	--	--	--
	Benzo(b)fluoranthene	2.9E+01	ug/kg	7.3E-01	7.3E-01	2.3E-10	3.2E-10	2.E-10	2.E-10	4.E-10	--	--	5.4E-10	7.5E-10	--	--	--
	Benzo(k)fluoranthene	1.7E+01	ug/kg	7.3E-02	7.3E-02	1.3E-10	1.8E-10	1.E-11	1.E-11	2.E-11	--	--	3.1E-10	4.3E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	3.4E-11	4.8E-11	3.E-10	3.E-10	6.E-10	--	--	8.0E-11	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	2.2E-10	1.E-10	2.E-10	3.E-10	--	--	3.6E-10	5.0E-10	--	--	--
	Naphthalene	3.4E+00	ug/kg	--	--	2.7E-11	3.7E-11	--	--	--	2.0E-02	2.0E-02	6.2E-11	8.6E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.6E+02	ug/kg	1.4E-02	1.4E-02	9.9E-10	1.8E-09	1.E-11	3.E-11	4.E-11	2.0E-02	2.0E-02	2.3E-09	4.2E-09	1.E-07	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	1.1E+00	ug/kg	4.0E-01	4.0E-01	1.7E-11	1.2E-11	7.E-12	5.E-12	1.E-11	5.0E-03	5.0E-03	4.0E-11	2.9E-11	8.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+01	ug/kg	2.0E+00	2.0E+00	3.4E-10	4.4E-10	7.E-10	9.E-10	2.E-09	2.0E-05	2.0E-05	7.9E-10	1.0E-09	4.E-05	5.E-05	0.00009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	1.3E+05	1.3E+05	1.6E-15	9.7E-15	2.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	3.8E-15	2.3E-14	4.E-06	2.E-05	0.00003
	Total PCB TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	2.2E-15	2.8E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	5.1E-15	6.6E-15	5.E-06	7.E-06	0.00001

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	5.5E-13	9.9E-13	9.E-12	2.E-11	3.E-11	3.0E-05	3.0E-05	1.3E-12	2.3E-12	4.E-08	8.E-08	0.0000001
	Dieldrin	3.0E-02	ug/kg	1.6E+01	1.6E+01	1.8E-13	3.2E-13	3.E-12	5.E-12	8.E-12	5.0E-05	5.0E-05	4.2E-13	7.5E-13	8.E-09	2.E-08	0.00000002
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	2.1E-12	1.2E-11	7.E-13	4.E-12	5.E-12	5.0E-04	5.0E-04	4.8E-12	2.9E-11	1.E-08	6.E-08	0.0000001
Exposure Point Total										7.E-08							0.0005
RM 10 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.9E-08	1.1E-07	3.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	4.3E-08	2.6E-07	1.E-04	9.E-04	0.001
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	9.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	2.4E+00	ug/kg	--	--	1.5E-11	2.7E-11	--	--	--	3.0E-04	3.0E-04	3.4E-11	6.2E-11	1.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.5E-09	8.E-10	1.E-09	2.E-09	--	--	2.6E-09	3.6E-09	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	1.2E-09	1.6E-09	9.E-09	1.E-08	2.E-08	--	--	2.7E-09	3.8E-09	--	--	--
	Benzo(b)fluoranthene	1.9E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	2.0E-09	1.E-09	1.E-09	3.E-09	--	--	3.4E-09	4.8E-09	--	--	--
	Benzo(k)fluoranthene	7.9E+01	ug/kg	7.3E-02	7.3E-02	6.2E-10	8.6E-10	5.E-11	6.E-11	1.E-10	--	--	1.4E-09	2.0E-09	--	--	--
	Dibenzo(a,h)anthracene	3.5E+01	ug/kg	7.3E+00	7.3E+00	2.8E-10	3.9E-10	2.E-09	3.E-09	5.E-09	--	--	6.5E-10	9.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.5E-09	8.E-10	1.E-09	2.E-09	--	--	2.5E-09	3.5E-09	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	1.5E-10	2.1E-10	--	--	--	2.0E-02	2.0E-02	3.6E-10	5.0E-10	2.E-08	2.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	7.3E-10	1.3E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	1.7E-09	3.1E-09	9.E-08	2.E-07	0.0000002
	Phenols																
	Pentachlorophenol	3.0E+00	ug/kg	4.0E-01	4.0E-01	4.5E-11	3.3E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	1.1E-10	7.6E-11	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	1.5E-09	2.0E-09	3.E-09	4.E-09	7.E-09	2.0E-05	2.0E-05	3.6E-09	4.6E-09	2.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	1.3E+05	1.3E+05	9.3E-15	5.6E-14	1.E-09	7.E-09	8.E-09	1.0E-09	1.0E-09	2.2E-14	1.3E-13	2.E-05	1.E-04	0.0002
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	1.5E-14	2.0E-14	2.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	3.6E-14	4.6E-14	4.E-05	5.E-05	0.00008
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	8.9E-13	1.6E-12	2.E-11	3.E-11	4.E-11	3.0E-05	3.0E-05	2.1E-12	3.7E-12	7.E-08	1.E-07	0.0000002
	Total DDT	4.7E+00	ug/kg	3.4E-01	3.4E-01	8.5E-12	5.1E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	2.0E-11	1.2E-10	4.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-07							0.002
RM 10 East	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	5.5E-09	3.3E-08	8.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.3E-08	7.7E-08	4.E-05	3.E-04	0.0003
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	7.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	9.1E-10	1.3E-09	7.E-10	9.E-10	2.E-09	--	--	2.1E-09	2.9E-09	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	1.1E-09	1.6E-09	8.E-09	1.E-08	2.E-08	--	--	2.6E-09	3.7E-09	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	1.9E-09	1.E-09	1.E-09	2.E-09	--	--	3.2E-09	4.4E-09	--	--	--
	Benzo(k)fluoranthene	6.3E+01	ug/kg	7.3E-02	7.3E-02	4.9E-10	6.9E-10	4.E-11	5.E-11	9.E-11	--	--	1.2E-09	1.6E-09	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	1.8E-10	2.5E-10	1.E-09	2.E-09	3.E-09	--	--	4.3E-10	5.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	9.3E-10	1.3E-09	7.E-10	9.E-10	2.E-09	--	--	2.2E-09	3.0E-09	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	9.7E-11	1.4E-10	--	--	--	2.0E-02	2.0E-02	2.3E-10	3.2E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	7.8E-10	1.4E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	1.8E-09	3.3E-09	9.E-08	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	2.6E+00	ug/kg	4.0E-01	4.0E-01	4.0E-11	2.9E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	9.2E-11	6.7E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.4E+01	ug/kg	2.0E+00	2.0E+00	2.9E-10	3.7E-10	6.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	6.8E-10	8.7E-10	3.E-05	4.E-05	0.00008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	9.8E-16	5.9E-15	1.E-10	8.E-10	9.E-10	1.0E-09	1.0E-09	2.3E-15	1.4E-14	2.E-06	1.E-05	0.00002
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	5.8E-15	7.5E-15	8.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.4E-14	1.7E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	2.4E-13	4.4E-13	4.E-12	7.E-12	1.E-11	3.0E-05	3.0E-05	5.7E-13	1.0E-12	2.E-08	3.E-08	0.0000001
	Dieldrin	4.7E-02	ug/kg	1.6E+01	1.6E+01	2.8E-13	5.1E-13	5.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	6.6E-13	1.2E-12	1.E-08	2.E-08	0.00000004
	Total DDT	5.3E-01	ug/kg	3.4E-01	3.4E-01	9.6E-13	5.8E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	2.2E-12	1.3E-11	4.E-09	3.E-08	0.00000003
Exposure Point Total										9.E-08							0.0004
RM 10.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	7.2E-09	4.3E-08	1.E-08	6.E-08	8.E-08	3.0E-04	3.0E-04	1.7E-08	1.0E-07	6.E-05	3.E-04	0.0004
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	7.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.8E+01	ug/kg	7.3E-01	7.3E-01	2.2E-10	3.0E-10	2.E-10	2.E-10	4.E-10	--	--	5.1E-10	7.0E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	2.1E-10	2.9E-10	2.E-09	2.E-09	4.E-09	--	--	4.8E-10	6.7E-10	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	2.8E-10	3.9E-10	2.E-10	3.E-10	5.E-10	--	--	6.5E-10	9.0E-10	--	--	--
	Benzo(k)fluoranthene	1.3E+01	ug/kg	7.3E-02	7.3E-02	1.0E-10	1.4E-10	7.E-12	1.E-11	2.E-11	--	--	2.4E-10	3.3E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	3.5E-11	4.8E-11	3.E-10	4.E-10	6.E-10	--	--	8.1E-11	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+01	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.3E-10	1.E-10	2.E-10	3.E-10	--	--	3.9E-10	5.5E-10	--	--	--
	Naphthalene	2.7E+01	ug/kg	--	--	2.1E-10	2.9E-10	--	--	--	2.0E-02	2.0E-02	5.0E-10	6.9E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	8.3E-10	1.5E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	1.9E-09	3.5E-09	1.E-07	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	8.6E+00	ug/kg	4.0E-01	4.0E-01	1.3E-10	9.4E-11	5.E-11	4.E-11	9.E-11	5.0E-03	5.0E-03	3.0E-10	2.2E-10	6.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	2.7E-10	3.5E-10	5.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	6.3E-10	8.1E-10	3.E-05	4.E-05	0.00007

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	5.8E-15	7.5E-15	8.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.4E-14	1.8E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	1.2E-12	2.2E-12	2.E-11	4.E-11	6.E-11	3.0E-05	3.0E-05	2.8E-12	5.1E-12	9.E-08	2.E-07	0.0000003
	Total DDT	1.7E+00	ug/kg	3.4E-01	3.4E-01	3.0E-12	1.8E-11	1.E-12	6.E-12	7.E-12	5.0E-04	5.0E-04	7.1E-12	4.2E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										8.E-08							0.0005
RM 10.5 East	**Metals**																
	Arsenic	3.1E+00	mg/kg	1.5E+00	1.5E+00	5.6E-09	3.4E-08	8.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.3E-08	7.8E-08	4.E-05	3.E-04	0.0003
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	6.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.9E+01	ug/kg	7.3E-01	7.3E-01	3.0E-10	4.2E-10	2.E-10	3.E-10	5.E-10	--	--	7.1E-10	9.8E-10	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	2.7E-10	3.7E-10	2.E-09	3.E-09	5.E-09	--	--	6.2E-10	8.6E-10	--	--	--
	Benzo(b)fluoranthene	5.0E+01	ug/kg	7.3E-01	7.3E-01	3.9E-10	5.5E-10	3.E-10	4.E-10	7.E-10	--	--	9.2E-10	1.3E-09	--	--	--
	Benzo(k)fluoranthene	2.5E+01	ug/kg	7.3E-02	7.3E-02	2.0E-10	2.7E-10	1.E-11	2.E-11	3.E-11	--	--	4.6E-10	6.4E-10	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	4.3E-11	6.0E-11	3.E-10	4.E-10	8.E-10	--	--	1.0E-10	1.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	2.2E-10	3.0E-10	2.E-10	2.E-10	4.E-10	--	--	5.0E-10	7.0E-10	--	--	--
	Naphthalene	3.5E+00	ug/kg	--	--	2.8E-11	3.8E-11	--	--	--	2.0E-02	2.0E-02	6.5E-11	9.0E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	2.8E-10	5.0E-10	4.E-12	7.E-12	1.E-11	2.0E-02	2.0E-02	6.5E-10	1.2E-09	3.E-08	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	4.8E-11	3.5E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	1.1E-10	8.1E-11	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	4.4E-10	5.6E-10	9.E-10	1.E-09	2.E-09	2.0E-05	2.0E-05	1.0E-09	1.3E-09	5.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	3.0E-15	3.9E-15	4.E-10	5.E-10	9.E-10	1.0E-09	1.0E-09	7.0E-15	9.0E-15	7.E-06	9.E-06	0.00002
	Pesticides																
	Total DDT	2.8E+00	ug/kg	3.4E-01	3.4E-01	5.1E-12	3.0E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	1.2E-11	7.1E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										7.E-08							0.0005
RM 11 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	6.2E-09	3.7E-08	9.E-09	6.E-08	7.E-08	3.0E-04	3.0E-04	1.4E-08	8.7E-08	5.E-05	3.E-04	0.0003
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	6.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+01	ug/kg	7.3E-01	7.3E-01	4.9E-10	6.8E-10	4.E-10	5.E-10	9.E-10	--	--	1.1E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	5.2E-10	7.2E-10	4.E-09	5.E-09	9.E-09	--	--	1.2E-09	1.7E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	3.1E-10	4.4E-10	2.E-10	3.E-10	5.E-10	--	--	7.3E-10	1.0E-09	--	--	--

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	2.9E-10	4.0E-10	2.E-11	3.E-11	5.E-11	--	--	6.7E-10	9.4E-10	--	--	--
	Dibenzo(a,h)anthracene	8.8E+00	ug/kg	7.3E+00	7.3E+00	6.9E-11	9.6E-11	5.E-10	7.E-10	1.E-09	--	--	1.6E-10	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+01	ug/kg	7.3E-01	7.3E-01	3.2E-10	4.4E-10	2.E-10	3.E-10	6.E-10	--	--	7.4E-10	1.0E-09	--	--	--
	Naphthalene	5.4E+01	ug/kg	--	--	4.2E-10	5.9E-10	--	--	--	2.0E-02	2.0E-02	9.9E-10	1.4E-09	5.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+02	ug/kg	1.4E-02	1.4E-02	2.3E-09	4.1E-09	3.E-11	6.E-11	9.E-11	2.0E-02	2.0E-02	5.3E-09	9.5E-09	3.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	9.8E-01	ug/kg	4.0E-01	4.0E-01	1.5E-11	1.1E-11	6.E-12	4.E-12	1.E-11	5.0E-03	5.0E-03	3.4E-11	2.5E-11	7.E-09	5.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+01	ug/kg	2.0E+00	2.0E+00	2.3E-10	3.0E-10	5.E-10	6.E-10	1.E-09	2.0E-05	2.0E-05	5.5E-10	7.1E-10	3.E-05	4.E-05	0.00006
	Pesticides																
	Dieldrin	5.7E-01	ug/kg	1.6E+01	1.6E+01	3.4E-12	6.2E-12	5.E-11	1.E-10	2.E-10	5.0E-05	5.0E-05	8.0E-12	1.4E-11	2.E-07	3.E-07	0.0000004
	Total DDT	1.3E+00	ug/kg	3.4E-01	3.4E-01	2.4E-12	1.4E-11	8.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	5.6E-12	3.3E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										8.E-08							0.0004
RM 11 East	**Metals**																
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	4.9E-09	3.0E-08	7.E-09	4.E-08	5.E-08	3.0E-04	3.0E-04	1.1E-08	6.9E-08	4.E-05	2.E-04	0.0003
	Mercury	7.0E-02	mg/kg	--	--	0.0E+00	7.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-09	0.E+00	2.E-05	0.00002
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	2.4E-11	4.4E-11	--	--	--	3.0E-04	3.0E-04	5.6E-11	1.0E-10	2.E-07	3.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	8.3E+01	ug/kg	7.3E-01	7.3E-01	6.6E-10	9.1E-10	5.E-10	7.E-10	1.E-09	--	--	1.5E-09	2.1E-09	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	4.4E-10	6.0E-10	3.E-09	4.E-09	8.E-09	--	--	1.0E-09	1.4E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	1.0E-09	1.4E-09	7.E-10	1.E-09	2.E-09	--	--	2.4E-09	3.3E-09	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	2.9E-10	4.0E-10	2.E-11	3.E-11	5.E-11	--	--	6.7E-10	9.3E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	9.5E-11	1.3E-10	7.E-10	1.E-09	2.E-09	--	--	2.2E-10	3.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	3.0E-10	4.2E-10	2.E-10	3.E-10	5.E-10	--	--	7.0E-10	9.7E-10	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	9.3E-11	1.3E-10	--	--	--	2.0E-02	2.0E-02	2.2E-10	3.0E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.4E+01	ug/kg	1.4E-02	1.4E-02	5.7E-10	1.0E-09	8.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.3E-09	2.4E-09	7.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	2.7E+00	ug/kg	4.0E-01	4.0E-01	4.0E-11	2.9E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	9.3E-11	6.7E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+03	ug/kg	2.0E+00	2.0E+00	9.5E-09	1.2E-08	2.E-08	2.E-08	4.E-08	2.0E-05	2.0E-05	2.2E-08	2.9E-08	1.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	3.7E-15	2.2E-14	5.E-10	3.E-09	3.E-09	1.0E-09	1.0E-09	8.6E-15	5.2E-14	9.E-06	5.E-05	0.00006
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	1.1E-13	1.4E-13	1.E-08	2.E-08	3.E-08	1.0E-09	1.0E-09	2.5E-13	3.2E-13	2.E-04	3.E-04	0.0006

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Total DDT	9.9E+01	ug/kg	3.4E-01	3.4E-01	1.8E-10	1.1E-09	6.E-11	4.E-10	4.E-10	5.0E-04	5.0E-04	4.2E-10	2.5E-09	8.E-07	5.E-06	0.00001
Exposure Point Total										1.E-07							0.003
RM 11.5 West	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	5.4E-09	3.2E-08	8.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.3E-08	7.6E-08	4.E-05	3.E-04	0.0003
	Mercury	3.0E-02	mg/kg	--	--	0.0E+00	3.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.7E-10	0.E+00	8.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.5E+00	ug/kg	7.3E-01	7.3E-01	7.4E-11	1.0E-10	5.E-11	8.E-11	1.E-10	--	--	1.7E-10	2.4E-10	--	--	--
	Benzo(a)pyrene	1.1E+01	ug/kg	7.3E+00	7.3E+00	8.3E-11	1.1E-10	6.E-10	8.E-10	1.E-09	--	--	1.9E-10	2.7E-10	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	7.6E-11	1.1E-10	6.E-11	8.E-11	1.E-10	--	--	1.8E-10	2.5E-10	--	--	--
	Benzo(k)fluoranthene	6.4E+00	ug/kg	7.3E-02	7.3E-02	5.0E-11	7.0E-11	4.E-12	5.E-12	9.E-12	--	--	1.2E-10	1.6E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+00	ug/kg	7.3E+00	7.3E+00	9.2E-12	1.3E-11	7.E-11	9.E-11	2.E-10	--	--	2.1E-11	3.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	7.4E+00	ug/kg	7.3E-01	7.3E-01	5.8E-11	8.1E-11	4.E-11	6.E-11	1.E-10	--	--	1.4E-10	1.9E-10	--	--	--
	Naphthalene	3.3E+00	ug/kg	--	--	2.6E-11	3.6E-11	--	--	--	2.0E-02	2.0E-02	6.1E-11	8.5E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	1.1E-09	2.0E-09	2.E-11	3.E-11	4.E-11	2.0E-02	2.0E-02	2.6E-09	4.6E-09	1.E-07	2.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	1.0E-10	1.3E-10	2.E-10	3.E-10	5.E-10	2.0E-05	2.0E-05	2.4E-10	3.1E-10	1.E-05	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	3.2E-16	1.9E-15	4.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	7.5E-16	4.5E-15	7.E-07	4.E-06	0.00001
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	2.5E-15	3.2E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	5.8E-15	7.5E-15	6.E-06	7.E-06	0.00001
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	5.4E-13	9.8E-13	9.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	1.3E-12	2.3E-12	3.E-08	5.E-08	0.0000001
	Total DDT	9.8E-01	ug/kg	3.4E-01	3.4E-01	1.8E-12	1.1E-11	6.E-13	4.E-12	4.E-12	5.0E-04	5.0E-04	4.1E-12	2.5E-11	8.E-09	5.E-08	0.0000001
Exposure Point Total										6.E-08							0.0003
RM 12 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	5.7E-09	3.4E-08	9.E-09	5.E-08	6.E-08	3.0E-04	3.0E-04	1.3E-08	8.0E-08	4.E-05	3.E-04	0.0003
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	3.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.4E-09	0.E+00	7.E-05	0.00007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	2.0E-09	2.8E-09	1.E-09	2.E-09	4.E-09	--	--	4.7E-09	6.6E-09	--	--	--
	Benzo(a)pyrene	4.1E+02	ug/kg	7.3E+00	7.3E+00	3.2E-09	4.5E-09	2.E-08	3.E-08	6.E-08	--	--	7.5E-09	1.0E-08	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	2.8E-09	3.8E-09	2.E-09	3.E-09	5.E-09	--	--	6.4E-09	8.9E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	9.3E-10	1.3E-09	7.E-11	9.E-11	2.E-10	--	--	2.2E-09	3.0E-09	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	2.6E-10	3.5E-10	2.E-09	3.E-09	4.E-09	--	--	6.0E-10	8.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.4E+02	ug/kg	7.3E-01	7.3E-01	2.6E-09	3.7E-09	2.E-09	3.E-09	5.E-09	--	--	6.1E-09	8.5E-09	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	3.5E-10	4.9E-10	--	--	--	2.0E-02	2.0E-02	8.2E-10	1.1E-09	4.E-08	6.E-08	0.0000001

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.0E+01	ug/kg	1.4E-02	1.4E-02	4.8E-10	8.7E-10	7.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	1.1E-09	2.0E-09	6.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	5.1E-11	3.7E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	1.2E-10	8.6E-11	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	5.9E-10	7.6E-10	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	1.4E-09	1.8E-09	7.E-05	9.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	3.0E-16	1.8E-15	4.E-11	2.E-10	3.E-10	1.0E-09	1.0E-09	7.0E-16	4.2E-15	7.E-07	4.E-06	0.000005
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	3.8E-15	4.9E-15	5.E-10	6.E-10	1.E-09	1.0E-09	1.0E-09	8.9E-15	1.2E-14	9.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	3.2E-01	ug/kg	1.7E+01	1.7E+01	1.9E-12	3.5E-12	3.E-11	6.E-11	9.E-11	3.0E-05	3.0E-05	4.5E-12	8.2E-12	2.E-07	3.E-07	0.0000004
	Total DDT	5.9E+00	ug/kg	3.4E-01	3.4E-01	1.1E-11	6.4E-11	4.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	2.5E-11	1.5E-10	5.E-08	3.E-07	0.0000004
Exposure Point Total										1.E-07							0.0006
RM 12 East	**Metals**																
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	4.1E-09	2.5E-08	6.E-09	4.E-08	4.E-08	3.0E-04	3.0E-04	9.6E-09	5.8E-08	3.E-05	2.E-04	0.0002
	Mercury	4.5E-02	mg/kg	--	--	0.0E+00	4.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	2.4E-11	4.3E-11	--	--	--	3.0E-04	3.0E-04	5.6E-11	1.0E-10	2.E-07	3.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.0E-10	1.E-10	1.E-10	2.E-10	--	--	3.3E-10	4.6E-10	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	1.5E-10	2.0E-10	1.E-09	1.E-09	3.E-09	--	--	3.4E-10	4.7E-10	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	2.1E-10	2.9E-10	2.E-10	2.E-10	4.E-10	--	--	4.9E-10	6.7E-10	--	--	--
	Benzo(k)fluoranthene	7.8E+00	ug/kg	7.3E-02	7.3E-02	6.1E-11	8.4E-11	4.E-12	6.E-12	1.E-11	--	--	1.4E-10	2.0E-10	--	--	--
	Dibenzo(a,h)anthracene	4.0E+00	ug/kg	7.3E+00	7.3E+00	3.1E-11	4.3E-11	2.E-10	3.E-10	5.E-10	--	--	7.2E-11	1.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.7E-10	9.E-11	1.E-10	2.E-10	--	--	2.9E-10	4.1E-10	--	--	--
	Naphthalene	2.6E+01	ug/kg	--	--	2.0E-10	2.8E-10	--	--	--	2.0E-02	2.0E-02	4.7E-10	6.6E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+03	ug/kg	1.4E-02	1.4E-02	5.6E-08	1.0E-07	8.E-10	1.E-09	2.E-09	2.0E-02	2.0E-02	1.3E-07	2.3E-07	6.E-06	1.E-05	0.00002
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	2.5E-11	1.8E-11	1.E-11	7.E-12	2.E-11	5.0E-03	5.0E-03	5.9E-11	4.2E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.6E+02	ug/kg	2.0E+00	2.0E+00	1.3E-09	1.7E-09	3.E-09	3.E-09	6.E-09	2.0E-05	2.0E-05	3.1E-09	4.0E-09	2.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	3.1E-15	1.9E-14	4.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	7.3E-15	4.4E-14	7.E-06	4.E-05	0.00005
	Total PCB TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	3.3E-14	4.2E-14	4.E-09	5.E-09	1.E-08	1.0E-09	1.0E-09	7.7E-14	9.9E-14	8.E-05	1.E-04	0.0002

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	1.7E-11	1.0E-10	6.E-12	3.E-11	4.E-11	5.0E-04	5.0E-04	4.0E-11	2.4E-10	8.E-08	5.E-07	0.000001
Exposure Point Total										7.E-08							0.0008
Study Area-wide[c]	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	8.5E-09	5.1E-08	1.E-08	8.E-08	9.E-08	3.0E-04	3.0E-04	2.0E-08	1.2E-07	7.E-05	4.E-04	0.0005
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	1.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.3E-09	0.E+00	4.E-05	0.00004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.6E-06	0.E+00	4.E-02	0.04
	Butyltins																
	Tributyltin ion	6.1E+02	ug/kg	--	--	3.7E-09	6.6E-09	--	--	--	3.0E-04	3.0E-04	8.6E-09	1.5E-08	3.E-05	5.E-05	0.00008
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	1.6E-08	8.E-09	1.E-08	2.E-08	--	--	2.6E-08	3.6E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	1.4E-08	1.9E-08	1.E-07	1.E-07	2.E-07	--	--	3.2E-08	4.5E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	1.5E-08	8.E-09	1.E-08	2.E-08	--	--	2.6E-08	3.6E-08	--	--	--
	Benzo(k)fluoranthene	9.3E+02	ug/kg	7.3E-02	7.3E-02	7.3E-09	1.0E-08	5.E-10	7.E-10	1.E-09	--	--	1.7E-08	2.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	1.5E-09	2.1E-09	1.E-08	2.E-08	3.E-08	--	--	3.5E-09	4.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+03	ug/kg	7.3E-01	7.3E-01	9.6E-09	1.3E-08	7.E-09	1.E-08	2.E-08	--	--	2.2E-08	3.1E-08	--	--	--
	Naphthalene	5.0E+02	ug/kg	--	--	4.0E-09	5.5E-09	--	--	--	2.0E-02	2.0E-02	9.3E-09	1.3E-08	5.E-07	6.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.6E+02	ug/kg	1.4E-02	1.4E-02	5.8E-09	1.0E-08	8.E-11	1.E-10	2.E-10	2.0E-02	2.0E-02	1.4E-08	2.4E-08	7.E-07	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	3.2E+01	ug/kg	4.0E-01	4.0E-01	4.8E-10	3.5E-10	2.E-10	1.E-10	3.E-10	5.0E-03	5.0E-03	1.1E-09	8.2E-10	2.E-07	2.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+02	ug/kg	2.0E+00	2.0E+00	1.6E-09	2.1E-09	3.E-09	4.E-09	7.E-09	2.0E-05	2.0E-05	3.7E-09	4.8E-09	2.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	1.3E+05	1.3E+05	1.8E-13	1.1E-12	2.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	4.3E-13	2.6E-12	4.E-04	3.E-03	0.003
	Total PCB TEQ	6.6E+00	pg/g	1.3E+05	1.3E+05	5.6E-14	7.2E-14	7.E-09	9.E-09	2.E-08	1.0E-09	1.0E-09	1.3E-13	1.7E-13	1.E-04	2.E-04	0.0003
	Pesticides																
	Aldrin	2.4E+00	ug/kg	1.7E+01	1.7E+01	1.5E-11	2.7E-11	3.E-10	5.E-10	7.E-10	3.0E-05	3.0E-05	3.5E-11	6.2E-11	1.E-06	2.E-06	0.000003
	Dieldrin	2.1E+00	ug/kg	1.6E+01	1.6E+01	1.3E-11	2.3E-11	2.E-10	4.E-10	6.E-10	5.0E-05	5.0E-05	3.0E-11	5.4E-11	6.E-07	1.E-06	0.000002
	Total DDT	1.4E+02	ug/kg	3.4E-01	3.4E-01	2.5E-10	1.5E-09	9.E-11	5.E-10	6.E-10	5.0E-04	5.0E-04	5.8E-10	3.5E-09	1.E-06	7.E-06	0.00001

TABLE 5-22.
Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	5.4E-07	--	--	--	7.0E-04	7.0E-04	0.0E+00	1.3E-06	0.E+00	2.E-03	0.002
Exposure Point Total										6.E-07							0.04

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-23.
Calculation of Endpoint-Specific Hazard Indices - Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	Total Noncancer HQ[a]	Endpoint-Specific Hazard Indices														
			Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
RM 7 West	**Metals**																
	Arsenic	0.003	0.003	0.003													
	Mercury	0.0001					0.0001										
	Vanadium	0.2		0.2													
	Butyltins																
	Tributyltin ion	0.00001								0.00001							
	Polynuclear Aromatic Hydrocarbons																
	Naphthalene	0.0000002						0.0000002						0.0000002			
	Phthalates																
	Bis(2-ethylhexyl) phthalate	0.000004							0.000004								
	Phenols																
	Pentachlorophenol	0.000004			0.000004				0.000004								
	Polychlorinated Biphenyls																
	Total Aroclors	0.002		0.002						0.002							
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2											2				
	Total PCB TEQ	0.009											0.009				
	Pesticides																
	Aldrin	0.0018							0.002								
	Dieldrin	0.00001							0.00001								
	Total DDT	0.002							0.002								
	Conventionals																
	Perchlorate	0.05															0.05
Exposure Point Total[b]			0.003	0.2	0.000004		0.0001	0.0000002	0.004	0.002			2	0.0000002			0.05

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Sums calculated using PCB Aroclor data.

Abbreviations:

HI = Hazard Index.
HQ = Hazard Quotient.
PAH = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RM = River mile.
TEQ = Toxic equivalency quotient.

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	6.2E-08	1.7E-07	9.E-08	3.E-07	4.E-07	3.0E-04	3.0E-04	1.4E-07	4.0E-07	5.E-04	1.E-03	0.002
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.8E-09	0.E+00	6.E-05	0.00006
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	3.3E-11	2.7E-11	--	--	--	3.0E-04	3.0E-04	7.6E-11	6.4E-11	3.E-07	2.E-07	0.0000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	7.6E-09	4.9E-09	6.E-09	4.E-09	9.E-09	--	--	1.8E-08	1.1E-08	--	--	--
	Benzo(a)pyrene	2.4E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.9E-09	9.E-08	6.E-08	1.E-07	--	--	2.8E-08	1.8E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	7.5E-09	8.E-09	5.E-09	1.E-08	--	--	2.7E-08	1.8E-08	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	3.9E-09	2.5E-09	3.E-10	2.E-10	5.E-10	--	--	9.1E-09	5.9E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.2E-09	8.0E-10	9.E-09	6.E-09	1.E-08	--	--	2.9E-09	1.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.5E-09	7.E-09	5.E-09	1.E-08	--	--	2.4E-08	1.5E-08	--	--	--
	Naphthalene	2.9E+01	ug/kg	--	--	1.5E-09	9.5E-10	--	--	--	2.0E-02	2.0E-02	3.4E-09	2.2E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+01	ug/kg	1.4E-02	1.4E-02	1.7E-09	1.4E-09	2.E-11	2.E-11	4.E-11	2.0E-02	2.0E-02	4.0E-09	3.4E-09	2.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.2E-10	3.9E-11	5.E-11	2.E-11	6.E-11	5.0E-03	5.0E-03	2.7E-10	9.2E-11	5.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	9.2E-10	5.6E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.2E-09	1.3E-09	1.E-04	6.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	1.3E+05	1.3E+05	3.1E-14	8.7E-14	4.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	7.3E-14	2.0E-13	7.E-05	2.E-04	0.0003
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	1.7E-14	1.0E-14	2.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	4.0E-14	2.4E-14	4.E-05	2.E-05	0.00006
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	1.4E-11	1.2E-11	2.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	3.4E-11	2.8E-11	1.E-06	9.E-07	0.000002
	Total DDT	4.6E+00	ug/kg	3.4E-01	3.4E-01	5.3E-11	1.5E-10	2.E-11	5.E-11	7.E-11	5.0E-04	5.0E-04	1.2E-10	3.5E-10	2.E-07	7.E-07	0.000001
Exposure Point Total[b]										6.E-07							0.002
RM 1 East	**Metals**																
	Arsenic	5.7E+00	mg/kg	1.5E+00	1.5E+00	6.7E-08	1.9E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.6E-07	4.4E-07	5.E-04	1.E-03	0.002
	Mercury	7.1E+00	mg/kg	--	--	0.0E+00	2.3E-07	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.4E-07	0.E+00	5.E-03	0.005
	Butyltins																
	Tributyltin ion	1.2E+00	ug/kg	--	--	4.7E-11	3.9E-11	--	--	--	3.0E-04	3.0E-04	1.1E-10	9.2E-11	4.E-07	3.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+01	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.7E-09	2.E-09	1.E-09	3.E-09	--	--	6.2E-09	4.0E-09	--	--	--
	Benzo(a)pyrene	8.1E+01	ug/kg	7.3E+00	7.3E+00	4.1E-09	2.6E-09	3.E-08	2.E-08	5.E-08	--	--	9.5E-09	6.2E-09	--	--	--
	Benzo(b)fluoranthene	6.9E+01	ug/kg	7.3E-01	7.3E-01	3.5E-09	2.3E-09	3.E-09	2.E-09	4.E-09	--	--	8.1E-09	5.3E-09	--	--	--
	Benzo(k)fluoranthene	4.8E+01	ug/kg	7.3E-02	7.3E-02	2.4E-09	1.6E-09	2.E-10	1.E-10	3.E-10	--	--	5.6E-09	3.6E-09	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	9.1E+00	ug/kg	7.3E+00	7.3E+00	4.6E-10	3.0E-10	3.E-09	2.E-09	6.E-09	--	--	1.1E-09	6.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+01	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.8E-09	2.E-09	1.E-09	3.E-09	--	--	6.6E-09	4.3E-09	--	--	--
	Naphthalene	2.3E+01	ug/kg	--	--	1.2E-09	7.5E-10	--	--	--	2.0E-02	2.0E-02	2.7E-09	1.8E-09	1.E-07	9.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	2.8E-09	2.3E-09	4.E-11	3.E-11	7.E-11	2.0E-02	2.0E-02	6.4E-09	5.4E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	2.4E-10	8.2E-11	1.E-10	3.E-11	1.E-10	5.0E-03	5.0E-03	5.7E-10	1.9E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+02	ug/kg	2.0E+00	2.0E+00	2.8E-08	1.7E-08	6.E-08	3.E-08	9.E-08	2.0E-05	2.0E-05	6.4E-08	3.9E-08	3.E-03	2.E-03	0.005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.3E+05	1.3E+05	8.7E-15	2.4E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	2.0E-14	5.7E-14	2.E-05	6.E-05	0.00008
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	1.5E-14	8.9E-15	2.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	3.4E-14	2.1E-14	3.E-05	2.E-05	0.00006
	Pesticides																
	Total DDT	4.0E+00	ug/kg	3.4E-01	3.4E-01	4.6E-11	1.3E-10	2.E-11	4.E-11	6.E-11	5.0E-04	5.0E-04	1.1E-10	3.0E-10	2.E-07	6.E-07	0.000001
Exposure Point Total										5.E-07							0.01
RM 1.5 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	5.1E-08	1.4E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.2E-07	3.4E-07	4.E-04	1.E-03	0.002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	2.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.2E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+01	ug/kg	7.3E-01	7.3E-01	1.7E-09	1.1E-09	1.E-09	8.E-10	2.E-09	--	--	3.9E-09	2.5E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	5.7E-09	3.7E-09	--	--	--
	Benzo(b)fluoranthene	4.1E+01	ug/kg	7.3E-01	7.3E-01	2.1E-09	1.3E-09	2.E-09	1.E-09	2.E-09	--	--	4.8E-09	3.1E-09	--	--	--
	Benzo(k)fluoranthene	3.4E+01	ug/kg	7.3E-02	7.3E-02	1.7E-09	1.1E-09	1.E-10	8.E-11	2.E-10	--	--	4.0E-09	2.6E-09	--	--	--
	Dibenzo(a,h)anthracene	5.9E+00	ug/kg	7.3E+00	7.3E+00	3.0E-10	1.9E-10	2.E-09	1.E-09	4.E-09	--	--	7.0E-10	4.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.9E-09	1.2E-09	1.E-09	9.E-10	2.E-09	--	--	4.4E-09	2.8E-09	--	--	--
	Naphthalene	9.6E+00	ug/kg	--	--	4.8E-10	3.1E-10	--	--	--	2.0E-02	2.0E-02	1.1E-09	7.3E-10	6.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	1.5E-10	4.9E-11	6.E-11	2.E-11	8.E-11	5.0E-03	5.0E-03	3.4E-10	1.1E-10	7.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	1.2E-09	7.1E-10	2.E-09	1.E-09	4.E-09	2.0E-05	2.0E-05	2.8E-09	1.7E-09	1.E-04	8.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	1.3E+05	1.3E+05	1.1E-15	3.1E-15	1.E-10	4.E-10	5.E-10	1.0E-09	1.0E-09	2.6E-15	7.2E-15	3.E-06	7.E-06	0.00001
	Pesticides																
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	1.3E-11	3.5E-11	4.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	3.0E-11	8.3E-11	6.E-08	2.E-07	0.0000002
Exposure Point Total										3.E-07							0.002

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1.5 East	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	6.3E-08	1.8E-07	9.E-08	3.E-07	4.E-07	3.0E-04	3.0E-04	1.5E-07	4.1E-07	5.E-04	1.E-03	0.002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.6E-09	0.E+00	1.E-04	0.00010
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	1.4E-11	1.2E-11	--	--	--	3.0E-04	3.0E-04	3.4E-11	2.8E-11	1.E-07	9.E-08	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+02	ug/kg	7.3E-01	7.3E-01	4.7E-08	3.1E-08	3.E-08	2.E-08	6.E-08	--	--	1.1E-07	7.2E-08	--	--	--
	Benzo(a)pyrene	1.4E+03	ug/kg	7.3E+00	7.3E+00	7.1E-08	4.6E-08	5.E-07	3.E-07	9.E-07	--	--	1.7E-07	1.1E-07	--	--	--
	Benzo(b)fluoranthene	8.2E+02	ug/kg	7.3E-01	7.3E-01	4.1E-08	2.7E-08	3.E-08	2.E-08	5.E-08	--	--	9.7E-08	6.3E-08	--	--	--
	Benzo(k)fluoranthene	8.2E+02	ug/kg	7.3E-02	7.3E-02	4.1E-08	2.7E-08	3.E-09	2.E-09	5.E-09	--	--	9.7E-08	6.3E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	7.1E-09	4.6E-09	5.E-08	3.E-08	9.E-08	--	--	1.7E-08	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+03	ug/kg	7.3E-01	7.3E-01	5.1E-08	3.3E-08	4.E-08	2.E-08	6.E-08	--	--	1.2E-07	7.6E-08	--	--	--
	Naphthalene	3.7E+02	ug/kg	--	--	1.9E-08	1.2E-08	--	--	--	2.0E-02	2.0E-02	4.4E-08	2.8E-08	2.E-06	1.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	6.6E-09	5.6E-09	9.E-11	8.E-11	2.E-10	2.0E-02	2.0E-02	1.5E-08	1.3E-08	8.E-07	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.1E+00	ug/kg	4.0E-01	4.0E-01	4.0E-10	1.3E-10	2.E-10	5.E-11	2.E-10	5.0E-03	5.0E-03	9.3E-10	3.1E-10	2.E-07	6.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.1E+01	ug/kg	2.0E+00	2.0E+00	2.2E-09	1.3E-09	4.E-09	3.E-09	7.E-09	2.0E-05	2.0E-05	5.1E-09	3.1E-09	3.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	2.1E-14	5.9E-14	3.E-09	8.E-09	1.E-08	1.0E-09	1.0E-09	4.9E-14	1.4E-13	5.E-05	1.E-04	0.0002
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	5.7E-15	3.4E-15	7.E-10	4.E-10	1.E-09	1.0E-09	1.0E-09	1.3E-14	8.0E-15	1.E-05	8.E-06	0.00002
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	2.7E-12	2.3E-12	4.E-11	4.E-11	8.E-11	5.0E-05	5.0E-05	6.3E-12	5.3E-12	1.E-07	1.E-07	0.0000002
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	2.5E-10	7.1E-10	9.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	5.9E-10	1.7E-09	1.E-06	3.E-06	0.000005
Exposure Point Total										1.E-06							0.003
RM 2 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	4.5E-08	1.3E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.0E-07	2.9E-07	3.E-04	1.E-03	0.001
	Mercury	7.8E-02	mg/kg	--	--	0.0E+00	2.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-09	0.E+00	6.E-05	0.00006
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	8.2E-11	6.9E-11	--	--	--	3.0E-04	3.0E-04	1.9E-10	1.6E-10	6.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+01	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.8E-09	2.E-09	1.E-09	3.E-09	--	--	6.4E-09	4.2E-09	--	--	--
	Benzo(a)pyrene	9.8E+01	ug/kg	7.3E+00	7.3E+00	5.0E-09	3.2E-09	4.E-08	2.E-08	6.E-08	--	--	1.2E-08	7.5E-09	--	--	--
	Benzo(b)fluoranthene	9.8E+01	ug/kg	7.3E-01	7.3E-01	4.9E-09	3.2E-09	4.E-09	2.E-09	6.E-09	--	--	1.2E-08	7.5E-09	--	--	--
	Benzo(k)fluoranthene	3.2E+01	ug/kg	7.3E-02	7.3E-02	1.6E-09	1.0E-09	1.E-10	8.E-11	2.E-10	--	--	3.8E-09	2.4E-09	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.0E+01	ug/kg	7.3E+00	7.3E+00	5.2E-10	3.4E-10	4.E-09	2.E-09	6.E-09	--	--	1.2E-09	7.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.1E+01	ug/kg	7.3E-01	7.3E-01	4.1E-09	2.7E-09	3.E-09	2.E-09	5.E-09	--	--	9.6E-09	6.2E-09	--	--	--
	Naphthalene	1.0E+01	ug/kg	--	--	5.1E-10	3.3E-10	--	--	--	2.0E-02	2.0E-02	1.2E-09	7.6E-10	6.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.8E+01	ug/kg	1.4E-02	1.4E-02	1.9E-09	1.6E-09	3.E-11	2.E-11	5.E-11	2.0E-02	2.0E-02	4.3E-09	3.7E-09	2.E-07	2.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	1.0E-09	6.0E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.3E-09	1.4E-09	1.E-04	7.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	1.3E+05	1.3E+05	2.5E-14	7.1E-14	3.E-09	9.E-09	1.E-08	1.0E-09	1.0E-09	5.9E-14	1.7E-13	6.E-05	2.E-04	0.0002
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	1.9E-14	1.2E-14	2.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	4.5E-14	2.7E-14	4.E-05	3.E-05	0.00007
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.4E-11	1.2E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	3.3E-11	2.7E-11	1.E-06	9.E-07	0.000002
	Dieldrin	2.7E-01	ug/kg	1.6E+01	1.6E+01	1.0E-11	8.8E-12	2.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.4E-11	2.1E-11	5.E-07	4.E-07	0.000001
	Total DDT	3.2E+00	ug/kg	3.4E-01	3.4E-01	3.7E-11	1.0E-10	1.E-11	4.E-11	5.E-11	5.0E-04	5.0E-04	8.6E-11	2.4E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										4.E-07							0.002
RM 2 East	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	5.0E-08	1.4E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.2E-07	3.3E-07	4.E-04	1.E-03	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.9E-09	0.E+00	7.E-05	0.00007
	Butyltins																
	Tributyltin ion	3.7E+00	ug/kg	--	--	1.4E-10	1.2E-10	--	--	--	3.0E-04	3.0E-04	3.4E-10	2.8E-10	1.E-06	9.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	4.9E-09	3.2E-09	4.E-09	2.E-09	6.E-09	--	--	1.1E-08	7.4E-09	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	6.1E-09	3.9E-09	4.E-08	3.E-08	7.E-08	--	--	1.4E-08	9.1E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	6.6E-09	4.3E-09	5.E-09	3.E-09	8.E-09	--	--	1.5E-08	1.0E-08	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	3.9E-09	2.5E-09	3.E-10	2.E-10	5.E-10	--	--	9.1E-09	5.9E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.2E-09	7.7E-10	9.E-09	6.E-09	1.E-08	--	--	2.8E-09	1.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	5.4E-09	3.5E-09	4.E-09	3.E-09	6.E-09	--	--	1.3E-08	8.1E-09	--	--	--
	Naphthalene	2.1E+01	ug/kg	--	--	1.1E-09	6.9E-10	--	--	--	2.0E-02	2.0E-02	2.5E-09	1.6E-09	1.E-07	8.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.7E-09	3.9E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.1E-08	9.2E-09	5.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.2E+00	ug/kg	4.0E-01	4.0E-01	2.1E-10	7.2E-11	9.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	5.0E-10	1.7E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+03	ug/kg	2.0E+00	2.0E+00	8.3E-08	5.0E-08	2.E-07	1.E-07	3.E-07	2.0E-05	2.0E-05	1.9E-07	1.2E-07	1.E-02	6.E-03	0.02

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	1.3E+05	1.3E+05	4.7E-14	1.3E-13	6.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	1.1E-13	3.1E-13	1.E-04	3.E-04	0.0004
	Total PCB TEQ	8.5E+01	pg/g	1.3E+05	1.3E+05	4.6E-12	2.8E-12	6.E-07	4.E-07	1.E-06	1.0E-09	1.0E-09	1.1E-11	6.5E-12	1.E-02	6.E-03	0.02
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	2.7E-11	2.3E-11	5.E-10	4.E-10	8.E-10	3.0E-05	3.0E-05	6.3E-11	5.3E-11	2.E-06	2.E-06	0.000004
	Dieldrin	1.2E+00	ug/kg	1.6E+01	1.6E+01	4.8E-11	4.1E-11	8.E-10	7.E-10	1.E-09	5.0E-05	5.0E-05	1.1E-10	9.5E-11	2.E-06	2.E-06	0.000004
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	4.9E-11	1.4E-10	2.E-11	5.E-11	6.E-11	5.0E-04	5.0E-04	1.1E-10	3.2E-10	2.E-07	6.E-07	0.000001
Exposure Point Total										2.E-06							0.03
RM 2.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	5.5E-08	1.5E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.6E-07	4.E-04	1.E-03	0.002
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.9E-09	0.E+00	7.E-05	0.00007
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	8.9E-11	7.5E-11	--	--	--	3.0E-04	3.0E-04	2.1E-10	1.8E-10	7.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	3.6E-08	2.3E-08	--	--	--
	Benzo(a)pyrene	5.5E+02	ug/kg	7.3E+00	7.3E+00	2.8E-08	1.8E-08	2.E-07	1.E-07	3.E-07	--	--	6.4E-08	4.2E-08	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.3E-08	1.E-08	9.E-09	2.E-08	--	--	4.7E-08	3.0E-08	--	--	--
	Benzo(k)fluoranthene	2.5E+02	ug/kg	7.3E-02	7.3E-02	1.3E-08	8.3E-09	9.E-10	6.E-10	2.E-09	--	--	3.0E-08	1.9E-08	--	--	--
	Dibenzo(a,h)anthracene	6.4E+01	ug/kg	7.3E+00	7.3E+00	3.2E-09	2.1E-09	2.E-08	2.E-08	4.E-08	--	--	7.5E-09	4.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+02	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.5E-08	3.6E-08	--	--	--
	Naphthalene	7.6E+01	ug/kg	--	--	3.8E-09	2.5E-09	--	--	--	2.0E-02	2.0E-02	8.9E-09	5.8E-09	4.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.3E+01	ug/kg	1.4E-02	1.4E-02	1.7E-09	1.4E-09	2.E-11	2.E-11	4.E-11	2.0E-02	2.0E-02	3.9E-09	3.3E-09	2.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.2E-10	3.9E-11	5.E-11	2.E-11	6.E-11	5.0E-03	5.0E-03	2.7E-10	9.2E-11	5.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	1.2E-09	7.0E-10	2.E-09	1.E-09	4.E-09	2.0E-05	2.0E-05	2.7E-09	1.6E-09	1.E-04	8.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	4.8E-15	1.4E-14	6.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	1.1E-14	3.2E-14	1.E-05	3.E-05	0.00004
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	1.1E-14	6.8E-15	1.E-09	9.E-10	2.E-09	1.0E-09	1.0E-09	2.6E-14	1.6E-14	3.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	2.6E-01	ug/kg	1.7E+01	1.7E+01	1.0E-11	8.4E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	2.3E-11	2.0E-11	8.E-07	7.E-07	0.000001
	Dieldrin	2.2E-01	ug/kg	1.6E+01	1.6E+01	8.5E-12	7.2E-12	1.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.0E-11	1.7E-11	4.E-07	3.E-07	0.000001
	Total DDT	3.4E+00	ug/kg	3.4E-01	3.4E-01	4.0E-11	1.1E-10	1.E-11	4.E-11	5.E-11	5.0E-04	5.0E-04	9.3E-11	2.6E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										8.E-07							0.002

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 2.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.6E-08	1.6E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.7E-07	4.E-04	1.E-03	0.002
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.9E-09	0.E+00	7.E-05	0.00007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+03	ug/kg	7.3E-01	7.3E-01	2.9E-07	1.9E-07	2.E-07	1.E-07	4.E-07	--	--	6.8E-07	4.4E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	2.3E-07	1.5E-07	2.E-06	1.E-06	3.E-06	--	--	5.3E-07	3.5E-07	--	--	--
	Benzo(b)fluoranthene	3.9E+03	ug/kg	7.3E-01	7.3E-01	2.0E-07	1.3E-07	1.E-07	9.E-08	2.E-07	--	--	4.6E-07	3.0E-07	--	--	--
	Benzo(k)fluoranthene	1.2E+03	ug/kg	7.3E-02	7.3E-02	6.2E-08	4.0E-08	5.E-09	3.E-09	7.E-09	--	--	1.4E-07	9.4E-08	--	--	--
	Dibenzo(a,h)anthracene	4.5E+02	ug/kg	7.3E+00	7.3E+00	2.3E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	5.3E-08	3.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.3E-07	8.4E-08	9.E-08	6.E-08	2.E-07	--	--	3.0E-07	2.0E-07	--	--	--
	Naphthalene	2.8E+02	ug/kg	--	--	1.4E-08	9.1E-09	--	--	--	2.0E-02	2.0E-02	3.3E-08	2.1E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	4.1E-09	3.5E-09	6.E-11	5.E-11	1.E-10	2.0E-02	2.0E-02	9.6E-09	8.1E-09	5.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	5.7E+01	ug/kg	4.0E-01	4.0E-01	5.5E-09	1.9E-09	2.E-09	7.E-10	3.E-09	5.0E-03	5.0E-03	1.3E-08	4.4E-09	3.E-06	9.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	4.2E-09	2.5E-09	8.E-09	5.E-09	1.E-08	2.0E-05	2.0E-05	9.8E-09	5.9E-09	5.E-04	3.E-04	0.0008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.2E-14	3.5E-14	2.E-09	4.E-09	6.E-09	1.0E-09	1.0E-09	2.9E-14	8.1E-14	3.E-05	8.E-05	0.0001
	Total PCB TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	1.8E-13	1.1E-13	2.E-08	1.E-08	4.E-08	1.0E-09	1.0E-09	4.2E-13	2.5E-13	4.E-04	3.E-04	0.0007
	Pesticides																
	Aldrin	7.5E-01	ug/kg	1.7E+01	1.7E+01	2.9E-11	2.5E-11	5.E-10	4.E-10	9.E-10	3.0E-05	3.0E-05	6.8E-11	5.7E-11	2.E-06	2.E-06	0.000004
	Dieldrin	3.3E-01	ug/kg	1.6E+01	1.6E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	3.0E-11	2.5E-11	6.E-07	5.E-07	0.000001
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.3E-10	3.7E-10	4.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	3.0E-10	8.5E-10	6.E-07	2.E-06	0.000002
Exposure Point Total										4.E-06							0.003
RM 2.5 MC	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.6E-08	1.6E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.6E-07	4.E-04	1.E-03	0.002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-09	0.E+00	1.E-04	0.00010
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	3.6E-08	2.3E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	2.5E-08	1.6E-08	2.E-07	1.E-07	3.E-07	--	--	5.8E-08	3.7E-08	--	--	--
	Benzo(b)fluoranthene	4.5E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.3E-08	3.4E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	7.3E-09	4.7E-09	5.E-10	3.E-10	9.E-10	--	--	1.7E-08	1.1E-08	--	--	--
	Dibenzo(a,h)anthracene	4.7E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.5E-09	2.E-08	1.E-08	3.E-08	--	--	5.6E-09	3.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	4.4E-08	2.9E-08	--	--	--
	Naphthalene	9.9E+01	ug/kg	--	--	5.0E-09	3.2E-09	--	--	--	2.0E-02	2.0E-02	1.2E-08	7.6E-09	6.E-07	4.E-07	0.000001

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	3.6E-09	3.0E-09	5.E-11	4.E-11	9.E-11	2.0E-02	2.0E-02	8.5E-09	7.1E-09	4.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	1.6E-10	5.2E-11	6.E-11	2.E-11	8.E-11	5.0E-03	5.0E-03	3.6E-10	1.2E-10	7.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.1E-09	1.3E-09	4.E-09	3.E-09	7.E-09	2.0E-05	2.0E-05	4.9E-09	2.9E-09	2.E-04	1.E-04	0.0004
	Pesticides																
	Aldrin	6.5E-01	ug/kg	1.7E+01	1.7E+01	2.5E-11	2.1E-11	4.E-10	4.E-10	8.E-10	3.0E-05	3.0E-05	5.9E-11	5.0E-11	2.E-06	2.E-06	0.000004
	Dieldrin	9.7E-01	ug/kg	1.6E+01	1.6E+01	3.8E-11	3.2E-11	6.E-10	5.E-10	1.E-09	5.0E-05	5.0E-05	8.8E-11	7.4E-11	2.E-06	1.E-06	0.000003
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.3E-10	3.6E-10	4.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	3.0E-10	8.3E-10	6.E-07	2.E-06	0.000002
Exposure Point Total										7.E-07							0.002
RM 3 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	4.8E-08	1.3E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	3.1E-07	4.E-04	1.E-03	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.2E-09	0.E+00	8.E-05	0.00008
	Vanadium	9.3E+01	mg/kg	--	--	0.0E+00	3.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.1E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	7.0E-10	5.9E-10	--	--	--	3.0E-04	3.0E-04	1.6E-09	1.4E-09	5.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.7E+02	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.5E-08	3.6E-08	--	--	--
	Benzo(a)pyrene	7.1E+02	ug/kg	7.3E+00	7.3E+00	3.6E-08	2.3E-08	3.E-07	2.E-07	4.E-07	--	--	8.3E-08	5.4E-08	--	--	--
	Benzo(b)fluoranthene	6.0E+02	ug/kg	7.3E-01	7.3E-01	3.0E-08	2.0E-08	2.E-08	1.E-08	4.E-08	--	--	7.1E-08	4.6E-08	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	2.0E-08	1.3E-08	1.E-09	9.E-10	2.E-09	--	--	4.7E-08	3.0E-08	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	4.1E-09	2.7E-09	3.E-08	2.E-08	5.E-08	--	--	9.6E-09	6.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.6E-08	2.E-08	1.E-08	3.E-08	--	--	5.6E-08	3.6E-08	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.1E-08	7.3E-09	--	--	--	2.0E-02	2.0E-02	2.6E-08	1.7E-08	1.E-06	9.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	2.2E-09	1.9E-09	3.E-11	3.E-11	6.E-11	2.0E-02	2.0E-02	5.2E-09	4.4E-09	3.E-07	2.E-07	0.0000005
	Phenols																
	Pentachlorophenol	1.1E+02	ug/kg	4.0E-01	4.0E-01	1.1E-08	3.6E-09	4.E-09	1.E-09	6.E-09	5.0E-03	5.0E-03	2.5E-08	8.4E-09	5.E-06	2.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	9.6E-10	5.8E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.2E-09	1.3E-09	1.E-04	7.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	1.9E-14	5.4E-14	3.E-09	7.E-09	1.E-08	1.0E-09	1.0E-09	4.5E-14	1.3E-13	4.E-05	1.E-04	0.0002
	Total PCB TEQ	4.4E-01	pg/g	1.3E+05	1.3E+05	2.4E-14	1.4E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	5.6E-14	3.4E-14	6.E-05	3.E-05	0.00009

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	5.2E-01	ug/kg	1.7E+01	1.7E+01	2.0E-11	1.7E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.7E-11	4.0E-11	2.E-06	1.E-06	0.000003
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	5.1E-11	4.3E-11	8.E-10	7.E-10	2.E-09	5.0E-05	5.0E-05	1.2E-10	1.0E-10	2.E-06	2.E-06	0.000004
	Total DDT	2.1E+02	ug/kg	3.4E-01	3.4E-01	2.5E-09	6.9E-09	8.E-10	2.E-09	3.E-09	5.0E-04	5.0E-04	5.8E-09	1.6E-08	1.E-05	3.E-05	0.00004
Exposure Point Total										9.E-07							0.1
RM 3 East	**Metals**																
	Arsenic	5.5E+00	mg/kg	1.5E+00	1.5E+00	6.4E-08	1.8E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.5E-07	4.2E-07	5.E-04	1.E-03	0.002
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-09	0.E+00	6.E-05	0.00006
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.6E+01	ug/kg	--	--	6.2E-10	5.2E-10	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.2E-09	5.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	7.3E-09	4.7E-09	5.E-09	3.E-09	9.E-09	--	--	1.7E-08	1.1E-08	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.8E-09	4.4E-09	5.E-08	3.E-08	8.E-08	--	--	1.6E-08	1.0E-08	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	8.0E-09	5.2E-09	6.E-09	4.E-09	1.E-08	--	--	1.9E-08	1.2E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.6E-09	3.6E-09	4.E-10	3.E-10	7.E-10	--	--	1.3E-08	8.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.5E-10	5.5E-10	6.E-09	4.E-09	1.E-08	--	--	2.0E-09	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+01	ug/kg	7.3E-01	7.3E-01	4.2E-09	2.7E-09	3.E-09	2.E-09	5.E-09	--	--	9.8E-09	6.3E-09	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	8.5E-10	5.5E-10	--	--	--	2.0E-02	2.0E-02	2.0E-09	1.3E-09	1.E-07	6.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.8E+01	ug/kg	1.4E-02	1.4E-02	3.4E-09	2.9E-09	5.E-11	4.E-11	9.E-11	2.0E-02	2.0E-02	8.0E-09	6.7E-09	4.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.6E+00	ug/kg	4.0E-01	4.0E-01	4.5E-10	1.5E-10	2.E-10	6.E-11	2.E-10	5.0E-03	5.0E-03	1.0E-09	3.5E-10	2.E-07	7.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	1.2E-09	7.5E-10	2.E-09	1.E-09	4.E-09	2.0E-05	2.0E-05	2.9E-09	1.7E-09	1.E-04	9.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	6.3E-14	1.8E-13	8.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	1.5E-13	4.1E-13	1.E-04	4.E-04	0.0006
	Total PCB TEQ	1.0E-01	pg/g	1.3E+05	1.3E+05	5.5E-15	3.3E-15	7.E-10	4.E-10	1.E-09	1.0E-09	1.0E-09	1.3E-14	7.7E-15	1.E-05	8.E-06	0.00002
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.5E-11	1.3E-11	3.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	3.6E-11	3.0E-11	1.E-06	1.E-06	0.000002
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	7.6E-12	6.4E-12	1.E-10	1.E-10	2.E-10	5.0E-05	5.0E-05	1.8E-11	1.5E-11	4.E-07	3.E-07	0.000001
	Total DDT	3.8E+00	ug/kg	3.4E-01	3.4E-01	4.4E-11	1.2E-10	2.E-11	4.E-11	6.E-11	5.0E-04	5.0E-04	1.0E-10	2.9E-10	2.E-07	6.E-07	0.000001
Exposure Point Total										5.E-07							0.1
RM 3.5 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.2E-07	3.4E-07	2.E-07	5.E-07	7.E-07	3.0E-04	3.0E-04	2.8E-07	8.0E-07	9.E-04	3.E-03	0.004
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	3.9E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.0E-09	0.E+00	9.E-05	0.00009
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.6E-06	0.E+00	1.E-01	0.1

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	3.1E-09	2.6E-09	--	--	--	3.0E-04	3.0E-04	7.3E-09	6.2E-09	2.E-05	2.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+03	ug/kg	7.3E-01	7.3E-01	8.9E-08	5.8E-08	7.E-08	4.E-08	1.E-07	--	--	2.1E-07	1.3E-07	--	--	--
	Benzo(a)pyrene	2.6E+03	ug/kg	7.3E+00	7.3E+00	1.3E-07	8.3E-08	9.E-07	6.E-07	2.E-06	--	--	3.0E-07	1.9E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.4E-08	8.E-08	5.E-08	1.E-07	--	--	2.7E-07	1.7E-07	--	--	--
	Benzo(k)fluoranthene	8.0E+02	ug/kg	7.3E-02	7.3E-02	4.0E-08	2.6E-08	3.E-09	2.E-09	5.E-09	--	--	9.4E-08	6.1E-08	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	3.8E-09	2.5E-09	3.E-08	2.E-08	5.E-08	--	--	8.8E-09	5.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+03	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.7E-08	8.E-08	5.E-08	1.E-07	--	--	2.4E-07	1.6E-07	--	--	--
	Naphthalene	5.2E+02	ug/kg	--	--	2.6E-08	1.7E-08	--	--	--	2.0E-02	2.0E-02	6.1E-08	4.0E-08	3.E-06	2.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	3.2E-09	2.7E-09	4.E-11	4.E-11	8.E-11	2.0E-02	2.0E-02	7.5E-09	6.3E-09	4.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	1.4E-09	4.8E-10	6.E-10	2.E-10	8.E-10	5.0E-03	5.0E-03	3.3E-09	1.1E-09	7.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.7E+01	ug/kg	2.0E+00	2.0E+00	1.5E-09	8.7E-10	3.E-09	2.E-09	5.E-09	2.0E-05	2.0E-05	3.4E-09	2.0E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	1.9E-14	5.3E-14	2.E-09	7.E-09	9.E-09	1.0E-09	1.0E-09	4.4E-14	1.2E-13	4.E-05	1.E-04	0.0002
	Total PCB TEQ	7.7E-01	pg/g	1.3E+05	1.3E+05	4.2E-14	2.5E-14	5.E-09	3.E-09	9.E-09	1.0E-09	1.0E-09	9.8E-14	5.9E-14	1.E-04	6.E-05	0.0002
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.6E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.4E-11	3.7E-11	1.E-06	1.E-06	0.000003
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	7.1E-12	6.0E-12	1.E-10	1.E-10	2.E-10	5.0E-05	5.0E-05	1.7E-11	1.4E-11	3.E-07	3.E-07	0.000001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	2.4E-10	6.8E-10	8.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	5.7E-10	1.6E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										3.E-06							0.1
RM 3.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.6E-08	1.6E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.7E-07	4.E-04	1.E-03	0.002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-09	0.E+00	1.E-04	0.00010
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.6E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.9E+04	ug/kg	--	--	7.4E-07	6.2E-07	--	--	--	3.0E-04	3.0E-04	1.7E-06	1.5E-06	6.E-03	5.E-03	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+03	ug/kg	7.3E-01	7.3E-01	6.3E-08	4.1E-08	5.E-08	3.E-08	8.E-08	--	--	1.5E-07	9.5E-08	--	--	--
	Benzo(a)pyrene	8.7E+02	ug/kg	7.3E+00	7.3E+00	4.4E-08	2.9E-08	3.E-07	2.E-07	5.E-07	--	--	1.0E-07	6.7E-08	--	--	--
	Benzo(b)fluoranthene	1.3E+03	ug/kg	7.3E-01	7.3E-01	6.7E-08	4.3E-08	5.E-08	3.E-08	8.E-08	--	--	1.6E-07	1.0E-07	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	3.6E-08	2.3E-08	3.E-09	2.E-09	4.E-09	--	--	8.3E-08	5.4E-08	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	6.6E-09	4.3E-09	5.E-08	3.E-08	8.E-08	--	--	1.5E-08	1.0E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.7E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	3.9E-08	2.5E-08	--	--	--
	Naphthalene	1.8E+01	ug/kg	--	--	9.1E-10	5.9E-10	--	--	--	2.0E-02	2.0E-02	2.1E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.9E+03	ug/kg	1.4E-02	1.4E-02	2.7E-07	2.3E-07	4.E-09	3.E-09	7.E-09	2.0E-02	2.0E-02	6.3E-07	5.3E-07	3.E-05	3.E-05	0.00006
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	2.4E-10	8.2E-11	1.E-10	3.E-11	1.E-10	5.0E-03	5.0E-03	5.6E-10	1.9E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+03	ug/kg	2.0E+00	2.0E+00	9.1E-08	5.4E-08	2.E-07	1.E-07	3.E-07	2.0E-05	2.0E-05	2.1E-07	1.3E-07	1.E-02	6.E-03	0.02
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	1.3E+05	1.3E+05	1.3E-13	3.7E-13	2.E-08	5.E-08	6.E-08	1.0E-09	1.0E-09	3.0E-13	8.5E-13	3.E-04	9.E-04	0.001
	Total PCB TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	6.2E-12	3.7E-12	8.E-07	5.E-07	1.E-06	1.0E-09	1.0E-09	1.4E-11	8.7E-12	1.E-02	9.E-03	0.02
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.6E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.5E-11	3.8E-11	1.E-06	1.E-06	0.000003
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	5.8E-12	4.8E-12	9.E-11	8.E-11	2.E-10	5.0E-05	5.0E-05	1.3E-11	1.1E-11	3.E-07	2.E-07	0.0000005
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	3.2E-10	8.9E-10	1.E-10	3.E-10	4.E-10	5.0E-04	5.0E-04	7.4E-10	2.1E-09	1.E-06	4.E-06	0.00001
Exposure Point Total										3.E-06							0.2
RM 4 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	5.1E-08	1.4E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.2E-07	3.3E-07	4.E-04	1.E-03	0.002
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.1E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	8.2E+00	ug/kg	--	--	3.2E-10	2.7E-10	--	--	--	3.0E-04	3.0E-04	7.4E-10	6.3E-10	2.E-06	2.E-06	0.000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.0E+02	ug/kg	7.3E-01	7.3E-01	4.5E-08	2.9E-08	3.E-08	2.E-08	5.E-08	--	--	1.1E-07	6.9E-08	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.9E-08	1.9E-08	2.E-07	1.E-07	4.E-07	--	--	6.9E-08	4.4E-08	--	--	--
	Benzo(b)fluoranthene	5.2E+02	ug/kg	7.3E-01	7.3E-01	2.6E-08	1.7E-08	2.E-08	1.E-08	3.E-08	--	--	6.1E-08	4.0E-08	--	--	--
	Benzo(k)fluoranthene	3.2E+02	ug/kg	7.3E-02	7.3E-02	1.6E-08	1.0E-08	1.E-09	8.E-10	2.E-09	--	--	3.7E-08	2.4E-08	--	--	--
	Dibenzo(a,h)anthracene	8.9E+01	ug/kg	7.3E+00	7.3E+00	4.5E-09	2.9E-09	3.E-08	2.E-08	5.E-08	--	--	1.1E-08	6.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.5E-08	3.5E-08	--	--	--
	Naphthalene	1.9E+02	ug/kg	--	--	9.7E-09	6.3E-09	--	--	--	2.0E-02	2.0E-02	2.3E-08	1.5E-08	1.E-06	7.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	2.8E-09	2.3E-09	4.E-11	3.E-11	7.E-11	2.0E-02	2.0E-02	6.5E-09	5.4E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	6.7E+00	ug/kg	4.0E-01	4.0E-01	6.5E-10	2.2E-10	3.E-10	9.E-11	3.E-10	5.0E-03	5.0E-03	1.5E-09	5.1E-10	3.E-07	1.E-07	0.0000004

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	2.6E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	8.7E-10	3.E-09	2.E-09	5.E-09	2.0E-05	2.0E-05	3.4E-09	2.0E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	3.8E-14	1.1E-13	5.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	8.8E-14	2.5E-13	9.E-05	2.E-04	0.0003
	Total PCB TEQ	6.5E-01	pg/g	1.3E+05	1.3E+05	3.5E-14	2.1E-14	5.E-09	3.E-09	7.E-09	1.0E-09	1.0E-09	8.3E-14	5.0E-14	8.E-05	5.E-05	0.0001
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.6E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.4E-11	3.7E-11	1.E-06	1.E-06	0.000003
	Dieldrin	2.8E-01	ug/kg	1.6E+01	1.6E+01	1.1E-11	9.2E-12	2.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.5E-11	2.1E-11	5.E-07	4.E-07	0.000001
	Total DDT	5.6E+01	ug/kg	3.4E-01	3.4E-01	6.5E-10	1.8E-09	2.E-10	6.E-10	8.E-10	5.0E-04	5.0E-04	1.5E-09	4.2E-09	3.E-06	8.E-06	0.00001
Exposure Point Total										8.E-07							0.1
RM 4 East	**Metals**																
	Arsenic	5.6E+00	mg/kg	1.5E+00	1.5E+00	6.6E-08	1.8E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.5E-07	4.3E-07	5.E-04	1.E-03	0.002
	Mercury	9.6E-02	mg/kg	--	--	0.0E+00	3.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.3E-09	0.E+00	7.E-05	0.00007
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	3.6E+01	ug/kg	--	--	1.4E-09	1.2E-09	--	--	--	3.0E-04	3.0E-04	3.3E-09	2.8E-09	1.E-05	9.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	7.9E-08	5.1E-08	6.E-08	4.E-08	9.E-08	--	--	1.8E-07	1.2E-07	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.1E-07	7.3E-08	8.E-07	5.E-07	1.E-06	--	--	2.6E-07	1.7E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.4E-08	8.E-08	5.E-08	1.E-07	--	--	2.7E-07	1.7E-07	--	--	--
	Benzo(k)fluoranthene	1.8E+03	ug/kg	7.3E-02	7.3E-02	9.2E-08	6.0E-08	7.E-09	4.E-09	1.E-08	--	--	2.2E-07	1.4E-07	--	--	--
	Dibenzo(a,h)anthracene	3.7E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.2E-08	1.E-07	9.E-08	2.E-07	--	--	4.3E-08	2.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	8.5E-08	5.5E-08	6.E-08	4.E-08	1.E-07	--	--	2.0E-07	1.3E-07	--	--	--
	Naphthalene	7.4E+01	ug/kg	--	--	3.7E-09	2.4E-09	--	--	--	2.0E-02	2.0E-02	8.7E-09	5.6E-09	4.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+03	ug/kg	1.4E-02	1.4E-02	1.3E-07	1.1E-07	2.E-09	1.E-09	3.E-09	2.0E-02	2.0E-02	3.0E-07	2.5E-07	1.E-05	1.E-05	0.00003
	Phenols																
	Pentachlorophenol	4.3E+03	ug/kg	4.0E-01	4.0E-01	4.2E-07	1.4E-07	2.E-07	6.E-08	2.E-07	5.0E-03	5.0E-03	9.8E-07	3.3E-07	2.E-04	7.E-05	0.0003
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	2.0E-08	1.2E-08	4.E-08	2.E-08	6.E-08	2.0E-05	2.0E-05	4.6E-08	2.7E-08	2.E-03	1.E-03	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	1.3E+05	1.3E+05	8.1E-14	2.3E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	1.9E-13	5.3E-13	2.E-04	5.E-04	0.0007
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.8E-13	1.1E-13	2.E-08	1.E-08	4.E-08	1.0E-09	1.0E-09	4.3E-13	2.6E-13	4.E-04	3.E-04	0.0007

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	7.9E-01	ug/kg	1.7E+01	1.7E+01	3.1E-11	2.6E-11	5.E-10	4.E-10	1.E-09	3.0E-05	3.0E-05	7.1E-11	6.0E-11	2.E-06	2.E-06	0.000004
	Dieldrin	1.6E-01	ug/kg	1.6E+01	1.6E+01	6.1E-12	5.1E-12	1.E-10	8.E-11	2.E-10	5.0E-05	5.0E-05	1.4E-11	1.2E-11	3.E-07	2.E-07	0.000001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.4E-10	3.9E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	3.2E-10	9.0E-10	6.E-07	2.E-06	0.000002
Exposure Point Total										3.E-06							0.1
RM 4.5 West	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	5.7E-08	1.6E-07	9.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.7E-07	4.E-04	1.E-03	0.002
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	5.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.6E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.4E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.4E+01	ug/kg	--	--	5.4E-10	4.6E-10	--	--	--	3.0E-04	3.0E-04	1.3E-09	1.1E-09	4.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	7.9E-08	5.1E-08	6.E-08	4.E-08	9.E-08	--	--	1.8E-07	1.2E-07	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.1E-07	7.1E-08	8.E-07	5.E-07	1.E-06	--	--	2.5E-07	1.6E-07	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	7.6E-08	4.9E-08	6.E-08	4.E-08	9.E-08	--	--	1.8E-07	1.1E-07	--	--	--
	Benzo(k)fluoranthene	6.2E+02	ug/kg	7.3E-02	7.3E-02	3.2E-08	2.0E-08	2.E-09	1.E-09	4.E-09	--	--	7.4E-08	4.8E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.6E-09	9.E-08	6.E-08	1.E-07	--	--	2.7E-08	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	8.4E-08	5.5E-08	6.E-08	4.E-08	1.E-07	--	--	2.0E-07	1.3E-07	--	--	--
	Naphthalene	3.9E+02	ug/kg	--	--	2.0E-08	1.3E-08	--	--	--	2.0E-02	2.0E-02	4.6E-08	3.0E-08	2.E-06	1.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.0E+01	ug/kg	1.4E-02	1.4E-02	2.7E-09	2.3E-09	4.E-11	3.E-11	7.E-11	2.0E-02	2.0E-02	6.3E-09	5.3E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.3E+00	ug/kg	4.0E-01	4.0E-01	2.2E-10	7.4E-11	9.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	5.1E-10	1.7E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+01	ug/kg	2.0E+00	2.0E+00	2.1E-09	1.3E-09	4.E-09	3.E-09	7.E-09	2.0E-05	2.0E-05	4.9E-09	2.9E-09	2.E-04	1.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	1.3E+05	1.3E+05	7.9E-14	2.2E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	1.9E-13	5.2E-13	2.E-04	5.E-04	0.0007
	Total PCB TEQ	2.5E+00	pg/g	1.3E+05	1.3E+05	1.4E-13	8.2E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	3.2E-13	1.9E-13	3.E-04	2.E-04	0.0005
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	4.7E-11	3.9E-11	8.E-10	7.E-10	1.E-09	3.0E-05	3.0E-05	1.1E-10	9.2E-11	4.E-06	3.E-06	0.00001
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	7.1E-12	6.0E-12	1.E-10	1.E-10	2.E-10	5.0E-05	5.0E-05	1.7E-11	1.4E-11	3.E-07	3.E-07	0.000001
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	3.2E-10	9.0E-10	1.E-10	3.E-10	4.E-10	5.0E-04	5.0E-04	7.5E-10	2.1E-09	1.E-06	4.E-06	0.00001
Exposure Point Total										2.E-06							0.1
RM 4.5 East	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	5.7E-08	1.6E-07	9.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.8E-07	4.E-04	1.E-03	0.002
	Mercury	7.3E-02	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.6E-09	0.E+00	6.E-05	0.00006
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.3E-06	0.E+00	1.E-01	0.1

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	7.2E+01	ug/kg	--	--	2.8E-09	2.4E-09	--	--	--	3.0E-04	3.0E-04	6.5E-09	5.5E-09	2.E-05	2.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+04	ug/kg	7.3E-01	7.3E-01	1.0E-06	6.5E-07	7.E-07	5.E-07	1.E-06	--	--	2.3E-06	1.5E-06	--	--	--
	Benzo(a)pyrene	8.7E+03	ug/kg	7.3E+00	7.3E+00	4.4E-07	2.8E-07	3.E-06	2.E-06	5.E-06	--	--	1.0E-06	6.6E-07	--	--	--
	Benzo(b)fluoranthene	7.5E+03	ug/kg	7.3E-01	7.3E-01	3.8E-07	2.5E-07	3.E-07	2.E-07	5.E-07	--	--	8.9E-07	5.7E-07	--	--	--
	Benzo(k)fluoranthene	6.9E+03	ug/kg	7.3E-02	7.3E-02	3.5E-07	2.3E-07	3.E-08	2.E-08	4.E-08	--	--	8.2E-07	5.3E-07	--	--	--
	Dibenzo(a,h)anthracene	1.4E+03	ug/kg	7.3E+00	7.3E+00	7.2E-08	4.7E-08	5.E-07	3.E-07	9.E-07	--	--	1.7E-07	1.1E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E+03	ug/kg	7.3E-01	7.3E-01	3.1E-07	2.0E-07	2.E-07	1.E-07	4.E-07	--	--	7.1E-07	4.6E-07	--	--	--
	Naphthalene	4.4E+02	ug/kg	--	--	2.2E-08	1.4E-08	--	--	--	2.0E-02	2.0E-02	5.2E-08	3.4E-08	3.E-06	2.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.8E-09	4.1E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.1E-08	9.5E-09	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	3.1E-10	1.0E-10	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	7.3E-10	2.4E-10	1.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+01	ug/kg	2.0E+00	2.0E+00	2.4E-09	1.4E-09	5.E-09	3.E-09	8.E-09	2.0E-05	2.0E-05	5.6E-09	3.4E-09	3.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	3.2E-15	9.0E-15	4.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	7.5E-15	2.1E-14	8.E-06	2.E-05	0.00003
	Total PCB TEQ	3.4E-01	pg/g	1.3E+05	1.3E+05	1.8E-14	1.1E-14	2.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	4.3E-14	2.6E-14	4.E-05	3.E-05	0.00007
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	5.9E-12	5.0E-12	1.E-10	8.E-11	2.E-10	3.0E-05	3.0E-05	1.4E-11	1.2E-11	5.E-07	4.E-07	0.000001
	Dieldrin	8.4E-02	ug/kg	1.6E+01	1.6E+01	3.2E-12	2.7E-12	5.E-11	4.E-11	1.E-10	5.0E-05	5.0E-05	7.6E-12	6.4E-12	2.E-07	1.E-07	0.0000003
	Total DDT	8.7E+00	ug/kg	3.4E-01	3.4E-01	1.0E-10	2.8E-10	3.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	2.4E-10	6.6E-10	5.E-07	1.E-06	0.000002
Exposure Point Total										9.E-06							0.1
RM 5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	4.4E-08	1.2E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.0E-07	2.9E-07	3.E-04	1.E-03	0.001
	Mercury	6.0E-02	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.6E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.8E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.1E+01	ug/kg	--	--	8.2E-10	6.9E-10	--	--	--	3.0E-04	3.0E-04	1.9E-09	1.6E-09	6.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E+03	ug/kg	7.3E-01	7.3E-01	1.7E-07	1.1E-07	1.E-07	8.E-08	2.E-07	--	--	4.0E-07	2.6E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	2.3E-07	1.5E-07	2.E-06	1.E-06	3.E-06	--	--	5.3E-07	3.4E-07	--	--	--
	Benzo(b)fluoranthene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	9.8E-08	1.E-07	7.E-08	2.E-07	--	--	3.5E-07	2.3E-07	--	--	--
	Benzo(k)fluoranthene	5.7E+02	ug/kg	7.3E-02	7.3E-02	2.9E-08	1.9E-08	2.E-09	1.E-09	3.E-09	--	--	6.7E-08	4.4E-08	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.5E-09	8.E-08	5.E-08	1.E-07	--	--	2.7E-08	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.7E-07	1.1E-07	1.E-07	8.E-08	2.E-07	--	--	3.9E-07	2.5E-07	--	--	--
	Naphthalene	4.2E+02	ug/kg	--	--	2.1E-08	1.4E-08	--	--	--	2.0E-02	2.0E-02	5.0E-08	3.2E-08	2.E-06	2.E-06	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+01	ug/kg	1.4E-02	1.4E-02	3.5E-09	3.0E-09	5.E-11	4.E-11	9.E-11	2.0E-02	2.0E-02	8.2E-09	6.9E-09	4.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.8E-09	6.0E-10	7.E-10	2.E-10	9.E-10	5.0E-03	5.0E-03	4.1E-09	1.4E-09	8.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	8.3E-10	3.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	3.2E-09	1.9E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	6.3E-14	1.8E-13	8.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	1.5E-13	4.1E-13	1.E-04	4.E-04	0.0006
	Total PCB TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	1.1E-13	6.8E-14	1.E-08	9.E-09	2.E-08	1.0E-09	1.0E-09	2.6E-13	1.6E-13	3.E-04	2.E-04	0.0004
	Pesticides																
	Aldrin	1.9E+00	ug/kg	1.7E+01	1.7E+01	7.4E-11	6.2E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	1.7E-10	1.5E-10	6.E-06	5.E-06	0.00001
	Dieldrin	7.8E-01	ug/kg	1.6E+01	1.6E+01	3.0E-11	2.5E-11	5.E-10	4.E-10	9.E-10	5.0E-05	5.0E-05	7.1E-11	5.9E-11	1.E-06	1.E-06	0.000003
	Total DDT	8.2E+01	ug/kg	3.4E-01	3.4E-01	9.5E-10	2.7E-09	3.E-10	9.E-10	1.E-09	5.0E-04	5.0E-04	2.2E-09	6.2E-09	4.E-06	1.E-05	0.00002
Exposure Point Total										4.E-06							0.1
RM 5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.3E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	1.0E-07	2.8E-07	3.E-04	9.E-04	0.001
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	2.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.6E-09	0.E+00	7.E-05	0.00007
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.2E+02	ug/kg	--	--	4.7E-09	3.9E-09	--	--	--	3.0E-04	3.0E-04	1.1E-08	9.2E-09	4.E-05	3.E-05	0.00007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.7E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	3.9E-08	2.5E-08	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	5.6E-08	3.6E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	3.4E-08	2.2E-08	2.E-08	2.E-08	4.E-08	--	--	7.9E-08	5.1E-08	--	--	--
	Benzo(k)fluoranthene	3.0E+02	ug/kg	7.3E-02	7.3E-02	1.5E-08	9.9E-09	1.E-09	7.E-10	2.E-09	--	--	3.6E-08	2.3E-08	--	--	--
	Dibenzo(a,h)anthracene	9.1E+01	ug/kg	7.3E+00	7.3E+00	4.6E-09	3.0E-09	3.E-08	2.E-08	6.E-08	--	--	1.1E-08	7.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.6E-08	2.E-08	1.E-08	3.E-08	--	--	5.7E-08	3.7E-08	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	6.8E-09	4.4E-09	--	--	--	2.0E-02	2.0E-02	1.6E-08	1.0E-08	8.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	5.1E-09	4.3E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.2E-08	1.0E-08	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	1.3E-09	4.4E-10	5.E-10	2.E-10	7.E-10	5.0E-03	5.0E-03	3.1E-09	1.0E-09	6.E-07	2.E-07	0.000001

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	8.3E-10	3.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	3.2E-09	1.9E-09	2.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	8.0E-01	ug/kg	1.7E+01	1.7E+01	3.1E-11	2.6E-11	5.E-10	4.E-10	1.E-09	3.0E-05	3.0E-05	7.2E-11	6.1E-11	2.E-06	2.E-06	0.000004
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	3.1E-11	2.6E-11	5.E-10	4.E-10	9.E-10	5.0E-05	5.0E-05	7.2E-11	6.0E-11	1.E-06	1.E-06	0.000003
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.2E-11	6.1E-11	7.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	5.1E-11	1.4E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										7.E-07							0.1
RM 5.5 West	**Metals**																
	Arsenic	6.1E+00	mg/kg	1.5E+00	1.5E+00	7.1E-08	2.0E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.7E-07	4.6E-07	6.E-04	2.E-03	0.002
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	2.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.1E-09	0.E+00	6.E-05	0.00006
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.0E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	1.7E-09	1.4E-09	--	--	--	3.0E-04	3.0E-04	3.9E-09	3.3E-09	1.E-05	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	9.9E-08	1.E-07	7.E-08	2.E-07	--	--	3.6E-07	2.3E-07	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	2.2E-07	1.4E-07	2.E-06	1.E-06	3.E-06	--	--	5.1E-07	3.3E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.0E-07	1.E-07	7.E-08	2.E-07	--	--	3.6E-07	2.4E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	1.0E-07	6.6E-08	7.E-09	5.E-09	1.E-08	--	--	2.4E-07	1.6E-07	--	--	--
	Dibenzo(a,h)anthracene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.2E-08	1.E-07	8.E-08	2.E-07	--	--	4.1E-08	2.7E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.5E+03	ug/kg	7.3E-01	7.3E-01	1.8E-07	1.1E-07	1.E-07	8.E-08	2.E-07	--	--	4.1E-07	2.7E-07	--	--	--
	Naphthalene	3.3E+02	ug/kg	--	--	1.7E-08	1.1E-08	--	--	--	2.0E-02	2.0E-02	3.9E-08	2.5E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+01	ug/kg	1.4E-02	1.4E-02	7.0E-10	5.9E-10	1.E-11	8.E-12	2.E-11	2.0E-02	2.0E-02	1.6E-09	1.4E-09	8.E-08	7.E-08	0.0000002
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.8E-09	5.9E-10	7.E-10	2.E-10	9.E-10	5.0E-03	5.0E-03	4.1E-09	1.4E-09	8.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+01	ug/kg	2.0E+00	2.0E+00	2.8E-09	1.7E-09	6.E-09	3.E-09	9.E-09	2.0E-05	2.0E-05	6.5E-09	3.9E-09	3.E-04	2.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	1.3E+05	1.3E+05	2.7E-14	7.6E-14	4.E-09	1.E-08	1.E-08	1.0E-09	1.0E-09	6.3E-14	1.8E-13	6.E-05	2.E-04	0.0002
	Total PCB TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	5.9E-14	3.6E-14	8.E-09	5.E-09	1.E-08	1.0E-09	1.0E-09	1.4E-13	8.3E-14	1.E-04	8.E-05	0.0002
	Pesticides																
	Aldrin	6.7E-01	ug/kg	1.7E+01	1.7E+01	2.6E-11	2.2E-11	4.E-10	4.E-10	8.E-10	3.0E-05	3.0E-05	6.1E-11	5.1E-11	2.E-06	2.E-06	0.000004
	Dieldrin	4.1E-01	ug/kg	1.6E+01	1.6E+01	1.6E-11	1.3E-11	3.E-10	2.E-10	5.E-10	5.0E-05	5.0E-05	3.7E-11	3.1E-11	7.E-07	6.E-07	0.000001
	Total DDT	6.2E+01	ug/kg	3.4E-01	3.4E-01	7.2E-10	2.0E-09	2.E-10	7.E-10	9.E-10	5.0E-04	5.0E-04	1.7E-09	4.7E-09	3.E-06	9.E-06	0.00001
Exposure Point Total										4.E-06							0.1

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 East	**Metals**																
	Arsenic	8.9E+00	mg/kg	1.5E+00	1.5E+00	1.0E-07	2.9E-07	2.E-07	4.E-07	6.E-07	3.0E-04	3.0E-04	2.4E-07	6.8E-07	8.E-04	2.E-03	0.003
	Mercury	6.7E-01	mg/kg	--	--	0.0E+00	2.2E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.1E-08	0.E+00	5.E-04	0.0005
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	3.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.9E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	3.2E+02	ug/kg	--	--	1.2E-08	1.0E-08	--	--	--	3.0E-04	3.0E-04	2.9E-08	2.4E-08	1.E-04	8.E-05	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.7E+02	ug/kg	7.3E-01	7.3E-01	2.9E-08	1.9E-08	2.E-08	1.E-08	3.E-08	--	--	6.8E-08	4.4E-08	--	--	--
	Benzo(a)pyrene	7.0E+02	ug/kg	7.3E+00	7.3E+00	3.5E-08	2.3E-08	3.E-07	2.E-07	4.E-07	--	--	8.2E-08	5.3E-08	--	--	--
	Benzo(b)fluoranthene	8.4E+02	ug/kg	7.3E-01	7.3E-01	4.2E-08	2.7E-08	3.E-08	2.E-08	5.E-08	--	--	9.9E-08	6.4E-08	--	--	--
	Benzo(k)fluoranthene	4.4E+02	ug/kg	7.3E-02	7.3E-02	2.2E-08	1.4E-08	2.E-09	1.E-09	3.E-09	--	--	5.2E-08	3.4E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	7.1E-09	4.6E-09	5.E-08	3.E-08	8.E-08	--	--	1.6E-08	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.7E-08	2.E-08	1.E-08	3.E-08	--	--	6.2E-08	4.0E-08	--	--	--
	Naphthalene	3.5E+02	ug/kg	--	--	1.8E-08	1.1E-08	--	--	--	2.0E-02	2.0E-02	4.1E-08	2.7E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+02	ug/kg	1.4E-02	1.4E-02	1.3E-08	1.1E-08	2.E-10	2.E-10	3.E-10	2.0E-02	2.0E-02	3.0E-08	2.5E-08	1.E-06	1.E-06	0.000003
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.7E-09	5.7E-10	7.E-10	2.E-10	9.E-10	5.0E-03	5.0E-03	4.0E-09	1.3E-09	8.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.8E-09	5.9E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	2.3E-08	1.4E-08	1.E-03	7.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	1.3E+05	1.3E+05	1.0E-13	2.9E-13	1.E-08	4.E-08	5.E-08	1.0E-09	1.0E-09	2.4E-13	6.8E-13	2.E-04	7.E-04	0.0009
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	3.2E-13	1.9E-13	4.E-08	2.E-08	7.E-08	1.0E-09	1.0E-09	7.4E-13	4.4E-13	7.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.6E-11	1.3E-11	3.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	3.6E-11	3.0E-11	1.E-06	1.E-06	0.000002
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	2.3E-11	2.0E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	5.4E-11	4.6E-11	1.E-06	9.E-07	0.000002
	Total DDT	2.0E+01	ug/kg	3.4E-01	3.4E-01	2.3E-10	6.4E-10	8.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	5.3E-10	1.5E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										1.E-06							0.1
RM 6 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	4.8E-08	1.3E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	3.1E-07	4.E-04	1.E-03	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.3E+02	mg/kg	--	--	0.0E+00	4.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.6E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.0E+01	ug/kg	--	--	7.7E-10	6.5E-10	--	--	--	3.0E-04	3.0E-04	1.8E-09	1.5E-09	6.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+04	ug/kg	7.3E-01	7.3E-01	2.4E-06	1.6E-06	2.E-06	1.E-06	3.E-06	--	--	5.6E-06	3.6E-06	--	--	--
	Benzo(a)pyrene	5.8E+04	ug/kg	7.3E+00	7.3E+00	2.9E-06	1.9E-06	2.E-05	1.E-05	4.E-05	--	--	6.8E-06	4.4E-06	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	4.3E+04	ug/kg	7.3E-01	7.3E-01	2.2E-06	1.4E-06	2.E-06	1.E-06	3.E-06	--	--	5.0E-06	3.3E-06	--	--	--
	Benzo(k)fluoranthene	2.7E+04	ug/kg	7.3E-02	7.3E-02	1.4E-06	8.8E-07	1.E-07	6.E-08	2.E-07	--	--	3.2E-06	2.1E-06	--	--	--
	Dibenzo(a,h)anthracene	5.4E+03	ug/kg	7.3E+00	7.3E+00	2.7E-07	1.8E-07	2.E-06	1.E-06	3.E-06	--	--	6.3E-07	4.1E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+04	ug/kg	7.3E-01	7.3E-01	2.0E-06	1.3E-06	1.E-06	1.E-06	2.E-06	--	--	4.7E-06	3.1E-06	--	--	--
	Naphthalene	4.4E+04	ug/kg	--	--	2.2E-06	1.5E-06	--	--	--	2.0E-02	2.0E-02	5.2E-06	3.4E-06	3.E-04	2.E-04	0.0004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.8E+02	ug/kg	1.4E-02	1.4E-02	1.5E-08	1.2E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	3.4E-08	2.9E-08	2.E-06	1.E-06	0.000003
	Phenols																
	Pentachlorophenol	3.5E+01	ug/kg	4.0E-01	4.0E-01	3.4E-09	1.1E-09	1.E-09	5.E-10	2.E-09	5.0E-03	5.0E-03	7.9E-09	2.6E-09	2.E-06	5.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	6.1E+01	ug/kg	2.0E+00	2.0E+00	3.3E-09	2.0E-09	7.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	7.8E-09	4.7E-09	4.E-04	2.E-04	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	1.8E-14	5.0E-14	2.E-09	6.E-09	9.E-09	1.0E-09	1.0E-09	4.2E-14	1.2E-13	4.E-05	1.E-04	0.0002
	Total PCB TEQ	2.8E+00	pg/g	1.3E+05	1.3E+05	1.5E-13	9.2E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	3.6E-13	2.2E-13	4.E-04	2.E-04	0.0006
	Pesticides																
	Aldrin	2.3E+00	ug/kg	1.7E+01	1.7E+01	9.1E-11	7.7E-11	2.E-09	1.E-09	3.E-09	3.0E-05	3.0E-05	2.1E-10	1.8E-10	7.E-06	6.E-06	0.00001
	Dieldrin	1.8E+00	ug/kg	1.6E+01	1.6E+01	7.1E-11	6.0E-11	1.E-09	1.E-09	2.E-09	5.0E-05	5.0E-05	1.7E-10	1.4E-10	3.E-06	3.E-06	0.00001
	Total DDT	8.1E+01	ug/kg	3.4E-01	3.4E-01	9.5E-10	2.7E-09	3.E-10	9.E-10	1.E-09	5.0E-04	5.0E-04	2.2E-09	6.2E-09	4.E-06	1.E-05	0.00002
Exposure Point Total										5.E-05							0.1
RM 6 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	5.1E-08	1.4E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.2E-07	3.3E-07	4.E-04	1.E-03	0.002
	Mercury	4.0E-01	mg/kg	--	--	0.0E+00	1.3E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.1E-08	0.E+00	3.E-04	0.0003
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	3.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	3.5E+02	ug/kg	--	--	1.4E-08	1.1E-08	--	--	--	3.0E-04	3.0E-04	3.2E-08	2.7E-08	1.E-04	9.E-05	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	6.8E-08	4.4E-08	5.E-08	3.E-08	8.E-08	--	--	1.6E-07	1.0E-07	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	9.7E-08	6.3E-08	7.E-07	5.E-07	1.E-06	--	--	2.3E-07	1.5E-07	--	--	--
	Benzo(b)fluoranthene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.1E-07	1.E-07	8.E-08	2.E-07	--	--	3.8E-07	2.5E-07	--	--	--
	Benzo(k)fluoranthene	2.5E+03	ug/kg	7.3E-02	7.3E-02	1.3E-07	8.3E-08	9.E-09	6.E-09	2.E-08	--	--	3.0E-07	1.9E-07	--	--	--
	Dibenzo(a,h)anthracene	2.7E+02	ug/kg	7.3E+00	7.3E+00	1.4E-08	8.8E-09	1.E-07	6.E-08	2.E-07	--	--	3.2E-08	2.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+03	ug/kg	7.3E-01	7.3E-01	5.7E-08	3.7E-08	4.E-08	3.E-08	7.E-08	--	--	1.3E-07	8.6E-08	--	--	--
	Naphthalene	8.4E+02	ug/kg	--	--	4.2E-08	2.7E-08	--	--	--	2.0E-02	2.0E-02	9.9E-08	6.4E-08	5.E-06	3.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	5.4E-09	4.6E-09	8.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.3E-08	1.1E-08	6.E-07	5.E-07	0.000001

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	4.3E-09	1.4E-09	2.E-09	6.E-10	2.E-09	5.0E-03	5.0E-03	1.0E-08	3.4E-09	2.E-06	7.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.5E-09	5.7E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	2.2E-08	1.3E-08	1.E-03	7.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	4.8E-14	1.3E-13	6.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	1.1E-13	3.1E-13	1.E-04	3.E-04	0.0004
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.9E-13	1.1E-13	2.E-08	1.E-08	4.E-08	1.0E-09	1.0E-09	4.3E-13	2.6E-13	4.E-04	3.E-04	0.0007
	Pesticides																
	Aldrin	6.4E-01	ug/kg	1.7E+01	1.7E+01	2.5E-11	2.1E-11	4.E-10	4.E-10	8.E-10	3.0E-05	3.0E-05	5.8E-11	4.9E-11	2.E-06	2.E-06	0.000004
	Dieldrin	1.0E-01	ug/kg	1.6E+01	1.6E+01	3.9E-12	3.3E-12	6.E-11	5.E-11	1.E-10	5.0E-05	5.0E-05	9.1E-12	7.6E-12	2.E-07	2.E-07	0.0000003
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	5.0E-11	1.4E-10	2.E-11	5.E-11	6.E-11	5.0E-04	5.0E-04	1.2E-10	3.2E-10	2.E-07	6.E-07	0.000001
Exposure Point Total										2.E-06							0.1
RM 6.5 West	**Metals**																
	Arsenic	1.4E+01	mg/kg	1.5E+00	1.5E+00	1.6E-07	4.6E-07	2.E-07	7.E-07	9.E-07	3.0E-04	3.0E-04	3.8E-07	1.1E-06	1.E-03	4.E-03	0.005
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	6.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.4E+02	mg/kg	--	--	0.0E+00	4.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-05	0.E+00	2.E-01	0.2
	Butyltins																
	Tributyltin ion	4.6E+01	ug/kg	--	--	1.8E-09	1.5E-09	--	--	--	3.0E-04	3.0E-04	4.2E-09	3.5E-09	1.E-05	1.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+03	ug/kg	7.3E-01	7.3E-01	5.1E-08	3.3E-08	4.E-08	2.E-08	6.E-08	--	--	1.2E-07	7.7E-08	--	--	--
	Benzo(a)pyrene	1.2E+03	ug/kg	7.3E+00	7.3E+00	6.2E-08	4.0E-08	5.E-07	3.E-07	7.E-07	--	--	1.4E-07	9.3E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	7.0E-08	4.5E-08	5.E-08	3.E-08	8.E-08	--	--	1.6E-07	1.1E-07	--	--	--
	Benzo(k)fluoranthene	6.6E+02	ug/kg	7.3E-02	7.3E-02	3.3E-08	2.2E-08	2.E-09	2.E-09	4.E-09	--	--	7.8E-08	5.0E-08	--	--	--
	Dibenzo(a,h)anthracene	4.2E+02	ug/kg	7.3E+00	7.3E+00	2.1E-08	1.4E-08	2.E-07	1.E-07	3.E-07	--	--	5.0E-08	3.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+02	ug/kg	7.3E-01	7.3E-01	4.2E-08	2.7E-08	3.E-08	2.E-08	5.E-08	--	--	9.8E-08	6.3E-08	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	7.0E-09	4.6E-09	--	--	--	2.0E-02	2.0E-02	1.6E-08	1.1E-08	8.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	4.1E-09	3.5E-09	6.E-11	5.E-11	1.E-10	2.0E-02	2.0E-02	9.6E-09	8.1E-09	5.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.4E+00	ug/kg	4.0E-01	4.0E-01	2.3E-10	7.9E-11	9.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	5.4E-10	1.8E-10	1.E-07	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	9.1E+01	ug/kg	2.0E+00	2.0E+00	5.0E-09	3.0E-09	1.E-08	6.E-09	2.E-08	2.0E-05	2.0E-05	1.2E-08	7.0E-09	6.E-04	3.E-04	0.0009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	1.3E-12	3.7E-12	2.E-07	5.E-07	7.E-07	1.0E-09	1.0E-09	3.1E-12	8.6E-12	3.E-03	9.E-03	0.01
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.6E-13	9.7E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	3.8E-13	2.3E-13	4.E-04	2.E-04	0.0006

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	2.5E+00	ug/kg	1.7E+01	1.7E+01	9.7E-11	8.2E-11	2.E-09	1.E-09	3.E-09	3.0E-05	3.0E-05	2.3E-10	1.9E-10	8.E-06	6.E-06	0.00001
	Dieldrin	5.9E-01	ug/kg	1.6E+01	1.6E+01	2.3E-11	1.9E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	5.4E-11	4.5E-11	1.E-06	9.E-07	0.000002
	Total DDT	1.7E+02	ug/kg	3.4E-01	3.4E-01	2.0E-09	5.5E-09	7.E-10	2.E-09	3.E-09	5.0E-04	5.0E-04	4.6E-09	1.3E-08	9.E-06	3.E-05	0.00003
Exposure Point Total										3.E-06							0.2
RM 6.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	6.8E-08	1.9E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.6E-07	4.4E-07	5.E-04	1.E-03	0.002
	Mercury	1.4E+01	mg/kg	--	--	0.0E+00	4.7E-07	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-06	0.E+00	1.E-02	0.01
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.5E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.1E+02	ug/kg	--	--	4.1E-09	3.4E-09	--	--	--	3.0E-04	3.0E-04	9.5E-09	8.0E-09	3.E-05	3.E-05	0.00006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	7.6E-09	9.E-09	6.E-09	1.E-08	--	--	2.8E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	7.5E-09	4.8E-09	5.E-08	4.E-08	9.E-08	--	--	1.7E-08	1.1E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	7.6E-09	9.E-09	6.E-09	1.E-08	--	--	2.8E-08	1.8E-08	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	7.4E-09	4.8E-09	5.E-10	4.E-10	9.E-10	--	--	1.7E-08	1.1E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+01	ug/kg	7.3E+00	7.3E+00	9.6E-10	6.2E-10	7.E-09	5.E-09	1.E-08	--	--	2.2E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+02	ug/kg	7.3E-01	7.3E-01	5.2E-09	3.4E-09	4.E-09	2.E-09	6.E-09	--	--	1.2E-08	7.8E-09	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	6.2E-09	4.0E-09	--	--	--	2.0E-02	2.0E-02	1.4E-08	9.4E-09	7.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.8E-09	4.0E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.1E-08	9.4E-09	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.9E+00	ug/kg	4.0E-01	4.0E-01	4.8E-10	1.6E-10	2.E-10	6.E-11	3.E-10	5.0E-03	5.0E-03	1.1E-09	3.8E-10	2.E-07	8.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+03	ug/kg	2.0E+00	2.0E+00	7.2E-08	4.3E-08	1.E-07	9.E-08	2.E-07	2.0E-05	2.0E-05	1.7E-07	1.0E-07	8.E-03	5.E-03	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	1.3E+05	1.3E+05	1.0E-12	2.9E-12	1.E-07	4.E-07	5.E-07	1.0E-09	1.0E-09	2.4E-12	6.8E-12	2.E-03	7.E-03	0.009
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	7.2E-13	4.4E-13	9.E-08	6.E-08	2.E-07	1.0E-09	1.0E-09	1.7E-12	1.0E-12	2.E-03	1.E-03	0.003
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.1E-11	9.5E-12	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	2.6E-11	2.2E-11	9.E-07	7.E-07	0.000002
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	7.6E-12	6.4E-12	1.E-10	1.E-10	2.E-10	5.0E-05	5.0E-05	1.8E-11	1.5E-11	4.E-07	3.E-07	0.000001
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.5E-09	4.2E-09	5.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	3.5E-09	9.8E-09	7.E-06	2.E-05	0.00003
Exposure Point Total										1.E-06							0.2
RM 7 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	6.2E-08	1.7E-07	9.E-08	3.E-07	4.E-07	3.0E-04	3.0E-04	1.4E-07	4.0E-07	5.E-04	1.E-03	0.002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.5E-09	0.E+00	9.E-05	0.00009
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.9E-06	0.E+00	1.E-01	0.1

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	6.4E+00	ug/kg	--	--	2.5E-10	2.1E-10	--	--	--	3.0E-04	3.0E-04	5.8E-10	4.9E-10	2.E-06	2.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.2E-08	8.E-08	5.E-08	1.E-07	--	--	2.6E-07	1.7E-07	--	--	--
	Benzo(a)pyrene	1.7E+03	ug/kg	7.3E+00	7.3E+00	8.6E-08	5.6E-08	6.E-07	4.E-07	1.E-06	--	--	2.0E-07	1.3E-07	--	--	--
	Benzo(b)fluoranthene	4.5E+03	ug/kg	7.3E-01	7.3E-01	2.3E-07	1.5E-07	2.E-07	1.E-07	3.E-07	--	--	5.3E-07	3.4E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+03	ug/kg	7.3E-02	7.3E-02	7.2E-08	4.7E-08	5.E-09	3.E-09	9.E-09	--	--	1.7E-07	1.1E-07	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	3.6E-08	2.3E-08	3.E-07	2.E-07	4.E-07	--	--	8.4E-08	5.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+03	ug/kg	7.3E-01	7.3E-01	7.0E-08	4.5E-08	5.E-08	3.E-08	8.E-08	--	--	1.6E-07	1.1E-07	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	5.5E-10	3.6E-10	--	--	--	2.0E-02	2.0E-02	1.3E-09	8.4E-10	6.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.7E+02	ug/kg	1.4E-02	1.4E-02	1.1E-08	9.0E-09	1.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	2.5E-08	2.1E-08	1.E-06	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	4.3E-09	1.4E-09	2.E-09	6.E-10	2.E-09	5.0E-03	5.0E-03	1.0E-08	3.4E-09	2.E-06	7.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	9.3E+01	ug/kg	2.0E+00	2.0E+00	5.0E-09	3.0E-09	1.E-08	6.E-09	2.E-08	2.0E-05	2.0E-05	1.2E-08	7.1E-09	6.E-04	4.E-04	0.0009
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	1.3E+05	1.3E+05	1.6E-10	4.6E-10	2.E-05	6.E-05	8.E-05	1.0E-09	1.0E-09	3.8E-10	1.1E-09	4.E-01	1.E+00	1
	Total PCB TEQ	2.7E+01	pg/g	1.3E+05	1.3E+05	1.4E-12	8.7E-13	2.E-07	1.E-07	3.E-07	1.0E-09	1.0E-09	3.4E-12	2.0E-12	3.E-03	2.E-03	0.005
	Pesticides																
	Aldrin	1.9E+02	ug/kg	1.7E+01	1.7E+01	7.5E-09	6.3E-09	1.E-07	1.E-07	2.E-07	3.0E-05	3.0E-05	1.7E-08	1.5E-08	6.E-04	5.E-04	0.001
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	7.9E-11	6.7E-11	1.E-09	1.E-09	2.E-09	5.0E-05	5.0E-05	1.8E-10	1.6E-10	4.E-06	3.E-06	0.00001
	Total DDT	6.3E+03	ug/kg	3.4E-01	3.4E-01	7.3E-08	2.1E-07	2.E-08	7.E-08	9.E-08	5.0E-04	5.0E-04	1.7E-07	4.8E-07	3.E-04	1.E-03	0.001
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	9.0E-06	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.1E-05	0.E+00	3.E-02	0.03
Exposure Point Total										8.E-05							2
RM 7 East	**Metals**																
	Arsenic	1.5E+01	mg/kg	1.5E+00	1.5E+00	1.7E-07	4.8E-07	3.E-07	7.E-07	1.E-06	3.0E-04	3.0E-04	4.0E-07	1.1E-06	1.E-03	4.E-03	0.005
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	2.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.2E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.3E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.0E+03	ug/kg	--	--	4.0E-08	3.4E-08	--	--	--	3.0E-04	3.0E-04	9.4E-08	7.9E-08	3.E-04	3.E-04	0.0006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.2E+02	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.4E-08	2.E-08	1.E-08	3.E-08	--	--	4.9E-08	3.2E-08	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.9E-08	1.9E-08	2.E-07	1.E-07	4.E-07	--	--	6.9E-08	4.5E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	3.4E-08	2.2E-08	2.E-08	2.E-08	4.E-08	--	--	7.9E-08	5.1E-08	--	--	--
	Benzo(k)fluoranthene	6.5E+02	ug/kg	7.3E-02	7.3E-02	3.3E-08	2.1E-08	2.E-09	2.E-09	4.E-09	--	--	7.6E-08	4.9E-08	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	9.5E-09	6.1E-09	7.E-08	4.E-08	1.E-07	--	--	2.2E-08	1.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.3E-08	1.E-08	9.E-09	2.E-08	--	--	4.6E-08	3.0E-08	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	2.3E-09	1.5E-09	--	--	--	2.0E-02	2.0E-02	5.3E-09	3.4E-09	3.E-07	2.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	5.1E-08	4.3E-08	7.E-10	6.E-10	1.E-09	2.0E-02	2.0E-02	1.2E-07	1.0E-07	6.E-06	5.E-06	0.00001
	Phenols																
	Pentachlorophenol	1.2E+02	ug/kg	4.0E-01	4.0E-01	1.1E-08	3.9E-09	5.E-09	2.E-09	6.E-09	5.0E-03	5.0E-03	2.7E-08	9.0E-09	5.E-06	2.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	3.8E-09	2.3E-09	8.E-09	5.E-09	1.E-08	2.0E-05	2.0E-05	8.9E-09	5.4E-09	4.E-04	3.E-04	0.0007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	1.3E+05	1.3E+05	4.7E-13	1.3E-12	6.E-08	2.E-07	2.E-07	1.0E-09	1.0E-09	1.1E-12	3.0E-12	1.E-03	3.E-03	0.004
	Total PCB TEQ	7.4E-01	pg/g	1.3E+05	1.3E+05	4.0E-14	2.4E-14	5.E-09	3.E-09	8.E-09	1.0E-09	1.0E-09	9.4E-14	5.6E-14	9.E-05	6.E-05	0.0002
	Pesticides																
	Aldrin	4.6E-01	ug/kg	1.7E+01	1.7E+01	1.8E-11	1.5E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.2E-11	3.5E-11	1.E-06	1.E-06	0.000003
	Dieldrin	1.2E-01	ug/kg	1.6E+01	1.6E+01	4.5E-12	3.8E-12	7.E-11	6.E-11	1.E-10	5.0E-05	5.0E-05	1.0E-11	8.8E-12	2.E-07	2.E-07	0.0000004
	Total DDT	1.3E+01	ug/kg	3.4E-01	3.4E-01	1.5E-10	4.2E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	3.5E-10	9.8E-10	7.E-07	2.E-06	0.000003
Exposure Point Total										2.E-06							0.1
RM 7.5 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.3E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	1.0E-07	2.8E-07	3.E-04	9.E-04	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.0E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	9.7E+00	ug/kg	--	--	3.8E-10	3.2E-10	--	--	--	3.0E-04	3.0E-04	8.8E-10	7.4E-10	3.E-06	2.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+02	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.4E-08	2.E-08	1.E-08	3.E-08	--	--	5.1E-08	3.3E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.7E-08	1.1E-08	1.E-07	8.E-08	2.E-07	--	--	4.0E-08	2.6E-08	--	--	--
	Benzo(b)fluoranthene	4.6E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.5E-08	3.5E-08	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	6.5E-09	4.2E-09	5.E-10	3.E-10	8.E-10	--	--	1.5E-08	9.9E-09	--	--	--
	Dibenzo(a,h)anthracene	5.0E+01	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	5.9E-09	3.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E+02	ug/kg	7.3E-01	7.3E-01	9.6E-09	6.2E-09	7.E-09	5.E-09	1.E-08	--	--	2.2E-08	1.4E-08	--	--	--
	Naphthalene	3.3E+01	ug/kg	--	--	1.7E-09	1.1E-09	--	--	--	2.0E-02	2.0E-02	3.9E-09	2.5E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	7.1E-09	6.0E-09	1.E-10	8.E-11	2.E-10	2.0E-02	2.0E-02	1.7E-08	1.4E-08	8.E-07	7.E-07	0.000002
	Phenols																
	Pentachlorophenol	2.1E+00	ug/kg	4.0E-01	4.0E-01	2.0E-10	6.8E-11	8.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	4.7E-10	1.6E-10	9.E-08	3.E-08	0.0000001

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+02	ug/kg	2.0E+00	2.0E+00	1.4E-08	8.2E-09	3.E-08	2.E-08	4.E-08	2.0E-05	2.0E-05	3.2E-08	1.9E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	3.0E-14	8.5E-14	4.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	7.1E-14	2.0E-13	7.E-05	2.E-04	0.0003
	Total PCB TEQ	9.2E-01	pg/g	1.3E+05	1.3E+05	5.0E-14	3.0E-14	7.E-09	4.E-09	1.E-08	1.0E-09	1.0E-09	1.2E-13	7.0E-14	1.E-04	7.E-05	0.0002
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.1E-11	9.4E-12	2.E-10	2.E-10	3.E-10	3.0E-05	3.0E-05	2.6E-11	2.2E-11	9.E-07	7.E-07	0.000002
	Dieldrin	7.7E-01	ug/kg	1.6E+01	1.6E+01	3.0E-11	2.5E-11	5.E-10	4.E-10	9.E-10	5.0E-05	5.0E-05	7.0E-11	5.9E-11	1.E-06	1.E-06	0.000003
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.5E-09	4.2E-09	5.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	3.5E-09	9.8E-09	7.E-06	2.E-05	0.00003
Exposure Point Total										6.E-07							0.1
RM 7.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	4.9E-08	1.4E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	3.2E-07	4.E-04	1.E-03	0.001
	Mercury	1.0E-01	mg/kg	--	--	0.0E+00	3.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.6E-09	0.E+00	8.E-05	0.00008
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.3E+02	ug/kg	--	--	8.9E-09	7.5E-09	--	--	--	3.0E-04	3.0E-04	2.1E-08	1.7E-08	7.E-05	6.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.0E-09	1.3E-09	1.E-09	9.E-10	2.E-09	--	--	4.7E-09	3.0E-09	--	--	--
	Benzo(a)pyrene	3.5E+01	ug/kg	7.3E+00	7.3E+00	1.8E-09	1.2E-09	1.E-08	8.E-09	2.E-08	--	--	4.2E-09	2.7E-09	--	--	--
	Benzo(b)fluoranthene	4.4E+01	ug/kg	7.3E-01	7.3E-01	2.2E-09	1.4E-09	2.E-09	1.E-09	3.E-09	--	--	5.2E-09	3.4E-09	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	1.6E-09	1.0E-09	1.E-10	7.E-11	2.E-10	--	--	3.7E-09	2.4E-09	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	5.5E-10	3.6E-10	4.E-09	3.E-09	7.E-09	--	--	1.3E-09	8.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.2E-09	7.8E-10	9.E-10	6.E-10	1.E-09	--	--	2.8E-09	1.8E-09	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	5.6E-10	3.6E-10	--	--	--	2.0E-02	2.0E-02	1.3E-09	8.4E-10	6.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+03	ug/kg	1.4E-02	1.4E-02	1.4E-07	1.2E-07	2.E-09	2.E-09	4.E-09	2.0E-02	2.0E-02	3.3E-07	2.8E-07	2.E-05	1.E-05	0.00003
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+01	ug/kg	2.0E+00	2.0E+00	2.5E-09	1.5E-09	5.E-09	3.E-09	8.E-09	2.0E-05	2.0E-05	5.7E-09	3.4E-09	3.E-04	2.E-04	0.0005
	Pesticides																
	Dieldrin	3.4E-01	ug/kg	1.6E+01	1.6E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	3.1E-11	2.6E-11	6.E-07	5.E-07	0.000001
	Total DDT	3.3E+00	ug/kg	3.4E-01	3.4E-01	3.9E-11	1.1E-10	1.E-11	4.E-11	5.E-11	5.0E-04	5.0E-04	9.1E-11	2.5E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										3.E-07							0.1
RM 8 West	**Metals**																
	Arsenic	8.0E+00	mg/kg	1.5E+00	1.5E+00	9.3E-08	2.6E-07	1.E-07	4.E-07	5.E-07	3.0E-04	3.0E-04	2.2E-07	6.1E-07	7.E-04	2.E-03	0.003
	Mercury	3.3E-01	mg/kg	--	--	0.0E+00	1.1E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.5E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.8E-06	0.E+00	1.E-01	0.1

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	2.5E+01	ug/kg	--	--	9.6E-10	8.1E-10	--	--	--	3.0E-04	3.0E-04	2.2E-09	1.9E-09	7.E-06	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	1.8E-08	2.E-08	1.E-08	3.E-08	--	--	6.5E-08	4.2E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	2.5E-08	1.6E-08	2.E-07	1.E-07	3.E-07	--	--	5.8E-08	3.7E-08	--	--	--
	Benzo(b)fluoranthene	6.9E+02	ug/kg	7.3E-01	7.3E-01	3.5E-08	2.2E-08	3.E-08	2.E-08	4.E-08	--	--	8.1E-08	5.2E-08	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	6.2E-09	4.0E-09	5.E-10	3.E-10	7.E-10	--	--	1.5E-08	9.4E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	7.0E-09	4.5E-09	5.E-08	3.E-08	8.E-08	--	--	1.6E-08	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	8.E-09	2.E-08	--	--	3.7E-08	2.4E-08	--	--	--
	Naphthalene	8.1E+01	ug/kg	--	--	4.1E-09	2.6E-09	--	--	--	2.0E-02	2.0E-02	9.5E-09	6.2E-09	5.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+03	ug/kg	1.4E-02	1.4E-02	1.2E-07	9.8E-08	2.E-09	1.E-09	3.E-09	2.0E-02	2.0E-02	2.7E-07	2.3E-07	1.E-05	1.E-05	0.00003
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	1.5E-09	4.9E-10	6.E-10	2.E-10	8.E-10	5.0E-03	5.0E-03	3.4E-09	1.2E-09	7.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+02	ug/kg	2.0E+00	2.0E+00	2.2E-08	1.3E-08	4.E-08	3.E-08	7.E-08	2.0E-05	2.0E-05	5.1E-08	3.1E-08	3.E-03	2.E-03	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.3E+05	1.3E+05	5.0E-15	1.4E-14	6.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	1.2E-14	3.2E-14	1.E-05	3.E-05	0.00004
	Total PCB TEQ	6.1E+00	pg/g	1.3E+05	1.3E+05	3.3E-13	2.0E-13	4.E-08	3.E-08	7.E-08	1.0E-09	1.0E-09	7.7E-13	4.6E-13	8.E-04	5.E-04	0.001
	Pesticides																
	Aldrin	1.2E-01	ug/kg	1.7E+01	1.7E+01	4.5E-12	3.8E-12	8.E-11	6.E-11	1.E-10	3.0E-05	3.0E-05	1.0E-11	8.8E-12	3.E-07	3.E-07	0.000001
	Dieldrin	4.6E+00	ug/kg	1.6E+01	1.6E+01	1.8E-10	1.5E-10	3.E-09	2.E-09	5.E-09	5.0E-05	5.0E-05	4.1E-10	3.5E-10	8.E-06	7.E-06	0.00002
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	2.5E-10	6.9E-10	8.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	5.8E-10	1.6E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										1.E-06							0.1
RM 8 East	**Metals**																
	Arsenic	9.1E+00	mg/kg	1.5E+00	1.5E+00	1.1E-07	3.0E-07	2.E-07	4.E-07	6.E-07	3.0E-04	3.0E-04	2.5E-07	6.9E-07	8.E-04	2.E-03	0.003
	Mercury	2.2E-01	mg/kg	--	--	0.0E+00	7.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.3E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	5.8E+03	ug/kg	--	--	2.3E-07	1.9E-07	--	--	--	3.0E-04	3.0E-04	5.3E-07	4.4E-07	2.E-03	1.E-03	0.003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+02	ug/kg	7.3E-01	7.3E-01	2.5E-08	1.6E-08	2.E-08	1.E-08	3.E-08	--	--	5.8E-08	3.8E-08	--	--	--
	Benzo(a)pyrene	5.3E+02	ug/kg	7.3E+00	7.3E+00	2.7E-08	1.7E-08	2.E-07	1.E-07	3.E-07	--	--	6.2E-08	4.0E-08	--	--	--
	Benzo(b)fluoranthene	5.5E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	1.8E-08	2.E-08	1.E-08	3.E-08	--	--	6.5E-08	4.2E-08	--	--	--
	Benzo(k)fluoranthene	3.7E+02	ug/kg	7.3E-02	7.3E-02	1.9E-08	1.2E-08	1.E-09	9.E-10	2.E-09	--	--	4.3E-08	2.8E-08	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	4.0E+01	ug/kg	7.3E+00	7.3E+00	2.0E-09	1.3E-09	1.E-08	1.E-08	2.E-08	--	--	4.7E-09	3.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	4.3E-08	2.8E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.1E-09	7.1E-10	--	--	--	2.0E-02	2.0E-02	2.6E-09	1.7E-09	1.E-07	8.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	5.1E-08	4.3E-08	7.E-10	6.E-10	1.E-09	2.0E-02	2.0E-02	1.2E-07	1.0E-07	6.E-06	5.E-06	0.00001
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	2.6E-09	8.8E-10	1.E-09	4.E-10	1.E-09	5.0E-03	5.0E-03	6.1E-09	2.0E-09	1.E-06	4.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.8E+02	ug/kg	2.0E+00	2.0E+00	3.1E-08	1.9E-08	6.E-08	4.E-08	1.E-07	2.0E-05	2.0E-05	7.3E-08	4.4E-08	4.E-03	2.E-03	0.006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	2.4E-14	6.8E-14	3.E-09	9.E-09	1.E-08	1.0E-09	1.0E-09	5.7E-14	1.6E-13	6.E-05	2.E-04	0.0002
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	9.5E-13	5.7E-13	1.E-07	7.E-08	2.E-07	1.0E-09	1.0E-09	2.2E-12	1.3E-12	2.E-03	1.E-03	0.004
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	1.7E-11	1.5E-11	3.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	4.0E-11	3.4E-11	1.E-06	1.E-06	0.000002
	Dieldrin	4.7E+00	ug/kg	1.6E+01	1.6E+01	1.8E-10	1.5E-10	3.E-09	2.E-09	5.E-09	5.0E-05	5.0E-05	4.2E-10	3.6E-10	8.E-06	7.E-06	0.00002
	Total DDT	9.4E+01	ug/kg	3.4E-01	3.4E-01	1.1E-09	3.1E-09	4.E-10	1.E-09	1.E-09	5.0E-04	5.0E-04	2.5E-09	7.2E-09	5.E-06	1.E-05	0.00002
Exposure Point Total										1.E-06							0.1
RM 8 SIL	**Metals**																
	Arsenic	5.9E+00	mg/kg	1.5E+00	1.5E+00	6.9E-08	1.9E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.6E-07	4.5E-07	5.E-04	2.E-03	0.002
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	4.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.4E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.1E+04	ug/kg	--	--	8.2E-07	6.9E-07	--	--	--	3.0E-04	3.0E-04	1.9E-06	1.6E-06	6.E-03	5.E-03	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.4E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.8E-08	2.E-08	1.E-08	3.E-08	--	--	6.3E-08	4.1E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.2E-08	1.E-07	9.E-08	2.E-07	--	--	4.2E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	7.0E+02	ug/kg	7.3E-01	7.3E-01	3.5E-08	2.3E-08	3.E-08	2.E-08	4.E-08	--	--	8.2E-08	5.3E-08	--	--	--
	Benzo(k)fluoranthene	3.5E+02	ug/kg	7.3E-02	7.3E-02	1.8E-08	1.1E-08	1.E-09	8.E-10	2.E-09	--	--	4.1E-08	2.6E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+01	ug/kg	7.3E+00	7.3E+00	3.6E-09	2.3E-09	3.E-08	2.E-08	4.E-08	--	--	8.4E-09	5.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.8E-09	8.E-09	5.E-09	1.E-08	--	--	2.4E-08	1.6E-08	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.5E-09	9.9E-10	--	--	--	2.0E-02	2.0E-02	3.6E-09	2.3E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.1E+04	ug/kg	1.4E-02	1.4E-02	1.6E-06	1.3E-06	2.E-08	2.E-08	4.E-08	2.0E-02	2.0E-02	3.7E-06	3.1E-06	2.E-04	2.E-04	0.0003
	Phenols																
	Pentachlorophenol	3.3E+01	ug/kg	4.0E-01	4.0E-01	3.2E-09	1.1E-09	1.E-09	4.E-10	2.E-09	5.0E-03	5.0E-03	7.4E-09	2.5E-09	1.E-06	5.E-07	0.000002

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	5.3E+02	ug/kg	2.0E+00	2.0E+00	2.9E-08	1.7E-08	6.E-08	3.E-08	9.E-08	2.0E-05	2.0E-05	6.7E-08	4.0E-08	3.E-03	2.E-03	0.005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	3.9E-13	1.1E-12	5.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	9.0E-13	2.5E-12	9.E-04	3.E-03	0.003
	Total PCB TEQ	8.8E+01	pg/g	1.3E+05	1.3E+05	4.8E-12	2.9E-12	6.E-07	4.E-07	1.E-06	1.0E-09	1.0E-09	1.1E-11	6.7E-12	1.E-02	7.E-03	0.02
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.4E-11	1.2E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	3.2E-11	2.7E-11	1.E-06	9.E-07	0.000002
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	5.5E-11	4.6E-11	9.E-10	7.E-10	2.E-09	5.0E-05	5.0E-05	1.3E-10	1.1E-10	3.E-06	2.E-06	0.000005
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.4E-10	3.9E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	3.2E-10	9.1E-10	6.E-07	2.E-06	0.000002
Exposure Point Total										2.E-06							0.2
RM 8.5 West	**Metals**																
	Arsenic	1.2E+01	mg/kg	1.5E+00	1.5E+00	1.4E-07	3.8E-07	2.E-07	6.E-07	8.E-07	3.0E-04	3.0E-04	3.2E-07	8.9E-07	1.E-03	3.E-03	0.004
	Mercury	4.7E-01	mg/kg	--	--	0.0E+00	1.5E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.6E-08	0.E+00	4.E-04	0.0004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.2E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	6.5E-10	5.4E-10	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.3E-09	5.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	8.9E-09	5.8E-09	7.E-09	4.E-09	1.E-08	--	--	2.1E-08	1.4E-08	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	7.3E-09	8.E-08	5.E-08	1.E-07	--	--	2.6E-08	1.7E-08	--	--	--
	Benzo(b)fluoranthene	1.8E+02	ug/kg	7.3E-01	7.3E-01	9.2E-09	6.0E-09	7.E-09	4.E-09	1.E-08	--	--	2.1E-08	1.4E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.7E-09	3.7E-09	4.E-10	3.E-10	7.E-10	--	--	1.3E-08	8.6E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.4E-10	5.4E-10	6.E-09	4.E-09	1.E-08	--	--	2.0E-09	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	7.6E+01	ug/kg	7.3E-01	7.3E-01	3.8E-09	2.5E-09	3.E-09	2.E-09	5.E-09	--	--	8.9E-09	5.8E-09	--	--	--
	Naphthalene	3.7E+01	ug/kg	--	--	1.9E-09	1.2E-09	--	--	--	2.0E-02	2.0E-02	4.3E-09	2.8E-09	2.E-07	1.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+03	ug/kg	1.4E-02	1.4E-02	6.7E-08	5.7E-08	9.E-10	8.E-10	2.E-09	2.0E-02	2.0E-02	1.6E-07	1.3E-07	8.E-06	7.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	3.8E-10	1.3E-10	2.E-10	5.E-11	2.E-10	5.0E-03	5.0E-03	8.8E-10	3.0E-10	2.E-07	6.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	8.5E+03	ug/kg	2.0E+00	2.0E+00	4.6E-07	2.8E-07	9.E-07	6.E-07	1.E-06	2.0E-05	2.0E-05	1.1E-06	6.5E-07	5.E-02	3.E-02	0.09
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	1.3E+05	1.3E+05	2.1E-13	6.0E-13	3.E-08	8.E-08	1.E-07	1.0E-09	1.0E-09	4.9E-13	1.4E-12	5.E-04	1.E-03	0.002
	Total PCB TEQ	2.4E+02	pg/g	1.3E+05	1.3E+05	1.3E-11	7.8E-12	2.E-06	1.E-06	3.E-06	1.0E-09	1.0E-09	3.0E-11	1.8E-11	3.E-02	2.E-02	0.05

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	3.2E+01	ug/kg	1.7E+01	1.7E+01	1.3E-09	1.1E-09	2.E-08	2.E-08	4.E-08	3.0E-05	3.0E-05	2.9E-09	2.5E-09	1.E-04	8.E-05	0.0002
	Dieldrin	3.9E+01	ug/kg	1.6E+01	1.6E+01	1.5E-09	1.3E-09	2.E-08	2.E-08	4.E-08	5.0E-05	5.0E-05	3.5E-09	2.9E-09	7.E-05	6.E-05	0.0001
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	2.6E-10	7.3E-10	9.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	6.0E-10	1.7E-09	1.E-06	3.E-06	0.000005
Exposure Point Total										5.E-06							0.3
RM 8.5 East	**Metals**																
	Arsenic	9.0E+00	mg/kg	1.5E+00	1.5E+00	1.1E-07	3.0E-07	2.E-07	4.E-07	6.E-07	3.0E-04	3.0E-04	2.5E-07	6.9E-07	8.E-04	2.E-03	0.003
	Mercury	1.8E-01	mg/kg	--	--	0.0E+00	6.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.0E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	3.1E+01	ug/kg	--	--	1.2E-09	1.0E-09	--	--	--	3.0E-04	3.0E-04	2.8E-09	2.3E-09	9.E-06	8.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	4.9E-09	3.2E-09	4.E-09	2.E-09	6.E-09	--	--	1.1E-08	7.4E-09	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	5.1E-09	3.3E-09	4.E-08	2.E-08	6.E-08	--	--	1.2E-08	7.7E-09	--	--	--
	Benzo(b)fluoranthene	1.4E+02	ug/kg	7.3E-01	7.3E-01	6.9E-09	4.4E-09	5.E-09	3.E-09	8.E-09	--	--	1.6E-08	1.0E-08	--	--	--
	Benzo(k)fluoranthene	9.8E+01	ug/kg	7.3E-02	7.3E-02	4.9E-09	3.2E-09	4.E-10	2.E-10	6.E-10	--	--	1.2E-08	7.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	5.8E-10	3.8E-10	4.E-09	3.E-09	7.E-09	--	--	1.4E-09	8.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.0E+01	ug/kg	7.3E-01	7.3E-01	4.1E-09	2.6E-09	3.E-09	2.E-09	5.E-09	--	--	9.5E-09	6.1E-09	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	7.5E-09	4.8E-09	--	--	--	2.0E-02	2.0E-02	1.7E-08	1.1E-08	9.E-07	6.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+02	ug/kg	1.4E-02	1.4E-02	3.6E-08	3.0E-08	5.E-10	4.E-10	9.E-10	2.0E-02	2.0E-02	8.4E-08	7.1E-08	4.E-06	4.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.2E+01	ug/kg	2.0E+00	2.0E+00	3.9E-09	2.4E-09	8.E-09	5.E-09	1.E-08	2.0E-05	2.0E-05	9.2E-09	5.5E-09	5.E-04	3.E-04	0.0007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	1.3E+05	1.3E+05	1.1E-14	3.1E-14	1.E-09	4.E-09	5.E-09	1.0E-09	1.0E-09	2.6E-14	7.2E-14	3.E-05	7.E-05	0.0001
	Total PCB TEQ	5.9E-01	pg/g	1.3E+05	1.3E+05	3.2E-14	1.9E-14	4.E-09	3.E-09	7.E-09	1.0E-09	1.0E-09	7.5E-14	4.5E-14	8.E-05	5.E-05	0.0001
	Pesticides																
	Aldrin	4.1E-02	ug/kg	1.7E+01	1.7E+01	1.6E-12	1.3E-12	3.E-11	2.E-11	5.E-11	3.0E-05	3.0E-05	3.7E-12	3.1E-12	1.E-07	1.E-07	0.0000002
	Dieldrin	4.4E-01	ug/kg	1.6E+01	1.6E+01	1.7E-11	1.4E-11	3.E-10	2.E-10	5.E-10	5.0E-05	5.0E-05	4.0E-11	3.3E-11	8.E-07	7.E-07	0.000001
	Total DDT	2.3E+00	ug/kg	3.4E-01	3.4E-01	2.7E-11	7.5E-11	9.E-12	3.E-11	3.E-11	5.0E-04	5.0E-04	6.2E-11	1.7E-10	1.E-07	3.E-07	0.0000005
Exposure Point Total										7.E-07							0.1
RM 9 West	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	5.8E-08	1.6E-07	9.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.8E-07	4.E-04	1.E-03	0.002
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	7.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.6E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	6.5E-10	5.4E-10	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.3E-09	5.E-06	4.E-06	0.00001

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	8.E-09	2.E-08	--	--	3.7E-08	2.4E-08	--	--	--
	Benzo(a)pyrene	1.9E+02	ug/kg	7.3E+00	7.3E+00	9.7E-09	6.3E-09	7.E-08	5.E-08	1.E-07	--	--	2.3E-08	1.5E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	3.6E-08	2.3E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.8E-09	3.7E-09	4.E-10	3.E-10	7.E-10	--	--	1.3E-08	8.7E-09	--	--	--
	Dibenzo(a,h)anthracene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	5.6E-09	3.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	6.0E-09	3.9E-09	4.E-09	3.E-09	7.E-09	--	--	1.4E-08	9.1E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	1.3E-09	8.2E-10	--	--	--	2.0E-02	2.0E-02	2.9E-09	1.9E-09	1.E-07	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+02	ug/kg	1.4E-02	1.4E-02	1.7E-08	1.5E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	4.0E-08	3.4E-08	2.E-06	2.E-06	0.000004
	Phenols																
	Pentachlorophenol	4.5E+01	ug/kg	4.0E-01	4.0E-01	4.4E-09	1.5E-09	2.E-09	6.E-10	2.E-09	5.0E-03	5.0E-03	1.0E-08	3.4E-09	2.E-06	7.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+03	ug/kg	2.0E+00	2.0E+00	1.3E-07	7.6E-08	3.E-07	2.E-07	4.E-07	2.0E-05	2.0E-05	2.9E-07	1.8E-07	1.E-02	9.E-03	0.02
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	1.3E+05	1.3E+05	6.9E-14	1.9E-13	9.E-09	3.E-08	3.E-08	1.0E-09	1.0E-09	1.6E-13	4.5E-13	2.E-04	5.E-04	0.0006
	Total PCB TEQ	3.2E+01	pg/g	1.3E+05	1.3E+05	1.7E-12	1.0E-12	2.E-07	1.E-07	4.E-07	1.0E-09	1.0E-09	4.1E-12	2.4E-12	4.E-03	2.E-03	0.007
	Pesticides																
	Aldrin	1.4E+00	ug/kg	1.7E+01	1.7E+01	5.5E-11	4.6E-11	9.E-10	8.E-10	2.E-09	3.0E-05	3.0E-05	1.3E-10	1.1E-10	4.E-06	4.E-06	0.00001
	Dieldrin	6.3E-01	ug/kg	1.6E+01	1.6E+01	2.4E-11	2.1E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	5.7E-11	4.8E-11	1.E-06	1.E-06	0.000002
	Total DDT	9.9E+00	ug/kg	3.4E-01	3.4E-01	1.2E-10	3.2E-10	4.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	2.7E-10	7.6E-10	5.E-07	2.E-06	0.000002
Exposure Point Total										1.E-06							0.2
RM 9 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.6E-08	1.6E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.7E-07	4.E-04	1.E-03	0.002
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.7E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	7.0E-10	4.5E-10	5.E-10	3.E-10	8.E-10	--	--	1.6E-09	1.1E-09	--	--	--
	Benzo(a)pyrene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.8E-10	5.7E-10	6.E-09	4.E-09	1.E-08	--	--	2.1E-09	1.3E-09	--	--	--
	Benzo(b)fluoranthene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.2E-09	7.8E-10	9.E-10	6.E-10	1.E-09	--	--	2.8E-09	1.8E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+01	ug/kg	7.3E-02	7.3E-02	5.3E-10	3.5E-10	4.E-11	3.E-11	6.E-11	--	--	1.2E-09	8.1E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	1.5E-10	9.5E-11	1.E-09	7.E-10	2.E-09	--	--	3.4E-10	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	7.3E-10	4.7E-10	5.E-10	3.E-10	9.E-10	--	--	1.7E-09	1.1E-09	--	--	--
	Naphthalene	8.9E+00	ug/kg	--	--	4.5E-10	2.9E-10	--	--	--	2.0E-02	2.0E-02	1.0E-09	6.8E-10	5.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.0E+03	ug/kg	1.4E-02	1.4E-02	7.7E-08	6.5E-08	1.E-09	9.E-10	2.E-09	2.0E-02	2.0E-02	1.8E-07	1.5E-07	9.E-06	8.E-06	0.00002

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	5.5E-09	3.3E-09	1.E-08	7.E-09	2.E-08	2.0E-05	2.0E-05	1.3E-08	7.7E-09	6.E-04	4.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	2.5E-15	7.1E-15	3.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	5.9E-15	1.6E-14	6.E-06	2.E-05	0.00002
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	3.4E-14	2.1E-14	4.E-09	3.E-09	7.E-09	1.0E-09	1.0E-09	8.0E-14	4.8E-14	8.E-05	5.E-05	0.0001
	Pesticides																
	Dieldrin	2.6E-01	ug/kg	1.6E+01	1.6E+01	1.0E-11	8.5E-12	2.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.4E-11	2.0E-11	5.E-07	4.E-07	0.000001
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.3E-11	6.3E-11	8.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	5.3E-11	1.5E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										4.E-07							0.003
RM 9.5 West	**Metals**																
	Arsenic	4.5E+00	mg/kg	1.5E+00	1.5E+00	5.3E-08	1.5E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.2E-07	3.4E-07	4.E-04	1.E-03	0.002
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-09	0.E+00	6.E-05	0.00006
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	3.9E-10	3.3E-10	--	--	--	3.0E-04	3.0E-04	9.1E-10	7.6E-10	3.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.3E-08	8.4E-09	9.E-09	6.E-09	2.E-08	--	--	3.0E-08	2.0E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.2E-08	1.E-07	9.E-08	2.E-07	--	--	4.2E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	5.3E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.7E-08	2.E-08	1.E-08	3.E-08	--	--	6.2E-08	4.0E-08	--	--	--
	Benzo(k)fluoranthene	2.4E+02	ug/kg	7.3E-02	7.3E-02	1.2E-08	7.7E-09	9.E-10	6.E-10	1.E-09	--	--	2.8E-08	1.8E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	6.6E-09	4.3E-09	5.E-08	3.E-08	8.E-08	--	--	1.5E-08	9.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	9.8E-09	1.E-08	7.E-09	2.E-08	--	--	3.5E-08	2.3E-08	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.1E-08	7.3E-09	--	--	--	2.0E-02	2.0E-02	2.6E-08	1.7E-08	1.E-06	8.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.4E+03	ug/kg	1.4E-02	1.4E-02	9.2E-08	7.7E-08	1.E-09	1.E-09	2.E-09	2.0E-02	2.0E-02	2.1E-07	1.8E-07	1.E-05	9.E-06	0.00002
	Phenols																
	Pentachlorophenol	9.8E+01	ug/kg	4.0E-01	4.0E-01	9.5E-09	3.2E-09	4.E-09	1.E-09	5.E-09	5.0E-03	5.0E-03	2.2E-08	7.5E-09	4.E-06	1.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	3.0E+02	ug/kg	2.0E+00	2.0E+00	1.6E-08	9.9E-09	3.E-08	2.E-08	5.E-08	2.0E-05	2.0E-05	3.8E-08	2.3E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.9E-13	5.4E-13	3.E-08	7.E-08	1.E-07	1.0E-09	1.0E-09	4.5E-13	1.3E-12	4.E-04	1.E-03	0.002
	Total PCB TEQ	4.8E+00	pg/g	1.3E+05	1.3E+05	2.6E-13	1.6E-13	3.E-08	2.E-08	5.E-08	1.0E-09	1.0E-09	6.1E-13	3.6E-13	6.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	2.8E+00	ug/kg	1.7E+01	1.7E+01	1.1E-10	9.1E-11	2.E-09	2.E-09	3.E-09	3.0E-05	3.0E-05	2.5E-10	2.1E-10	8.E-06	7.E-06	0.00002
	Dieldrin	4.9E+00	ug/kg	1.6E+01	1.6E+01	1.9E-10	1.6E-10	3.E-09	3.E-09	6.E-09	5.0E-05	5.0E-05	4.4E-10	3.7E-10	9.E-06	7.E-06	0.00002
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	5.3E-11	1.5E-10	2.E-11	5.E-11	7.E-11	5.0E-04	5.0E-04	1.2E-10	3.4E-10	2.E-07	7.E-07	0.000001
Exposure Point Total										9.E-07							0.007

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 9.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.3E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.9E-08	2.8E-07	3.E-04	9.E-04	0.001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	4.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.4E-09	0.E+00	9.E-05	0.00009
	Butyltins																
	Tributyltin ion	3.6E+00	ug/kg	--	--	1.4E-10	1.2E-10	--	--	--	3.0E-04	3.0E-04	3.3E-10	2.7E-10	1.E-06	9.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+01	ug/kg	7.3E-01	7.3E-01	1.5E-09	9.8E-10	1.E-09	7.E-10	2.E-09	--	--	3.5E-09	2.3E-09	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	1.7E-09	1.1E-09	1.E-08	8.E-09	2.E-08	--	--	4.1E-09	2.6E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.0E-09	1.3E-09	1.E-09	1.E-09	2.E-09	--	--	4.7E-09	3.0E-09	--	--	--
	Benzo(k)fluoranthene	2.4E+01	ug/kg	7.3E-02	7.3E-02	1.2E-09	7.8E-10	9.E-11	6.E-11	1.E-10	--	--	2.8E-09	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	4.6E-10	3.0E-10	3.E-09	2.E-09	6.E-09	--	--	1.1E-09	7.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.4E-09	8.9E-10	1.E-09	7.E-10	2.E-09	--	--	3.2E-09	2.1E-09	--	--	--
	Naphthalene	4.8E+00	ug/kg	--	--	2.4E-10	1.6E-10	--	--	--	2.0E-02	2.0E-02	5.7E-10	3.7E-10	3.E-08	2.E-08	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	1.0E-08	8.5E-09	1.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	2.3E-08	2.0E-08	1.E-06	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	3.3E-10	1.1E-10	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	7.7E-10	2.6E-10	2.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	3.1E-09	1.8E-09	6.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	7.1E-09	4.3E-09	4.E-04	2.E-04	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.3E-14	3.7E-14	2.E-09	5.E-09	7.E-09	1.0E-09	1.0E-09	3.1E-14	8.7E-14	3.E-05	9.E-05	0.0001
	Total PCB TEQ	3.3E-01	pg/g	1.3E+05	1.3E+05	1.8E-14	1.1E-14	2.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	4.1E-14	2.5E-14	4.E-05	2.E-05	0.00007
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	1.8E-11	1.5E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.3E-11	3.6E-11	1.E-06	1.E-06	0.000003
	Dieldrin	4.3E-02	ug/kg	1.6E+01	1.6E+01	1.7E-12	1.4E-12	3.E-11	2.E-11	5.E-11	5.0E-05	5.0E-05	3.9E-12	3.3E-12	8.E-08	7.E-08	0.0000001
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	1.8E-11	5.1E-11	6.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	4.2E-11	1.2E-10	8.E-08	2.E-07	0.0000003
Exposure Point Total										3.E-07							0.002
RM 10 West	**Metals**																
	Arsenic	2.9E+01	mg/kg	1.5E+00	1.5E+00	3.4E-07	9.4E-07	5.E-07	1.E-06	2.E-06	3.0E-04	3.0E-04	7.8E-07	2.2E-06	3.E-03	7.E-03	0.01
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.4E-09	0.E+00	8.E-05	0.00008
	Butyltins																
	Tributyltin ion	3.4E+00	ug/kg	--	--	1.3E-10	1.1E-10	--	--	--	3.0E-04	3.0E-04	3.1E-10	2.6E-10	1.E-06	9.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	3.8E-08	2.5E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.7E-08	1.1E-08	1.E-07	8.E-08	2.E-07	--	--	4.0E-08	2.6E-08	--	--	--
	Benzo(b)fluoranthene	4.3E+02	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.4E-08	2.E-08	1.E-08	3.E-08	--	--	5.1E-08	3.3E-08	--	--	--
	Benzo(k)fluoranthene	1.8E+02	ug/kg	7.3E-02	7.3E-02	9.3E-09	6.0E-09	7.E-10	4.E-10	1.E-09	--	--	2.2E-08	1.4E-08	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	3.8E-09	2.4E-09	3.E-08	2.E-08	5.E-08	--	--	8.8E-09	5.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	9.9E-09	1.E-08	7.E-09	2.E-08	--	--	3.6E-08	2.3E-08	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	3.0E-09	1.9E-09	--	--	--	2.0E-02	2.0E-02	6.9E-09	4.5E-09	3.E-07	2.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	7.1E-09	6.0E-09	1.E-10	8.E-11	2.E-10	2.0E-02	2.0E-02	1.7E-08	1.4E-08	8.E-07	7.E-07	0.000002
	Phenols																
	Pentachlorophenol	7.5E+00	ug/kg	4.0E-01	4.0E-01	7.3E-10	2.5E-10	3.E-10	1.E-10	4.E-10	5.0E-03	5.0E-03	1.7E-09	5.7E-10	3.E-07	1.E-07	0.0000005
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+02	ug/kg	2.0E+00	2.0E+00	2.4E-08	1.4E-08	5.E-08	3.E-08	8.E-08	2.0E-05	2.0E-05	5.6E-08	3.4E-08	3.E-03	2.E-03	0.005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	1.3E+05	1.3E+05	1.2E-13	3.2E-13	1.E-08	4.E-08	6.E-08	1.0E-09	1.0E-09	2.7E-13	7.5E-13	3.E-04	8.E-04	0.001
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.6E-13	9.7E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	3.8E-13	2.3E-13	4.E-04	2.E-04	0.0006
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	2.0E-11	1.6E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.6E-11	3.8E-11	2.E-06	1.E-06	0.000003
	Total DDT	6.7E+00	ug/kg	3.4E-01	3.4E-01	7.8E-11	2.2E-10	3.E-11	7.E-11	1.E-10	5.0E-04	5.0E-04	1.8E-10	5.1E-10	4.E-07	1.E-06	0.000001
Exposure Point Total										2.E-06							0.02
RM 10 East	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	4.1E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.5E-08	2.7E-07	3.E-04	9.E-04	0.001
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	2.9E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.9E-09	0.E+00	7.E-05	0.00007
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.7E+02	ug/kg	7.3E-01	7.3E-01	1.4E-08	9.0E-09	1.E-08	7.E-09	2.E-08	--	--	3.2E-08	2.1E-08	--	--	--
	Benzo(a)pyrene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.1E-08	1.E-07	8.E-08	2.E-07	--	--	4.1E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.3E-08	1.E-08	1.E-08	2.E-08	--	--	4.8E-08	3.1E-08	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	5.2E-09	3.4E-09	4.E-10	2.E-10	6.E-10	--	--	1.2E-08	7.9E-09	--	--	--
	Dibenzo(a,h)anthracene	5.2E+01	ug/kg	7.3E+00	7.3E+00	2.6E-09	1.7E-09	2.E-08	1.E-08	3.E-08	--	--	6.1E-09	4.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.4E-08	9.1E-09	1.E-08	7.E-09	2.E-08	--	--	3.3E-08	2.1E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.1E-09	7.3E-10	--	--	--	2.0E-02	2.0E-02	2.6E-09	1.7E-09	1.E-07	9.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	7.4E-09	6.3E-09	1.E-10	9.E-11	2.E-10	2.0E-02	2.0E-02	1.7E-08	1.5E-08	9.E-07	7.E-07	0.000002
	Phenols																
	Pentachlorophenol	3.3E+00	ug/kg	4.0E-01	4.0E-01	3.2E-10	1.1E-10	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	7.5E-10	2.5E-10	1.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.8E+01	ug/kg	2.0E+00	2.0E+00	2.6E-09	1.6E-09	5.E-09	3.E-09	8.E-09	2.0E-05	2.0E-05	6.1E-09	3.7E-09	3.E-04	2.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	6.3E-15	1.8E-14	8.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	1.5E-14	4.1E-14	1.E-05	4.E-05	0.00006
	Total PCB TEQ	8.0E-01	pg/g	1.3E+05	1.3E+05	4.4E-14	2.6E-14	6.E-09	3.E-09	9.E-09	1.0E-09	1.0E-09	1.0E-13	6.1E-14	1.E-04	6.E-05	0.0002

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	8.3E-02	ug/kg	1.7E+01	1.7E+01	3.2E-12	2.7E-12	5.E-11	5.E-11	1.E-10	3.0E-05	3.0E-05	7.5E-12	6.3E-12	3.E-07	2.E-07	0.0000005
	Dieldrin	9.4E-02	ug/kg	1.6E+01	1.6E+01	3.6E-12	3.1E-12	6.E-11	5.E-11	1.E-10	5.0E-05	5.0E-05	8.5E-12	7.1E-12	2.E-07	1.E-07	0.0000003
	Total DDT	7.7E-01	ug/kg	3.4E-01	3.4E-01	9.0E-12	2.5E-11	3.E-12	9.E-12	1.E-11	5.0E-04	5.0E-04	2.1E-11	5.9E-11	4.E-08	1.E-07	0.0000002
Exposure Point Total										6.E-07							0.002
RM 10.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	5.5E-08	1.5E-07	8.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.3E-07	3.6E-07	4.E-04	1.E-03	0.002
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	2.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-09	0.E+00	6.E-05	0.00006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E+01	ug/kg	7.3E-01	7.3E-01	3.1E-09	2.0E-09	2.E-09	1.E-09	4.E-09	--	--	7.2E-09	4.6E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	5.7E-09	3.7E-09	--	--	--
	Benzo(b)fluoranthene	6.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-09	2.2E-09	2.E-09	2.E-09	4.E-09	--	--	8.0E-09	5.2E-09	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	1.0E-09	6.6E-10	7.E-11	5.E-11	1.E-10	--	--	2.4E-09	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	7.9E+00	ug/kg	7.3E+00	7.3E+00	4.0E-10	2.6E-10	3.E-09	2.E-09	5.E-09	--	--	9.3E-10	6.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.9E-09	1.2E-09	1.E-09	9.E-10	2.E-09	--	--	4.4E-09	2.9E-09	--	--	--
	Naphthalene	2.6E+02	ug/kg	--	--	1.3E-08	8.5E-09	--	--	--	2.0E-02	2.0E-02	3.1E-08	2.0E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.5E+02	ug/kg	1.4E-02	1.4E-02	9.5E-09	8.0E-09	1.E-10	1.E-10	2.E-10	2.0E-02	2.0E-02	2.2E-08	1.9E-08	1.E-06	9.E-07	0.000002
	Phenols																
	Pentachlorophenol	3.8E+01	ug/kg	4.0E-01	4.0E-01	3.7E-09	1.2E-09	1.E-09	5.E-10	2.E-09	5.0E-03	5.0E-03	8.6E-09	2.9E-09	2.E-06	6.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.1E-09	1.3E-09	4.E-09	3.E-09	7.E-09	2.0E-05	2.0E-05	4.9E-09	3.0E-09	2.E-04	1.E-04	0.0004
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	3.7E-14	2.3E-14	5.E-09	3.E-09	8.E-09	1.0E-09	1.0E-09	8.7E-14	5.3E-14	9.E-05	5.E-05	0.0001
	Pesticides																
	Aldrin	9.3E-01	ug/kg	1.7E+01	1.7E+01	3.6E-11	3.0E-11	6.E-10	5.E-10	1.E-09	3.0E-05	3.0E-05	8.4E-11	7.1E-11	3.E-06	2.E-06	0.00001
	Total DDT	2.7E+00	ug/kg	3.4E-01	3.4E-01	3.1E-11	8.7E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	7.2E-11	2.0E-10	1.E-07	4.E-07	0.000001
Exposure Point Total										4.E-07							0.002
RM 10.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	3.9E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.1E-08	2.5E-07	3.E-04	8.E-04	0.001
	Mercury	7.4E-02	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.6E-09	0.E+00	6.E-05	0.00006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+02	ug/kg	7.3E-01	7.3E-01	5.1E-09	3.3E-09	4.E-09	2.E-09	6.E-09	--	--	1.2E-08	7.7E-09	--	--	--
	Benzo(a)pyrene	7.1E+01	ug/kg	7.3E+00	7.3E+00	3.6E-09	2.3E-09	3.E-08	2.E-08	4.E-08	--	--	8.3E-09	5.4E-09	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	5.6E-09	3.6E-09	4.E-09	3.E-09	7.E-09	--	--	1.3E-08	8.4E-09	--	--	--
	Benzo(k)fluoranthene	7.2E+01	ug/kg	7.3E-02	7.3E-02	3.6E-09	2.3E-09	3.E-10	2.E-10	4.E-10	--	--	8.4E-09	5.5E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	4.7E-10	3.0E-10	3.E-09	2.E-09	6.E-09	--	--	1.1E-09	7.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	2.4E-09	1.5E-09	2.E-09	1.E-09	3.E-09	--	--	5.5E-09	3.6E-09	--	--	--
	Naphthalene	5.2E+00	ug/kg	--	--	2.6E-10	1.7E-10	--	--	--	2.0E-02	2.0E-02	6.1E-10	4.0E-10	3.E-08	2.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	4.3E-09	3.6E-09	6.E-11	5.E-11	1.E-10	2.0E-02	2.0E-02	1.0E-08	8.4E-09	5.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	1.1E-09	3.6E-10	4.E-10	1.E-10	6.E-10	5.0E-03	5.0E-03	2.5E-09	8.4E-10	5.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	8.4E-09	5.1E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	2.0E-08	1.2E-08	1.E-03	6.E-04	0.002
	Dioxin/Furan																
	Total PCB TEQ	3.9E-01	pg/g	1.3E+05	1.3E+05	2.1E-14	1.3E-14	3.E-09	2.E-09	4.E-09	1.0E-09	1.0E-09	4.9E-14	3.0E-14	5.E-05	3.E-05	0.00008
	Pesticides																
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.4E-10	3.9E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	3.3E-10	9.2E-10	7.E-07	2.E-06	0.000002
Exposure Point Total										3.E-07							0.003
RM 11 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	4.2E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.9E-08	2.8E-07	3.E-04	9.E-04	0.001
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	2.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.2E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.5E-09	7.E-09	5.E-09	1.E-08	--	--	2.3E-08	1.5E-08	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	7.1E-09	8.E-08	5.E-08	1.E-07	--	--	2.6E-08	1.7E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	5.1E-09	3.3E-09	4.E-09	2.E-09	6.E-09	--	--	1.2E-08	7.7E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.3E-09	3.4E-09	4.E-10	3.E-10	6.E-10	--	--	1.2E-08	8.0E-09	--	--	--
	Dibenzo(a,h)anthracene	2.7E+01	ug/kg	7.3E+00	7.3E+00	1.4E-09	8.8E-10	1.E-08	6.E-09	2.E-08	--	--	3.2E-09	2.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	5.9E-09	3.8E-09	4.E-09	3.E-09	7.E-09	--	--	1.4E-08	8.9E-09	--	--	--
	Naphthalene	3.2E+02	ug/kg	--	--	1.6E-08	1.0E-08	--	--	--	2.0E-02	2.0E-02	3.8E-08	2.4E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.0E+03	ug/kg	1.4E-02	1.4E-02	4.0E-08	3.4E-08	6.E-10	5.E-10	1.E-09	2.0E-02	2.0E-02	9.4E-08	7.9E-08	5.E-06	4.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	3.0E-10	1.0E-10	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	7.0E-10	2.4E-10	1.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	1.9E-09	1.1E-09	4.E-09	2.E-09	6.E-09	2.0E-05	2.0E-05	4.4E-09	2.6E-09	2.E-04	1.E-04	0.0004

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Dieldrin	2.5E+00	ug/kg	1.6E+01	1.6E+01	9.7E-11	8.2E-11	2.E-09	1.E-09	3.E-09	5.0E-05	5.0E-05	2.3E-10	1.9E-10	5.E-06	4.E-06	0.00001
	Total DDT	2.1E+00	ug/kg	3.4E-01	3.4E-01	2.4E-11	6.8E-11	8.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	5.7E-11	1.6E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										4.E-07							0.002
RM 11 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	3.7E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.7E-08	2.5E-07	3.E-04	8.E-04	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.3E-09	0.E+00	8.E-05	0.00008
	Butyltins																
	Tributyltin ion	5.8E+00	ug/kg	--	--	2.3E-10	1.9E-10	--	--	--	3.0E-04	3.0E-04	5.3E-10	4.4E-10	2.E-06	1.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+02	ug/kg	7.3E-01	7.3E-01	8.0E-09	5.2E-09	6.E-09	4.E-09	1.E-08	--	--	1.9E-08	1.2E-08	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	6.1E-09	3.9E-09	4.E-08	3.E-08	7.E-08	--	--	1.4E-08	9.2E-09	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	1.3E-08	8.1E-09	9.E-09	6.E-09	2.E-08	--	--	2.9E-08	1.9E-08	--	--	--
	Benzo(k)fluoranthene	9.4E+01	ug/kg	7.3E-02	7.3E-02	4.7E-09	3.1E-09	3.E-10	2.E-10	6.E-10	--	--	1.1E-08	7.2E-09	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	1.0E-09	6.5E-10	7.E-09	5.E-09	1.E-08	--	--	2.4E-09	1.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+01	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.7E-09	2.E-09	1.E-09	3.E-09	--	--	6.3E-09	4.1E-09	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.5E-09	9.8E-10	--	--	--	2.0E-02	2.0E-02	3.5E-09	2.3E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	5.4E-09	4.6E-09	8.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.3E-08	1.1E-08	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	8.7E+00	ug/kg	4.0E-01	4.0E-01	8.5E-10	2.8E-10	3.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	2.0E-09	6.6E-10	4.E-07	1.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+03	ug/kg	2.0E+00	2.0E+00	2.1E-07	1.3E-07	4.E-07	3.E-07	7.E-07	2.0E-05	2.0E-05	4.9E-07	2.9E-07	2.E-02	1.E-02	0.04
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	3.5E-14	9.8E-14	5.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	8.2E-14	2.3E-13	8.E-05	2.E-04	0.0003
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	1.7E-12	1.0E-12	2.E-07	1.E-07	4.E-07	1.0E-09	1.0E-09	4.0E-12	2.4E-12	4.E-03	2.E-03	0.006
	Pesticides																
	Total DDT	3.8E+02	ug/kg	3.4E-01	3.4E-01	4.5E-09	1.2E-08	2.E-09	4.E-09	6.E-09	5.0E-04	5.0E-04	1.0E-08	2.9E-08	2.E-05	6.E-05	0.00008
Exposure Point Total										1.E-06							0.05
RM 11.5 West	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	4.1E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.5E-08	2.7E-07	3.E-04	9.E-04	0.001
	Mercury	3.1E-02	mg/kg	--	--	0.0E+00	1.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+01	ug/kg	7.3E-01	7.3E-01	8.1E-10	5.2E-10	6.E-10	4.E-10	1.E-09	--	--	1.9E-09	1.2E-09	--	--	--
	Benzo(a)pyrene	1.8E+01	ug/kg	7.3E+00	7.3E+00	9.1E-10	5.9E-10	7.E-09	4.E-09	1.E-08	--	--	2.1E-09	1.4E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+01	ug/kg	7.3E-01	7.3E-01	8.6E-10	5.6E-10	6.E-10	4.E-10	1.E-09	--	--	2.0E-09	1.3E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+01	ug/kg	7.3E-02	7.3E-02	7.1E-10	4.6E-10	5.E-11	3.E-11	9.E-11	--	--	1.7E-09	1.1E-09	--	--	--

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	1.5E-10	9.5E-11	1.E-09	7.E-10	2.E-09	--	--	3.4E-10	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	7.1E-10	4.6E-10	5.E-10	3.E-10	9.E-10	--	--	1.7E-09	1.1E-09	--	--	--
	Naphthalene	6.4E+00	ug/kg	--	--	3.2E-10	2.1E-10	--	--	--	2.0E-02	2.0E-02	7.5E-10	4.9E-10	4.E-08	2.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.2E+02	ug/kg	1.4E-02	1.4E-02	2.0E-08	1.7E-08	3.E-10	2.E-10	5.E-10	2.0E-02	2.0E-02	4.7E-08	4.0E-08	2.E-06	2.E-06	0.000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.4E+01	ug/kg	2.0E+00	2.0E+00	1.3E-09	7.8E-10	3.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	3.0E-09	1.8E-09	2.E-04	9.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	2.1E-15	5.8E-15	3.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	4.8E-15	1.3E-14	5.E-06	1.E-05	0.00002
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	1.6E-14	9.6E-15	2.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	3.7E-14	2.2E-14	4.E-05	2.E-05	0.00006
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	3.5E-12	2.9E-12	6.E-11	5.E-11	1.E-10	5.0E-05	5.0E-05	8.2E-12	6.9E-12	2.E-07	1.E-07	0.0000003
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.2E-11	6.3E-11	8.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	5.2E-11	1.5E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										3.E-07							0.002
RM 12 West	**Metals**																
	Arsenic	3.9E+00	mg/kg	1.5E+00	1.5E+00	4.5E-08	1.3E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.0E-07	2.9E-07	3.E-04	1.E-03	0.001
	Mercury	7.4E-01	mg/kg	--	--	0.0E+00	2.4E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.6E-08	0.E+00	6.E-04	0.0006
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+03	ug/kg	7.3E-01	7.3E-01	5.6E-08	3.6E-08	4.E-08	3.E-08	7.E-08	--	--	1.3E-07	8.5E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	9.1E-08	5.9E-08	7.E-07	4.E-07	1.E-06	--	--	2.1E-07	1.4E-07	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	7.2E-08	4.7E-08	5.E-08	3.E-08	9.E-08	--	--	1.7E-07	1.1E-07	--	--	--
	Benzo(k)fluoranthene	5.9E+02	ug/kg	7.3E-02	7.3E-02	3.0E-08	1.9E-08	2.E-09	1.E-09	4.E-09	--	--	7.0E-08	4.5E-08	--	--	--
	Dibenzo(a,h)anthracene	2.1E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	6.9E-09	8.E-08	5.E-08	1.E-07	--	--	2.5E-08	1.6E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	7.4E-08	4.8E-08	5.E-08	4.E-08	9.E-08	--	--	1.7E-07	1.1E-07	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	7.5E-09	4.8E-09	--	--	--	2.0E-02	2.0E-02	1.7E-08	1.1E-08	9.E-07	6.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	7.4E-09	6.2E-09	1.E-10	9.E-11	2.E-10	2.0E-02	2.0E-02	1.7E-08	1.5E-08	9.E-07	7.E-07	0.000002
	Phenols																
	Pentachlorophenol	2.0E+01	ug/kg	4.0E-01	4.0E-01	1.9E-09	6.5E-10	8.E-10	3.E-10	1.E-09	5.0E-03	5.0E-03	4.5E-09	1.5E-09	9.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	6.6E-09	4.0E-09	1.E-08	8.E-09	2.E-08	2.0E-05	2.0E-05	1.5E-08	9.2E-09	8.E-04	5.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	1.9E-15	5.4E-15	3.E-10	7.E-10	1.E-09	1.0E-09	1.0E-09	4.5E-15	1.3E-14	5.E-06	1.E-05	0.00002
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	2.5E-14	1.5E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	5.7E-14	3.5E-14	6.E-05	3.E-05	0.00009

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	2.7E-11	2.3E-11	5.E-10	4.E-10	9.E-10	3.0E-05	3.0E-05	6.3E-11	5.3E-11	2.E-06	2.E-06	0.000004
	Total DDT	9.5E+00	ug/kg	3.4E-01	3.4E-01	1.1E-10	3.1E-10	4.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	2.6E-10	7.2E-10	5.E-07	1.E-06	0.000002
Exposure Point Total										2.E-06							0.003
RM 12 East	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	3.1E-08	8.6E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.2E-08	2.0E-07	2.E-04	7.E-04	0.0009
	Mercury	6.5E-02	mg/kg	--	--	0.0E+00	2.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.0E-09	0.E+00	5.E-05	0.00005
	Butyltins																
	Tributyltin ion	4.8E+00	ug/kg	--	--	1.9E-10	1.6E-10	--	--	--	3.0E-04	3.0E-04	4.4E-10	3.7E-10	1.E-06	1.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	9.1E-10	5.9E-10	7.E-10	4.E-10	1.E-09	--	--	2.1E-09	1.4E-09	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	9.6E-10	6.2E-10	7.E-09	5.E-09	1.E-08	--	--	2.2E-09	1.5E-09	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.4E-09	8.8E-10	1.E-09	6.E-10	2.E-09	--	--	3.2E-09	2.1E-09	--	--	--
	Benzo(k)fluoranthene	8.4E+00	ug/kg	7.3E-02	7.3E-02	4.2E-10	2.7E-10	3.E-11	2.E-11	5.E-11	--	--	9.9E-10	6.4E-10	--	--	--
	Dibenzo(a,h)anthracene	4.5E+00	ug/kg	7.3E+00	7.3E+00	2.3E-10	1.5E-10	2.E-09	1.E-09	3.E-09	--	--	5.3E-10	3.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+01	ug/kg	7.3E-01	7.3E-01	8.6E-10	5.6E-10	6.E-10	4.E-10	1.E-09	--	--	2.0E-09	1.3E-09	--	--	--
	Naphthalene	4.2E+01	ug/kg	--	--	2.1E-09	1.4E-09	--	--	--	2.0E-02	2.0E-02	5.0E-09	3.2E-09	2.E-07	2.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+04	ug/kg	1.4E-02	1.4E-02	7.0E-07	5.9E-07	1.E-08	8.E-09	2.E-08	2.0E-02	2.0E-02	1.6E-06	1.4E-06	8.E-05	7.E-05	0.0002
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	3.1E-10	1.0E-10	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	7.3E-10	2.4E-10	1.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.9E-09	5.9E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	2.3E-08	1.4E-08	1.E-03	7.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	2.0E-14	5.7E-14	3.E-09	7.E-09	1.E-08	1.0E-09	1.0E-09	4.8E-14	1.3E-13	5.E-05	1.E-04	0.0002
	Total PCB TEQ	4.6E+00	pg/g	1.3E+05	1.3E+05	2.5E-13	1.5E-13	3.E-08	2.E-08	5.E-08	1.0E-09	1.0E-09	5.8E-13	3.5E-13	6.E-04	3.E-04	0.0009
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	1.1E-10	3.1E-10	4.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	2.6E-10	7.2E-10	5.E-07	1.E-06	0.000002
Exposure Point Total										3.E-07							0.004
Study Area-wide[c]	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	5.9E-08	1.6E-07	9.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.4E-07	3.8E-07	5.E-04	1.E-03	0.002
	Mercury	3.0E-01	mg/kg	--	--	0.0E+00	9.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.0E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	9.2E-08	7.8E-08	--	--	--	3.0E-04	3.0E-04	2.1E-07	1.8E-07	7.E-04	6.E-04	0.001

TABLE 5-24.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.0E-07	1.E-07	7.E-08	2.E-07	--	--	3.6E-07	2.4E-07	--	--	--
	Benzo(a)pyrene	3.7E+03	ug/kg	7.3E+00	7.3E+00	1.9E-07	1.2E-07	1.E-06	9.E-07	2.E-06	--	--	4.4E-07	2.9E-07	--	--	--
	Benzo(b)fluoranthene	2.9E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	9.6E-08	1.E-07	7.E-08	2.E-07	--	--	3.4E-07	2.2E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	1.0E-07	6.5E-08	7.E-09	5.E-09	1.E-08	--	--	2.4E-07	1.5E-07	--	--	--
	Dibenzo(a,h)anthracene	3.8E+02	ug/kg	7.3E+00	7.3E+00	1.9E-08	1.2E-08	1.E-07	9.E-08	2.E-07	--	--	4.5E-08	2.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.3E-07	8.5E-08	1.E-07	6.E-08	2.E-07	--	--	3.1E-07	2.0E-07	--	--	--
	Naphthalene	1.5E+03	ug/kg	--	--	7.4E-08	4.8E-08	--	--	--	2.0E-02	2.0E-02	1.7E-07	1.1E-07	9.E-06	6.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.9E+03	ug/kg	1.4E-02	1.4E-02	1.1E-07	9.4E-08	2.E-09	1.E-09	3.E-09	2.0E-02	2.0E-02	2.6E-07	2.2E-07	1.E-05	1.E-05	0.00002
	Phenols																
	Pentachlorophenol	5.6E+01	ug/kg	4.0E-01	4.0E-01	5.4E-09	1.8E-09	2.E-09	7.E-10	3.E-09	5.0E-03	5.0E-03	1.3E-08	4.3E-09	3.E-06	9.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	2.0E-08	1.2E-08	4.E-08	2.E-08	6.E-08	2.0E-05	2.0E-05	4.6E-08	2.7E-08	2.E-03	1.E-03	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	1.3E+05	1.3E+05	7.7E-12	2.2E-11	1.E-06	3.E-06	4.E-06	1.0E-09	1.0E-09	1.8E-11	5.0E-11	2.E-02	5.E-02	0.07
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	9.1E-13	5.5E-13	1.E-07	7.E-08	2.E-07	1.0E-09	1.0E-09	2.1E-12	1.3E-12	2.E-03	1.E-03	0.003
	Pesticides																
	Aldrin	5.8E+00	ug/kg	1.7E+01	1.7E+01	2.3E-10	1.9E-10	4.E-09	3.E-09	7.E-09	3.0E-05	3.0E-05	5.3E-10	4.4E-10	2.E-05	1.E-05	0.00003
	Dieldrin	2.8E+00	ug/kg	1.6E+01	1.6E+01	1.1E-10	9.1E-11	2.E-09	1.E-09	3.E-09	5.0E-05	5.0E-05	2.5E-10	2.1E-10	5.E-06	4.E-06	0.00001
	Total DDT	3.7E+02	ug/kg	3.4E-01	3.4E-01	4.4E-09	1.2E-08	1.E-09	4.E-09	6.E-09	5.0E-04	5.0E-04	1.0E-08	2.9E-08	2.E-05	6.E-05	0.00008
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	9.0E-06	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.1E-05	0.E+00	3.E-02	0.03
Exposure Point Total										7.E-06							0.2

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.9E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.9E-09	5.4E-08	3.E-05	2.E-04	0.0002
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	9.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.7E-10	0.E+00	8.E-06	0.00001
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	7.6E-13	1.4E-12	--	--	--	3.0E-04	3.0E-04	5.9E-12	1.1E-11	2.E-08	4.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+01	ug/kg	7.3E-01	7.3E-01	5.9E-11	8.2E-11	4.E-11	6.E-11	1.E-10	--	--	4.6E-10	6.4E-10	--	--	--
	Benzo(a)pyrene	7.4E+01	ug/kg	7.3E+00	7.3E+00	8.7E-11	1.2E-10	6.E-10	9.E-10	2.E-09	--	--	6.8E-10	9.4E-10	--	--	--
	Benzo(b)fluoranthene	7.4E+01	ug/kg	7.3E-01	7.3E-01	8.7E-11	1.2E-10	6.E-11	9.E-11	2.E-10	--	--	6.8E-10	9.4E-10	--	--	--
	Benzo(k)fluoranthene	3.0E+01	ug/kg	7.3E-02	7.3E-02	3.6E-11	4.9E-11	3.E-12	4.E-12	6.E-12	--	--	2.8E-10	3.8E-10	--	--	--
	Dibenzo(a,h)anthracene	9.4E+00	ug/kg	7.3E+00	7.3E+00	1.1E-11	1.5E-11	8.E-11	1.E-10	2.E-10	--	--	8.6E-11	1.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.8E+01	ug/kg	7.3E-01	7.3E-01	6.8E-11	9.5E-11	5.E-11	7.E-11	1.E-10	--	--	5.3E-10	7.4E-10	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	1.6E-11	2.2E-11	--	--	--	2.0E-02	2.0E-02	1.2E-10	1.7E-10	6.E-09	8.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+01	ug/kg	1.4E-02	1.4E-02	1.7E-11	3.0E-11	2.E-13	4.E-13	7.E-13	2.0E-02	2.0E-02	1.3E-10	2.4E-10	7.E-09	1.E-08	0.00000002
	Phenols																
	Pentachlorophenol	7.2E-01	ug/kg	4.0E-01	4.0E-01	1.6E-12	1.2E-12	6.E-13	5.E-13	1.E-12	5.0E-03	5.0E-03	1.3E-11	9.1E-12	3.E-09	2.E-09	0.000000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	1.4E-11	1.9E-11	3.E-11	4.E-11	7.E-11	2.0E-05	2.0E-05	1.1E-10	1.4E-10	6.E-06	7.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	1.3E+05	1.3E+05	2.1E-16	1.2E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.6E-15	9.6E-15	2.E-06	1.E-05	0.00001
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	4.0E-16	5.2E-16	5.E-11	7.E-11	1.E-10	1.0E-09	1.0E-09	3.1E-15	4.0E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	1.6E-13	2.8E-13	3.E-12	5.E-12	7.E-12	3.0E-05	3.0E-05	1.2E-12	2.2E-12	4.E-08	7.E-08	0.0000001
	Total DDT	2.5E+00	ug/kg	3.4E-01	3.4E-01	6.8E-13	4.1E-12	2.E-13	1.E-12	2.E-12	5.0E-04	5.0E-04	5.3E-12	3.2E-11	1.E-08	6.E-08	0.0000001
Exposure Point Total[b]										1.E-08							0.0002
RM 1 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.7E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.6E-09	5.2E-08	3.E-05	2.E-04	0.0002
	Mercury	1.4E+00	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-08	0.E+00	2.E-04	0.0002
	Butyltins																
	Tributyltin ion	1.1E+00	ug/kg	--	--	1.0E-12	1.8E-12	--	--	--	3.0E-04	3.0E-04	7.8E-12	1.4E-11	3.E-08	5.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	3.7E-11	5.1E-11	3.E-11	4.E-11	6.E-11	--	--	2.9E-10	4.0E-10	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	5.5E-11	7.6E-11	4.E-10	6.E-10	1.E-09	--	--	4.3E-10	5.9E-10	--	--	--
	Benzo(b)fluoranthene	4.2E+01	ug/kg	7.3E-01	7.3E-01	5.0E-11	6.9E-11	4.E-11	5.E-11	9.E-11	--	--	3.9E-10	5.3E-10	--	--	--
	Benzo(k)fluoranthene	2.7E+01	ug/kg	7.3E-02	7.3E-02	3.1E-11	4.3E-11	2.E-12	3.E-12	5.E-12	--	--	2.4E-10	3.4E-10	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	6.5E-12	9.0E-12	5.E-11	7.E-11	1.E-10	--	--	5.0E-11	7.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+01	ug/kg	7.3E-01	7.3E-01	3.9E-11	5.4E-11	3.E-11	4.E-11	7.E-11	--	--	3.0E-10	4.2E-10	--	--	--
	Naphthalene	8.3E+00	ug/kg	--	--	9.7E-12	1.4E-11	--	--	--	2.0E-02	2.0E-02	7.6E-11	1.1E-10	4.E-09	5.E-09	0.00000001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	3.6E-11	6.5E-11	5.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	2.8E-10	5.1E-10	1.E-08	3.E-08	0.00000004
	Phenols																
	Pentachlorophenol	7.6E-01	ug/kg	4.0E-01	4.0E-01	1.7E-12	1.2E-12	7.E-13	5.E-13	1.E-12	5.0E-03	5.0E-03	1.3E-11	9.6E-12	3.E-09	2.E-09	0.000000005
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	1.3E-10	1.7E-10	3.E-10	3.E-10	6.E-10	2.0E-05	2.0E-05	1.0E-09	1.3E-09	5.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	1.3E-16	7.7E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	9.9E-16	6.0E-15	1.E-06	6.E-06	0.00001
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	3.4E-16	4.4E-16	4.E-11	6.E-11	1.E-10	1.0E-09	1.0E-09	2.6E-15	3.4E-15	3.E-06	3.E-06	0.00001
	Pesticides																
	Total DDT	1.8E+00	ug/kg	3.4E-01	3.4E-01	4.9E-13	2.9E-12	2.E-13	1.E-12	1.E-12	5.0E-04	5.0E-04	3.8E-12	2.3E-11	8.E-09	5.E-08	0.0000001
Exposure Point Total										1.E-08							0.0005
RM 1.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	9.8E-10	5.9E-09	1.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	7.6E-09	4.6E-08	3.E-05	2.E-04	0.0002
	Mercury	5.1E-02	mg/kg	--	--	0.0E+00	8.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.4E-10	0.E+00	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.9E+01	ug/kg	7.3E-01	7.3E-01	2.2E-11	3.0E-11	2.E-11	2.E-11	4.E-11	--	--	1.7E-10	2.4E-10	--	--	--
	Benzo(a)pyrene	2.7E+01	ug/kg	7.3E+00	7.3E+00	3.2E-11	4.4E-11	2.E-10	3.E-10	6.E-10	--	--	2.5E-10	3.4E-10	--	--	--
	Benzo(b)fluoranthene	2.3E+01	ug/kg	7.3E-01	7.3E-01	2.7E-11	3.8E-11	2.E-11	3.E-11	5.E-11	--	--	2.1E-10	2.9E-10	--	--	--
	Benzo(k)fluoranthene	1.9E+01	ug/kg	7.3E-02	7.3E-02	2.3E-11	3.1E-11	2.E-12	2.E-12	4.E-12	--	--	1.8E-10	2.4E-10	--	--	--
	Dibenzo(a,h)anthracene	3.3E+00	ug/kg	7.3E+00	7.3E+00	3.8E-12	5.3E-12	3.E-11	4.E-11	7.E-11	--	--	3.0E-11	4.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+01	ug/kg	7.3E-01	7.3E-01	2.5E-11	3.5E-11	2.E-11	3.E-11	4.E-11	--	--	1.9E-10	2.7E-10	--	--	--
	Naphthalene	5.3E+00	ug/kg	--	--	6.3E-12	8.7E-12	--	--	--	2.0E-02	2.0E-02	4.9E-11	6.8E-11	2.E-09	3.E-09	0.00000001
	Phenols																
	Pentachlorophenol	8.1E-01	ug/kg	4.0E-01	4.0E-01	1.8E-12	1.3E-12	7.E-13	5.E-13	1.E-12	5.0E-03	5.0E-03	1.4E-11	1.0E-11	3.E-09	2.E-09	0.000000005
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	1.5E-11	1.9E-11	3.E-11	4.E-11	7.E-11	2.0E-05	2.0E-05	1.1E-10	1.5E-10	6.E-06	7.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	1.3E+05	1.3E+05	2.3E-17	1.4E-16	3.E-12	2.E-11	2.E-11	1.0E-09	1.0E-09	1.8E-16	1.1E-15	2.E-07	1.E-06	0.000001
	Pesticides																
	Total DDT	7.9E-01	ug/kg	3.4E-01	3.4E-01	2.2E-13	1.3E-12	7.E-14	4.E-13	5.E-13	5.0E-04	5.0E-04	1.7E-12	1.0E-11	3.E-09	2.E-08	0.00000002
Exposure Point Total										1.E-08							0.0002
RM 1.5 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	7.1E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	9.2E-09	5.5E-08	3.E-05	2.E-04	0.0002
	Mercury	6.4E-02	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.1E-10	0.E+00	8.E-06	0.00001
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	3.4E-13	6.1E-13	--	--	--	3.0E-04	3.0E-04	2.6E-12	4.7E-12	9.E-09	2.E-08	0.00000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	2.9E-10	4.1E-10	2.E-10	3.E-10	5.E-10	--	--	2.3E-09	3.2E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	4.3E-10	6.0E-10	3.E-09	4.E-09	8.E-09	--	--	3.4E-09	4.7E-09	--	--	--
	Benzo(b)fluoranthene	2.2E+02	ug/kg	7.3E-01	7.3E-01	2.6E-10	3.6E-10	2.E-10	3.E-10	5.E-10	--	--	2.0E-09	2.8E-09	--	--	--

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	2.2E+02	ug/kg	7.3E-02	7.3E-02	2.5E-10	3.5E-10	2.E-11	3.E-11	4.E-11	--	--	2.0E-09	2.7E-09	--	--	--
	Dibenzo(a,h)anthracene	3.7E+01	ug/kg	7.3E+00	7.3E+00	4.3E-11	6.0E-11	3.E-10	4.E-10	8.E-10	--	--	3.4E-10	4.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	3.1E-10	4.3E-10	2.E-10	3.E-10	5.E-10	--	--	2.4E-09	3.3E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	1.2E-10	1.6E-10	--	--	--	2.0E-02	2.0E-02	9.0E-10	1.2E-09	4.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	6.5E-11	1.2E-10	9.E-13	2.E-12	3.E-12	2.0E-02	2.0E-02	5.0E-10	9.1E-10	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	3.7E-12	2.7E-12	1.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	2.9E-11	2.1E-11	6.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	2.7E-11	3.5E-11	5.E-11	7.E-11	1.E-10	2.0E-05	2.0E-05	2.1E-10	2.7E-10	1.E-05	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	1.3E+05	1.3E+05	1.6E-16	9.4E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	1.2E-15	7.3E-15	1.E-06	7.E-06	0.00001
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	1.3E-16	1.7E-16	2.E-11	2.E-11	4.E-11	1.0E-09	1.0E-09	1.0E-15	1.3E-15	1.E-06	1.E-06	0.000002
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	6.3E-14	1.1E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	4.9E-13	8.8E-13	1.E-08	2.E-08	0.00000003
	Total DDT	6.8E+00	ug/kg	3.4E-01	3.4E-01	1.9E-12	1.1E-11	6.E-13	4.E-12	4.E-12	5.0E-04	5.0E-04	1.4E-11	8.7E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.0003
RM 2 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	9.3E-10	5.6E-09	1.E-09	8.E-09	1.E-08	3.0E-04	3.0E-04	7.2E-09	4.4E-08	2.E-05	1.E-04	0.0002
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.9E-10	0.E+00	8.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	1.9E-12	3.4E-12	--	--	--	3.0E-04	3.0E-04	1.5E-11	2.7E-11	5.E-08	9.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	3.6E-11	5.0E-11	3.E-11	4.E-11	6.E-11	--	--	2.8E-10	3.9E-10	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	6.5E-11	9.0E-11	5.E-10	7.E-10	1.E-09	--	--	5.1E-10	7.0E-10	--	--	--
	Benzo(b)fluoranthene	5.6E+01	ug/kg	7.3E-01	7.3E-01	6.6E-11	9.2E-11	5.E-11	7.E-11	1.E-10	--	--	5.1E-10	7.1E-10	--	--	--
	Benzo(k)fluoranthene	1.8E+01	ug/kg	7.3E-02	7.3E-02	2.1E-11	2.9E-11	2.E-12	2.E-12	4.E-12	--	--	1.6E-10	2.3E-10	--	--	--
	Dibenzo(a,h)anthracene	6.1E+00	ug/kg	7.3E+00	7.3E+00	7.2E-12	9.9E-12	5.E-11	7.E-11	1.E-10	--	--	5.6E-11	7.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+01	ug/kg	7.3E-01	7.3E-01	5.4E-11	7.5E-11	4.E-11	5.E-11	9.E-11	--	--	4.2E-10	5.8E-10	--	--	--
	Naphthalene	7.2E+00	ug/kg	--	--	8.4E-12	1.2E-11	--	--	--	2.0E-02	2.0E-02	6.6E-11	9.1E-11	3.E-09	5.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+01	ug/kg	1.4E-02	1.4E-02	3.0E-11	5.4E-11	4.E-13	8.E-13	1.E-12	2.0E-02	2.0E-02	2.3E-10	4.2E-10	1.E-08	2.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+01	ug/kg	2.0E+00	2.0E+00	1.7E-11	2.1E-11	3.E-11	4.E-11	8.E-11	2.0E-05	2.0E-05	1.3E-10	1.7E-10	6.E-06	8.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	1.3E+05	1.3E+05	2.2E-16	1.3E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.7E-15	1.0E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	2.5E-01	pg/g	1.3E+05	1.3E+05	3.2E-16	4.1E-16	4.E-11	5.E-11	9.E-11	1.0E-09	1.0E-09	2.5E-15	3.2E-15	2.E-06	3.E-06	0.00001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	8.2E-14	1.5E-13	1.E-12	3.E-12	4.E-12	3.0E-05	3.0E-05	6.4E-13	1.2E-12	2.E-08	4.E-08	0.0000001
	Dieldrin	1.1E-01	ug/kg	1.6E+01	1.6E+01	1.0E-13	1.9E-13	2.E-12	3.E-12	5.E-12	5.0E-05	5.0E-05	8.0E-13	1.4E-12	2.E-08	3.E-08	0.00000004
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	3.7E-13	2.2E-12	1.E-13	8.E-13	9.E-13	5.0E-04	5.0E-04	2.9E-12	1.7E-11	6.E-09	3.E-08	0.00000004
Exposure Point Total										1.E-08							0.0002
RM 2 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.7E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.6E-09	5.2E-08	3.E-05	2.E-04	0.0002
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	2.7E+00	ug/kg	--	--	2.4E-12	4.3E-12	--	--	--	3.0E-04	3.0E-04	1.9E-11	3.4E-11	6.E-08	1.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+01	ug/kg	7.3E-01	7.3E-01	6.8E-11	9.4E-11	5.E-11	7.E-11	1.E-10	--	--	5.3E-10	7.3E-10	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.0E-10	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.9E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	9.4E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	1.5E-10	8.E-11	1.E-10	2.E-10	--	--	8.6E-10	1.2E-09	--	--	--
	Benzo(k)fluoranthene	4.1E+01	ug/kg	7.3E-02	7.3E-02	4.9E-11	6.8E-11	4.E-12	5.E-12	8.E-12	--	--	3.8E-10	5.3E-10	--	--	--
	Dibenzo(a,h)anthracene	1.3E+01	ug/kg	7.3E+00	7.3E+00	1.5E-11	2.1E-11	1.E-10	2.E-10	3.E-10	--	--	1.2E-10	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	7.5E+01	ug/kg	7.3E-01	7.3E-01	8.9E-11	1.2E-10	6.E-11	9.E-11	2.E-10	--	--	6.9E-10	9.6E-10	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	1.7E-11	2.4E-11	--	--	--	2.0E-02	2.0E-02	1.3E-10	1.8E-10	7.E-09	9.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.9E+01	ug/kg	1.4E-02	1.4E-02	9.0E-11	1.6E-10	1.E-12	2.E-12	4.E-12	2.0E-02	2.0E-02	7.0E-10	1.3E-09	3.E-08	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	5.3E-01	ug/kg	4.0E-01	4.0E-01	1.2E-12	8.7E-13	5.E-13	3.E-13	8.E-13	5.0E-03	5.0E-03	9.4E-12	6.8E-12	2.E-09	1.E-09	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+02	ug/kg	2.0E+00	2.0E+00	5.5E-10	7.1E-10	1.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	4.3E-09	5.5E-09	2.E-04	3.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	3.3E-16	2.0E-15	4.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	2.6E-15	1.6E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	1.7E-14	2.2E-14	2.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	1.3E-13	1.7E-13	1.E-04	2.E-04	0.0003
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	4.2E-13	7.6E-13	7.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	3.3E-12	5.9E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	5.4E-13	9.7E-13	9.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	4.2E-12	7.6E-12	8.E-08	2.E-07	0.0000002
	Total DDT	2.6E+00	ug/kg	3.4E-01	3.4E-01	7.0E-13	4.2E-12	2.E-13	1.E-12	2.E-12	5.0E-04	5.0E-04	5.5E-12	3.3E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										2.E-08							0.001
RM 2.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.6E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.5E-09	5.1E-08	3.E-05	2.E-04	0.0002
	Mercury	5.5E-02	mg/kg	--	--	0.0E+00	9.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.0E-10	0.E+00	7.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	2.1E-12	3.8E-12	--	--	--	3.0E-04	3.0E-04	1.6E-11	2.9E-11	5.E-08	1.E-07	0.0000002

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	2.4E-10	3.4E-10	2.E-10	2.E-10	4.E-10	--	--	1.9E-09	2.6E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	4.4E-10	6.0E-10	3.E-09	4.E-09	8.E-09	--	--	3.4E-09	4.7E-09	--	--	--
	Benzo(b)fluoranthene	2.8E+02	ug/kg	7.3E-01	7.3E-01	3.2E-10	4.5E-10	2.E-10	3.E-10	6.E-10	--	--	2.5E-09	3.5E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	1.5E-10	2.0E-10	1.E-11	1.E-11	3.E-11	--	--	1.1E-09	1.6E-09	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	4.8E-11	6.7E-11	4.E-10	5.E-10	8.E-10	--	--	3.7E-10	5.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.1E+02	ug/kg	7.3E-01	7.3E-01	3.6E-10	5.1E-10	3.E-10	4.E-10	6.E-10	--	--	2.8E-09	3.9E-09	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	4.8E-11	6.6E-11	--	--	--	2.0E-02	2.0E-02	3.7E-10	5.2E-10	2.E-08	3.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.5E+01	ug/kg	1.4E-02	1.4E-02	1.4E-11	2.5E-11	2.E-13	4.E-13	5.E-13	2.0E-02	2.0E-02	1.1E-10	2.0E-10	5.E-09	1.E-08	0.00000002
	Phenols																
	Pentachlorophenol	4.5E-01	ug/kg	4.0E-01	4.0E-01	1.0E-12	7.3E-13	4.E-13	3.E-13	7.E-13	5.0E-03	5.0E-03	7.9E-12	5.7E-12	2.E-09	1.E-09	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	1.4E-11	1.7E-11	3.E-11	3.E-11	6.E-11	2.0E-05	2.0E-05	1.1E-10	1.4E-10	5.E-06	7.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	7.3E-17	4.4E-16	9.E-12	6.E-11	7.E-11	1.0E-09	1.0E-09	5.7E-16	3.4E-15	6.E-07	3.E-06	0.000004
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	2.6E-16	3.4E-16	3.E-11	4.E-11	8.E-11	1.0E-09	1.0E-09	2.0E-15	2.6E-15	2.E-06	3.E-06	0.000005
	Pesticides																
	Aldrin	9.3E-02	ug/kg	1.7E+01	1.7E+01	8.4E-14	1.5E-13	1.E-12	3.E-12	4.E-12	3.0E-05	3.0E-05	6.6E-13	1.2E-12	2.E-08	4.E-08	0.0000001
	Dieldrin	1.4E-01	ug/kg	1.6E+01	1.6E+01	1.2E-13	2.2E-13	2.E-12	4.E-12	6.E-12	5.0E-05	5.0E-05	9.7E-13	1.7E-12	2.E-08	3.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	3.9E-13	2.4E-12	1.E-13	8.E-13	9.E-13	5.0E-04	5.0E-04	3.1E-12	1.8E-11	6.E-09	4.E-08	0.00000004
Exposure Point Total										2.E-08							0.0002
RM 2.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.9E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.9E-09	5.4E-08	3.E-05	2.E-04	0.0002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.6E-10	0.E+00	9.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+02	ug/kg	7.3E-01	7.3E-01	6.9E-10	9.5E-10	5.E-10	7.E-10	1.E-09	--	--	5.4E-09	7.4E-09	--	--	--
	Benzo(a)pyrene	4.8E+02	ug/kg	7.3E+00	7.3E+00	5.6E-10	7.8E-10	4.E-09	6.E-09	1.E-08	--	--	4.4E-09	6.1E-09	--	--	--
	Benzo(b)fluoranthene	4.4E+02	ug/kg	7.3E-01	7.3E-01	5.2E-10	7.2E-10	4.E-10	5.E-10	9.E-10	--	--	4.0E-09	5.6E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	1.7E-10	2.3E-10	1.E-11	2.E-11	3.E-11	--	--	1.3E-09	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	4.9E+01	ug/kg	7.3E+00	7.3E+00	5.8E-11	8.0E-11	4.E-10	6.E-10	1.E-09	--	--	4.5E-10	6.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	3.4E-10	4.7E-10	2.E-10	3.E-10	6.E-10	--	--	2.6E-09	3.6E-09	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	6.0E-11	8.3E-11	--	--	--	2.0E-02	2.0E-02	4.7E-10	6.5E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.8E+01	ug/kg	1.4E-02	1.4E-02	7.1E-11	1.3E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	5.5E-10	9.9E-10	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	4.3E+00	ug/kg	4.0E-01	4.0E-01	9.6E-12	7.0E-12	4.E-12	3.E-12	7.E-12	5.0E-03	5.0E-03	7.5E-11	5.4E-11	1.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	7.1E-11	9.1E-11	1.E-10	2.E-10	3.E-10	2.0E-05	2.0E-05	5.5E-10	7.1E-10	3.E-05	4.E-05	0.0001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	1.8E-16	1.1E-15	2.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	1.4E-15	8.4E-15	1.E-06	8.E-06	0.00001
	Total PCB TEQ	1.3E+00	pg/g	1.3E+05	1.3E+05	1.7E-15	2.2E-15	2.E-10	3.E-10	5.E-10	1.0E-09	1.0E-09	1.3E-14	1.7E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	5.1E-01	ug/kg	1.7E+01	1.7E+01	4.6E-13	8.3E-13	8.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	3.6E-12	6.4E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	1.7E-01	ug/kg	1.6E+01	1.6E+01	1.5E-13	2.7E-13	2.E-12	4.E-12	7.E-12	5.0E-05	5.0E-05	1.2E-12	2.1E-12	2.E-08	4.E-08	0.0000001
	Total DDT	2.4E+00	ug/kg	3.4E-01	3.4E-01	6.5E-13	3.9E-12	2.E-13	1.E-12	2.E-12	5.0E-04	5.0E-04	5.0E-12	3.0E-11	1.E-08	6.E-08	0.0000001
Exposure Point Total										3.E-08							0.0003
RM 2.5 MC	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	7.0E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	9.0E-09	5.4E-08	3.E-05	2.E-04	0.0002
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.5E-10	2.E-10	3.E-10	4.E-10	--	--	1.9E-09	2.7E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	4.0E-10	5.6E-10	3.E-09	4.E-09	7.E-09	--	--	3.1E-09	4.3E-09	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	3.7E-10	5.1E-10	3.E-10	4.E-10	6.E-10	--	--	2.9E-09	4.0E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	1.2E-10	1.6E-10	9.E-12	1.E-11	2.E-11	--	--	9.2E-10	1.3E-09	--	--	--
	Dibenzo(a,h)anthracene	3.4E+01	ug/kg	7.3E+00	7.3E+00	4.0E-11	5.5E-11	3.E-10	4.E-10	7.E-10	--	--	3.1E-10	4.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	3.1E-10	4.3E-10	2.E-10	3.E-10	5.E-10	--	--	2.4E-09	3.3E-09	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	6.9E-11	9.6E-11	--	--	--	2.0E-02	2.0E-02	5.4E-10	7.5E-10	3.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	5.2E-11	9.4E-11	7.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	4.1E-10	7.3E-10	2.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	5.5E-01	ug/kg	4.0E-01	4.0E-01	1.2E-12	9.0E-13	5.E-13	4.E-13	9.E-13	5.0E-03	5.0E-03	9.7E-12	7.0E-12	2.E-09	1.E-09	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	3.2E-11	4.1E-11	6.E-11	8.E-11	1.E-10	2.0E-05	2.0E-05	2.5E-10	3.2E-10	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	1.9E-13	3.3E-13	3.E-12	6.E-12	9.E-12	3.0E-05	3.0E-05	1.4E-12	2.6E-12	5.E-08	9.E-08	0.0000001
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	2.8E-13	5.0E-13	4.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	2.2E-12	3.9E-12	4.E-08	8.E-08	0.0000001
	Total DDT	3.7E+00	ug/kg	3.4E-01	3.4E-01	1.0E-12	6.1E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	7.9E-12	4.8E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										2.E-08							0.0002
RM 3 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	6.0E-09	1.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	7.7E-09	4.7E-08	3.E-05	2.E-04	0.0002
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Vanadium	8.6E+01	mg/kg	--	--	0.0E+00	1.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	9.3E-12	1.7E-11	--	--	--	3.0E-04	3.0E-04	7.3E-11	1.3E-10	2.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	3.4E-10	4.7E-10	2.E-10	3.E-10	6.E-10	--	--	2.7E-09	3.7E-09	--	--	--
	Benzo(a)pyrene	4.6E+02	ug/kg	7.3E+00	7.3E+00	5.4E-10	7.6E-10	4.E-09	6.E-09	9.E-09	--	--	4.2E-09	5.9E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	4.7E-10	6.5E-10	3.E-10	5.E-10	8.E-10	--	--	3.6E-09	5.0E-09	--	--	--

[a] Cancer Risk Calculations and Noncancer Hazard Calculations

[b] Total Cancer Risk and Total Noncancer HQ

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	2.3E+02	ug/kg	7.3E-02	7.3E-02	2.7E-10	3.8E-10	2.E-11	3.E-11	5.E-11	--	--	2.1E-09	2.9E-09	--	--	--
	Dibenzo(a,h)anthracene	5.3E+01	ug/kg	7.3E+00	7.3E+00	6.2E-11	8.6E-11	5.E-10	6.E-10	1.E-09	--	--	4.8E-10	6.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	3.9E-10	5.4E-10	3.E-10	4.E-10	7.E-10	--	--	3.0E-09	4.2E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	1.2E-10	1.6E-10	--	--	--	2.0E-02	2.0E-02	9.0E-10	1.3E-09	5.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	3.6E-11	6.6E-11	5.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	2.8E-10	5.1E-10	1.E-08	3.E-08	0.00000004
	Phenols																
	Pentachlorophenol	1.6E+01	ug/kg	4.0E-01	4.0E-01	3.7E-11	2.7E-11	1.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	2.9E-10	2.1E-10	6.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	1.4E-11	1.8E-11	3.E-11	4.E-11	7.E-11	2.0E-05	2.0E-05	1.1E-10	1.4E-10	6.E-06	7.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	1.3E+05	1.6E-16	9.9E-16	2.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	1.3E-15	7.7E-15	1.E-06	8.E-06	0.00001
	Total PCB TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	5.2E-16	6.7E-16	7.E-11	9.E-11	2.E-10	1.0E-09	1.0E-09	4.1E-15	5.2E-15	4.E-06	5.E-06	0.00001
	Pesticides																
	Aldrin	3.5E-01	ug/kg	1.7E+01	1.7E+01	3.2E-13	5.8E-13	5.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	2.5E-12	4.5E-12	8.E-08	1.E-07	0.0000002
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	1.8E-13	3.2E-13	3.E-12	5.E-12	8.E-12	5.0E-05	5.0E-05	1.4E-12	2.5E-12	3.E-08	5.E-08	0.0000001
	Total DDT	2.8E+01	ug/kg	3.4E-01	3.4E-01	7.7E-12	4.6E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	6.0E-11	3.6E-10	1.E-07	7.E-07	0.000001
Exposure Point Total										2.E-08							0.02
RM 3 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.7E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.7E-09	5.2E-08	3.E-05	2.E-04	0.0002
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	9.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-10	0.E+00	7.E-06	0.00001
	Vanadium	8.8E+01	mg/kg	--	--	0.0E+00	1.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	8.3E+00	ug/kg	--	--	7.5E-12	1.3E-11	--	--	--	3.0E-04	3.0E-04	5.8E-11	1.0E-10	2.E-07	3.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	9.1E-11	1.3E-10	7.E-11	9.E-11	2.E-10	--	--	7.1E-10	9.8E-10	--	--	--
	Benzo(a)pyrene	8.4E+01	ug/kg	7.3E+00	7.3E+00	9.9E-11	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.7E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	9.9E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.6E-10	9.E-11	1.E-10	2.E-10	--	--	9.1E-10	1.3E-09	--	--	--
	Benzo(k)fluoranthene	6.0E+01	ug/kg	7.3E-02	7.3E-02	7.1E-11	9.9E-11	5.E-12	7.E-12	1.E-11	--	--	5.5E-10	7.7E-10	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	1.6E-11	2.2E-11	1.E-10	2.E-10	3.E-10	--	--	1.3E-10	1.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	8.0E-11	1.1E-10	6.E-11	8.E-11	1.E-10	--	--	6.2E-10	8.6E-10	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	1.5E-11	2.1E-11	--	--	--	2.0E-02	2.0E-02	1.2E-10	1.6E-10	6.E-09	8.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.5E+01	ug/kg	1.4E-02	1.4E-02	5.9E-11	1.1E-10	8.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	4.6E-10	8.2E-10	2.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.9E+00	ug/kg	4.0E-01	4.0E-01	4.4E-12	3.2E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	3.4E-11	2.5E-11	7.E-09	5.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+01	ug/kg	2.0E+00	2.0E+00	2.4E-11	3.1E-11	5.E-11	6.E-11	1.E-10	2.0E-05	2.0E-05	1.9E-10	2.4E-10	9.E-06	1.E-05	0.00002

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	1.3E+05	1.3E+05	7.8E-16	4.7E-15	1.E-10	6.E-10	7.E-10	1.0E-09	1.0E-09	6.0E-15	3.6E-14	6.E-06	4.E-05	0.00004
	Total PCB TEQ	7.7E-02	pg/g	1.3E+05	1.3E+05	9.7E-17	1.3E-16	1.E-11	2.E-11	3.E-11	1.0E-09	1.0E-09	7.6E-16	9.7E-16	8.E-07	1.E-06	0.000002
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	2.6E-13	4.7E-13	4.E-12	8.E-12	1.E-11	3.0E-05	3.0E-05	2.0E-12	3.6E-12	7.E-08	1.E-07	0.0000002
	Dieldrin	5.7E-02	ug/kg	1.6E+01	1.6E+01	5.2E-14	9.4E-14	8.E-13	2.E-12	2.E-12	5.0E-05	5.0E-05	4.1E-13	7.3E-13	8.E-09	1.E-08	0.00000002
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	4.3E-13	2.6E-12	1.E-13	9.E-13	1.E-12	5.0E-04	5.0E-04	3.3E-12	2.0E-11	7.E-09	4.E-08	0.00000005
Exposure Point Total										2.E-08							0.02
RM 3.5 West	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	9.4E-09	2.E-09	1.E-08	2.E-08	3.0E-04	3.0E-04	1.2E-08	7.3E-08	4.E-05	2.E-04	0.0003
	Mercury	7.1E-02	mg/kg	--	--	0.0E+00	1.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.0E-10	0.E+00	9.E-06	0.00001
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	7.3E-11	1.3E-10	--	--	--	3.0E-04	3.0E-04	5.7E-10	1.0E-09	2.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	3.1E-10	4.3E-10	2.E-10	3.E-10	5.E-10	--	--	2.4E-09	3.3E-09	--	--	--
	Benzo(a)pyrene	3.9E+02	ug/kg	7.3E+00	7.3E+00	4.6E-10	6.4E-10	3.E-09	5.E-09	8.E-09	--	--	3.6E-09	5.0E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	4.1E-10	5.7E-10	3.E-10	4.E-10	7.E-10	--	--	3.2E-09	4.5E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	1.7E-10	2.4E-10	1.E-11	2.E-11	3.E-11	--	--	1.3E-09	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	5.1E-11	7.1E-11	4.E-10	5.E-10	9.E-10	--	--	4.0E-10	5.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	3.8E-10	5.3E-10	3.E-10	4.E-10	7.E-10	--	--	2.9E-09	4.1E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	1.6E-10	2.2E-10	--	--	--	2.0E-02	2.0E-02	1.2E-09	1.7E-09	6.E-08	8.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	4.2E-11	7.6E-11	6.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	3.3E-10	5.9E-10	2.E-08	3.E-08	0.00000005
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	5.6E-12	4.0E-12	2.E-12	2.E-12	4.E-12	5.0E-03	5.0E-03	4.3E-11	3.1E-11	9.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	2.9E-11	3.7E-11	6.E-11	7.E-11	1.E-10	2.0E-05	2.0E-05	2.2E-10	2.9E-10	1.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	1.3E+05	1.3E+05	2.5E-16	1.5E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.9E-15	1.2E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	5.1E-01	pg/g	1.3E+05	1.3E+05	6.5E-16	8.4E-16	8.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	5.0E-15	6.5E-15	5.E-06	7.E-06	0.00001
	Pesticides																
	Aldrin	2.7E-01	ug/kg	1.7E+01	1.7E+01	2.4E-13	4.3E-13	4.E-12	7.E-12	1.E-11	3.0E-05	3.0E-05	1.9E-12	3.4E-12	6.E-08	1.E-07	0.0000002
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.1E-13	2.1E-13	2.E-12	3.E-12	5.E-12	5.0E-05	5.0E-05	8.8E-13	1.6E-12	2.E-08	3.E-08	0.00000005
	Total DDT	5.8E+00	ug/kg	3.4E-01	3.4E-01	1.6E-12	9.5E-12	5.E-13	3.E-12	4.E-12	5.0E-04	5.0E-04	1.2E-11	7.4E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										3.E-08							0.02
RM 3.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	6.0E-09	2.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	7.8E-09	4.7E-08	3.E-05	2.E-04	0.0002
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.8E+03	ug/kg	--	--	1.6E-09	2.9E-09	--	--	--	3.0E-04	3.0E-04	1.3E-08	2.3E-08	4.E-05	8.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	3.4E-10	4.8E-10	3.E-10	3.E-10	6.E-10	--	--	2.7E-09	3.7E-09	--	--	--
	Benzo(a)pyrene	2.5E+02	ug/kg	7.3E+00	7.3E+00	2.9E-10	4.0E-10	2.E-09	3.E-09	5.E-09	--	--	2.3E-09	3.1E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	4.1E-10	5.7E-10	3.E-10	4.E-10	7.E-10	--	--	3.2E-09	4.5E-09	--	--	--
	Benzo(k)fluoranthene	1.7E+02	ug/kg	7.3E-02	7.3E-02	2.0E-10	2.8E-10	1.E-11	2.E-11	4.E-11	--	--	1.6E-09	2.2E-09	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	4.8E-11	6.7E-11	4.E-10	5.E-10	8.E-10	--	--	3.8E-10	5.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+02	ug/kg	7.3E-01	7.3E-01	1.8E-10	2.4E-10	1.E-10	2.E-10	3.E-10	--	--	1.4E-09	1.9E-09	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	1.6E-11	2.3E-11	--	--	--	2.0E-02	2.0E-02	1.3E-10	1.8E-10	6.E-09	9.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	1.2E-09	2.2E-09	2.E-11	3.E-11	5.E-11	2.0E-02	2.0E-02	9.3E-09	1.7E-08	5.E-07	8.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.0E+00	ug/kg	4.0E-01	4.0E-01	4.6E-12	3.3E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	3.6E-11	2.6E-11	7.E-09	5.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+02	ug/kg	2.0E+00	2.0E+00	4.8E-10	6.1E-10	1.E-09	1.E-09	2.E-09	2.0E-05	2.0E-05	3.7E-09	4.8E-09	2.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	9.1E-16	5.4E-15	1.E-10	7.E-10	8.E-10	1.0E-09	1.0E-09	7.0E-15	4.2E-14	7.E-06	4.E-05	0.00005
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	2.2E-14	2.8E-14	3.E-09	4.E-09	7.E-09	1.0E-09	1.0E-09	1.7E-13	2.2E-13	2.E-04	2.E-04	0.0004
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	3.4E-13	6.1E-13	6.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	2.6E-12	4.7E-12	9.E-08	2.E-07	0.0000002
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.1E-13	2.1E-13	2.E-12	3.E-12	5.E-12	5.0E-05	5.0E-05	8.8E-13	1.6E-12	2.E-08	3.E-08	0.00000005
	Total DDT	6.2E+00	ug/kg	3.4E-01	3.4E-01	1.7E-12	1.0E-11	6.E-13	3.E-12	4.E-12	5.0E-04	5.0E-04	1.3E-11	7.8E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										3.E-08							0.02
RM 4 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	9.2E-10	5.5E-09	1.E-09	8.E-09	1.E-08	3.0E-04	3.0E-04	7.2E-09	4.3E-08	2.E-05	1.E-04	0.0002
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	6.1E+00	ug/kg	--	--	5.5E-12	1.0E-11	--	--	--	3.0E-04	3.0E-04	4.3E-11	7.8E-11	1.E-07	3.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	3.0E-10	4.2E-10	2.E-10	3.E-10	5.E-10	--	--	2.3E-09	3.2E-09	--	--	--
	Benzo(a)pyrene	4.0E+02	ug/kg	7.3E+00	7.3E+00	4.7E-10	6.5E-10	3.E-09	5.E-09	8.E-09	--	--	3.6E-09	5.0E-09	--	--	--
	Benzo(b)fluoranthene	3.6E+02	ug/kg	7.3E-01	7.3E-01	4.2E-10	5.8E-10	3.E-10	4.E-10	7.E-10	--	--	3.3E-09	4.5E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	1.6E-10	2.2E-10	1.E-11	2.E-11	3.E-11	--	--	1.2E-09	1.7E-09	--	--	--
	Dibenzo(a,h)anthracene	4.4E+01	ug/kg	7.3E+00	7.3E+00	5.2E-11	7.2E-11	4.E-10	5.E-10	9.E-10	--	--	4.0E-10	5.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	3.7E-10	5.2E-10	3.E-10	4.E-10	6.E-10	--	--	2.9E-09	4.0E-09	--	--	--
	Naphthalene	7.7E+01	ug/kg	--	--	9.1E-11	1.3E-10	--	--	--	2.0E-02	2.0E-02	7.1E-10	9.8E-10	4.E-08	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.2E+01	ug/kg	1.4E-02	1.4E-02	3.8E-11	6.8E-11	5.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	2.9E-10	5.3E-10	1.E-08	3.E-08	0.00000004

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	4.5E+00	ug/kg	4.0E-01	4.0E-01	1.0E-11	7.3E-12	4.E-12	3.E-12	7.E-12	5.0E-03	5.0E-03	7.9E-11	5.7E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	2.7E-11	3.5E-11	5.E-11	7.E-11	1.E-10	2.0E-05	2.0E-05	2.1E-10	2.7E-10	1.E-05	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	4.4E-16	2.6E-15	6.E-11	3.E-10	4.E-10	1.0E-09	1.0E-09	3.4E-15	2.1E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	6.0E-16	7.7E-16	8.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	4.6E-15	6.0E-15	5.E-06	6.E-06	0.00001
	Pesticides																
	Aldrin	3.9E-01	ug/kg	1.7E+01	1.7E+01	3.5E-13	6.3E-13	6.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	2.7E-12	4.9E-12	9.E-08	2.E-07	0.0000003
	Dieldrin	7.1E-02	ug/kg	1.6E+01	1.6E+01	6.5E-14	1.2E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	5.0E-13	9.1E-13	1.E-08	2.E-08	0.00000003
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	5.2E-12	3.1E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	4.0E-11	2.4E-10	8.E-08	5.E-07	0.000001
Exposure Point Total										2.E-08							0.02
RM 4 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.9E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.9E-09	5.4E-08	3.E-05	2.E-04	0.0002
	Mercury	6.6E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.4E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	2.4E-11	4.3E-11	--	--	--	3.0E-04	3.0E-04	1.8E-10	3.3E-10	6.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.3E+02	ug/kg	7.3E-01	7.3E-01	7.5E-10	1.0E-09	5.E-10	8.E-10	1.E-09	--	--	5.8E-09	8.1E-09	--	--	--
	Benzo(a)pyrene	8.8E+02	ug/kg	7.3E+00	7.3E+00	1.0E-09	1.4E-09	8.E-09	1.E-08	2.E-08	--	--	8.0E-09	1.1E-08	--	--	--
	Benzo(b)fluoranthene	9.0E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.5E-09	8.E-10	1.E-09	2.E-09	--	--	8.3E-09	1.2E-08	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	8.4E-10	1.2E-09	6.E-11	8.E-11	1.E-10	--	--	6.5E-09	9.0E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	1.7E-10	2.3E-10	1.E-09	2.E-09	3.E-09	--	--	1.3E-09	1.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.4E+02	ug/kg	7.3E-01	7.3E-01	7.6E-10	1.0E-09	6.E-10	8.E-10	1.E-09	--	--	5.9E-09	8.2E-09	--	--	--
	Naphthalene	3.9E+01	ug/kg	--	--	4.5E-11	6.3E-11	--	--	--	2.0E-02	2.0E-02	3.5E-10	4.9E-10	2.E-08	2.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+02	ug/kg	1.4E-02	1.4E-02	8.3E-10	1.5E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	6.4E-09	1.2E-08	3.E-07	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.5E+02	ug/kg	4.0E-01	4.0E-01	1.0E-09	7.4E-10	4.E-10	3.E-10	7.E-10	5.0E-03	5.0E-03	7.9E-09	5.7E-09	2.E-06	1.E-06	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	1.9E-10	2.5E-10	4.E-10	5.E-10	9.E-10	2.0E-05	2.0E-05	1.5E-09	1.9E-09	7.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	1.1E-15	6.8E-15	1.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	8.7E-15	5.3E-14	9.E-06	5.E-05	0.0001
	Total PCB TEQ	1.9E+00	pg/g	1.3E+05	1.3E+05	2.4E-15	3.1E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	1.9E-14	2.4E-14	2.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	4.3E-13	7.7E-13	7.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	3.3E-12	6.0E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	8.9E-02	ug/kg	1.6E+01	1.6E+01	8.0E-14	1.5E-13	1.E-12	2.E-12	4.E-12	5.0E-05	5.0E-05	6.3E-13	1.1E-12	1.E-08	2.E-08	0.00000004
	Total DDT	5.4E+00	ug/kg	3.4E-01	3.4E-01	1.5E-12	8.9E-12	5.E-13	3.E-12	4.E-12	5.0E-04	5.0E-04	1.1E-11	6.9E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										4.E-08							0.02

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 4.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	9.8E-10	5.9E-09	1.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	7.6E-09	4.6E-08	3.E-05	2.E-04	0.0002
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	1.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	7.5E+00	ug/kg	--	--	6.8E-12	1.2E-11	--	--	--	3.0E-04	3.0E-04	5.3E-11	9.5E-11	2.E-07	3.E-07	0.0000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	6.5E-10	9.0E-10	5.E-10	7.E-10	1.E-09	--	--	5.1E-09	7.0E-09	--	--	--
	Benzo(a)pyrene	7.6E+02	ug/kg	7.3E+00	7.3E+00	8.9E-10	1.2E-09	7.E-09	9.E-09	2.E-08	--	--	7.0E-09	9.7E-09	--	--	--
	Benzo(b)fluoranthene	6.6E+02	ug/kg	7.3E-01	7.3E-01	7.8E-10	1.1E-09	6.E-10	8.E-10	1.E-09	--	--	6.0E-09	8.4E-09	--	--	--
	Benzo(k)fluoranthene	2.9E+02	ug/kg	7.3E-02	7.3E-02	3.4E-10	4.8E-10	3.E-11	3.E-11	6.E-11	--	--	2.7E-09	3.7E-09	--	--	--
	Dibenzo(a,h)anthracene	8.5E+01	ug/kg	7.3E+00	7.3E+00	1.0E-10	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.8E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	7.0E-10	9.7E-10	5.E-10	7.E-10	1.E-09	--	--	5.5E-09	7.6E-09	--	--	--
	Naphthalene	1.6E+02	ug/kg	--	--	1.9E-10	2.7E-10	--	--	--	2.0E-02	2.0E-02	1.5E-09	2.1E-09	8.E-08	1.E-07	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.0E+01	ug/kg	1.4E-02	1.4E-02	4.5E-11	8.1E-11	6.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	3.5E-10	6.3E-10	2.E-08	3.E-08	0.00000005
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	3.9E-12	2.8E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	3.0E-11	2.2E-11	6.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	3.1E-11	4.0E-11	6.E-11	8.E-11	1.E-10	2.0E-05	2.0E-05	2.4E-10	3.1E-10	1.E-05	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	7.1E-16	4.3E-15	9.E-11	6.E-10	6.E-10	1.0E-09	1.0E-09	5.5E-15	3.3E-14	6.E-06	3.E-05	0.00004
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	1.8E-15	2.3E-15	2.E-10	3.E-10	5.E-10	1.0E-09	1.0E-09	1.4E-14	1.8E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	1.5E-13	2.7E-13	3.E-12	5.E-12	7.E-12	3.0E-05	3.0E-05	1.2E-12	2.1E-12	4.E-08	7.E-08	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.2E-13	2.2E-13	2.E-12	3.E-12	5.E-12	5.0E-05	5.0E-05	9.4E-13	1.7E-12	2.E-08	3.E-08	0.0000001
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	1.2E-12	7.4E-12	4.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	9.6E-12	5.8E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										3.E-08							0.02
RM 4.5 East	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.5E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.4E-09	5.1E-08	3.E-05	2.E-04	0.0002
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.0E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	4.1E+01	ug/kg	--	--	3.7E-11	6.6E-11	--	--	--	3.0E-04	3.0E-04	2.9E-10	5.2E-10	1.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+03	ug/kg	7.3E-01	7.3E-01	3.9E-09	5.4E-09	3.E-09	4.E-09	7.E-09	--	--	3.0E-08	4.2E-08	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	5.1E-09	7.0E-09	4.E-08	5.E-08	9.E-08	--	--	3.9E-08	5.5E-08	--	--	--
	Benzo(b)fluoranthene	3.8E+03	ug/kg	7.3E-01	7.3E-01	4.4E-09	6.1E-09	3.E-09	4.E-09	8.E-09	--	--	3.4E-08	4.8E-08	--	--	--
	Benzo(k)fluoranthene	3.4E+03	ug/kg	7.3E-02	7.3E-02	4.0E-09	5.5E-09	3.E-10	4.E-10	7.E-10	--	--	3.1E-08	4.3E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	8.4E-10	1.2E-09	6.E-09	8.E-09	1.E-08	--	--	6.5E-09	9.0E-09	--	--	--

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	3.0E+03	ug/kg	7.3E-01	7.3E-01	3.6E-09	5.0E-09	3.E-09	4.E-09	6.E-09	--	--	2.8E-08	3.9E-08	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	1.7E-10	2.4E-10	--	--	--	2.0E-02	2.0E-02	1.3E-09	1.9E-09	7.E-08	9.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.3E+01	ug/kg	1.4E-02	1.4E-02	7.6E-11	1.4E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	5.9E-10	1.1E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.8E+00	ug/kg	4.0E-01	4.0E-01	4.0E-12	2.9E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	3.1E-11	2.3E-11	6.E-09	5.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	4.4E-11	5.6E-11	9.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.4E-10	4.4E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	7.5E-17	4.5E-16	1.E-11	6.E-11	7.E-11	1.0E-09	1.0E-09	5.8E-16	3.5E-15	6.E-07	4.E-06	0.000004
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	4.1E-16	5.3E-16	5.E-11	7.E-11	1.E-10	1.0E-09	1.0E-09	3.2E-15	4.1E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	9.7E-14	1.8E-13	2.E-12	3.E-12	5.E-12	3.0E-05	3.0E-05	7.6E-13	1.4E-12	3.E-08	5.E-08	0.0000001
	Dieldrin	5.8E-02	ug/kg	1.6E+01	1.6E+01	5.3E-14	9.5E-14	8.E-13	2.E-12	2.E-12	5.0E-05	5.0E-05	4.1E-13	7.4E-13	8.E-09	1.E-08	0.00000002
	Total DDT	4.9E+00	ug/kg	3.4E-01	3.4E-01	1.3E-12	8.0E-12	4.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	1.0E-11	6.2E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										1.E-07							0.02
RM 5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	8.8E-10	5.3E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.9E-09	4.1E-08	2.E-05	1.E-04	0.0002
	Mercury	5.2E-02	mg/kg	--	--	0.0E+00	8.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.7E-10	0.E+00	7.E-06	0.00001
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	1.6E-11	2.9E-11	--	--	--	3.0E-04	3.0E-04	1.3E-10	2.3E-10	4.E-07	8.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E+02	ug/kg	7.3E-01	7.3E-01	7.0E-10	9.7E-10	5.E-10	7.E-10	1.E-09	--	--	5.4E-09	7.5E-09	--	--	--
	Benzo(a)pyrene	7.9E+02	ug/kg	7.3E+00	7.3E+00	9.3E-10	1.3E-09	7.E-09	9.E-09	2.E-08	--	--	7.3E-09	1.0E-08	--	--	--
	Benzo(b)fluoranthene	5.7E+02	ug/kg	7.3E-01	7.3E-01	6.7E-10	9.3E-10	5.E-10	7.E-10	1.E-09	--	--	5.2E-09	7.2E-09	--	--	--
	Benzo(k)fluoranthene	4.1E+02	ug/kg	7.3E-02	7.3E-02	4.9E-10	6.7E-10	4.E-11	5.E-11	8.E-11	--	--	3.8E-09	5.2E-09	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	9.6E-11	1.3E-10	7.E-10	1.E-09	2.E-09	--	--	7.5E-10	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	6.9E-10	9.6E-10	5.E-10	7.E-10	1.E-09	--	--	5.4E-09	7.5E-09	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	1.6E-10	2.2E-10	--	--	--	2.0E-02	2.0E-02	1.3E-09	1.7E-09	6.E-08	9.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	6.4E-11	1.2E-10	9.E-13	2.E-12	3.E-12	2.0E-02	2.0E-02	5.0E-10	9.0E-10	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.1E+01	ug/kg	4.0E-01	4.0E-01	4.7E-11	3.4E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	3.7E-10	2.7E-10	7.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	2.1E-11	2.8E-11	4.E-11	6.E-11	1.E-10	2.0E-05	2.0E-05	1.7E-10	2.2E-10	8.E-06	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	1.3E+05	1.3E+05	9.4E-16	5.7E-15	1.E-10	7.E-10	9.E-10	1.0E-09	1.0E-09	7.3E-15	4.4E-14	7.E-06	4.E-05	0.0001
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	1.5E-15	1.9E-15	2.E-10	2.E-10	4.E-10	1.0E-09	1.0E-09	1.2E-14	1.5E-14	1.E-05	1.E-05	0.00003

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	4.0E-13	7.2E-13	7.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	3.1E-12	5.6E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	1.3E-13	2.4E-13	2.E-12	4.E-12	6.E-12	5.0E-05	5.0E-05	1.0E-12	1.9E-12	2.E-08	4.E-08	0.0000001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	3.1E-12	1.9E-11	1.E-12	6.E-12	7.E-12	5.0E-04	5.0E-04	2.4E-11	1.5E-10	5.E-08	3.E-07	0.0000003
Exposure Point Total										3.E-08							0.02
RM 5 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	8.8E-10	5.3E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.9E-09	4.1E-08	2.E-05	1.E-04	0.0002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.7E-10	0.E+00	9.E-06	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	5.7E+01	ug/kg	--	--	5.2E-11	9.3E-11	--	--	--	3.0E-04	3.0E-04	4.0E-10	7.3E-10	1.E-06	2.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.5E-10	2.E-10	3.E-10	4.E-10	--	--	2.0E-09	2.7E-09	--	--	--
	Benzo(a)pyrene	3.0E+02	ug/kg	7.3E+00	7.3E+00	3.5E-10	4.9E-10	3.E-09	4.E-09	6.E-09	--	--	2.7E-09	3.8E-09	--	--	--
	Benzo(b)fluoranthene	3.2E+02	ug/kg	7.3E-01	7.3E-01	3.8E-10	5.2E-10	3.E-10	4.E-10	7.E-10	--	--	2.9E-09	4.1E-09	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	1.8E-10	2.5E-10	1.E-11	2.E-11	3.E-11	--	--	1.4E-09	1.9E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	5.1E-11	7.0E-11	4.E-10	5.E-10	9.E-10	--	--	3.9E-10	5.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+02	ug/kg	7.3E-01	7.3E-01	2.8E-10	3.9E-10	2.E-10	3.E-10	5.E-10	--	--	2.2E-09	3.1E-09	--	--	--
	Naphthalene	5.5E+01	ug/kg	--	--	6.4E-11	8.9E-11	--	--	--	2.0E-02	2.0E-02	5.0E-10	6.9E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.5E+01	ug/kg	1.4E-02	1.4E-02	7.7E-11	1.4E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	6.0E-10	1.1E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	6.5E+00	ug/kg	4.0E-01	4.0E-01	1.5E-11	1.1E-11	6.E-12	4.E-12	1.E-11	5.0E-03	5.0E-03	1.2E-10	8.3E-11	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+01	ug/kg	2.0E+00	2.0E+00	2.5E-11	3.2E-11	5.E-11	6.E-11	1.E-10	2.0E-05	2.0E-05	1.9E-10	2.5E-10	1.E-05	1.E-05	0.00002
	Pesticides																
	Aldrin	1.9E-01	ug/kg	1.7E+01	1.7E+01	1.7E-13	3.1E-13	3.E-12	5.E-12	8.E-12	3.0E-05	3.0E-05	1.3E-12	2.4E-12	4.E-08	8.E-08	0.0000001
	Dieldrin	1.9E-01	ug/kg	1.6E+01	1.6E+01	1.7E-13	3.1E-13	3.E-12	5.E-12	8.E-12	5.0E-05	5.0E-05	1.3E-12	2.4E-12	3.E-08	5.E-08	0.0000001
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	3.7E-13	2.2E-12	1.E-13	8.E-13	9.E-13	5.0E-04	5.0E-04	2.9E-12	1.7E-11	6.E-09	3.E-08	0.00000004
Exposure Point Total										2.E-08							0.02
RM 5.5 West	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	7.0E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	9.0E-09	5.4E-08	3.E-05	2.E-04	0.0002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.7E-10	0.E+00	9.E-06	0.00001
	Vanadium	9.2E+01	mg/kg	--	--	0.0E+00	1.5E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	1.6E-11	2.8E-11	--	--	--	3.0E-04	3.0E-04	1.2E-10	2.2E-10	4.E-07	7.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-09	2.2E-09	1.E-09	2.E-09	3.E-09	--	--	1.2E-08	1.7E-08	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	2.2E-09	3.1E-09	2.E-08	2.E-08	4.E-08	--	--	1.7E-08	2.4E-08	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	1.8E-09	2.5E-09	1.E-09	2.E-09	3.E-09	--	--	1.4E-08	2.0E-08	--	--	--
	Benzo(k)fluoranthene	7.5E+02	ug/kg	7.3E-02	7.3E-02	8.8E-10	1.2E-09	6.E-11	9.E-11	2.E-10	--	--	6.9E-09	9.5E-09	--	--	--

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.8E-10	1.E-09	2.E-09	3.E-09	--	--	1.6E-09	2.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	1.7E-09	2.4E-09	1.E-09	2.E-09	3.E-09	--	--	1.4E-08	1.9E-08	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	1.4E-10	1.9E-10	--	--	--	2.0E-02	2.0E-02	1.1E-09	1.5E-09	5.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.4E+01	ug/kg	1.4E-02	1.4E-02	6.8E-11	1.2E-10	9.E-13	2.E-12	3.E-12	2.0E-02	2.0E-02	5.3E-10	9.5E-10	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.2E+01	ug/kg	4.0E-01	4.0E-01	2.7E-11	2.0E-11	1.E-11	8.E-12	2.E-11	5.0E-03	5.0E-03	2.1E-10	1.5E-10	4.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	4.1E-11	5.3E-11	8.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.2E-10	4.1E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	4.0E-16	2.4E-15	5.E-11	3.E-10	4.E-10	1.0E-09	1.0E-09	3.1E-15	1.9E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	5.8E-01	pg/g	1.3E+05	1.3E+05	7.4E-16	9.5E-16	1.E-10	1.E-10	2.E-10	1.0E-09	1.0E-09	5.7E-15	7.4E-15	6.E-06	7.E-06	0.00001
	Pesticides																
	Aldrin	4.2E-01	ug/kg	1.7E+01	1.7E+01	3.8E-13	6.8E-13	6.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	2.9E-12	5.3E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	2.8E-13	5.1E-13	5.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	2.2E-12	4.0E-12	4.E-08	8.E-08	0.0000001
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	5.2E-12	3.1E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	4.1E-11	2.4E-10	8.E-08	5.E-07	0.000001
Exposure Point Total										6.E-08							0.02
RM 5.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	9.4E-09	2.E-09	1.E-08	2.E-08	3.0E-04	3.0E-04	1.2E-08	7.3E-08	4.E-05	2.E-04	0.0003
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	3.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.9E-09	0.E+00	3.E-05	0.00003
	Vanadium	8.5E+01	mg/kg	--	--	0.0E+00	1.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.7E+02	ug/kg	--	--	1.6E-10	2.8E-10	--	--	--	3.0E-04	3.0E-04	1.2E-09	2.2E-09	4.E-06	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.6E+02	ug/kg	7.3E-01	7.3E-01	5.4E-10	7.6E-10	4.E-10	6.E-10	9.E-10	--	--	4.2E-09	5.9E-09	--	--	--
	Benzo(a)pyrene	5.6E+02	ug/kg	7.3E+00	7.3E+00	6.6E-10	9.2E-10	5.E-09	7.E-09	1.E-08	--	--	5.1E-09	7.1E-09	--	--	--
	Benzo(b)fluoranthene	6.8E+02	ug/kg	7.3E-01	7.3E-01	8.0E-10	1.1E-09	6.E-10	8.E-10	1.E-09	--	--	6.2E-09	8.6E-09	--	--	--
	Benzo(k)fluoranthene	2.6E+02	ug/kg	7.3E-02	7.3E-02	3.1E-10	4.3E-10	2.E-11	3.E-11	5.E-11	--	--	2.4E-09	3.3E-09	--	--	--
	Dibenzo(a,h)anthracene	8.8E+01	ug/kg	7.3E+00	7.3E+00	1.0E-10	1.4E-10	8.E-10	1.E-09	2.E-09	--	--	8.1E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.3E+02	ug/kg	7.3E-01	7.3E-01	5.0E-10	7.0E-10	4.E-10	5.E-10	9.E-10	--	--	3.9E-09	5.4E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	1.6E-10	2.2E-10	--	--	--	2.0E-02	2.0E-02	1.2E-09	1.7E-09	6.E-08	9.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	2.3E-10	4.2E-10	3.E-12	6.E-12	9.E-12	2.0E-02	2.0E-02	1.8E-09	3.3E-09	9.E-08	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	3.1E-11	2.2E-11	1.E-11	9.E-12	2.E-11	5.0E-03	5.0E-03	2.4E-10	1.7E-10	5.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+02	ug/kg	2.0E+00	2.0E+00	1.3E-10	1.7E-10	3.E-10	3.E-10	6.E-10	2.0E-05	2.0E-05	1.0E-09	1.3E-09	5.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	1.3E+05	1.3E+05	1.2E-15	7.3E-15	2.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	9.4E-15	5.7E-14	9.E-06	6.E-05	0.0001
	Total PCB TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	2.6E-15	3.3E-15	3.E-10	4.E-10	8.E-10	1.0E-09	1.0E-09	2.0E-14	2.6E-14	2.E-05	3.E-05	0.00005

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	3.7E-13	6.7E-13	6.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	2.9E-12	5.2E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	4.7E-01	ug/kg	1.6E+01	1.6E+01	4.3E-13	7.7E-13	7.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	3.3E-12	6.0E-12	7.E-08	1.E-07	0.0000002
	Total DDT	8.2E+00	ug/kg	3.4E-01	3.4E-01	2.2E-12	1.3E-11	8.E-13	5.E-12	5.E-12	5.0E-04	5.0E-04	1.7E-11	1.0E-10	3.E-08	2.E-07	0.0000002
Exposure Point Total										4.E-08							0.02
RM 6 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	9.9E-10	6.0E-09	1.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	7.7E-09	4.7E-08	3.E-05	2.E-04	0.0002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	1.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.5E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.2E-11	2.1E-11	--	--	--	3.0E-04	3.0E-04	9.1E-11	1.6E-10	3.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+04	ug/kg	7.3E-01	7.3E-01	3.0E-08	4.1E-08	2.E-08	3.E-08	5.E-08	--	--	2.3E-07	3.2E-07	--	--	--
	Benzo(a)pyrene	3.1E+04	ug/kg	7.3E+00	7.3E+00	3.7E-08	5.1E-08	3.E-07	4.E-07	6.E-07	--	--	2.8E-07	3.9E-07	--	--	--
	Benzo(b)fluoranthene	2.2E+04	ug/kg	7.3E-01	7.3E-01	2.6E-08	3.6E-08	2.E-08	3.E-08	5.E-08	--	--	2.0E-07	2.8E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+04	ug/kg	7.3E-02	7.3E-02	1.7E-08	2.3E-08	1.E-09	2.E-09	3.E-09	--	--	1.3E-07	1.8E-07	--	--	--
	Dibenzo(a,h)anthracene	2.9E+03	ug/kg	7.3E+00	7.3E+00	3.4E-09	4.8E-09	3.E-08	3.E-08	6.E-08	--	--	2.7E-08	3.7E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+04	ug/kg	7.3E-01	7.3E-01	2.5E-08	3.5E-08	2.E-08	3.E-08	4.E-08	--	--	1.9E-07	2.7E-07	--	--	--
	Naphthalene	1.1E+04	ug/kg	--	--	1.3E-08	1.8E-08	--	--	--	2.0E-02	2.0E-02	9.9E-08	1.4E-07	5.E-06	7.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.2E+02	ug/kg	1.4E-02	1.4E-02	2.0E-10	3.6E-10	3.E-12	5.E-12	8.E-12	2.0E-02	2.0E-02	1.5E-09	2.8E-09	8.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	2.2E+01	ug/kg	4.0E-01	4.0E-01	5.0E-11	3.6E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	3.9E-10	2.8E-10	8.E-08	6.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+01	ug/kg	2.0E+00	2.0E+00	5.4E-11	7.0E-11	1.E-10	1.E-10	2.E-10	2.0E-05	2.0E-05	4.2E-10	5.4E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	4.2E-16	2.5E-15	5.E-11	3.E-10	4.E-10	1.0E-09	1.0E-09	3.2E-15	1.9E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	1.8E-15	2.4E-15	2.E-10	3.E-10	5.E-10	1.0E-09	1.0E-09	1.4E-14	1.8E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	1.1E-12	2.0E-12	2.E-11	3.E-11	5.E-11	3.0E-05	3.0E-05	8.8E-12	1.6E-11	3.E-07	5.E-07	0.000001
	Dieldrin	1.1E+00	ug/kg	1.6E+01	1.6E+01	1.0E-12	1.8E-12	2.E-11	3.E-11	5.E-11	5.0E-05	5.0E-05	7.9E-12	1.4E-11	2.E-07	3.E-07	0.0000004
	Total DDT	3.6E+01	ug/kg	3.4E-01	3.4E-01	9.7E-12	5.9E-11	3.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	7.6E-11	4.6E-10	2.E-07	9.E-07	0.000001
Exposure Point Total										9.E-07							0.02
RM 6 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	6.0E-09	2.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	7.8E-09	4.7E-08	3.E-05	2.E-04	0.0002
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	4.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-09	0.E+00	4.E-05	0.00004
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	1.5E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.8E+02	ug/kg	--	--	1.6E-10	2.9E-10	--	--	--	3.0E-04	3.0E-04	1.3E-09	2.3E-09	4.E-06	8.E-06	0.00001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+02	ug/kg	7.3E-01	7.3E-01	6.2E-10	8.7E-10	5.E-10	6.E-10	1.E-09	--	--	4.9E-09	6.7E-09	--	--	--
	Benzo(a)pyrene	7.5E+02	ug/kg	7.3E+00	7.3E+00	8.8E-10	1.2E-09	6.E-09	9.E-09	2.E-08	--	--	6.9E-09	9.5E-09	--	--	--
	Benzo(b)fluoranthene	7.3E+02	ug/kg	7.3E-01	7.3E-01	8.6E-10	1.2E-09	6.E-10	9.E-10	1.E-09	--	--	6.7E-09	9.3E-09	--	--	--
	Benzo(k)fluoranthene	4.6E+02	ug/kg	7.3E-02	7.3E-02	5.4E-10	7.5E-10	4.E-11	6.E-11	9.E-11	--	--	4.2E-09	5.9E-09	--	--	--
	Dibenzo(a,h)anthracene	9.6E+01	ug/kg	7.3E+00	7.3E+00	1.1E-10	1.6E-10	8.E-10	1.E-09	2.E-09	--	--	8.8E-10	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.2E+02	ug/kg	7.3E-01	7.3E-01	5.0E-10	6.9E-10	4.E-10	5.E-10	9.E-10	--	--	3.9E-09	5.4E-09	--	--	--
	Naphthalene	2.5E+02	ug/kg	--	--	2.9E-10	4.1E-10	--	--	--	2.0E-02	2.0E-02	2.3E-09	3.2E-09	1.E-07	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	7.4E-11	1.3E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	5.8E-10	1.0E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	7.7E+00	ug/kg	4.0E-01	4.0E-01	1.8E-11	1.3E-11	7.E-12	5.E-12	1.E-11	5.0E-03	5.0E-03	1.4E-10	9.8E-11	3.E-08	2.E-08	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	9.7E-11	1.3E-10	2.E-10	3.E-10	4.E-10	2.0E-05	2.0E-05	7.6E-10	9.7E-10	4.E-05	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	1.3E+05	1.3E+05	8.6E-16	5.2E-15	1.E-10	7.E-10	8.E-10	1.0E-09	1.0E-09	6.7E-15	4.0E-14	7.E-06	4.E-05	0.00005
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	1.6E-15	2.0E-15	2.E-10	3.E-10	5.E-10	1.0E-09	1.0E-09	1.2E-14	1.6E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	3.7E-13	6.7E-13	6.E-12	1.E-11	2.E-11	3.0E-05	3.0E-05	2.9E-12	5.2E-12	1.E-07	2.E-07	0.0000003
	Dieldrin	4.4E-02	ug/kg	1.6E+01	1.6E+01	4.0E-14	7.3E-14	6.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	3.1E-13	5.7E-13	6.E-09	1.E-08	0.00000002
	Total DDT	2.9E+00	ug/kg	3.4E-01	3.4E-01	8.0E-13	4.8E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	6.2E-12	3.7E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										3.E-08							0.02
RM 6.5 West	**Metals**																
	Arsenic	7.4E+00	mg/kg	1.5E+00	1.5E+00	2.0E-09	1.2E-08	3.E-09	2.E-08	2.E-08	3.0E-04	3.0E-04	1.6E-08	9.4E-08	5.E-05	3.E-04	0.0004
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	1.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	2.0E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.5E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	2.4E-11	4.3E-11	--	--	--	3.0E-04	3.0E-04	1.9E-10	3.3E-10	6.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.4E+02	ug/kg	7.3E-01	7.3E-01	8.8E-10	1.2E-09	6.E-10	9.E-10	2.E-09	--	--	6.8E-09	9.5E-09	--	--	--
	Benzo(a)pyrene	9.1E+02	ug/kg	7.3E+00	7.3E+00	1.1E-09	1.5E-09	8.E-09	1.E-08	2.E-08	--	--	8.4E-09	1.2E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+03	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.7E-09	9.E-10	1.E-09	2.E-09	--	--	9.3E-09	1.3E-08	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	4.8E-10	6.6E-10	3.E-11	5.E-11	8.E-11	--	--	3.7E-09	5.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.8E-10	1.E-09	2.E-09	3.E-09	--	--	1.5E-09	2.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.2E+02	ug/kg	7.3E-01	7.3E-01	7.3E-10	1.0E-09	5.E-10	7.E-10	1.E-09	--	--	5.7E-09	7.9E-09	--	--	--
	Naphthalene	1.1E+02	ug/kg	--	--	1.2E-10	1.7E-10	--	--	--	2.0E-02	2.0E-02	9.7E-10	1.3E-09	5.E-08	7.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+01	ug/kg	1.4E-02	1.4E-02	7.3E-11	1.3E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	5.7E-10	1.0E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	3.6E-12	2.6E-12	1.E-12	1.E-12	2.E-12	5.0E-03	5.0E-03	2.8E-11	2.0E-11	6.E-09	4.E-09	0.00000001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	6.4E+01	ug/kg	2.0E+00	2.0E+00	8.1E-11	1.0E-10	2.E-10	2.E-10	4.E-10	2.0E-05	2.0E-05	6.3E-10	8.1E-10	3.E-05	4.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	1.3E+05	1.3E+05	5.7E-15	3.4E-14	7.E-10	4.E-09	5.E-09	1.0E-09	1.0E-09	4.4E-14	2.7E-13	4.E-05	3.E-04	0.0003
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	2.3E-15	2.9E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	1.8E-14	2.3E-14	2.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	1.7E+00	ug/kg	1.7E+01	1.7E+01	1.6E-12	2.8E-12	3.E-11	5.E-11	8.E-11	3.0E-05	3.0E-05	1.2E-11	2.2E-11	4.E-07	7.E-07	0.000001
	Dieldrin	5.4E-01	ug/kg	1.6E+01	1.6E+01	4.9E-13	8.9E-13	8.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	3.8E-12	6.9E-12	8.E-08	1.E-07	0.0000002
	Total DDT	9.2E+01	ug/kg	3.4E-01	3.4E-01	2.5E-11	1.5E-10	9.E-12	5.E-11	6.E-11	5.0E-04	5.0E-04	1.9E-10	1.2E-09	4.E-07	2.E-06	0.000003
Exposure Point Total										5.E-08							0.02
RM 6.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.8E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.8E-09	5.3E-08	3.E-05	2.E-04	0.0002
	Mercury	2.2E+00	mg/kg	--	--	0.0E+00	3.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.8E-08	0.E+00	3.E-04	0.0003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	3.9E-11	7.0E-11	--	--	--	3.0E-04	3.0E-04	3.0E-10	5.4E-10	1.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.8E-10	9.E-11	1.E-10	2.E-10	--	--	1.0E-09	1.4E-09	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.0E-10	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.9E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.8E-10	1.E-10	1.E-10	2.E-10	--	--	1.0E-09	1.4E-09	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	7.2E-11	1.0E-10	5.E-12	7.E-12	1.E-11	--	--	5.6E-10	7.7E-10	--	--	--
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	1.7E-11	2.4E-11	1.E-10	2.E-10	3.E-10	--	--	1.4E-10	1.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+01	ug/kg	7.3E-01	7.3E-01	6.9E-11	9.6E-11	5.E-11	7.E-11	1.E-10	--	--	5.4E-10	7.4E-10	--	--	--
	Naphthalene	6.5E+01	ug/kg	--	--	7.6E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	5.9E-10	8.2E-10	3.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	8.5E-11	1.5E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	6.6E-10	1.2E-09	3.E-08	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	8.9E-12	6.4E-12	4.E-12	3.E-12	6.E-12	5.0E-03	5.0E-03	6.9E-11	5.0E-11	1.E-08	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+02	ug/kg	2.0E+00	2.0E+00	2.6E-10	3.3E-10	5.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	2.0E-09	2.6E-09	1.E-04	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	1.3E+05	1.3E+05	5.5E-15	3.3E-14	7.E-10	4.E-09	5.E-09	1.0E-09	1.0E-09	4.2E-14	2.6E-13	4.E-05	3.E-04	0.0003
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	3.8E-15	4.9E-15	5.E-10	6.E-10	1.E-09	1.0E-09	1.0E-09	3.0E-14	3.8E-14	3.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	7.6E-02	ug/kg	1.7E+01	1.7E+01	6.9E-14	1.2E-13	1.E-12	2.E-12	3.E-12	3.0E-05	3.0E-05	5.4E-13	9.7E-13	2.E-08	3.E-08	0.0000001
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	1.4E-13	2.5E-13	2.E-12	4.E-12	6.E-12	5.0E-05	5.0E-05	1.1E-12	1.9E-12	2.E-08	4.E-08	0.0000001
	Total DDT	1.5E+01	ug/kg	3.4E-01	3.4E-01	4.1E-12	2.5E-11	1.E-12	8.E-12	1.E-11	5.0E-04	5.0E-04	3.2E-11	1.9E-10	6.E-08	4.E-07	0.0000004
Exposure Point Total										2.E-08							0.02
RM 7 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.8E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.8E-09	5.3E-08	3.E-05	2.E-04	0.0002
	Mercury	8.1E-02	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	6.0E+00	ug/kg	--	--	5.4E-12	9.7E-12	--	--	--	3.0E-04	3.0E-04	4.2E-11	7.6E-11	1.E-07	3.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.6E+02	ug/kg	7.3E-01	7.3E-01	6.6E-10	9.2E-10	5.E-10	7.E-10	1.E-09	--	--	5.2E-09	7.2E-09	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	5.5E-10	7.6E-10	4.E-09	6.E-09	1.E-08	--	--	4.3E-09	5.9E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+03	ug/kg	7.3E-01	7.3E-01	1.3E-09	1.7E-09	9.E-10	1.E-09	2.E-09	--	--	9.8E-09	1.4E-08	--	--	--
	Benzo(k)fluoranthene	3.9E+02	ug/kg	7.3E-02	7.3E-02	4.6E-10	6.4E-10	3.E-11	5.E-11	8.E-11	--	--	3.6E-09	5.0E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	1.5E-10	2.1E-10	1.E-09	2.E-09	3.E-09	--	--	1.2E-09	1.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	4.3E-10	6.0E-10	3.E-10	4.E-10	8.E-10	--	--	3.4E-09	4.7E-09	--	--	--
	Naphthalene	8.8E+00	ug/kg	--	--	1.0E-11	1.4E-11	--	--	--	2.0E-02	2.0E-02	8.1E-11	1.1E-10	4.E-09	6.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.1E+02	ug/kg	1.4E-02	1.4E-02	1.9E-10	3.4E-10	3.E-12	5.E-12	7.E-12	2.0E-02	2.0E-02	1.5E-09	2.7E-09	7.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	6.2E-11	4.5E-11	2.E-11	2.E-11	4.E-11	5.0E-03	5.0E-03	4.8E-10	3.5E-10	1.E-07	7.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	7.1E+01	ug/kg	2.0E+00	2.0E+00	9.0E-11	1.2E-10	2.E-10	2.E-10	4.E-10	2.0E-05	2.0E-05	7.0E-10	9.0E-10	3.E-05	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	1.3E+05	1.3E+05	4.5E-13	2.7E-12	6.E-08	4.E-07	4.E-07	1.0E-09	1.0E-09	3.5E-12	2.1E-11	4.E-03	2.E-02	0.02
	Total PCB TEQ	7.7E+00	pg/g	1.3E+05	1.3E+05	9.7E-15	1.3E-14	1.E-09	2.E-09	3.E-09	1.0E-09	1.0E-09	7.6E-14	9.7E-14	8.E-05	1.E-04	0.0002
	Pesticides																
	Aldrin	2.7E+01	ug/kg	1.7E+01	1.7E+01	2.4E-11	4.4E-11	4.E-10	7.E-10	1.E-09	3.0E-05	3.0E-05	1.9E-10	3.4E-10	6.E-06	1.E-05	0.00002
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	1.2E-12	2.1E-12	2.E-11	3.E-11	5.E-11	5.0E-05	5.0E-05	9.0E-12	1.6E-11	2.E-07	3.E-07	0.000001
	Total DDT	2.3E+03	ug/kg	3.4E-01	3.4E-01	6.4E-10	3.8E-09	2.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	5.0E-09	3.0E-08	1.E-05	6.E-05	0.0001
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	8.0E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	6.3E-07	0.E+00	9.E-04	0.001
Exposure Point Total										4.E-07							0.04
RM 7 East	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	2.7E-09	1.6E-08	4.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	2.1E-08	1.3E-07	7.E-05	4.E-04	0.0005
	Mercury	5.8E-02	mg/kg	--	--	0.0E+00	9.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.3E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.6E+02	ug/kg	--	--	2.4E-10	4.3E-10	--	--	--	3.0E-04	3.0E-04	1.9E-09	3.4E-09	6.E-06	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.0E-10	1.E-10	1.E-10	3.E-10	--	--	1.1E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	1.6E+02	ug/kg	7.3E+00	7.3E+00	1.9E-10	2.6E-10	1.E-09	2.E-09	3.E-09	--	--	1.4E-09	2.0E-09	--	--	--
	Benzo(b)fluoranthene	2.1E+02	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.4E-10	2.E-10	3.E-10	4.E-10	--	--	1.9E-09	2.7E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	1.3E-10	1.9E-10	1.E-11	1.E-11	2.E-11	--	--	1.0E-09	1.4E-09	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	5.0E-11	7.0E-11	4.E-10	5.E-10	9.E-10	--	--	3.9E-10	5.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.7E-10	9.E-11	1.E-10	2.E-10	--	--	9.7E-10	1.3E-09	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	2.6E-11	3.6E-11	--	--	--	2.0E-02	2.0E-02	2.0E-10	2.8E-10	1.E-08	1.E-08	0.00000002

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+02	ug/kg	1.4E-02	1.4E-02	2.7E-10	5.0E-10	4.E-12	7.E-12	1.E-11	2.0E-02	2.0E-02	2.1E-09	3.9E-09	1.E-07	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	7.7E+01	ug/kg	4.0E-01	4.0E-01	1.7E-10	1.3E-10	7.E-11	5.E-11	1.E-10	5.0E-03	5.0E-03	1.4E-09	9.8E-10	3.E-07	2.E-07	0.0000005
	Polychlorinated Biphenyls																
	Total Aroclors	4.2E+01	ug/kg	2.0E+00	2.0E+00	5.3E-11	6.9E-11	1.E-10	1.E-10	2.E-10	2.0E-05	2.0E-05	4.1E-10	5.3E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	4.5E-15	2.7E-14	6.E-10	4.E-09	4.E-09	1.0E-09	1.0E-09	3.5E-14	2.1E-13	4.E-05	2.E-04	0.0002
	Total PCB TEQ	5.5E-01	pg/g	1.3E+05	1.3E+05	7.0E-16	9.0E-16	9.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	5.4E-15	7.0E-15	5.E-06	7.E-06	0.00001
	Pesticides																
	Aldrin	1.3E-01	ug/kg	1.7E+01	1.7E+01	1.2E-13	2.2E-13	2.E-12	4.E-12	6.E-12	3.0E-05	3.0E-05	9.4E-13	1.7E-12	3.E-08	6.E-08	0.0000001
	Dieldrin	8.2E-02	ug/kg	1.6E+01	1.6E+01	7.4E-14	1.3E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	5.8E-13	1.0E-12	1.E-08	2.E-08	0.00000003
	Total DDT	3.6E+00	ug/kg	3.4E-01	3.4E-01	9.7E-13	5.8E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	7.5E-12	4.5E-11	2.E-08	9.E-08	0.0000001
Exposure Point Total										4.E-08							0.02
RM 7.5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	8.8E-10	5.3E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.8E-09	4.1E-08	2.E-05	1.E-04	0.0002
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	1.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-10	0.E+00	1.E-05	0.00001
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	5.4E+00	ug/kg	--	--	4.9E-12	8.8E-12	--	--	--	3.0E-04	3.0E-04	3.8E-11	6.9E-11	1.E-07	2.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.4E-10	1.E-10	2.E-10	3.E-10	--	--	1.4E-09	1.9E-09	--	--	--
	Benzo(a)pyrene	1.3E+02	ug/kg	7.3E+00	7.3E+00	1.5E-10	2.1E-10	1.E-09	2.E-09	3.E-09	--	--	1.2E-09	1.6E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	2.0E-10	2.8E-10	1.E-10	2.E-10	3.E-10	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	7.2E-11	9.9E-11	5.E-12	7.E-12	1.E-11	--	--	5.6E-10	7.7E-10	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	2.3E-11	3.2E-11	2.E-10	2.E-10	4.E-10	--	--	1.8E-10	2.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.4E+01	ug/kg	7.3E-01	7.3E-01	9.9E-11	1.4E-10	7.E-11	1.E-10	2.E-10	--	--	7.7E-10	1.1E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	2.9E-11	4.1E-11	--	--	--	2.0E-02	2.0E-02	2.3E-10	3.2E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	1.3E-10	2.3E-10	2.E-12	3.E-12	5.E-12	2.0E-02	2.0E-02	1.0E-09	1.8E-09	5.E-08	9.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	3.5E-12	2.5E-12	1.E-12	1.E-12	2.E-12	5.0E-03	5.0E-03	2.7E-11	1.9E-11	5.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	8.6E+01	ug/kg	2.0E+00	2.0E+00	1.1E-10	1.4E-10	2.E-10	3.E-10	5.E-10	2.0E-05	2.0E-05	8.5E-10	1.1E-09	4.E-05	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	2.5E-16	1.5E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	2.0E-15	1.2E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	8.4E-16	1.1E-15	1.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	6.6E-15	8.5E-15	7.E-06	8.E-06	0.00002

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	1.8E-01	ug/kg	1.7E+01	1.7E+01	1.7E-13	3.0E-13	3.E-12	5.E-12	8.E-12	3.0E-05	3.0E-05	1.3E-12	2.3E-12	4.E-08	8.E-08	0.0000001
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	1.6E-13	2.9E-13	3.E-12	5.E-12	7.E-12	5.0E-05	5.0E-05	1.3E-12	2.3E-12	3.E-08	5.E-08	0.0000001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	5.7E-12	3.4E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	4.4E-11	2.7E-10	9.E-08	5.E-07	0.000001
Exposure Point Total										1.E-08							0.02
RM 7.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	8.9E-10	5.4E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.9E-09	4.2E-08	2.E-05	1.E-04	0.0002
	Mercury	7.6E-02	mg/kg	--	--	0.0E+00	1.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.7E-10	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.6E+02	ug/kg	--	--	1.5E-10	2.6E-10	--	--	--	3.0E-04	3.0E-04	1.1E-09	2.1E-09	4.E-06	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	3.0E-11	4.2E-11	2.E-11	3.E-11	5.E-11	--	--	2.3E-10	3.2E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	3.0E-11	4.2E-11	2.E-10	3.E-10	5.E-10	--	--	2.4E-10	3.3E-10	--	--	--
	Benzo(b)fluoranthene	3.2E+01	ug/kg	7.3E-01	7.3E-01	3.8E-11	5.3E-11	3.E-11	4.E-11	7.E-11	--	--	3.0E-10	4.1E-10	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	2.3E-11	3.3E-11	2.E-12	2.E-12	4.E-12	--	--	1.8E-10	2.5E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	1.1E-11	1.5E-11	8.E-11	1.E-10	2.E-10	--	--	8.4E-11	1.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.8E+01	ug/kg	7.3E-01	7.3E-01	2.1E-11	2.9E-11	2.E-11	2.E-11	4.E-11	--	--	1.6E-10	2.3E-10	--	--	--
	Naphthalene	6.1E+00	ug/kg	--	--	7.2E-12	1.0E-11	--	--	--	2.0E-02	2.0E-02	5.6E-11	7.7E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.1E+02	ug/kg	1.4E-02	1.4E-02	5.5E-10	1.0E-09	8.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	4.3E-09	7.8E-09	2.E-07	4.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	4.0E-11	5.2E-11	8.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.1E-10	4.0E-10	2.E-05	2.E-05	0.00004
	Pesticides																
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	1.3E-13	2.4E-13	2.E-12	4.E-12	6.E-12	5.0E-05	5.0E-05	1.0E-12	1.9E-12	2.E-08	4.E-08	0.0000001
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	2.9E-13	1.7E-12	1.E-13	6.E-13	7.E-13	5.0E-04	5.0E-04	2.2E-12	1.3E-11	4.E-09	3.E-08	0.00000003
Exposure Point Total										1.E-08							0.02
RM 8 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.8E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.8E-09	5.3E-08	3.E-05	2.E-04	0.0002
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	2.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.1E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	1.5E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.2E-11	2.2E-11	--	--	--	3.0E-04	3.0E-04	9.4E-11	1.7E-10	3.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	2.9E-10	2.E-10	2.E-10	4.E-10	--	--	1.6E-09	2.3E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.7E-10	1.E-09	2.E-09	3.E-09	--	--	1.5E-09	2.1E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	2.7E-10	3.7E-10	2.E-10	3.E-10	5.E-10	--	--	2.1E-09	2.9E-09	--	--	--
	Benzo(k)fluoranthene	5.0E+01	ug/kg	7.3E-02	7.3E-02	5.9E-11	8.2E-11	4.E-12	6.E-12	1.E-11	--	--	4.6E-10	6.4E-10	--	--	--
	Dibenzo(a,h)anthracene	3.1E+01	ug/kg	7.3E+00	7.3E+00	3.6E-11	5.0E-11	3.E-10	4.E-10	6.E-10	--	--	2.8E-10	3.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.8E-10	1.E-10	1.E-10	2.E-10	--	--	1.0E-09	1.4E-09	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	6.0E-11	8.4E-11	--	--	--	2.0E-02	2.0E-02	4.7E-10	6.5E-10	2.E-08	3.E-08	0.0000001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.0E+02	ug/kg	1.4E-02	1.4E-02	5.5E-10	9.9E-10	8.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	4.2E-09	7.7E-09	2.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	7.1E-12	5.1E-12	3.E-12	2.E-12	5.E-12	5.0E-03	5.0E-03	5.5E-11	4.0E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	1.5E-10	1.9E-10	3.E-10	4.E-10	7.E-10	2.0E-05	2.0E-05	1.2E-09	1.5E-09	6.E-05	8.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	7.2E-17	4.3E-16	9.E-12	6.E-11	7.E-11	1.0E-09	1.0E-09	5.6E-16	3.3E-15	6.E-07	3.E-06	0.000004
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	4.5E-15	5.8E-15	6.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	3.5E-14	4.5E-14	4.E-05	5.E-05	0.0001
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	3.7E-14	6.6E-14	6.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	2.8E-13	5.1E-13	9.E-09	2.E-08	0.00000003
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	1.8E-12	3.3E-12	3.E-11	5.E-11	8.E-11	5.0E-05	5.0E-05	1.4E-11	2.5E-11	3.E-07	5.E-07	0.000001
	Total DDT	6.5E+00	ug/kg	3.4E-01	3.4E-01	1.8E-12	1.1E-11	6.E-13	4.E-12	4.E-12	5.0E-04	5.0E-04	1.4E-11	8.3E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.02
RM 8 East	**Metals**																
	Arsenic	6.2E+00	mg/kg	1.5E+00	1.5E+00	1.7E-09	1.0E-08	3.E-09	2.E-08	2.E-08	3.0E-04	3.0E-04	1.3E-08	7.8E-08	4.E-05	3.E-04	0.0003
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	2.2E-09	3.9E-09	--	--	--	3.0E-04	3.0E-04	1.7E-08	3.0E-08	6.E-05	1.E-04	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.7E+02	ug/kg	7.3E-01	7.3E-01	2.0E-10	2.7E-10	1.E-10	2.E-10	3.E-10	--	--	1.5E-09	2.1E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.1E-10	2.9E-10	2.E-09	2.E-09	4.E-09	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(b)fluoranthene	2.0E+02	ug/kg	7.3E-01	7.3E-01	2.3E-10	3.2E-10	2.E-10	2.E-10	4.E-10	--	--	1.8E-09	2.5E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	1.5E-10	2.1E-10	1.E-11	2.E-11	3.E-11	--	--	1.2E-09	1.6E-09	--	--	--
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	3.0E-11	4.2E-11	2.E-10	3.E-10	5.E-10	--	--	2.4E-10	3.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.0E-10	1.E-10	1.E-10	3.E-10	--	--	1.1E-09	1.6E-09	--	--	--
	Naphthalene	1.6E+01	ug/kg	--	--	1.9E-11	2.7E-11	--	--	--	2.0E-02	2.0E-02	1.5E-10	2.1E-10	7.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.7E+02	ug/kg	1.4E-02	1.4E-02	7.0E-10	1.3E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	5.5E-09	9.9E-09	3.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	3.0E-11	2.2E-11	1.E-11	9.E-12	2.E-11	5.0E-03	5.0E-03	2.3E-10	1.7E-10	5.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+02	ug/kg	2.0E+00	2.0E+00	2.2E-10	2.8E-10	4.E-10	6.E-10	1.E-09	2.0E-05	2.0E-05	1.7E-09	2.2E-09	8.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	2.5E-16	1.5E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	2.0E-15	1.2E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	7.4E-15	9.5E-15	1.E-09	1.E-09	2.E-09	1.0E-09	1.0E-09	5.8E-14	7.4E-14	6.E-05	7.E-05	0.0001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	1.0E-13	1.9E-13	2.E-12	3.E-12	5.E-12	3.0E-05	3.0E-05	8.0E-13	1.5E-12	3.E-08	5.E-08	0.0000001
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	7.1E-13	1.3E-12	1.E-11	2.E-11	3.E-11	5.0E-05	5.0E-05	5.5E-12	1.0E-11	1.E-07	2.E-07	0.0000003
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	2.9E-12	1.7E-11	1.E-12	6.E-12	7.E-12	5.0E-04	5.0E-04	2.2E-11	1.4E-10	4.E-08	3.E-07	0.0000003
Exposure Point Total										3.E-08							0.02

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8 SIL	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	1.5E-09	8.8E-09	2.E-09	1.E-08	2.E-08	3.0E-04	3.0E-04	1.1E-08	6.8E-08	4.E-05	2.E-04	0.0003
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.2E+03	ug/kg	--	--	2.0E-09	3.6E-09	--	--	--	3.0E-04	3.0E-04	1.6E-08	2.8E-08	5.E-05	9.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.4E+02	ug/kg	7.3E-01	7.3E-01	2.8E-10	3.9E-10	2.E-10	3.E-10	5.E-10	--	--	2.2E-09	3.0E-09	--	--	--
	Benzo(a)pyrene	2.0E+02	ug/kg	7.3E+00	7.3E+00	2.3E-10	3.2E-10	2.E-09	2.E-09	4.E-09	--	--	1.8E-09	2.5E-09	--	--	--
	Benzo(b)fluoranthene	3.8E+02	ug/kg	7.3E-01	7.3E-01	4.5E-10	6.2E-10	3.E-10	5.E-10	8.E-10	--	--	3.5E-09	4.8E-09	--	--	--
	Benzo(k)fluoranthene	2.1E+02	ug/kg	7.3E-02	7.3E-02	2.4E-10	3.4E-10	2.E-11	2.E-11	4.E-11	--	--	1.9E-09	2.6E-09	--	--	--
	Dibenzo(a,h)anthracene	3.6E+01	ug/kg	7.3E+00	7.3E+00	4.2E-11	5.8E-11	3.E-10	4.E-10	7.E-10	--	--	3.3E-10	4.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.0E-10	1.E-10	1.E-10	3.E-10	--	--	1.1E-09	1.6E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	3.0E-11	4.1E-11	--	--	--	2.0E-02	2.0E-02	2.3E-10	3.2E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+03	ug/kg	1.4E-02	1.4E-02	7.3E-09	1.3E-08	1.E-10	2.E-10	3.E-10	2.0E-02	2.0E-02	5.7E-08	1.0E-07	3.E-06	5.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.9E+01	ug/kg	4.0E-01	4.0E-01	8.9E-11	6.4E-11	4.E-11	3.E-11	6.E-11	5.0E-03	5.0E-03	6.9E-10	5.0E-10	1.E-07	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+02	ug/kg	2.0E+00	2.0E+00	3.6E-10	4.6E-10	7.E-10	9.E-10	2.E-09	2.0E-05	2.0E-05	2.8E-09	3.6E-09	1.E-04	2.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	1.3E+05	1.3E+05	1.7E-15	1.0E-14	2.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.3E-14	8.0E-14	1.E-05	8.E-05	0.0001
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	1.5E-14	2.0E-14	2.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	1.2E-13	1.5E-13	1.E-04	2.E-04	0.0003
	Pesticides																
	Aldrin	6.2E-01	ug/kg	1.7E+01	1.7E+01	5.6E-13	1.0E-12	9.E-12	2.E-11	3.E-11	3.0E-05	3.0E-05	4.3E-12	7.8E-12	1.E-07	3.E-07	0.0000004
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	1.3E-12	2.3E-12	2.E-11	4.E-11	6.E-11	5.0E-05	5.0E-05	9.8E-12	1.8E-11	2.E-07	4.E-07	0.000001
	Total DDT	5.2E+00	ug/kg	3.4E-01	3.4E-01	1.4E-12	8.6E-12	5.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	1.1E-11	6.7E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										3.E-08							0.02
RM 8.5 West	**Metals**																
	Arsenic	6.7E+00	mg/kg	1.5E+00	1.5E+00	1.8E-09	1.1E-08	3.E-09	2.E-08	2.E-08	3.0E-04	3.0E-04	1.4E-08	8.5E-08	5.E-05	3.E-04	0.0003
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	3.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.6E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.1E-11	2.1E-11	--	--	--	3.0E-04	3.0E-04	8.9E-11	1.6E-10	3.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	1.5E-10	8.E-11	1.E-10	2.E-10	--	--	8.6E-10	1.2E-09	--	--	--
	Benzo(a)pyrene	9.1E+01	ug/kg	7.3E+00	7.3E+00	1.1E-10	1.5E-10	8.E-10	1.E-09	2.E-09	--	--	8.3E-10	1.2E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.1E-10	1.E-10	2.E-10	3.E-10	--	--	1.2E-09	1.7E-09	--	--	--
	Benzo(k)fluoranthene	5.5E+01	ug/kg	7.3E-02	7.3E-02	6.5E-11	9.1E-11	5.E-12	7.E-12	1.E-11	--	--	5.1E-10	7.1E-10	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	1.3E-11	1.9E-11	1.E-10	1.E-10	2.E-10	--	--	1.0E-10	1.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.2E+01	ug/kg	7.3E-01	7.3E-01	6.1E-11	8.5E-11	4.E-11	6.E-11	1.E-10	--	--	4.8E-10	6.6E-10	--	--	--

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Naphthalene	2.4E+01	ug/kg	--	--	2.9E-11	4.0E-11	--	--	--	2.0E-02	2.0E-02	2.2E-10	3.1E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.3E+02	ug/kg	1.4E-02	1.4E-02	5.7E-10	1.0E-09	8.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	4.4E-09	8.0E-09	2.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.8E+00	ug/kg	4.0E-01	4.0E-01	6.2E-12	4.5E-12	2.E-12	2.E-12	4.E-12	5.0E-03	5.0E-03	4.9E-11	3.5E-11	1.E-08	7.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.4E+03	ug/kg	2.0E+00	2.0E+00	1.8E-09	2.3E-09	4.E-09	5.E-09	8.E-09	2.0E-05	2.0E-05	1.4E-08	1.8E-08	7.E-04	9.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	1.3E+05	1.3E+05	1.4E-15	8.2E-15	2.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	1.1E-14	6.4E-14	1.E-05	6.E-05	0.0001
	Total PCB TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	4.2E-14	5.4E-14	5.E-09	7.E-09	1.E-08	1.0E-09	1.0E-09	3.3E-13	4.2E-13	3.E-04	4.E-04	0.001
	Pesticides																
	Aldrin	1.1E+01	ug/kg	1.7E+01	1.7E+01	9.7E-12	1.7E-11	2.E-10	3.E-10	5.E-10	3.0E-05	3.0E-05	7.5E-11	1.4E-10	3.E-06	5.E-06	0.00001
	Dieldrin	1.5E+01	ug/kg	1.6E+01	1.6E+01	1.3E-11	2.4E-11	2.E-10	4.E-10	6.E-10	5.0E-05	5.0E-05	1.0E-10	1.9E-10	2.E-06	4.E-06	0.00001
	Total DDT	6.0E+00	ug/kg	3.4E-01	3.4E-01	1.6E-12	9.9E-12	6.E-13	3.E-12	4.E-12	5.0E-04	5.0E-04	1.3E-11	7.7E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										4.E-08							0.02
RM 8.5 East	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	1.3E-09	7.7E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	9.9E-09	6.0E-08	3.E-05	2.E-04	0.0002
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	2.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.3E+01	ug/kg	--	--	2.1E-11	3.8E-11	--	--	--	3.0E-04	3.0E-04	1.6E-10	3.0E-10	5.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.1E+01	ug/kg	7.3E-01	7.3E-01	4.9E-11	6.8E-11	4.E-11	5.E-11	9.E-11	--	--	3.8E-10	5.3E-10	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	5.4E-11	7.5E-11	4.E-10	6.E-10	9.E-10	--	--	4.2E-10	5.9E-10	--	--	--
	Benzo(b)fluoranthene	7.1E+01	ug/kg	7.3E-01	7.3E-01	8.3E-11	1.2E-10	6.E-11	8.E-11	1.E-10	--	--	6.5E-10	9.0E-10	--	--	--
	Benzo(k)fluoranthene	3.6E+01	ug/kg	7.3E-02	7.3E-02	4.2E-11	5.8E-11	3.E-12	4.E-12	7.E-12	--	--	3.3E-10	4.5E-10	--	--	--
	Dibenzo(a,h)anthracene	8.3E+00	ug/kg	7.3E+00	7.3E+00	9.8E-12	1.4E-11	7.E-11	1.E-10	2.E-10	--	--	7.6E-11	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	4.6E-11	6.4E-11	3.E-11	5.E-11	8.E-11	--	--	3.6E-10	5.0E-10	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	2.3E-11	3.2E-11	--	--	--	2.0E-02	2.0E-02	1.8E-10	2.5E-10	9.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.5E+02	ug/kg	1.4E-02	1.4E-02	4.1E-10	7.4E-10	6.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	3.2E-09	5.7E-09	2.E-07	3.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.6E+01	ug/kg	2.0E+00	2.0E+00	5.9E-11	7.6E-11	1.E-10	2.E-10	3.E-10	2.0E-05	2.0E-05	4.6E-10	5.9E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	1.7E-16	1.0E-15	2.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	1.3E-15	8.0E-15	1.E-06	8.E-06	0.00001
	Total PCB TEQ	4.2E-01	pg/g	1.3E+05	1.3E+05	5.4E-16	6.9E-16	7.E-11	9.E-11	2.E-10	1.0E-09	1.0E-09	4.2E-15	5.4E-15	4.E-06	5.E-06	0.00001
	Pesticides																
	Aldrin	3.2E-02	ug/kg	1.7E+01	1.7E+01	2.9E-14	5.2E-14	5.E-13	9.E-13	1.E-12	3.0E-05	3.0E-05	2.3E-13	4.1E-13	8.E-09	1.E-08	0.00000002
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.2E-13	2.2E-13	2.E-12	4.E-12	5.E-12	5.0E-05	5.0E-05	9.5E-13	1.7E-12	2.E-08	3.E-08	0.0000001
	Total DDT	1.5E+00	ug/kg	3.4E-01	3.4E-01	4.1E-13	2.5E-12	1.E-13	8.E-13	1.E-12	5.0E-04	5.0E-04	3.2E-12	1.9E-11	6.E-09	4.E-08	0.00000004
Exposure Point Total										2.E-08							0.02

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 9 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.8E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.8E-09	5.3E-08	3.E-05	2.E-04	0.0002
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	2.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	1.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	9.9E+00	ug/kg	--	--	8.9E-12	1.6E-11	--	--	--	3.0E-04	3.0E-04	7.0E-11	1.3E-10	2.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	1.8E-10	2.5E-10	1.E-10	2.E-10	3.E-10	--	--	1.4E-09	2.0E-09	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	1.2E-10	1.7E-10	9.E-10	1.E-09	2.E-09	--	--	9.4E-10	1.3E-09	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.6E-10	1.E-10	2.E-10	3.E-10	--	--	1.5E-09	2.0E-09	--	--	--
	Benzo(k)fluoranthene	6.2E+01	ug/kg	7.3E-02	7.3E-02	7.3E-11	1.0E-10	5.E-12	7.E-12	1.E-11	--	--	5.6E-10	7.8E-10	--	--	--
	Dibenzo(a,h)anthracene	1.8E+01	ug/kg	7.3E+00	7.3E+00	2.1E-11	2.9E-11	2.E-10	2.E-10	4.E-10	--	--	1.6E-10	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	7.9E-11	1.1E-10	6.E-11	8.E-11	1.E-10	--	--	6.1E-10	8.5E-10	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	2.0E-11	2.8E-11	--	--	--	2.0E-02	2.0E-02	1.5E-10	2.1E-10	8.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	1.6E-10	2.8E-10	2.E-12	4.E-12	6.E-12	2.0E-02	2.0E-02	1.2E-09	2.2E-09	6.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	4.7E+00	ug/kg	4.0E-01	4.0E-01	1.1E-11	7.6E-12	4.E-12	3.E-12	7.E-12	5.0E-03	5.0E-03	8.2E-11	5.9E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+02	ug/kg	2.0E+00	2.0E+00	5.7E-10	7.4E-10	1.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	4.5E-09	5.8E-09	2.E-04	3.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	1.1E-15	6.4E-15	1.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	8.3E-15	5.0E-14	8.E-06	5.E-05	0.0001
	Total PCB TEQ	1.6E+01	pg/g	1.3E+05	1.3E+05	2.0E-14	2.6E-14	3.E-09	3.E-09	6.E-09	1.0E-09	1.0E-09	1.5E-13	2.0E-13	2.E-04	2.E-04	0.0004
	Pesticides																
	Aldrin	2.2E-01	ug/kg	1.7E+01	1.7E+01	2.0E-13	3.7E-13	3.E-12	6.E-12	1.E-11	3.0E-05	3.0E-05	1.6E-12	2.9E-12	5.E-08	1.E-07	0.0000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	1.8E-13	3.3E-13	3.E-12	5.E-12	8.E-12	5.0E-05	5.0E-05	1.4E-12	2.6E-12	3.E-08	5.E-08	0.0000001
	Total DDT	4.4E+00	ug/kg	3.4E-01	3.4E-01	1.2E-12	7.2E-12	4.E-13	2.E-12	3.E-12	5.0E-04	5.0E-04	9.3E-12	5.6E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										2.E-08							0.02
RM 9 East	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	6.2E-09	2.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	8.0E-09	4.8E-08	3.E-05	2.E-04	0.0002
	Mercury	5.0E-02	mg/kg	--	--	0.0E+00	8.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.4E-10	0.E+00	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+01	ug/kg	7.3E-01	7.3E-01	1.2E-11	1.7E-11	9.E-12	1.E-11	2.E-11	--	--	9.4E-11	1.3E-10	--	--	--
	Benzo(a)pyrene	1.3E+01	ug/kg	7.3E+00	7.3E+00	1.5E-11	2.1E-11	1.E-10	2.E-10	3.E-10	--	--	1.2E-10	1.6E-10	--	--	--
	Benzo(b)fluoranthene	1.8E+01	ug/kg	7.3E-01	7.3E-01	2.1E-11	3.0E-11	2.E-11	2.E-11	4.E-11	--	--	1.7E-10	2.3E-10	--	--	--
	Benzo(k)fluoranthene	8.3E+00	ug/kg	7.3E-02	7.3E-02	9.7E-12	1.4E-11	7.E-13	1.E-12	2.E-12	--	--	7.6E-11	1.1E-10	--	--	--
	Dibenzo(a,h)anthracene	2.1E+00	ug/kg	7.3E+00	7.3E+00	2.5E-12	3.5E-12	2.E-11	3.E-11	4.E-11	--	--	2.0E-11	2.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	1.3E-11	1.7E-11	9.E-12	1.E-11	2.E-11	--	--	9.8E-11	1.4E-10	--	--	--
	Naphthalene	2.7E+00	ug/kg	--	--	3.2E-12	4.4E-12	--	--	--	2.0E-02	2.0E-02	2.5E-11	3.5E-11	1.E-09	2.E-09	0.000000003

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.6E+02	ug/kg	1.4E-02	1.4E-02	3.3E-10	5.9E-10	5.E-12	8.E-12	1.E-11	2.0E-02	2.0E-02	2.5E-09	4.6E-09	1.E-07	2.E-07	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	6.6E-11	8.5E-11	1.E-10	2.E-10	3.E-10	2.0E-05	2.0E-05	5.1E-10	6.6E-10	3.E-05	3.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	5.9E-17	3.5E-16	8.E-12	5.E-11	5.E-11	1.0E-09	1.0E-09	4.6E-16	2.7E-15	5.E-07	3.E-06	0.000003
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	8.0E-16	1.0E-15	1.E-10	1.E-10	2.E-10	1.0E-09	1.0E-09	6.2E-15	8.0E-15	6.E-06	8.E-06	0.00001
	Pesticides																
	Dieldrin	8.8E-02	ug/kg	1.6E+01	1.6E+01	8.0E-14	1.4E-13	1.E-12	2.E-12	4.E-12	5.0E-05	5.0E-05	6.2E-13	1.1E-12	1.E-08	2.E-08	0.00000003
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	3.9E-13	2.4E-12	1.E-13	8.E-13	9.E-13	5.0E-04	5.0E-04	3.1E-12	1.8E-11	6.E-09	4.E-08	0.00000004
Exposure Point Total										1.E-08							0.0003
RM 9.5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	6.2E-09	2.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	8.0E-09	4.8E-08	3.E-05	2.E-04	0.0002
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.9E-10	0.E+00	8.E-06	0.00001
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	9.1E-12	1.6E-11	--	--	--	3.0E-04	3.0E-04	7.1E-11	1.3E-10	2.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.0E-10	1.E-10	1.E-10	2.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.7E-10	1.E-09	2.E-09	3.E-09	--	--	1.5E-09	2.1E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	2.7E-10	3.8E-10	2.E-10	3.E-10	5.E-10	--	--	2.1E-09	2.9E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	1.2E-10	1.7E-10	9.E-12	1.E-11	2.E-11	--	--	9.5E-10	1.3E-09	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	3.8E-11	5.2E-11	3.E-10	4.E-10	7.E-10	--	--	2.9E-10	4.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	1.6E-10	2.3E-10	1.E-10	2.E-10	3.E-10	--	--	1.3E-09	1.8E-09	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	4.8E-11	6.7E-11	--	--	--	2.0E-02	2.0E-02	3.8E-10	5.2E-10	2.E-08	3.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.6E+02	ug/kg	1.4E-02	1.4E-02	7.8E-10	1.4E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	6.0E-09	1.1E-08	3.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	2.5E-11	1.8E-11	1.E-11	7.E-12	2.E-11	5.0E-03	5.0E-03	2.0E-10	1.4E-10	4.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+02	ug/kg	2.0E+00	2.0E+00	2.7E-10	3.5E-10	5.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	2.1E-09	2.7E-09	1.E-04	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	1.3E+05	1.3E+05	2.3E-15	1.4E-14	3.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	1.8E-14	1.1E-13	2.E-05	1.E-04	0.0001
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	4.6E-15	6.0E-15	6.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	3.6E-14	4.6E-14	4.E-05	5.E-05	0.0001
	Pesticides																
	Aldrin	5.8E-01	ug/kg	1.7E+01	1.7E+01	5.3E-13	9.6E-13	9.E-12	2.E-11	3.E-11	3.0E-05	3.0E-05	4.1E-12	7.4E-12	1.E-07	2.E-07	0.0000004
	Dieldrin	6.1E-01	ug/kg	1.6E+01	1.6E+01	5.5E-13	9.9E-13	9.E-12	2.E-11	2.E-11	5.0E-05	5.0E-05	4.3E-12	7.7E-12	9.E-08	2.E-07	0.0000002
	Total DDT	3.1E+00	ug/kg	3.4E-01	3.4E-01	8.3E-13	5.0E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	6.5E-12	3.9E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										2.E-08							0.0006
RM 9.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	8.9E-10	5.4E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.9E-09	4.2E-08	2.E-05	1.E-04	0.0002
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.0E-10	0.E+00	8.E-06	0.00001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	2.6E+00	ug/kg	--	--	2.3E-12	4.2E-12	--	--	--	3.0E-04	3.0E-04	1.8E-11	3.2E-11	6.E-08	1.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+01	ug/kg	7.3E-01	7.3E-01	2.6E-11	3.6E-11	2.E-11	3.E-11	4.E-11	--	--	2.0E-10	2.8E-10	--	--	--
	Benzo(a)pyrene	2.5E+01	ug/kg	7.3E+00	7.3E+00	2.9E-11	4.0E-11	2.E-10	3.E-10	5.E-10	--	--	2.3E-10	3.1E-10	--	--	--
	Benzo(b)fluoranthene	2.9E+01	ug/kg	7.3E-01	7.3E-01	3.5E-11	4.8E-11	3.E-11	3.E-11	6.E-11	--	--	2.7E-10	3.7E-10	--	--	--
	Benzo(k)fluoranthene	1.7E+01	ug/kg	7.3E-02	7.3E-02	2.0E-11	2.8E-11	1.E-12	2.E-12	3.E-12	--	--	1.6E-10	2.2E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	5.1E-12	7.1E-12	4.E-11	5.E-11	9.E-11	--	--	4.0E-11	5.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+01	ug/kg	7.3E-01	7.3E-01	2.3E-11	3.2E-11	2.E-11	2.E-11	4.E-11	--	--	1.8E-10	2.5E-10	--	--	--
	Naphthalene	3.4E+00	ug/kg	--	--	4.0E-12	5.5E-12	--	--	--	2.0E-02	2.0E-02	3.1E-11	4.3E-11	2.E-09	2.E-09	0.000000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.6E+02	ug/kg	1.4E-02	1.4E-02	1.5E-10	2.7E-10	2.E-12	4.E-12	6.E-12	2.0E-02	2.0E-02	1.2E-09	2.1E-09	6.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.1E+00	ug/kg	4.0E-01	4.0E-01	2.5E-12	1.8E-12	1.E-12	7.E-13	2.E-12	5.0E-03	5.0E-03	2.0E-11	1.4E-11	4.E-09	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+01	ug/kg	2.0E+00	2.0E+00	5.1E-11	6.6E-11	1.E-10	1.E-10	2.E-10	2.0E-05	2.0E-05	4.0E-10	5.1E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	1.3E+05	1.3E+05	2.4E-16	1.5E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.9E-15	1.1E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	3.3E-16	4.3E-16	4.E-11	6.E-11	1.E-10	1.0E-09	1.0E-09	2.6E-15	3.3E-15	3.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	8.3E-14	1.5E-13	1.E-12	3.E-12	4.E-12	3.0E-05	3.0E-05	6.4E-13	1.2E-12	2.E-08	4.E-08	0.0000001
	Dieldrin	3.0E-02	ug/kg	1.6E+01	1.6E+01	2.7E-14	4.8E-14	4.E-13	8.E-13	1.E-12	5.0E-05	5.0E-05	2.1E-13	3.8E-13	4.E-09	8.E-09	0.00000001
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	3.1E-13	1.9E-12	1.E-13	6.E-13	7.E-13	5.0E-04	5.0E-04	2.4E-12	1.4E-11	5.E-09	3.E-08	0.00000003
Exposure Point Total										1.E-08							0.0002
RM 10 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	2.8E-09	1.7E-08	4.E-09	3.E-08	3.E-08	3.0E-04	3.0E-04	2.2E-08	1.3E-07	7.E-05	4.E-04	0.0005
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	1.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	2.4E+00	ug/kg	--	--	2.2E-12	4.0E-12	--	--	--	3.0E-04	3.0E-04	1.7E-11	3.1E-11	6.E-08	1.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.3E-10	1.E-10	2.E-10	3.E-10	--	--	1.3E-09	1.8E-09	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	1.8E-10	2.4E-10	1.E-09	2.E-09	3.E-09	--	--	1.4E-09	1.9E-09	--	--	--
	Benzo(b)fluoranthene	1.9E+02	ug/kg	7.3E-01	7.3E-01	2.2E-10	3.1E-10	2.E-10	2.E-10	4.E-10	--	--	1.7E-09	2.4E-09	--	--	--
	Benzo(k)fluoranthene	7.9E+01	ug/kg	7.3E-02	7.3E-02	9.3E-11	1.3E-10	7.E-12	9.E-12	2.E-11	--	--	7.2E-10	1.0E-09	--	--	--
	Dibenzo(a,h)anthracene	3.5E+01	ug/kg	7.3E+00	7.3E+00	4.2E-11	5.8E-11	3.E-10	4.E-10	7.E-10	--	--	3.2E-10	4.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	1.6E-10	2.3E-10	1.E-10	2.E-10	3.E-10	--	--	1.3E-09	1.8E-09	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	2.3E-11	3.2E-11	--	--	--	2.0E-02	2.0E-02	1.8E-10	2.5E-10	9.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	1.1E-10	2.0E-10	2.E-12	3.E-12	4.E-12	2.0E-02	2.0E-02	8.5E-10	1.5E-09	4.E-08	8.E-08	0.0000001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	3.0E+00	ug/kg	4.0E-01	4.0E-01	6.8E-12	4.9E-12	3.E-12	2.E-12	5.E-12	5.0E-03	5.0E-03	5.3E-11	3.8E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	2.3E-10	3.0E-10	5.E-10	6.E-10	1.E-09	2.0E-05	2.0E-05	1.8E-09	2.3E-09	9.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	1.3E+05	1.3E+05	1.4E-15	8.4E-15	2.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	1.1E-14	6.5E-14	1.E-05	7.E-05	0.00008
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	2.3E-15	3.0E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	1.8E-14	2.3E-14	2.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	1.3E-13	2.4E-13	2.E-12	4.E-12	6.E-12	3.0E-05	3.0E-05	1.0E-12	1.9E-12	3.E-08	6.E-08	0.0000001
	Total DDT	4.7E+00	ug/kg	3.4E-01	3.4E-01	1.3E-12	7.6E-12	4.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	9.9E-12	5.9E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										4.E-08							0.001
RM 10 East	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	8.3E-10	5.0E-09	1.E-09	7.E-09	9.E-09	3.0E-04	3.0E-04	6.4E-09	3.9E-08	2.E-05	1.E-04	0.0002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.6E-10	0.E+00	9.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	1.9E-10	1.E-10	1.E-10	2.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	1.7E-10	2.4E-10	1.E-09	2.E-09	3.E-09	--	--	1.3E-09	1.8E-09	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	2.0E-10	2.8E-10	1.E-10	2.E-10	4.E-10	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(k)fluoranthene	6.3E+01	ug/kg	7.3E-02	7.3E-02	7.4E-11	1.0E-10	5.E-12	8.E-12	1.E-11	--	--	5.8E-10	8.0E-10	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	2.8E-11	3.8E-11	2.E-10	3.E-10	5.E-10	--	--	2.1E-10	3.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	1.9E-10	1.E-10	1.E-10	2.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	1.5E-11	2.0E-11	--	--	--	2.0E-02	2.0E-02	1.1E-10	1.6E-10	6.E-09	8.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	1.2E-10	2.1E-10	2.E-12	3.E-12	5.E-12	2.0E-02	2.0E-02	9.1E-10	1.6E-09	5.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.6E+00	ug/kg	4.0E-01	4.0E-01	5.9E-12	4.3E-12	2.E-12	2.E-12	4.E-12	5.0E-03	5.0E-03	4.6E-11	3.3E-11	9.E-09	7.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.4E+01	ug/kg	2.0E+00	2.0E+00	4.3E-11	5.6E-11	9.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.4E-10	4.3E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	1.5E-16	8.9E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	1.1E-15	6.9E-15	1.E-06	7.E-06	0.00001
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	8.7E-16	1.1E-15	1.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	6.8E-15	8.7E-15	7.E-06	9.E-06	0.00002
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	3.6E-14	6.6E-14	6.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	2.8E-13	5.1E-13	9.E-09	2.E-08	0.00000003
	Dieldrin	4.7E-02	ug/kg	1.6E+01	1.6E+01	4.3E-14	7.7E-14	7.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	3.3E-13	6.0E-13	7.E-09	1.E-08	0.00000002
	Total DDT	5.3E-01	ug/kg	3.4E-01	3.4E-01	1.4E-13	8.7E-13	5.E-14	3.E-13	3.E-13	5.0E-04	5.0E-04	1.1E-12	6.7E-12	2.E-09	1.E-08	0.00000002
Exposure Point Total										1.E-08							0.0002
RM 10.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	6.5E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	8.4E-09	5.1E-08	3.E-05	2.E-04	0.0002
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.8E-10	0.E+00	9.E-06	0.00001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.8E+01	ug/kg	7.3E-01	7.3E-01	3.3E-11	4.5E-11	2.E-11	3.E-11	6.E-11	--	--	2.5E-10	3.5E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	3.1E-11	4.3E-11	2.E-10	3.E-10	5.E-10	--	--	2.4E-10	3.4E-10	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	4.2E-11	5.8E-11	3.E-11	4.E-11	7.E-11	--	--	3.2E-10	4.5E-10	--	--	--
	Benzo(k)fluoranthene	1.3E+01	ug/kg	7.3E-02	7.3E-02	1.5E-11	2.1E-11	1.E-12	2.E-12	3.E-12	--	--	1.2E-10	1.6E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	5.2E-12	7.2E-12	4.E-11	5.E-11	9.E-11	--	--	4.0E-11	5.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+01	ug/kg	7.3E-01	7.3E-01	2.5E-11	3.5E-11	2.E-11	3.E-11	4.E-11	--	--	2.0E-10	2.7E-10	--	--	--
	Naphthalene	2.7E+01	ug/kg	--	--	3.2E-11	4.4E-11	--	--	--	2.0E-02	2.0E-02	2.5E-10	3.4E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	1.2E-10	2.2E-10	2.E-12	3.E-12	5.E-12	2.0E-02	2.0E-02	9.6E-10	1.7E-09	5.E-08	9.E-08	0.0000001
	Phenols																
	Pentachlorophenol	8.6E+00	ug/kg	4.0E-01	4.0E-01	1.9E-11	1.4E-11	8.E-12	6.E-12	1.E-11	5.0E-03	5.0E-03	1.5E-10	1.1E-10	3.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	4.0E-11	5.2E-11	8.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.1E-10	4.0E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	8.7E-16	1.1E-15	1.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	6.8E-15	8.8E-15	7.E-06	9.E-06	0.00002
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	1.8E-13	3.3E-13	3.E-12	6.E-12	9.E-12	3.0E-05	3.0E-05	1.4E-12	2.6E-12	5.E-08	9.E-08	0.0000001
	Total DDT	1.7E+00	ug/kg	3.4E-01	3.4E-01	4.5E-13	2.7E-12	2.E-13	9.E-13	1.E-12	5.0E-04	5.0E-04	3.5E-12	2.1E-11	7.E-09	4.E-08	0.00000005
Exposure Point Total										1.E-08							0.0003
RM 10.5 East	**Metals**																
	Arsenic	3.1E+00	mg/kg	1.5E+00	1.5E+00	8.4E-10	5.0E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.5E-09	3.9E-08	2.E-05	1.E-04	0.0002
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.8E-10	0.E+00	8.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.9E+01	ug/kg	7.3E-01	7.3E-01	4.6E-11	6.3E-11	3.E-11	5.E-11	8.E-11	--	--	3.5E-10	4.9E-10	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	4.0E-11	5.5E-11	3.E-10	4.E-10	7.E-10	--	--	3.1E-10	4.3E-10	--	--	--
	Benzo(b)fluoranthene	5.0E+01	ug/kg	7.3E-01	7.3E-01	5.9E-11	8.2E-11	4.E-11	6.E-11	1.E-10	--	--	4.6E-10	6.4E-10	--	--	--
	Benzo(k)fluoranthene	2.5E+01	ug/kg	7.3E-02	7.3E-02	3.0E-11	4.1E-11	2.E-12	3.E-12	5.E-12	--	--	2.3E-10	3.2E-10	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	6.5E-12	9.0E-12	5.E-11	7.E-11	1.E-10	--	--	5.0E-11	7.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	3.2E-11	4.5E-11	2.E-11	3.E-11	6.E-11	--	--	2.5E-10	3.5E-10	--	--	--
	Naphthalene	3.5E+00	ug/kg	--	--	4.2E-12	5.8E-12	--	--	--	2.0E-02	2.0E-02	3.2E-11	4.5E-11	2.E-09	2.E-09	0.000000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	4.2E-11	7.5E-11	6.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	3.2E-10	5.8E-10	2.E-08	3.E-08	0.00000005
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	7.2E-12	5.2E-12	3.E-12	2.E-12	5.E-12	5.0E-03	5.0E-03	5.6E-11	4.0E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	6.5E-11	8.4E-11	1.E-10	2.E-10	3.E-10	2.0E-05	2.0E-05	5.1E-10	6.6E-10	3.E-05	3.E-05	0.00006
	Dioxin/Furan																
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	4.5E-16	5.8E-16	6.E-11	8.E-11	1.E-10	1.0E-09	1.0E-09	3.5E-15	4.5E-15	4.E-06	5.E-06	0.00001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Total DDT	2.8E+00	ug/kg	3.4E-01	3.4E-01	7.6E-13	4.6E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	5.9E-12	3.5E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										1.E-08							0.0002
RM 11 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	9.3E-10	5.6E-09	1.E-09	8.E-09	1.E-08	3.0E-04	3.0E-04	7.2E-09	4.3E-08	2.E-05	1.E-04	0.0002
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	9.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.2E-10	0.E+00	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+01	ug/kg	7.3E-01	7.3E-01	7.3E-11	1.0E-10	5.E-11	7.E-11	1.E-10	--	--	5.7E-10	7.9E-10	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	7.8E-11	1.1E-10	6.E-10	8.E-10	1.E-09	--	--	6.1E-10	8.5E-10	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	4.7E-11	6.5E-11	3.E-11	5.E-11	8.E-11	--	--	3.7E-10	5.1E-10	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	4.3E-11	6.0E-11	3.E-12	4.E-12	8.E-12	--	--	3.4E-10	4.7E-10	--	--	--
	Dibenzo(a,h)anthracene	8.8E+00	ug/kg	7.3E+00	7.3E+00	1.0E-11	1.4E-11	8.E-11	1.E-10	2.E-10	--	--	8.1E-11	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+01	ug/kg	7.3E-01	7.3E-01	4.8E-11	6.6E-11	3.E-11	5.E-11	8.E-11	--	--	3.7E-10	5.1E-10	--	--	--
	Naphthalene	5.4E+01	ug/kg	--	--	6.4E-11	8.8E-11	--	--	--	2.0E-02	2.0E-02	4.9E-10	6.9E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+02	ug/kg	1.4E-02	1.4E-02	3.4E-10	6.1E-10	5.E-12	9.E-12	1.E-11	2.0E-02	2.0E-02	2.6E-09	4.7E-09	1.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	9.8E-01	ug/kg	4.0E-01	4.0E-01	2.2E-12	1.6E-12	9.E-13	6.E-13	2.E-12	5.0E-03	5.0E-03	1.7E-11	1.2E-11	3.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+01	ug/kg	2.0E+00	2.0E+00	3.5E-11	4.5E-11	7.E-11	9.E-11	2.E-10	2.0E-05	2.0E-05	2.7E-10	3.5E-10	1.E-05	2.E-05	0.00003
	Pesticides																
	Dieldrin	5.7E-01	ug/kg	1.6E+01	1.6E+01	5.1E-13	9.2E-13	8.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	4.0E-12	7.2E-12	8.E-08	1.E-07	0.0000002
	Total DDT	1.3E+00	ug/kg	3.4E-01	3.4E-01	3.6E-13	2.2E-12	1.E-13	7.E-13	9.E-13	5.0E-04	5.0E-04	2.8E-12	1.7E-11	6.E-09	3.E-08	0.00000004
Exposure Point Total										1.E-08							0.0002
RM 11 East	**Metals**																
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	7.4E-10	4.4E-09	1.E-09	7.E-09	8.E-09	3.0E-04	3.0E-04	5.7E-09	3.4E-08	2.E-05	1.E-04	0.0001
	Mercury	7.0E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.9E-10	0.E+00	9.E-06	0.00001
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	3.6E-12	6.5E-12	--	--	--	3.0E-04	3.0E-04	2.8E-11	5.1E-11	9.E-08	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	8.3E+01	ug/kg	7.3E-01	7.3E-01	9.8E-11	1.4E-10	7.E-11	1.E-10	2.E-10	--	--	7.6E-10	1.1E-09	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	6.5E-11	9.1E-11	5.E-10	7.E-10	1.E-09	--	--	5.1E-10	7.0E-10	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.1E-10	1.E-10	2.E-10	3.E-10	--	--	1.2E-09	1.6E-09	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	4.3E-11	6.0E-11	3.E-12	4.E-12	8.E-12	--	--	3.4E-10	4.7E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	1.4E-11	2.0E-11	1.E-10	1.E-10	2.E-10	--	--	1.1E-10	1.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	4.5E-11	6.2E-11	3.E-11	5.E-11	8.E-11	--	--	3.5E-10	4.9E-10	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	1.4E-11	1.9E-11	--	--	--	2.0E-02	2.0E-02	1.1E-10	1.5E-10	5.E-09	8.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.4E+01	ug/kg	1.4E-02	1.4E-02	8.5E-11	1.5E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	6.6E-10	1.2E-09	3.E-08	6.E-08	0.0000001

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	2.7E+00	ug/kg	4.0E-01	4.0E-01	6.0E-12	4.3E-12	2.E-12	2.E-12	4.E-12	5.0E-03	5.0E-03	4.7E-11	3.4E-11	9.E-09	7.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+03	ug/kg	2.0E+00	2.0E+00	1.4E-09	1.8E-09	3.E-09	4.E-09	7.E-09	2.0E-05	2.0E-05	1.1E-08	1.4E-08	6.E-04	7.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	5.5E-16	3.3E-15	7.E-11	4.E-10	5.E-10	1.0E-09	1.0E-09	4.3E-15	2.6E-14	4.E-06	3.E-05	0.00003
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	1.6E-14	2.0E-14	2.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	1.2E-13	1.6E-13	1.E-04	2.E-04	0.0003
	Pesticides																
	Total DDT	9.9E+01	ug/kg	3.4E-01	3.4E-01	2.7E-11	1.6E-10	9.E-12	6.E-11	6.E-11	5.0E-04	5.0E-04	2.1E-10	1.3E-09	4.E-07	3.E-06	0.000003
Exposure Point Total										2.E-08							0.002
RM 11.5 West	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	8.1E-10	4.9E-09	1.E-09	7.E-09	9.E-09	3.0E-04	3.0E-04	6.3E-09	3.8E-08	2.E-05	1.E-04	0.0001
	Mercury	3.0E-02	mg/kg	--	--	0.0E+00	5.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-10	0.E+00	4.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.5E+00	ug/kg	7.3E-01	7.3E-01	1.1E-11	1.5E-11	8.E-12	1.E-11	2.E-11	--	--	8.7E-11	1.2E-10	--	--	--
	Benzo(a)pyrene	1.1E+01	ug/kg	7.3E+00	7.3E+00	1.2E-11	1.7E-11	9.E-11	1.E-10	2.E-10	--	--	9.6E-11	1.3E-10	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	1.1E-11	1.6E-11	8.E-12	1.E-11	2.E-11	--	--	8.9E-11	1.2E-10	--	--	--
	Benzo(k)fluoranthene	6.4E+00	ug/kg	7.3E-02	7.3E-02	7.5E-12	1.0E-11	5.E-13	8.E-13	1.E-12	--	--	5.9E-11	8.1E-11	--	--	--
	Dibenzo(a,h)anthracene	1.2E+00	ug/kg	7.3E+00	7.3E+00	1.4E-12	1.9E-12	1.E-11	1.E-11	2.E-11	--	--	1.1E-11	1.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	7.4E+00	ug/kg	7.3E-01	7.3E-01	8.7E-12	1.2E-11	6.E-12	9.E-12	2.E-11	--	--	6.8E-11	9.4E-11	--	--	--
	Naphthalene	3.3E+00	ug/kg	--	--	3.9E-12	5.5E-12	--	--	--	2.0E-02	2.0E-02	3.1E-11	4.2E-11	2.E-09	2.E-09	0.000000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	1.6E-10	3.0E-10	2.E-12	4.E-12	6.E-12	2.0E-02	2.0E-02	1.3E-09	2.3E-09	6.E-08	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	1.6E-11	2.0E-11	3.E-11	4.E-11	7.E-11	2.0E-05	2.0E-05	1.2E-10	1.6E-10	6.E-06	8.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	4.8E-17	2.9E-16	6.E-12	4.E-11	4.E-11	1.0E-09	1.0E-09	3.7E-16	2.2E-15	4.E-07	2.E-06	0.000003
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	3.7E-16	4.8E-16	5.E-11	6.E-11	1.E-10	1.0E-09	1.0E-09	2.9E-15	3.7E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	8.2E-14	1.5E-13	1.E-12	2.E-12	4.E-12	5.0E-05	5.0E-05	6.3E-13	1.1E-12	1.E-08	2.E-08	0.00000004
	Total DDT	9.8E-01	ug/kg	3.4E-01	3.4E-01	2.7E-13	1.6E-12	9.E-14	5.E-13	6.E-13	5.0E-04	5.0E-04	2.1E-12	1.2E-11	4.E-09	2.E-08	0.00000003
Exposure Point Total										9.E-09							0.0002
RM 12 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	8.6E-10	5.2E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.7E-09	4.0E-08	2.E-05	1.E-04	0.0002
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	4.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-09	0.E+00	4.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	3.0E-10	4.2E-10	2.E-10	3.E-10	5.E-10	--	--	2.4E-09	3.3E-09	--	--	--
	Benzo(a)pyrene	4.1E+02	ug/kg	7.3E+00	7.3E+00	4.8E-10	6.7E-10	4.E-09	5.E-09	8.E-09	--	--	3.8E-09	5.2E-09	--	--	--

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	4.1E-10	5.7E-10	3.E-10	4.E-10	7.E-10	--	--	3.2E-09	4.5E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	1.4E-10	1.9E-10	1.E-11	1.E-11	2.E-11	--	--	1.1E-09	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	3.8E-11	5.3E-11	3.E-10	4.E-10	7.E-10	--	--	3.0E-10	4.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.4E+02	ug/kg	7.3E-01	7.3E-01	4.0E-10	5.5E-10	3.E-10	4.E-10	7.E-10	--	--	3.1E-09	4.3E-09	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	5.3E-11	7.4E-11	--	--	--	2.0E-02	2.0E-02	4.1E-10	5.7E-10	2.E-08	3.E-08	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.0E+01	ug/kg	1.4E-02	1.4E-02	7.2E-11	1.3E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	5.6E-10	1.0E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	7.6E-12	5.5E-12	3.E-12	2.E-12	5.E-12	5.0E-03	5.0E-03	5.9E-11	4.3E-11	1.E-08	9.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	8.9E-11	1.1E-10	2.E-10	2.E-10	4.E-10	2.0E-05	2.0E-05	6.9E-10	8.9E-10	3.E-05	4.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	4.5E-17	2.7E-16	6.E-12	4.E-11	4.E-11	1.0E-09	1.0E-09	3.5E-16	2.1E-15	4.E-07	2.E-06	0.000002
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	5.7E-16	7.4E-16	7.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	4.5E-15	5.8E-15	4.E-06	6.E-06	0.00001
	Pesticides																
	Aldrin	3.2E-01	ug/kg	1.7E+01	1.7E+01	2.9E-13	5.2E-13	5.E-12	9.E-12	1.E-11	3.0E-05	3.0E-05	2.3E-12	4.1E-12	8.E-08	1.E-07	0.0000002
	Total DDT	5.9E+00	ug/kg	3.4E-01	3.4E-01	1.6E-12	9.7E-12	5.E-13	3.E-12	4.E-12	5.0E-04	5.0E-04	1.3E-11	7.5E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										2.E-08							0.0003
RM 12 East	**Metals**																
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	6.2E-10	3.7E-09	9.E-10	6.E-09	6.E-09	3.0E-04	3.0E-04	4.8E-09	2.9E-08	2.E-05	1.E-04	0.0001
	Mercury	4.5E-02	mg/kg	--	--	0.0E+00	7.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-10	0.E+00	6.E-06	0.00001
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	3.6E-12	6.5E-12	--	--	--	3.0E-04	3.0E-04	2.8E-11	5.0E-11	9.E-08	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	2.1E-11	2.9E-11	2.E-11	2.E-11	4.E-11	--	--	1.7E-10	2.3E-10	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	2.2E-11	3.0E-11	2.E-10	2.E-10	4.E-10	--	--	1.7E-10	2.4E-10	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	3.1E-11	4.3E-11	2.E-11	3.E-11	5.E-11	--	--	2.4E-10	3.4E-10	--	--	--
	Benzo(k)fluoranthene	7.8E+00	ug/kg	7.3E-02	7.3E-02	9.1E-12	1.3E-11	7.E-13	9.E-13	2.E-12	--	--	7.1E-11	9.9E-11	--	--	--
	Dibenzo(a,h)anthracene	4.0E+00	ug/kg	7.3E+00	7.3E+00	4.7E-12	6.5E-12	3.E-11	5.E-11	8.E-11	--	--	3.6E-11	5.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	1.9E-11	2.6E-11	1.E-11	2.E-11	3.E-11	--	--	1.5E-10	2.0E-10	--	--	--
	Naphthalene	2.6E+01	ug/kg	--	--	3.0E-11	4.2E-11	--	--	--	2.0E-02	2.0E-02	2.4E-10	3.3E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+03	ug/kg	1.4E-02	1.4E-02	8.3E-09	1.5E-08	1.E-10	2.E-10	3.E-10	2.0E-02	2.0E-02	6.5E-08	1.2E-07	3.E-06	6.E-06	0.00001
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	3.8E-12	2.7E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	2.9E-11	2.1E-11	6.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.6E+02	ug/kg	2.0E+00	2.0E+00	2.0E-10	2.6E-10	4.E-10	5.E-10	9.E-10	2.0E-05	2.0E-05	1.6E-09	2.0E-09	8.E-05	1.E-04	0.0002

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	4.7E-16	2.8E-15	6.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	3.7E-15	2.2E-14	4.E-06	2.E-05	0.00003
	Total PCB TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	4.9E-15	6.3E-15	6.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	3.8E-14	4.9E-14	4.E-05	5.E-05	0.0001
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	2.6E-12	1.5E-11	9.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	2.0E-11	1.2E-10	4.E-08	2.E-07	0.0000003
Exposure Point Total										1.E-08							0.0004
Study Area-wide[c]	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	1.3E-09	7.7E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	9.9E-09	6.0E-08	3.E-05	2.E-04	0.0002
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	2.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.1E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	1.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.3E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	6.1E+02	ug/kg	--	--	5.5E-10	9.9E-10	--	--	--	3.0E-04	3.0E-04	4.3E-09	7.7E-09	1.E-05	3.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+03	ug/kg	7.3E-01	7.3E-01	1.7E-09	2.3E-09	1.E-09	2.E-09	3.E-09	--	--	1.3E-08	1.8E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	2.1E-09	2.9E-09	2.E-08	2.E-08	4.E-08	--	--	1.6E-08	2.2E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	1.7E-09	2.3E-09	1.E-09	2.E-09	3.E-09	--	--	1.3E-08	1.8E-08	--	--	--
	Benzo(k)fluoranthene	9.3E+02	ug/kg	7.3E-02	7.3E-02	1.1E-09	1.5E-09	8.E-11	1.E-10	2.E-10	--	--	8.6E-09	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	2.3E-10	3.1E-10	2.E-09	2.E-09	4.E-09	--	--	1.8E-09	2.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+03	ug/kg	7.3E-01	7.3E-01	1.4E-09	2.0E-09	1.E-09	1.E-09	2.E-09	--	--	1.1E-08	1.5E-08	--	--	--
	Naphthalene	5.0E+02	ug/kg	--	--	5.9E-10	8.3E-10	--	--	--	2.0E-02	2.0E-02	4.6E-09	6.4E-09	2.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.6E+02	ug/kg	1.4E-02	1.4E-02	8.7E-10	1.6E-09	1.E-11	2.E-11	3.E-11	2.0E-02	2.0E-02	6.8E-09	1.2E-08	3.E-07	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.2E+01	ug/kg	4.0E-01	4.0E-01	7.3E-11	5.2E-11	3.E-11	2.E-11	5.E-11	5.0E-03	5.0E-03	5.6E-10	4.1E-10	1.E-07	8.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+02	ug/kg	2.0E+00	2.0E+00	2.4E-10	3.1E-10	5.E-10	6.E-10	1.E-09	2.0E-05	2.0E-05	1.9E-09	2.4E-09	9.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	1.3E+05	1.3E+05	2.8E-14	1.7E-13	4.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	2.1E-13	1.3E-12	2.E-04	1.E-03	0.002
	Total PCB TEQ	6.6E+00	pg/g	1.3E+05	1.3E+05	8.3E-15	1.1E-14	1.E-09	1.E-09	2.E-09	1.0E-09	1.0E-09	6.5E-14	8.4E-14	6.E-05	8.E-05	0.0001
	Pesticides																
	Aldrin	2.4E+00	ug/kg	1.7E+01	1.7E+01	2.2E-12	4.0E-12	4.E-11	7.E-11	1.E-10	3.0E-05	3.0E-05	1.7E-11	3.1E-11	6.E-07	1.E-06	0.000002
	Dieldrin	2.1E+00	ug/kg	1.6E+01	1.6E+01	1.9E-12	3.5E-12	3.E-11	6.E-11	9.E-11	5.0E-05	5.0E-05	1.5E-11	2.7E-11	3.E-07	5.E-07	0.000001
	Total DDT	1.4E+02	ug/kg	3.4E-01	3.4E-01	3.8E-11	2.3E-10	1.E-11	8.E-11	9.E-11	5.0E-04	5.0E-04	2.9E-10	1.8E-09	6.E-07	4.E-06	0.000004

TABLE 5-25.
Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	8.0E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	6.3E-07	0.E+00	9.E-04	0.001
Exposure Point Total										9.E-08							0.02

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-26.
Calculation of Endpoint-Specific Hazard Indices - High-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: High frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	Total Noncancer HQ[a]	Endpoint-Specific Hazard Indices														
			Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
RM 7 West	**Metals**																
	Arsenic	0.002	0.002	0.002													
	Mercury	0.0001					0.0001										
	Vanadium	0.1		0.1													
	Butyltins																
	Tributyltin ion	0.000004								0.000004							
	Polynuclear Aromatic Hydrocarbons																
	Naphthalene	0.0000001						0.0000001						0.0000001			
	Phthalates																
	Bis(2-ethylhexyl) phthalate	0.000002							0.000002								
	Phenols																
	Pentachlorophenol	0.000003			0.000003				0.000003								
	Polychlorinated Biphenyls																
	Total Aroclors	0.0009		0.0009						0.0009							
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1											1				
	Total PCB TEQ	0.005											0.005				
	Pesticides																
	Aldrin	0.001							0.0011								
	Dieldrin	0.00001							0.00001								
	Total DDT	0.001							0.001								
	Conventionals																
	Perchlorate	0.03															0.03
Exposure Point Total[b]			0.002	0.1	0.000003		0.0001	0.0000001	0.002	0.0009			1	0.0000001			0.03

Notes:
a Numbers presented are rounded values. Sums calculated before rounding.
b Sums calculated using PCB Aroclor data.

Abbreviations:
HI = Hazard Index.
HQ = Hazard Quotient.
PAH = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RM = River mile.
TEQ = Toxic equivalency quotient.

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	4.1E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.6E-08	2.7E-07	3.E-04	9.E-04	0.001
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.8E-09	0.E+00	4.E-05	0.00004
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	2.2E-11	1.8E-11	--	--	--	3.0E-04	3.0E-04	5.1E-11	4.3E-11	2.E-07	1.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	5.1E-09	3.3E-09	4.E-09	2.E-09	6.E-09	--	--	1.2E-08	7.6E-09	--	--	--
	Benzo(a)pyrene	2.4E+02	ug/kg	7.3E+00	7.3E+00	8.1E-09	5.2E-09	6.E-08	4.E-08	1.E-07	--	--	1.9E-08	1.2E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	7.7E-09	5.0E-09	6.E-09	4.E-09	9.E-09	--	--	1.8E-08	1.2E-08	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	2.6E-09	1.7E-09	2.E-10	1.E-10	3.E-10	--	--	6.1E-09	3.9E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	8.2E-10	5.3E-10	6.E-09	4.E-09	1.E-08	--	--	1.9E-09	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+02	ug/kg	7.3E-01	7.3E-01	6.7E-09	4.4E-09	5.E-09	3.E-09	8.E-09	--	--	1.6E-08	1.0E-08	--	--	--
	Naphthalene	2.9E+01	ug/kg	--	--	9.8E-10	6.3E-10	--	--	--	2.0E-02	2.0E-02	2.3E-09	1.5E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+01	ug/kg	1.4E-02	1.4E-02	1.1E-09	9.6E-10	2.E-11	1.E-11	3.E-11	2.0E-02	2.0E-02	2.7E-09	2.2E-09	1.E-07	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	7.8E-11	2.6E-11	3.E-11	1.E-11	4.E-11	5.0E-03	5.0E-03	1.8E-10	6.1E-11	4.E-08	1.E-08	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	6.2E-10	3.7E-10	1.E-09	7.E-10	2.E-09	2.0E-05	2.0E-05	1.4E-09	8.6E-10	7.E-05	4.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	1.3E+05	1.3E+05	2.1E-14	5.8E-14	3.E-09	8.E-09	1.E-08	1.0E-09	1.0E-09	4.8E-14	1.4E-13	5.E-05	1.E-04	0.0002
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	1.2E-14	6.9E-15	1.E-09	9.E-10	2.E-09	1.0E-09	1.0E-09	2.7E-14	1.6E-14	3.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	9.6E-12	8.1E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	2.2E-11	1.9E-11	7.E-07	6.E-07	0.000001
	Total DDT	4.6E+00	ug/kg	3.4E-01	3.4E-01	3.6E-11	1.0E-10	1.E-11	3.E-11	5.E-11	5.0E-04	5.0E-04	8.3E-11	2.3E-10	2.E-07	5.E-07	0.000001
Exposure Point Total[b]										4.E-07							0.002
RM 1 East	**Metals**																
	Arsenic	5.7E+00	mg/kg	1.5E+00	1.5E+00	4.4E-08	1.2E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.0E-07	2.9E-07	3.E-04	1.E-03	0.001
	Mercury	7.1E+00	mg/kg	--	--	0.0E+00	1.6E-07	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.6E-07	0.E+00	4.E-03	0.004
	Butyltins																
	Tributyltin ion	1.2E+00	ug/kg	--	--	3.1E-11	2.6E-11	--	--	--	3.0E-04	3.0E-04	7.3E-11	6.1E-11	2.E-07	2.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+01	ug/kg	7.3E-01	7.3E-01	1.8E-09	1.2E-09	1.E-09	8.E-10	2.E-09	--	--	4.2E-09	2.7E-09	--	--	--
	Benzo(a)pyrene	8.1E+01	ug/kg	7.3E+00	7.3E+00	2.7E-09	1.8E-09	2.E-08	1.E-08	3.E-08	--	--	6.4E-09	4.1E-09	--	--	--
	Benzo(b)fluoranthene	6.9E+01	ug/kg	7.3E-01	7.3E-01	2.3E-09	1.5E-09	2.E-09	1.E-09	3.E-09	--	--	5.4E-09	3.5E-09	--	--	--
	Benzo(k)fluoranthene	4.8E+01	ug/kg	7.3E-02	7.3E-02	1.6E-09	1.0E-09	1.E-10	8.E-11	2.E-10	--	--	3.8E-09	2.4E-09	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	9.1E+00	ug/kg	7.3E+00	7.3E+00	3.1E-10	2.0E-10	2.E-09	1.E-09	4.E-09	--	--	7.2E-10	4.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+01	ug/kg	7.3E-01	7.3E-01	1.9E-09	1.2E-09	1.E-09	9.E-10	2.E-09	--	--	4.4E-09	2.9E-09	--	--	--
	Naphthalene	2.3E+01	ug/kg	--	--	7.7E-10	5.0E-10	--	--	--	2.0E-02	2.0E-02	1.8E-09	1.2E-09	9.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	1.8E-09	1.5E-09	3.E-11	2.E-11	5.E-11	2.0E-02	2.0E-02	4.3E-09	3.6E-09	2.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	1.6E-10	5.5E-11	6.E-11	2.E-11	9.E-11	5.0E-03	5.0E-03	3.8E-10	1.3E-10	8.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+02	ug/kg	2.0E+00	2.0E+00	1.8E-08	1.1E-08	4.E-08	2.E-08	6.E-08	2.0E-05	2.0E-05	4.3E-08	2.6E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.3E+05	1.3E+05	5.8E-15	1.6E-14	8.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	1.4E-14	3.8E-14	1.E-05	4.E-05	0.0001
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	9.8E-15	5.9E-15	1.E-09	8.E-10	2.E-09	1.0E-09	1.0E-09	2.3E-14	1.4E-14	2.E-05	1.E-05	0.00004
	Pesticides																
	Total DDT	4.0E+00	ug/kg	3.4E-01	3.4E-01	3.1E-11	8.7E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	7.2E-11	2.0E-10	1.E-07	4.E-07	0.00000
Exposure Point Total										4.E-07							0.01
RM 1.5 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	3.4E-08	9.6E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	8.0E-08	2.2E-07	3.E-04	7.E-04	0.001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.5E-09	0.E+00	3.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+01	ug/kg	7.3E-01	7.3E-01	1.1E-09	7.2E-10	8.E-10	5.E-10	1.E-09	--	--	2.6E-09	1.7E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	1.6E-09	1.0E-09	1.E-08	8.E-09	2.E-08	--	--	3.8E-09	2.4E-09	--	--	--
	Benzo(b)fluoranthene	4.1E+01	ug/kg	7.3E-01	7.3E-01	1.4E-09	8.9E-10	1.E-09	7.E-10	2.E-09	--	--	3.2E-09	2.1E-09	--	--	--
	Benzo(k)fluoranthene	3.4E+01	ug/kg	7.3E-02	7.3E-02	1.1E-09	7.4E-10	8.E-11	5.E-11	1.E-10	--	--	2.7E-09	1.7E-09	--	--	--
	Dibenzo(a,h)anthracene	5.9E+00	ug/kg	7.3E+00	7.3E+00	2.0E-10	1.3E-10	1.E-09	9.E-10	2.E-09	--	--	4.6E-10	3.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.2E-09	8.1E-10	9.E-10	6.E-10	1.E-09	--	--	2.9E-09	1.9E-09	--	--	--
	Naphthalene	9.6E+00	ug/kg	--	--	3.2E-10	2.1E-10	--	--	--	2.0E-02	2.0E-02	7.5E-10	4.9E-10	4.E-08	2.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	9.7E-11	3.3E-11	4.E-11	1.E-11	5.E-11	5.0E-03	5.0E-03	2.3E-10	7.6E-11	5.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	7.9E-10	4.7E-10	2.E-09	9.E-10	3.E-09	2.0E-05	2.0E-05	1.8E-09	1.1E-09	9.E-05	6.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	1.3E+05	1.3E+05	7.3E-16	2.1E-15	1.E-10	3.E-10	4.E-10	1.0E-09	1.0E-09	1.7E-15	4.8E-15	2.E-06	5.E-06	0.00001
	Pesticides																
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	8.4E-12	2.4E-11	3.E-12	8.E-12	1.E-11	5.0E-04	5.0E-04	2.0E-11	5.5E-11	4.E-08	1.E-07	0.0000001
Exposure Point Total										2.E-07							0.001

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1.5 East	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	4.2E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.8E-08	2.7E-07	3.E-04	9.E-04	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	2.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.4E-09	0.E+00	6.E-05	0.0001
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	9.6E-12	8.1E-12	--	--	--	3.0E-04	3.0E-04	2.2E-11	1.9E-11	7.E-08	6.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+02	ug/kg	7.3E-01	7.3E-01	3.2E-08	2.0E-08	2.E-08	1.E-08	4.E-08	--	--	7.4E-08	4.8E-08	--	--	--
	Benzo(a)pyrene	1.4E+03	ug/kg	7.3E+00	7.3E+00	4.7E-08	3.1E-08	3.E-07	2.E-07	6.E-07	--	--	1.1E-07	7.1E-08	--	--	--
	Benzo(b)fluoranthene	8.2E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	1.8E-08	2.E-08	1.E-08	3.E-08	--	--	6.4E-08	4.2E-08	--	--	--
	Benzo(k)fluoranthene	8.2E+02	ug/kg	7.3E-02	7.3E-02	2.8E-08	1.8E-08	2.E-09	1.E-09	3.E-09	--	--	6.4E-08	4.2E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	4.7E-09	3.1E-09	3.E-08	2.E-08	6.E-08	--	--	1.1E-08	7.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+03	ug/kg	7.3E-01	7.3E-01	3.4E-08	2.2E-08	2.E-08	2.E-08	4.E-08	--	--	7.9E-08	5.1E-08	--	--	--
	Naphthalene	3.7E+02	ug/kg	--	--	1.2E-08	8.1E-09	--	--	--	2.0E-02	2.0E-02	2.9E-08	1.9E-08	1.E-06	9.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	4.4E-09	3.7E-09	6.E-11	5.E-11	1.E-10	2.0E-02	2.0E-02	1.0E-08	8.6E-09	5.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.1E+00	ug/kg	4.0E-01	4.0E-01	2.7E-10	8.9E-11	1.E-10	4.E-11	1.E-10	5.0E-03	5.0E-03	6.2E-10	2.1E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.1E+01	ug/kg	2.0E+00	2.0E+00	1.5E-09	8.8E-10	3.E-09	2.E-09	5.E-09	2.0E-05	2.0E-05	3.4E-09	2.1E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	1.4E-14	4.0E-14	2.E-09	5.E-09	7.E-09	1.0E-09	1.0E-09	3.3E-14	9.2E-14	3.E-05	9.E-05	0.0001
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	3.8E-15	2.3E-15	5.E-10	3.E-10	8.E-10	1.0E-09	1.0E-09	8.9E-15	5.4E-15	9.E-06	5.E-06	0.00001
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	1.8E-12	1.5E-12	3.E-11	2.E-11	5.E-11	5.0E-05	5.0E-05	4.2E-12	3.5E-12	8.E-08	7.E-08	0.0000002
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	1.7E-10	4.7E-10	6.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	3.9E-10	1.1E-09	8.E-07	2.E-06	0.000003
Exposure Point Total										1.E-06							0.002
RM 2 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	3.0E-08	8.4E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.0E-08	2.0E-07	2.E-04	7.E-04	0.001
	Mercury	7.8E-02	mg/kg	--	--	0.0E+00	1.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.0E-09	0.E+00	4.E-05	0.00004
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	5.4E-11	4.6E-11	--	--	--	3.0E-04	3.0E-04	1.3E-10	1.1E-10	4.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+01	ug/kg	7.3E-01	7.3E-01	1.8E-09	1.2E-09	1.E-09	9.E-10	2.E-09	--	--	4.3E-09	2.8E-09	--	--	--
	Benzo(a)pyrene	9.8E+01	ug/kg	7.3E+00	7.3E+00	3.3E-09	2.1E-09	2.E-08	2.E-08	4.E-08	--	--	7.7E-09	5.0E-09	--	--	--
	Benzo(b)fluoranthene	9.8E+01	ug/kg	7.3E-01	7.3E-01	3.3E-09	2.1E-09	2.E-09	2.E-09	4.E-09	--	--	7.7E-09	5.0E-09	--	--	--
	Benzo(k)fluoranthene	3.2E+01	ug/kg	7.3E-02	7.3E-02	1.1E-09	7.0E-10	8.E-11	5.E-11	1.E-10	--	--	2.5E-09	1.6E-09	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.0E+01	ug/kg	7.3E+00	7.3E+00	3.5E-10	2.3E-10	3.E-09	2.E-09	4.E-09	--	--	8.1E-10	5.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.1E+01	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.8E-09	2.E-09	1.E-09	3.E-09	--	--	6.4E-09	4.1E-09	--	--	--
	Naphthalene	1.0E+01	ug/kg	--	--	3.4E-10	2.2E-10	--	--	--	2.0E-02	2.0E-02	7.9E-10	5.1E-10	4.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.8E+01	ug/kg	1.4E-02	1.4E-02	1.2E-09	1.0E-09	2.E-11	1.E-11	3.E-11	2.0E-02	2.0E-02	2.9E-09	2.4E-09	1.E-07	1.E-07	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	6.6E-10	4.0E-10	1.E-09	8.E-10	2.E-09	2.0E-05	2.0E-05	1.5E-09	9.3E-10	8.E-05	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	1.3E+05	1.3E+05	1.7E-14	4.7E-14	2.E-09	6.E-09	8.E-09	1.0E-09	1.0E-09	3.9E-14	1.1E-13	4.E-05	1.E-04	0.0002
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	1.3E-14	7.7E-15	2.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	3.0E-14	1.8E-14	3.E-05	2.E-05	0.00005
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	9.3E-12	7.9E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	2.2E-11	1.8E-11	7.E-07	6.E-07	0.000001
	Dieldrin	2.7E-01	ug/kg	1.6E+01	1.6E+01	7.0E-12	5.9E-12	1.E-10	9.E-11	2.E-10	5.0E-05	5.0E-05	1.6E-11	1.4E-11	3.E-07	3.E-07	0.000001
	Total DDT	3.2E+00	ug/kg	3.4E-01	3.4E-01	2.5E-11	6.9E-11	8.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	5.8E-11	1.6E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										2.E-07							0.001
RM 2 East	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	3.3E-08	9.3E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.8E-08	2.2E-07	3.E-04	7.E-04	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.6E-09	0.E+00	5.E-05	0.00005
	Butyltins																
	Tributyltin ion	3.7E+00	ug/kg	--	--	9.6E-11	8.1E-11	--	--	--	3.0E-04	3.0E-04	2.2E-10	1.9E-10	7.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	3.3E-09	2.1E-09	2.E-09	2.E-09	4.E-09	--	--	7.6E-09	4.9E-09	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	4.0E-09	2.6E-09	3.E-08	2.E-08	5.E-08	--	--	9.4E-09	6.1E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	4.4E-09	2.9E-09	3.E-09	2.E-09	5.E-09	--	--	1.0E-08	6.7E-09	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	2.6E-09	1.7E-09	2.E-10	1.E-10	3.E-10	--	--	6.1E-09	3.9E-09	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	7.9E-10	5.1E-10	6.E-09	4.E-09	1.E-08	--	--	1.8E-09	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	3.6E-09	2.3E-09	3.E-09	2.E-09	4.E-09	--	--	8.3E-09	5.4E-09	--	--	--
	Naphthalene	2.1E+01	ug/kg	--	--	7.1E-10	4.6E-10	--	--	--	2.0E-02	2.0E-02	1.6E-09	1.1E-09	8.E-08	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	3.1E-09	2.6E-09	4.E-11	4.E-11	8.E-11	2.0E-02	2.0E-02	7.3E-09	6.1E-09	4.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.2E+00	ug/kg	4.0E-01	4.0E-01	1.4E-10	4.8E-11	6.E-11	2.E-11	8.E-11	5.0E-03	5.0E-03	3.3E-10	1.1E-10	7.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+03	ug/kg	2.0E+00	2.0E+00	5.5E-08	3.3E-08	1.E-07	7.E-08	2.E-07	2.0E-05	2.0E-05	1.3E-07	7.8E-08	6.E-03	4.E-03	0.01

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	1.3E+05	1.3E+05	3.1E-14	8.8E-14	4.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	7.3E-14	2.0E-13	7.E-05	2.E-04	0.0003
	Total PCB TEQ	8.5E+01	pg/g	1.3E+05	1.3E+05	3.1E-12	1.8E-12	4.E-07	2.E-07	6.E-07	1.0E-09	1.0E-09	7.2E-12	4.3E-12	7.E-03	4.E-03	0.01
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	1.8E-11	1.5E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.2E-11	3.5E-11	1.E-06	1.E-06	0.000003
	Dieldrin	1.2E+00	ug/kg	1.6E+01	1.6E+01	3.2E-11	2.7E-11	5.E-10	4.E-10	1.E-09	5.0E-05	5.0E-05	7.5E-11	6.3E-11	2.E-06	1.E-06	0.000003
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	3.3E-11	9.2E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	7.6E-11	2.1E-10	2.E-07	4.E-07	0.000001
Exposure Point Total										1.E-06							0.02
RM 2.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	3.6E-08	1.0E-07	5.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.5E-08	2.4E-07	3.E-04	8.E-04	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.6E-09	0.E+00	5.E-05	0.00005
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	6.0E-11	5.0E-11	--	--	--	3.0E-04	3.0E-04	1.4E-10	1.2E-10	5.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.7E-09	8.E-09	5.E-09	1.E-08	--	--	2.4E-08	1.6E-08	--	--	--
	Benzo(a)pyrene	5.5E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.2E-08	1.E-07	9.E-08	2.E-07	--	--	4.3E-08	2.8E-08	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	1.3E-08	8.6E-09	1.E-08	6.E-09	2.E-08	--	--	3.1E-08	2.0E-08	--	--	--
	Benzo(k)fluoranthene	2.5E+02	ug/kg	7.3E-02	7.3E-02	8.5E-09	5.5E-09	6.E-10	4.E-10	1.E-09	--	--	2.0E-08	1.3E-08	--	--	--
	Dibenzo(a,h)anthracene	6.4E+01	ug/kg	7.3E+00	7.3E+00	2.1E-09	1.4E-09	2.E-08	1.E-08	3.E-08	--	--	5.0E-09	3.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	3.7E-08	2.4E-08	--	--	--
	Naphthalene	7.6E+01	ug/kg	--	--	2.6E-09	1.7E-09	--	--	--	2.0E-02	2.0E-02	6.0E-09	3.9E-09	3.E-07	2.E-07	0.0000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.3E+01	ug/kg	1.4E-02	1.4E-02	1.1E-09	9.4E-10	2.E-11	1.E-11	3.E-11	2.0E-02	2.0E-02	2.6E-09	2.2E-09	1.E-07	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	7.8E-11	2.6E-11	3.E-11	1.E-11	4.E-11	5.0E-03	5.0E-03	1.8E-10	6.1E-11	4.E-08	1.E-08	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	7.8E-10	4.7E-10	2.E-09	9.E-10	2.E-09	2.0E-05	2.0E-05	1.8E-09	1.1E-09	9.E-05	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	3.2E-15	9.0E-15	4.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	7.5E-15	2.1E-14	7.E-06	2.E-05	0.00003
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	7.5E-15	4.5E-15	1.E-09	6.E-10	2.E-09	1.0E-09	1.0E-09	1.7E-14	1.1E-14	2.E-05	1.E-05	0.00003
	Pesticides																
	Aldrin	2.6E-01	ug/kg	1.7E+01	1.7E+01	6.7E-12	5.6E-12	1.E-10	1.E-10	2.E-10	3.0E-05	3.0E-05	1.6E-11	1.3E-11	5.E-07	4.E-07	0.000001
	Dieldrin	2.2E-01	ug/kg	1.6E+01	1.6E+01	5.7E-12	4.8E-12	9.E-11	8.E-11	2.E-10	5.0E-05	5.0E-05	1.3E-11	1.1E-11	3.E-07	2.E-07	0.0000005
	Total DDT	3.4E+00	ug/kg	3.4E-01	3.4E-01	2.6E-11	7.4E-11	9.E-12	3.E-11	3.E-11	5.0E-04	5.0E-04	6.2E-11	1.7E-10	1.E-07	3.E-07	0.0000005
Exposure Point Total										5.E-07							0.001

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 2.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	3.7E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.7E-08	2.5E-07	3.E-04	8.E-04	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.6E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+03	ug/kg	7.3E-01	7.3E-01	2.0E-07	1.3E-07	1.E-07	9.E-08	2.E-07	--	--	4.6E-07	2.9E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	1.5E-07	9.9E-08	1.E-06	7.E-07	2.E-06	--	--	3.6E-07	2.3E-07	--	--	--
	Benzo(b)fluoranthene	3.9E+03	ug/kg	7.3E-01	7.3E-01	1.3E-07	8.5E-08	1.E-07	6.E-08	2.E-07	--	--	3.1E-07	2.0E-07	--	--	--
	Benzo(k)fluoranthene	1.2E+03	ug/kg	7.3E-02	7.3E-02	4.1E-08	2.7E-08	3.E-09	2.E-09	5.E-09	--	--	9.6E-08	6.2E-08	--	--	--
	Dibenzo(a,h)anthracene	4.5E+02	ug/kg	7.3E+00	7.3E+00	1.5E-08	9.8E-09	1.E-07	7.E-08	2.E-07	--	--	3.5E-08	2.3E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	8.6E-08	5.6E-08	6.E-08	4.E-08	1.E-07	--	--	2.0E-07	1.3E-07	--	--	--
	Naphthalene	2.8E+02	ug/kg	--	--	9.3E-09	6.1E-09	--	--	--	2.0E-02	2.0E-02	2.2E-08	1.4E-08	1.E-06	7.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	2.7E-09	2.3E-09	4.E-11	3.E-11	7.E-11	2.0E-02	2.0E-02	6.4E-09	5.4E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	5.7E+01	ug/kg	4.0E-01	4.0E-01	3.7E-09	1.2E-09	1.E-09	5.E-10	2.E-09	5.0E-03	5.0E-03	8.6E-09	2.9E-09	2.E-06	6.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	2.8E-09	1.7E-09	6.E-09	3.E-09	9.E-09	2.0E-05	2.0E-05	6.6E-09	3.9E-09	3.E-04	2.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	8.2E-15	2.3E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	1.9E-14	5.4E-14	2.E-05	5.E-05	0.0001
	Total PCB TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	1.2E-13	7.2E-14	2.E-08	9.E-09	3.E-08	1.0E-09	1.0E-09	2.8E-13	1.7E-13	3.E-04	2.E-04	0.0004
	Pesticides																
	Aldrin	7.5E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.6E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.5E-11	3.8E-11	2.E-06	1.E-06	0.000003
	Dieldrin	3.3E-01	ug/kg	1.6E+01	1.6E+01	8.5E-12	7.2E-12	1.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.0E-11	1.7E-11	4.E-07	3.E-07	0.000001
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	8.7E-11	2.4E-10	3.E-11	8.E-11	1.E-10	5.0E-04	5.0E-04	2.0E-10	5.7E-10	4.E-07	1.E-06	0.000002
Exposure Point Total										3.E-06							0.002
RM 2.5 MC	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	3.7E-08	1.0E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.6E-08	2.4E-07	3.E-04	8.E-04	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	2.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.6E-09	0.E+00	7.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.7E-09	8.E-09	5.E-09	1.E-08	--	--	2.4E-08	1.6E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	1.6E-08	1.1E-08	1.E-07	8.E-08	2.E-07	--	--	3.8E-08	2.5E-08	--	--	--
	Benzo(b)fluoranthene	4.5E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	9.7E-09	1.E-08	7.E-09	2.E-08	--	--	3.5E-08	2.3E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	4.8E-09	3.1E-09	4.E-10	2.E-10	6.E-10	--	--	1.1E-08	7.3E-09	--	--	--
	Dibenzo(a,h)anthracene	4.7E+01	ug/kg	7.3E+00	7.3E+00	1.6E-09	1.0E-09	1.E-08	8.E-09	2.E-08	--	--	3.7E-09	2.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+02	ug/kg	7.3E-01	7.3E-01	1.3E-08	8.2E-09	9.E-09	6.E-09	2.E-08	--	--	3.0E-08	1.9E-08	--	--	--
	Naphthalene	9.9E+01	ug/kg	--	--	3.3E-09	2.2E-09	--	--	--	2.0E-02	2.0E-02	7.8E-09	5.0E-09	4.E-07	3.E-07	0.000001

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	2.4E-09	2.0E-09	3.E-11	3.E-11	6.E-11	2.0E-02	2.0E-02	5.6E-09	4.7E-09	3.E-07	2.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	1.0E-10	3.5E-11	4.E-11	1.E-11	6.E-11	5.0E-03	5.0E-03	2.4E-10	8.1E-11	5.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	8.4E-10	3.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	3.3E-09	2.0E-09	2.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	6.5E-01	ug/kg	1.7E+01	1.7E+01	1.7E-11	1.4E-11	3.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	3.9E-11	3.3E-11	1.E-06	1.E-06	0.000002
	Dieldrin	9.7E-01	ug/kg	1.6E+01	1.6E+01	2.5E-11	2.1E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	5.9E-11	4.9E-11	1.E-06	1.E-06	0.000002
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	8.5E-11	2.4E-10	3.E-11	8.E-11	1.E-10	5.0E-04	5.0E-04	2.0E-10	5.6E-10	4.E-07	1.E-06	0.000002
Exposure Point Total										5.E-07							0.001
RM 3 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	3.2E-08	8.9E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.4E-08	2.1E-07	2.E-04	7.E-04	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	2.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.4E-09	0.E+00	5.E-05	0.0001
	Vanadium	9.3E+01	mg/kg	--	--	0.0E+00	2.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	4.7E-06	0.E+00	7.E-02	0.1
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	4.7E-10	3.9E-10	--	--	--	3.0E-04	3.0E-04	1.1E-09	9.2E-10	4.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.7E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	3.7E-08	2.4E-08	--	--	--
	Benzo(a)pyrene	7.1E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	5.6E-08	3.6E-08	--	--	--
	Benzo(b)fluoranthene	6.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.3E-08	1.E-08	1.E-08	2.E-08	--	--	4.7E-08	3.1E-08	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	1.3E-08	8.7E-09	1.E-09	6.E-10	2.E-09	--	--	3.1E-08	2.0E-08	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	2.8E-09	1.8E-09	2.E-08	1.E-08	3.E-08	--	--	6.4E-09	4.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	8.E-09	2.E-08	--	--	3.7E-08	2.4E-08	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	7.5E-09	4.9E-09	--	--	--	2.0E-02	2.0E-02	1.8E-08	1.1E-08	9.E-07	6.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	1.5E-09	1.3E-09	2.E-11	2.E-11	4.E-11	2.0E-02	2.0E-02	3.5E-09	2.9E-09	2.E-07	1.E-07	0.0000003
	Phenols																
	Pentachlorophenol	1.1E+02	ug/kg	4.0E-01	4.0E-01	7.1E-09	2.4E-09	3.E-09	1.E-09	4.E-09	5.0E-03	5.0E-03	1.7E-08	5.6E-09	3.E-06	1.E-06	0.000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	6.4E-10	3.9E-10	1.E-09	8.E-10	2.E-09	2.0E-05	2.0E-05	1.5E-09	9.0E-10	7.E-05	4.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	1.3E-14	3.6E-14	2.E-09	5.E-09	6.E-09	1.0E-09	1.0E-09	3.0E-14	8.4E-14	3.E-05	8.E-05	0.0001
	Total PCB TEQ	4.4E-01	pg/g	1.3E+05	1.3E+05	1.6E-14	9.7E-15	2.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	3.8E-14	2.3E-14	4.E-05	2.E-05	0.0001

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	5.2E-01	ug/kg	1.7E+01	1.7E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	3.1E-11	2.6E-11	1.E-06	9.E-07	0.000002
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	3.4E-11	2.9E-11	5.E-10	5.E-10	1.E-09	5.0E-05	5.0E-05	8.0E-11	6.7E-11	2.E-06	1.E-06	0.000003
	Total DDT	2.1E+02	ug/kg	3.4E-01	3.4E-01	1.6E-09	4.6E-09	6.E-10	2.E-09	2.E-09	5.0E-04	5.0E-04	3.8E-09	1.1E-08	8.E-06	2.E-05	0.00003
Exposure Point Total										6.E-07							0.1
RM 3 East	**Metals**																
	Arsenic	5.5E+00	mg/kg	1.5E+00	1.5E+00	4.2E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.9E-08	2.8E-07	3.E-04	9.E-04	0.001
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.8E-09	0.E+00	4.E-05	0.00004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.4E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	1.6E+01	ug/kg	--	--	4.1E-10	3.5E-10	--	--	--	3.0E-04	3.0E-04	9.7E-10	8.1E-10	3.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	4.9E-09	3.2E-09	4.E-09	2.E-09	6.E-09	--	--	1.1E-08	7.4E-09	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	4.5E-09	2.9E-09	3.E-08	2.E-08	5.E-08	--	--	1.1E-08	6.9E-09	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	5.3E-09	3.4E-09	4.E-09	3.E-09	6.E-09	--	--	1.2E-08	8.0E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	3.7E-09	2.4E-09	3.E-10	2.E-10	5.E-10	--	--	8.7E-09	5.7E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	5.7E-10	3.7E-10	4.E-09	3.E-09	7.E-09	--	--	1.3E-09	8.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+01	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.8E-09	2.E-09	1.E-09	3.E-09	--	--	6.5E-09	4.2E-09	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	5.7E-10	3.7E-10	--	--	--	2.0E-02	2.0E-02	1.3E-09	8.6E-10	7.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.8E+01	ug/kg	1.4E-02	1.4E-02	2.3E-09	1.9E-09	3.E-11	3.E-11	6.E-11	2.0E-02	2.0E-02	5.3E-09	4.5E-09	3.E-07	2.E-07	0.0000005
	Phenols																
	Pentachlorophenol	4.6E+00	ug/kg	4.0E-01	4.0E-01	3.0E-10	1.0E-10	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	7.0E-10	2.3E-10	1.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	8.3E-10	5.0E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	1.9E-09	1.2E-09	1.E-04	6.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	4.2E-14	1.2E-13	5.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	9.7E-14	2.7E-13	1.E-04	3.E-04	0.0004
	Total PCB TEQ	1.0E-01	pg/g	1.3E+05	1.3E+05	3.7E-15	2.2E-15	5.E-10	3.E-10	8.E-10	1.0E-09	1.0E-09	8.6E-15	5.1E-15	9.E-06	5.E-06	0.00001
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.0E-11	8.7E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	2.4E-11	2.0E-11	8.E-07	7.E-07	0.000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	5.1E-12	4.3E-12	8.E-11	7.E-11	1.E-10	5.0E-05	5.0E-05	1.2E-11	1.0E-11	2.E-07	2.E-07	0.0000004
	Total DDT	3.8E+00	ug/kg	3.4E-01	3.4E-01	3.0E-11	8.3E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	6.9E-11	1.9E-10	1.E-07	4.E-07	0.000001
Exposure Point Total										3.E-07							0.1
RM 3.5 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	8.1E-08	2.3E-07	1.E-07	3.E-07	5.E-07	3.0E-04	3.0E-04	1.9E-07	5.3E-07	6.E-04	2.E-03	0.002
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	2.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.0E-09	0.E+00	6.E-05	0.0001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.1E-06	0.E+00	7.E-02	0.1

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	2.1E-09	1.8E-09	--	--	--	3.0E-04	3.0E-04	4.9E-09	4.1E-09	2.E-05	1.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+03	ug/kg	7.3E-01	7.3E-01	5.9E-08	3.8E-08	4.E-08	3.E-08	7.E-08	--	--	1.4E-07	9.0E-08	--	--	--
	Benzo(a)pyrene	2.6E+03	ug/kg	7.3E+00	7.3E+00	8.6E-08	5.6E-08	6.E-07	4.E-07	1.E-06	--	--	2.0E-07	1.3E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	7.6E-08	4.9E-08	6.E-08	4.E-08	9.E-08	--	--	1.8E-07	1.2E-07	--	--	--
	Benzo(k)fluoranthene	8.0E+02	ug/kg	7.3E-02	7.3E-02	2.7E-08	1.7E-08	2.E-09	1.E-09	3.E-09	--	--	6.3E-08	4.1E-08	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	5.9E-09	3.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+03	ug/kg	7.3E-01	7.3E-01	6.9E-08	4.5E-08	5.E-08	3.E-08	8.E-08	--	--	1.6E-07	1.0E-07	--	--	--
	Naphthalene	5.2E+02	ug/kg	--	--	1.8E-08	1.1E-08	--	--	--	2.0E-02	2.0E-02	4.1E-08	2.7E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	2.1E-09	1.8E-09	3.E-11	3.E-11	6.E-11	2.0E-02	2.0E-02	5.0E-09	4.2E-09	2.E-07	2.E-07	0.0000005
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	9.5E-10	3.2E-10	4.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	2.2E-09	7.5E-10	4.E-07	1.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.7E+01	ug/kg	2.0E+00	2.0E+00	9.7E-10	5.8E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.3E-09	1.4E-09	1.E-04	7.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	1.3E-14	3.5E-14	2.E-09	5.E-09	6.E-09	1.0E-09	1.0E-09	2.9E-14	8.2E-14	3.E-05	8.E-05	0.0001
	Total PCB TEQ	7.7E-01	pg/g	1.3E+05	1.3E+05	2.8E-14	1.7E-14	4.E-09	2.E-09	6.E-09	1.0E-09	1.0E-09	6.6E-14	3.9E-14	7.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	3.0E-11	2.5E-11	1.E-06	8.E-07	0.000002
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	4.7E-12	4.0E-12	8.E-11	6.E-11	1.E-10	5.0E-05	5.0E-05	1.1E-11	9.3E-12	2.E-07	2.E-07	0.0000004
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	1.6E-10	4.6E-10	6.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	3.8E-10	1.1E-09	8.E-07	2.E-06	0.000003
Exposure Point Total										2.E-06							0.1
RM 3.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	3.7E-08	1.0E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.7E-08	2.4E-07	3.E-04	8.E-04	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	2.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.5E-09	0.E+00	7.E-05	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.7E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	1.9E+04	ug/kg	--	--	4.9E-07	4.2E-07	--	--	--	3.0E-04	3.0E-04	1.2E-06	9.7E-07	4.E-03	3.E-03	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+03	ug/kg	7.3E-01	7.3E-01	4.2E-08	2.7E-08	3.E-08	2.E-08	5.E-08	--	--	9.8E-08	6.3E-08	--	--	--
	Benzo(a)pyrene	8.7E+02	ug/kg	7.3E+00	7.3E+00	2.9E-08	1.9E-08	2.E-07	1.E-07	4.E-07	--	--	6.9E-08	4.4E-08	--	--	--
	Benzo(b)fluoranthene	1.3E+03	ug/kg	7.3E-01	7.3E-01	4.4E-08	2.9E-08	3.E-08	2.E-08	5.E-08	--	--	1.0E-07	6.7E-08	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	2.4E-08	1.5E-08	2.E-09	1.E-09	3.E-09	--	--	5.6E-08	3.6E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	4.4E-09	2.9E-09	3.E-08	2.E-08	5.E-08	--	--	1.0E-08	6.7E-09	--	--	--

[a] Cancer Risk Calculations and Noncancer Hazard Calculations
[b] Total Cancer Risk and Total Noncancer HQ

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.1E-08	7.2E-09	8.E-09	5.E-09	1.E-08	--	--	2.6E-08	1.7E-08	--	--	--
	Naphthalene	1.8E+01	ug/kg	--	--	6.1E-10	3.9E-10	--	--	--	2.0E-02	2.0E-02	1.4E-09	9.2E-10	7.E-08	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.9E+03	ug/kg	1.4E-02	1.4E-02	1.8E-07	1.5E-07	3.E-09	2.E-09	5.E-09	2.0E-02	2.0E-02	4.2E-07	3.5E-07	2.E-05	2.E-05	0.00004
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	1.6E-10	5.4E-11	6.E-11	2.E-11	9.E-11	5.0E-03	5.0E-03	3.8E-10	1.3E-10	8.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+03	ug/kg	2.0E+00	2.0E+00	6.0E-08	3.6E-08	1.E-07	7.E-08	2.E-07	2.0E-05	2.0E-05	1.4E-07	8.5E-08	7.E-03	4.E-03	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	1.3E+05	1.3E+05	8.7E-14	2.4E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	2.0E-13	5.7E-13	2.E-04	6.E-04	0.001
	Total PCB TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	4.1E-12	2.5E-12	5.E-07	3.E-07	9.E-07	1.0E-09	1.0E-09	9.7E-12	5.8E-12	1.E-02	6.E-03	0.02
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	3.0E-11	2.5E-11	1.E-06	8.E-07	0.000002
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	3.8E-12	3.2E-12	6.E-11	5.E-11	1.E-10	5.0E-05	5.0E-05	8.9E-12	7.5E-12	2.E-07	2.E-07	0.0000003
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	2.1E-10	5.9E-10	7.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	4.9E-10	1.4E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										2.E-06							0.1
RM 4 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	3.4E-08	9.5E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.9E-08	2.2E-07	3.E-04	7.E-04	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	3.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-09	0.E+00	7.E-05	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.4E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	8.2E+00	ug/kg	--	--	2.1E-10	1.8E-10	--	--	--	3.0E-04	3.0E-04	5.0E-10	4.2E-10	2.E-06	1.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.0E+02	ug/kg	7.3E-01	7.3E-01	3.0E-08	2.0E-08	2.E-08	1.E-08	4.E-08	--	--	7.1E-08	4.6E-08	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.0E-08	1.3E-08	1.E-07	9.E-08	2.E-07	--	--	4.6E-08	3.0E-08	--	--	--
	Benzo(b)fluoranthene	5.2E+02	ug/kg	7.3E-01	7.3E-01	1.7E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	4.1E-08	2.6E-08	--	--	--
	Benzo(k)fluoranthene	3.2E+02	ug/kg	7.3E-02	7.3E-02	1.1E-08	6.9E-09	8.E-10	5.E-10	1.E-09	--	--	2.5E-08	1.6E-08	--	--	--
	Dibenzo(a,h)anthracene	8.9E+01	ug/kg	7.3E+00	7.3E+00	3.0E-09	1.9E-09	2.E-08	1.E-08	4.E-08	--	--	7.0E-09	4.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	3.6E-08	2.4E-08	--	--	--
	Naphthalene	1.9E+02	ug/kg	--	--	6.4E-09	4.2E-09	--	--	--	2.0E-02	2.0E-02	1.5E-08	9.7E-09	8.E-07	5.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	1.8E-09	1.6E-09	3.E-11	2.E-11	5.E-11	2.0E-02	2.0E-02	4.3E-09	3.6E-09	2.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	6.7E+00	ug/kg	4.0E-01	4.0E-01	4.3E-10	1.5E-10	2.E-10	6.E-11	2.E-10	5.0E-03	5.0E-03	1.0E-09	3.4E-10	2.E-07	7.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.6E+01	ug/kg	2.0E+00	2.0E+00	9.6E-10	5.8E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.2E-09	1.3E-09	1.E-04	7.E-05	0.0002

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	2.5E-14	7.1E-14	3.E-09	9.E-09	1.E-08	1.0E-09	1.0E-09	5.9E-14	1.7E-13	6.E-05	2.E-04	0.0002
	Total PCB TEQ	6.5E-01	pg/g	1.3E+05	1.3E+05	2.4E-14	1.4E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	5.5E-14	3.3E-14	6.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	2.9E-11	2.5E-11	1.E-06	8.E-07	0.000002
	Dieldrin	2.8E-01	ug/kg	1.6E+01	1.6E+01	7.3E-12	6.1E-12	1.E-10	1.E-10	2.E-10	5.0E-05	5.0E-05	1.7E-11	1.4E-11	3.E-07	3.E-07	0.000001
	Total DDT	5.6E+01	ug/kg	3.4E-01	3.4E-01	4.3E-10	1.2E-09	1.E-10	4.E-10	6.E-10	5.0E-04	5.0E-04	1.0E-09	2.8E-09	2.E-06	6.E-06	0.000008
Exposure Point Total										6.E-07							0.1
RM 4 East	**Metals**																
	Arsenic	5.6E+00	mg/kg	1.5E+00	1.5E+00	4.4E-08	1.2E-07	7.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	1.0E-07	2.9E-07	3.E-04	1.E-03	0.001
	Mercury	9.6E-02	mg/kg	--	--	0.0E+00	2.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.9E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.7E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	3.6E+01	ug/kg	--	--	9.4E-10	7.9E-10	--	--	--	3.0E-04	3.0E-04	2.2E-09	1.9E-09	7.E-06	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	5.3E-08	3.4E-08	4.E-08	2.E-08	6.E-08	--	--	1.2E-07	7.9E-08	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	7.5E-08	4.9E-08	5.E-07	4.E-07	9.E-07	--	--	1.8E-07	1.1E-07	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	7.7E-08	5.0E-08	6.E-08	4.E-08	9.E-08	--	--	1.8E-07	1.2E-07	--	--	--
	Benzo(k)fluoranthene	1.8E+03	ug/kg	7.3E-02	7.3E-02	6.2E-08	4.0E-08	4.E-09	3.E-09	7.E-09	--	--	1.4E-07	9.3E-08	--	--	--
	Dibenzo(a,h)anthracene	3.7E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	8.0E-09	9.E-08	6.E-08	1.E-07	--	--	2.9E-08	1.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	5.6E-08	3.7E-08	4.E-08	3.E-08	7.E-08	--	--	1.3E-07	8.5E-08	--	--	--
	Naphthalene	7.4E+01	ug/kg	--	--	2.5E-09	1.6E-09	--	--	--	2.0E-02	2.0E-02	5.8E-09	3.8E-09	3.E-07	2.E-07	0.0000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+03	ug/kg	1.4E-02	1.4E-02	8.5E-08	7.1E-08	1.E-09	1.E-09	2.E-09	2.0E-02	2.0E-02	2.0E-07	1.7E-07	1.E-05	8.E-06	0.00002
	Phenols																
	Pentachlorophenol	4.3E+03	ug/kg	4.0E-01	4.0E-01	2.8E-07	9.4E-08	1.E-07	4.E-08	1.E-07	5.0E-03	5.0E-03	6.5E-07	2.2E-07	1.E-04	4.E-05	0.0002
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	1.3E-08	7.9E-09	3.E-08	2.E-08	4.E-08	2.0E-05	2.0E-05	3.0E-08	1.8E-08	2.E-03	9.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	1.3E+05	1.3E+05	5.4E-14	1.5E-13	7.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	1.3E-13	3.5E-13	1.E-04	4.E-04	0.0005
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.2E-13	7.3E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	2.8E-13	1.7E-13	3.E-04	2.E-04	0.0005
	Pesticides																
	Aldrin	7.9E-01	ug/kg	1.7E+01	1.7E+01	2.0E-11	1.7E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.7E-11	4.0E-11	2.E-06	1.E-06	0.000003
	Dieldrin	1.6E-01	ug/kg	1.6E+01	1.6E+01	4.0E-12	3.4E-12	6.E-11	5.E-11	1.E-10	5.0E-05	5.0E-05	9.4E-12	7.9E-12	2.E-07	2.E-07	0.0000003
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	9.2E-11	2.6E-10	3.E-11	9.E-11	1.E-10	5.0E-04	5.0E-04	2.1E-10	6.0E-10	4.E-07	1.E-06	0.000002
Exposure Point Total										2.E-06							0.1

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 4.5 West	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	3.8E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.8E-08	2.5E-07	3.E-04	8.E-04	0.001
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	3.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.7E-09	0.E+00	9.E-05	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.6E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	1.4E+01	ug/kg	--	--	3.6E-10	3.1E-10	--	--	--	3.0E-04	3.0E-04	8.5E-10	7.1E-10	3.E-06	2.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	5.2E-08	3.4E-08	4.E-08	2.E-08	6.E-08	--	--	1.2E-07	7.9E-08	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	7.3E-08	4.7E-08	5.E-07	3.E-07	9.E-07	--	--	1.7E-07	1.1E-07	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	5.0E-08	3.3E-08	4.E-08	2.E-08	6.E-08	--	--	1.2E-07	7.6E-08	--	--	--
	Benzo(k)fluoranthene	6.2E+02	ug/kg	7.3E-02	7.3E-02	2.1E-08	1.4E-08	2.E-09	1.E-09	3.E-09	--	--	4.9E-08	3.2E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	7.8E-09	5.0E-09	6.E-08	4.E-08	9.E-08	--	--	1.8E-08	1.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	5.6E-08	3.6E-08	4.E-08	3.E-08	7.E-08	--	--	1.3E-07	8.5E-08	--	--	--
	Naphthalene	3.9E+02	ug/kg	--	--	1.3E-08	8.6E-09	--	--	--	2.0E-02	2.0E-02	3.1E-08	2.0E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.0E+01	ug/kg	1.4E-02	1.4E-02	1.8E-09	1.5E-09	3.E-11	2.E-11	5.E-11	2.0E-02	2.0E-02	4.2E-09	3.6E-09	2.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	2.3E+00	ug/kg	4.0E-01	4.0E-01	1.5E-10	4.9E-11	6.E-11	2.E-11	8.E-11	5.0E-03	5.0E-03	3.4E-10	1.2E-10	7.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	8.4E-10	3.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	3.2E-09	2.0E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	1.3E+05	1.3E+05	5.3E-14	1.5E-13	7.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	1.2E-13	3.5E-13	1.E-04	3.E-04	0.0005
	Total PCB TEQ	2.5E+00	pg/g	1.3E+05	1.3E+05	9.0E-14	5.4E-14	1.E-08	7.E-09	2.E-08	1.0E-09	1.0E-09	2.1E-13	1.3E-13	2.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	3.1E-11	2.6E-11	5.E-10	4.E-10	1.E-09	3.0E-05	3.0E-05	7.3E-11	6.1E-11	2.E-06	2.E-06	0.000004
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	4.8E-12	4.0E-12	8.E-11	6.E-11	1.E-10	5.0E-05	5.0E-05	1.1E-11	9.4E-12	2.E-07	2.E-07	0.0000004
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	2.1E-10	6.0E-10	7.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	5.0E-10	1.4E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										1.E-06							0.1
RM 4.5 East	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	3.8E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.9E-08	2.5E-07	3.E-04	8.E-04	0.001
	Mercury	7.3E-02	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-09	0.E+00	4.E-05	0.00004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.5E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	7.2E+01	ug/kg	--	--	1.9E-09	1.6E-09	--	--	--	3.0E-04	3.0E-04	4.4E-09	3.7E-09	1.E-05	1.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+04	ug/kg	7.3E-01	7.3E-01	6.7E-07	4.3E-07	5.E-07	3.E-07	8.E-07	--	--	1.6E-06	1.0E-06	--	--	--
	Benzo(a)pyrene	8.7E+03	ug/kg	7.3E+00	7.3E+00	2.9E-07	1.9E-07	2.E-06	1.E-06	4.E-06	--	--	6.8E-07	4.4E-07	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	7.5E+03	ug/kg	7.3E-01	7.3E-01	2.5E-07	1.6E-07	2.E-07	1.E-07	3.E-07	--	--	5.9E-07	3.8E-07	--	--	--
	Benzo(k)fluoranthene	6.9E+03	ug/kg	7.3E-02	7.3E-02	2.3E-07	1.5E-07	2.E-08	1.E-08	3.E-08	--	--	5.4E-07	3.5E-07	--	--	--
	Dibenzo(a,h)anthracene	1.4E+03	ug/kg	7.3E+00	7.3E+00	4.8E-08	3.1E-08	4.E-07	2.E-07	6.E-07	--	--	1.1E-07	7.3E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E+03	ug/kg	7.3E-01	7.3E-01	2.0E-07	1.3E-07	1.E-07	1.E-07	2.E-07	--	--	4.8E-07	3.1E-07	--	--	--
	Naphthalene	4.4E+02	ug/kg	--	--	1.5E-08	9.6E-09	--	--	--	2.0E-02	2.0E-02	3.5E-08	2.2E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	3.2E-09	2.7E-09	4.E-11	4.E-11	8.E-11	2.0E-02	2.0E-02	7.5E-09	6.3E-09	4.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	2.1E-10	7.0E-11	8.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	4.8E-10	1.6E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+01	ug/kg	2.0E+00	2.0E+00	1.6E-09	9.6E-10	3.E-09	2.E-09	5.E-09	2.0E-05	2.0E-05	3.7E-09	2.2E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	2.1E-15	6.0E-15	3.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	5.0E-15	1.4E-14	5.E-06	1.E-05	0.00002
	Total PCB TEQ	3.4E-01	pg/g	1.3E+05	1.3E+05	1.2E-14	7.3E-15	2.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	2.9E-14	1.7E-14	3.E-05	2.E-05	0.00005
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	3.9E-12	3.3E-12	7.E-11	6.E-11	1.E-10	3.0E-05	3.0E-05	9.2E-12	7.7E-12	3.E-07	3.E-07	0.000001
	Dieldrin	8.4E-02	ug/kg	1.6E+01	1.6E+01	2.2E-12	1.8E-12	3.E-11	3.E-11	6.E-11	5.0E-05	5.0E-05	5.0E-12	4.2E-12	1.E-07	8.E-08	0.0000002
	Total DDT	8.7E+00	ug/kg	3.4E-01	3.4E-01	6.8E-11	1.9E-10	2.E-11	6.E-11	9.E-11	5.0E-04	5.0E-04	1.6E-10	4.4E-10	3.E-07	9.E-07	0.000001
Exposure Point Total										6.E-06							0.1
RM 5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	2.9E-08	8.2E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.8E-08	1.9E-07	2.E-04	6.E-04	0.001
	Mercury	6.0E-02	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.1E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.2E-06	0.E+00	7.E-02	0.1
	Butyltins																
	Tributyltin ion	2.1E+01	ug/kg	--	--	5.4E-10	4.6E-10	--	--	--	3.0E-04	3.0E-04	1.3E-09	1.1E-09	4.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E+03	ug/kg	7.3E-01	7.3E-01	1.2E-07	7.5E-08	8.E-08	5.E-08	1.E-07	--	--	2.7E-07	1.7E-07	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	1.5E-07	9.8E-08	1.E-06	7.E-07	2.E-06	--	--	3.5E-07	2.3E-07	--	--	--
	Benzo(b)fluoranthene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.5E-08	7.E-08	5.E-08	1.E-07	--	--	2.3E-07	1.5E-07	--	--	--
	Benzo(k)fluoranthene	5.7E+02	ug/kg	7.3E-02	7.3E-02	1.9E-08	1.2E-08	1.E-09	9.E-10	2.E-09	--	--	4.5E-08	2.9E-08	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	7.7E-09	5.0E-09	6.E-08	4.E-08	9.E-08	--	--	1.8E-08	1.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.1E-08	8.E-08	5.E-08	1.E-07	--	--	2.6E-07	1.7E-07	--	--	--
	Naphthalene	4.2E+02	ug/kg	--	--	1.4E-08	9.2E-09	--	--	--	2.0E-02	2.0E-02	3.3E-08	2.2E-08	2.E-06	1.E-06	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+01	ug/kg	1.4E-02	1.4E-02	2.4E-09	2.0E-09	3.E-11	3.E-11	6.E-11	2.0E-02	2.0E-02	5.5E-09	4.6E-09	3.E-07	2.E-07	0.000001

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.2E-09	4.0E-10	5.E-10	2.E-10	6.E-10	5.0E-03	5.0E-03	2.8E-09	9.3E-10	6.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	9.2E-10	5.5E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.1E-09	1.3E-09	1.E-04	6.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	4.2E-14	1.2E-13	5.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	9.8E-14	2.8E-13	1.E-04	3.E-04	0.0004
	Total PCB TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	7.6E-14	4.5E-14	1.E-08	6.E-09	2.E-08	1.0E-09	1.0E-09	1.8E-13	1.1E-13	2.E-04	1.E-04	0.0003
	Pesticides																
	Aldrin	1.9E+00	ug/kg	1.7E+01	1.7E+01	4.9E-11	4.1E-11	8.E-10	7.E-10	2.E-09	3.0E-05	3.0E-05	1.1E-10	9.7E-11	4.E-06	3.E-06	0.00001
	Dieldrin	7.8E-01	ug/kg	1.6E+01	1.6E+01	2.0E-11	1.7E-11	3.E-10	3.E-10	6.E-10	5.0E-05	5.0E-05	4.7E-11	4.0E-11	9.E-07	8.E-07	0.000002
	Total DDT	8.2E+01	ug/kg	3.4E-01	3.4E-01	6.4E-10	1.8E-09	2.E-10	6.E-10	8.E-10	5.0E-04	5.0E-04	1.5E-09	4.2E-09	3.E-06	8.E-06	0.00001
Exposure Point Total										3.E-06							0.1
RM 5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	2.8E-08	8.0E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.6E-08	1.9E-07	2.E-04	6.E-04	0.0008
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	1.9E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.4E-09	0.E+00	4.E-05	0.00004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.5E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	1.2E+02	ug/kg	--	--	3.1E-09	2.6E-09	--	--	--	3.0E-04	3.0E-04	7.3E-09	6.1E-09	2.E-05	2.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.1E-08	7.2E-09	8.E-09	5.E-09	1.E-08	--	--	2.6E-08	1.7E-08	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	1.6E-08	1.0E-08	1.E-07	8.E-08	2.E-07	--	--	3.7E-08	2.4E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.3E-08	3.4E-08	--	--	--
	Benzo(k)fluoranthene	3.0E+02	ug/kg	7.3E-02	7.3E-02	1.0E-08	6.6E-09	7.E-10	5.E-10	1.E-09	--	--	2.4E-08	1.5E-08	--	--	--
	Dibenzo(a,h)anthracene	9.1E+01	ug/kg	7.3E+00	7.3E+00	3.1E-09	2.0E-09	2.E-08	1.E-08	4.E-08	--	--	7.2E-09	4.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	3.8E-08	2.5E-08	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	4.5E-09	2.9E-09	--	--	--	2.0E-02	2.0E-02	1.1E-08	6.8E-09	5.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	3.4E-09	2.9E-09	5.E-11	4.E-11	9.E-11	2.0E-02	2.0E-02	7.9E-09	6.7E-09	4.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	8.7E-10	2.9E-10	3.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	2.0E-09	6.9E-10	4.E-07	1.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	9.2E-10	5.5E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.2E-09	1.3E-09	1.E-04	6.E-05	0.0002
	Pesticides																
	Aldrin	8.0E-01	ug/kg	1.7E+01	1.7E+01	2.1E-11	1.7E-11	4.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.8E-11	4.1E-11	2.E-06	1.E-06	0.000003
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	2.0E-11	1.7E-11	3.E-10	3.E-10	6.E-10	5.0E-05	5.0E-05	4.8E-11	4.0E-11	1.E-06	8.E-07	0.000002
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	1.5E-11	4.1E-11	5.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	3.4E-11	9.5E-11	7.E-08	2.E-07	0.0000003
Exposure Point Total										5.E-07							0.1

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 West	**Metals**																
	Arsenic	6.1E+00	mg/kg	1.5E+00	1.5E+00	4.7E-08	1.3E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	3.1E-07	4.E-04	1.E-03	0.001
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	1.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.1E-09	0.E+00	4.E-05	0.00004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.3E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	1.1E-09	9.5E-10	--	--	--	3.0E-04	3.0E-04	2.6E-09	2.2E-09	9.E-06	7.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.6E-08	7.E-08	5.E-08	1.E-07	--	--	2.4E-07	1.5E-07	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	1.5E-07	9.5E-08	1.E-06	7.E-07	2.E-06	--	--	3.4E-07	2.2E-07	--	--	--
	Benzo(b)fluoranthene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.7E-08	8.E-08	5.E-08	1.E-07	--	--	2.4E-07	1.6E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	6.8E-08	4.4E-08	5.E-09	3.E-09	8.E-09	--	--	1.6E-07	1.0E-07	--	--	--
	Dibenzo(a,h)anthracene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.7E-09	9.E-08	6.E-08	1.E-07	--	--	2.8E-08	1.8E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	3.5E+03	ug/kg	7.3E-01	7.3E-01	1.2E-07	7.6E-08	9.E-08	6.E-08	1.E-07	--	--	2.7E-07	1.8E-07	--	--	--
	Naphthalene	3.3E+02	ug/kg	--	--	1.1E-08	7.2E-09	--	--	--	2.0E-02	2.0E-02	2.6E-08	1.7E-08	1.E-06	8.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+01	ug/kg	1.4E-02	1.4E-02	4.7E-10	3.9E-10	7.E-12	6.E-12	1.E-11	2.0E-02	2.0E-02	1.1E-09	9.2E-10	5.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.2E-09	3.9E-10	5.E-10	2.E-10	6.E-10	5.0E-03	5.0E-03	2.7E-09	9.2E-10	5.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+01	ug/kg	2.0E+00	2.0E+00	1.9E-09	1.1E-09	4.E-09	2.E-09	6.E-09	2.0E-05	2.0E-05	4.3E-09	2.6E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	1.3E+05	1.3E+05	1.8E-14	5.1E-14	2.E-09	7.E-09	9.E-09	1.0E-09	1.0E-09	4.2E-14	1.2E-13	4.E-05	1.E-04	0.0002
	Total PCB TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	3.9E-14	2.4E-14	5.E-09	3.E-09	8.E-09	1.0E-09	1.0E-09	9.2E-14	5.5E-14	9.E-05	6.E-05	0.0001
	Pesticides																
	Aldrin	6.7E-01	ug/kg	1.7E+01	1.7E+01	1.7E-11	1.5E-11	3.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	4.1E-11	3.4E-11	1.E-06	1.E-06	0.000002
	Dieldrin	4.1E-01	ug/kg	1.6E+01	1.6E+01	1.1E-11	8.9E-12	2.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.5E-11	2.1E-11	5.E-07	4.E-07	0.000001
	Total DDT	6.2E+01	ug/kg	3.4E-01	3.4E-01	4.8E-10	1.3E-09	2.E-10	5.E-10	6.E-10	5.0E-04	5.0E-04	1.1E-09	3.1E-09	2.E-06	6.E-06	0.00001
Exposure Point Total										3.E-06							0.1
RM 5.5 East	**Metals**																
	Arsenic	8.9E+00	mg/kg	1.5E+00	1.5E+00	6.9E-08	1.9E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.6E-07	4.5E-07	5.E-04	2.E-03	0.002
	Mercury	6.7E-01	mg/kg	--	--	0.0E+00	1.5E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.4E-08	0.E+00	3.E-04	0.0003
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	2.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	4.6E-06	0.E+00	7.E-02	0.1
	Butyltins																
	Tributyltin ion	3.2E+02	ug/kg	--	--	8.3E-09	7.0E-09	--	--	--	3.0E-04	3.0E-04	1.9E-08	1.6E-08	6.E-05	5.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.7E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.3E-08	1.E-08	9.E-09	2.E-08	--	--	4.5E-08	2.9E-08	--	--	--
	Benzo(a)pyrene	7.0E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	5.5E-08	3.6E-08	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	8.4E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	1.8E-08	2.E-08	1.E-08	3.E-08	--	--	6.6E-08	4.3E-08	--	--	--
	Benzo(k)fluoranthene	4.4E+02	ug/kg	7.3E-02	7.3E-02	1.5E-08	9.6E-09	1.E-09	7.E-10	2.E-09	--	--	3.5E-08	2.2E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	4.7E-09	3.0E-09	3.E-08	2.E-08	6.E-08	--	--	1.1E-08	7.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+02	ug/kg	7.3E-01	7.3E-01	1.8E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	4.1E-08	2.7E-08	--	--	--
	Naphthalene	3.5E+02	ug/kg	--	--	1.2E-08	7.7E-09	--	--	--	2.0E-02	2.0E-02	2.8E-08	1.8E-08	1.E-06	9.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+02	ug/kg	1.4E-02	1.4E-02	8.5E-09	7.2E-09	1.E-10	1.E-10	2.E-10	2.0E-02	2.0E-02	2.0E-08	1.7E-08	1.E-06	8.E-07	0.000002
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.1E-09	3.8E-10	5.E-10	2.E-10	6.E-10	5.0E-03	5.0E-03	2.6E-09	8.9E-10	5.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	6.5E-09	3.9E-09	1.E-08	8.E-09	2.E-08	2.0E-05	2.0E-05	1.5E-08	9.1E-09	8.E-04	5.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	1.3E+05	1.3E+05	6.9E-14	1.9E-13	9.E-09	3.E-08	3.E-08	1.0E-09	1.0E-09	1.6E-13	4.5E-13	2.E-04	5.E-04	0.001
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	2.1E-13	1.3E-13	3.E-08	2.E-08	4.E-08	1.0E-09	1.0E-09	4.9E-13	3.0E-13	5.E-04	3.E-04	0.001
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.0E-11	8.7E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	2.4E-11	2.0E-11	8.E-07	7.E-07	0.000001
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	1.5E-11	1.3E-11	2.E-10	2.E-10	5.E-10	5.0E-05	5.0E-05	3.6E-11	3.0E-11	7.E-07	6.E-07	0.000001
	Total DDT	2.0E+01	ug/kg	3.4E-01	3.4E-01	1.5E-10	4.3E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	3.6E-10	1.0E-09	7.E-07	2.E-06	0.000003
Exposure Point Total										9.E-07							0.1
RM 6 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	3.2E-08	8.9E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.4E-08	2.1E-07	2.E-04	7.E-04	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	3.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.0E-09	0.E+00	7.E-05	0.0001
	Vanadium	1.3E+02	mg/kg	--	--	0.0E+00	2.7E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.4E-06	0.E+00	9.E-02	0.1
	Butyltins																
	Tributyltin ion	2.0E+01	ug/kg	--	--	5.1E-10	4.3E-10	--	--	--	3.0E-04	3.0E-04	1.2E-09	1.0E-09	4.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+04	ug/kg	7.3E-01	7.3E-01	1.6E-06	1.0E-06	1.E-06	8.E-07	2.E-06	--	--	3.7E-06	2.4E-06	--	--	--
	Benzo(a)pyrene	5.8E+04	ug/kg	7.3E+00	7.3E+00	1.9E-06	1.3E-06	1.E-05	9.E-06	2.E-05	--	--	4.5E-06	2.9E-06	--	--	--
	Benzo(b)fluoranthene	4.3E+04	ug/kg	7.3E-01	7.3E-01	1.4E-06	9.3E-07	1.E-06	7.E-07	2.E-06	--	--	3.4E-06	2.2E-06	--	--	--
	Benzo(k)fluoranthene	2.7E+04	ug/kg	7.3E-02	7.3E-02	9.1E-07	5.9E-07	7.E-08	4.E-08	1.E-07	--	--	2.1E-06	1.4E-06	--	--	--
	Dibenzo(a,h)anthracene	5.4E+03	ug/kg	7.3E+00	7.3E+00	1.8E-07	1.2E-07	1.E-06	9.E-07	2.E-06	--	--	4.2E-07	2.7E-07	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+04	ug/kg	7.3E-01	7.3E-01	1.4E-06	8.8E-07	1.E-06	6.E-07	2.E-06	--	--	3.2E-06	2.0E-06	--	--	--
	Naphthalene	4.4E+04	ug/kg	--	--	1.5E-06	9.7E-07	--	--	--	2.0E-02	2.0E-02	3.5E-06	2.3E-06	2.E-04	1.E-04	0.0003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.8E+02	ug/kg	1.4E-02	1.4E-02	9.7E-09	8.2E-09	1.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	2.3E-08	1.9E-08	1.E-06	1.E-06	0.000002

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	3.5E+01	ug/kg	4.0E-01	4.0E-01	2.2E-09	7.6E-10	9.E-10	3.E-10	1.E-09	5.0E-03	5.0E-03	5.2E-09	1.8E-09	1.E-06	4.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	6.1E+01	ug/kg	2.0E+00	2.0E+00	2.2E-09	1.3E-09	4.E-09	3.E-09	7.E-09	2.0E-05	2.0E-05	5.2E-09	3.1E-09	3.E-04	2.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	1.2E-14	3.3E-14	2.E-09	4.E-09	6.E-09	1.0E-09	1.0E-09	2.8E-14	7.8E-14	3.E-05	8.E-05	0.0001
	Total PCB TEQ	2.8E+00	pg/g	1.3E+05	1.3E+05	1.0E-13	6.2E-14	1.E-08	8.E-09	2.E-08	1.0E-09	1.0E-09	2.4E-13	1.4E-13	2.E-04	1.E-04	0.0004
	Pesticides																
	Aldrin	2.3E+00	ug/kg	1.7E+01	1.7E+01	6.1E-11	5.1E-11	1.E-09	9.E-10	2.E-09	3.0E-05	3.0E-05	1.4E-10	1.2E-10	5.E-06	4.E-06	0.00001
	Dieldrin	1.8E+00	ug/kg	1.6E+01	1.6E+01	4.7E-11	4.0E-11	8.E-10	6.E-10	1.E-09	5.0E-05	5.0E-05	1.1E-10	9.3E-11	2.E-06	2.E-06	0.000004
	Total DDT	8.1E+01	ug/kg	3.4E-01	3.4E-01	6.3E-10	1.8E-09	2.E-10	6.E-10	8.E-10	5.0E-04	5.0E-04	1.5E-09	4.1E-09	3.E-06	8.E-06	0.00001
Exposure Point Total										3.E-05							0.1
RM 6 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	3.4E-08	9.5E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.9E-08	2.2E-07	3.E-04	7.E-04	0.001
	Mercury	4.0E-01	mg/kg	--	--	0.0E+00	8.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.0E-08	0.E+00	2.E-04	0.0002
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	2.1E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.0E-06	0.E+00	7.E-02	0.07
	Butyltins																
	Tributyltin ion	3.5E+02	ug/kg	--	--	9.1E-09	7.6E-09	--	--	--	3.0E-04	3.0E-04	2.1E-08	1.8E-08	7.E-05	6.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	4.5E-08	2.9E-08	3.E-08	2.E-08	5.E-08	--	--	1.1E-07	6.8E-08	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	6.5E-08	4.2E-08	5.E-07	3.E-07	8.E-07	--	--	1.5E-07	9.8E-08	--	--	--
	Benzo(b)fluoranthene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.1E-08	8.E-08	5.E-08	1.E-07	--	--	2.6E-07	1.7E-07	--	--	--
	Benzo(k)fluoranthene	2.5E+03	ug/kg	7.3E-02	7.3E-02	8.5E-08	5.5E-08	6.E-09	4.E-09	1.E-08	--	--	2.0E-07	1.3E-07	--	--	--
	Dibenzo(a,h)anthracene	2.7E+02	ug/kg	7.3E+00	7.3E+00	9.1E-09	5.9E-09	7.E-08	4.E-08	1.E-07	--	--	2.1E-08	1.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+03	ug/kg	7.3E-01	7.3E-01	3.8E-08	2.5E-08	3.E-08	2.E-08	5.E-08	--	--	8.9E-08	5.7E-08	--	--	--
	Naphthalene	8.4E+02	ug/kg	--	--	2.8E-08	1.8E-08	--	--	--	2.0E-02	2.0E-02	6.6E-08	4.3E-08	3.E-06	2.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	3.6E-09	3.0E-09	5.E-11	4.E-11	9.E-11	2.0E-02	2.0E-02	8.4E-09	7.1E-09	4.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	2.8E-09	9.6E-10	1.E-09	4.E-10	2.E-09	5.0E-03	5.0E-03	6.6E-09	2.2E-09	1.E-06	4.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	6.4E-09	3.8E-09	1.E-08	8.E-09	2.E-08	2.0E-05	2.0E-05	1.5E-08	8.9E-09	7.E-04	4.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	3.2E-14	9.0E-14	4.E-09	1.E-08	2.E-08	1.0E-09	1.0E-09	7.5E-14	2.1E-13	7.E-05	2.E-04	0.0003
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.2E-13	7.4E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	2.9E-13	1.7E-13	3.E-04	2.E-04	0.0005

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	6.4E-01	ug/kg	1.7E+01	1.7E+01	1.7E-11	1.4E-11	3.E-10	2.E-10	5.E-10	3.0E-05	3.0E-05	3.9E-11	3.2E-11	1.E-06	1.E-06	0.000002
	Dieldrin	1.0E-01	ug/kg	1.6E+01	1.6E+01	2.6E-12	2.2E-12	4.E-11	3.E-11	8.E-11	5.0E-05	5.0E-05	6.0E-12	5.1E-12	1.E-07	1.E-07	0.0000002
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	3.3E-11	9.3E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	7.7E-11	2.2E-10	2.E-07	4.E-07	0.000001
Exposure Point Total										1.E-06							0.1
RM 6.5 West	**Metals**																
	Arsenic	1.4E+01	mg/kg	1.5E+00	1.5E+00	1.1E-07	3.1E-07	2.E-07	5.E-07	6.E-07	3.0E-04	3.0E-04	2.6E-07	7.2E-07	9.E-04	2.E-03	0.003
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	4.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.4E+02	mg/kg	--	--	0.0E+00	3.0E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.1E-06	0.E+00	1.E-01	0.1
	Butyltins																
	Tributyltin ion	4.6E+01	ug/kg	--	--	1.2E-09	1.0E-09	--	--	--	3.0E-04	3.0E-04	2.8E-09	2.4E-09	9.E-06	8.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+03	ug/kg	7.3E-01	7.3E-01	3.4E-08	2.2E-08	2.E-08	2.E-08	4.E-08	--	--	7.9E-08	5.1E-08	--	--	--
	Benzo(a)pyrene	1.2E+03	ug/kg	7.3E+00	7.3E+00	4.1E-08	2.7E-08	3.E-07	2.E-07	5.E-07	--	--	9.6E-08	6.2E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	4.7E-08	3.0E-08	3.E-08	2.E-08	6.E-08	--	--	1.1E-07	7.1E-08	--	--	--
	Benzo(k)fluoranthene	6.6E+02	ug/kg	7.3E-02	7.3E-02	2.2E-08	1.4E-08	2.E-09	1.E-09	3.E-09	--	--	5.2E-08	3.3E-08	--	--	--
	Dibenzo(a,h)anthracene	4.2E+02	ug/kg	7.3E+00	7.3E+00	1.4E-08	9.2E-09	1.E-07	7.E-08	2.E-07	--	--	3.3E-08	2.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	1.8E-08	2.E-08	1.E-08	3.E-08	--	--	6.5E-08	4.2E-08	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	4.7E-09	3.0E-09	--	--	--	2.0E-02	2.0E-02	1.1E-08	7.1E-09	5.E-07	4.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	2.7E-09	2.3E-09	4.E-11	3.E-11	7.E-11	2.0E-02	2.0E-02	6.4E-09	5.4E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.4E+00	ug/kg	4.0E-01	4.0E-01	1.6E-10	5.2E-11	6.E-11	2.E-11	8.E-11	5.0E-03	5.0E-03	3.6E-10	1.2E-10	7.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	9.1E+01	ug/kg	2.0E+00	2.0E+00	3.3E-09	2.0E-09	7.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	7.7E-09	4.7E-09	4.E-04	2.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	8.8E-13	2.5E-12	1.E-07	3.E-07	4.E-07	1.0E-09	1.0E-09	2.1E-12	5.8E-12	2.E-03	6.E-03	0.008
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.1E-13	6.4E-14	1.E-08	8.E-09	2.E-08	1.0E-09	1.0E-09	2.5E-13	1.5E-13	3.E-04	2.E-04	0.0004
	Pesticides																
	Aldrin	2.5E+00	ug/kg	1.7E+01	1.7E+01	6.5E-11	5.5E-11	1.E-09	9.E-10	2.E-09	3.0E-05	3.0E-05	1.5E-10	1.3E-10	5.E-06	4.E-06	0.00001
	Dieldrin	5.9E-01	ug/kg	1.6E+01	1.6E+01	1.5E-11	1.3E-11	2.E-10	2.E-10	5.E-10	5.0E-05	5.0E-05	3.6E-11	3.0E-11	7.E-07	6.E-07	0.000001
	Total DDT	1.7E+02	ug/kg	3.4E-01	3.4E-01	1.3E-09	3.7E-09	4.E-10	1.E-09	2.E-09	5.0E-04	5.0E-04	3.0E-09	8.6E-09	6.E-06	2.E-05	0.00002
Exposure Point Total										2.E-06							0.1
RM 6.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	4.5E-08	1.3E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	3.0E-07	4.E-04	1.E-03	0.001
	Mercury	1.4E+01	mg/kg	--	--	0.0E+00	3.2E-07	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.4E-07	0.E+00	7.E-03	0.01
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.7E-06	0.E+00	8.E-02	0.1

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.1E+02	ug/kg	--	--	2.7E-09	2.3E-09	--	--	--	3.0E-04	3.0E-04	6.3E-09	5.3E-09	2.E-05	2.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.3E+02	ug/kg	7.3E-01	7.3E-01	7.9E-09	5.1E-09	6.E-09	4.E-09	9.E-09	--	--	1.8E-08	1.2E-08	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	5.0E-09	3.2E-09	4.E-08	2.E-08	6.E-08	--	--	1.2E-08	7.5E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	7.9E-09	5.1E-09	6.E-09	4.E-09	9.E-09	--	--	1.8E-08	1.2E-08	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	4.9E-09	3.2E-09	4.E-10	2.E-10	6.E-10	--	--	1.2E-08	7.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.9E+01	ug/kg	7.3E+00	7.3E+00	6.4E-10	4.1E-10	5.E-09	3.E-09	8.E-09	--	--	1.5E-09	9.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+02	ug/kg	7.3E-01	7.3E-01	3.5E-09	2.2E-09	3.E-09	2.E-09	4.E-09	--	--	8.1E-09	5.2E-09	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	4.1E-09	2.7E-09	--	--	--	2.0E-02	2.0E-02	9.7E-09	6.3E-09	5.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	3.2E-09	2.7E-09	4.E-11	4.E-11	8.E-11	2.0E-02	2.0E-02	7.5E-09	6.3E-09	4.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.9E+00	ug/kg	4.0E-01	4.0E-01	3.2E-10	1.1E-10	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	7.5E-10	2.5E-10	1.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+03	ug/kg	2.0E+00	2.0E+00	4.8E-08	2.9E-08	1.E-07	6.E-08	2.E-07	2.0E-05	2.0E-05	1.1E-07	6.7E-08	6.E-03	3.E-03	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	1.3E+05	1.3E+05	6.9E-13	1.9E-12	9.E-08	3.E-07	3.E-07	1.0E-09	1.0E-09	1.6E-12	4.5E-12	2.E-03	5.E-03	0.006
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	4.8E-13	2.9E-13	6.E-08	4.E-08	1.E-07	1.0E-09	1.0E-09	1.1E-12	6.8E-13	1.E-03	7.E-04	0.002
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	7.5E-12	6.3E-12	1.E-10	1.E-10	2.E-10	3.0E-05	3.0E-05	1.8E-11	1.5E-11	6.E-07	5.E-07	0.000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	5.1E-12	4.3E-12	8.E-11	7.E-11	1.E-10	5.0E-05	5.0E-05	1.2E-11	1.0E-11	2.E-07	2.E-07	0.0000004
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.0E-09	2.8E-09	3.E-10	1.E-09	1.E-09	5.0E-04	5.0E-04	2.3E-09	6.5E-09	5.E-06	1.E-05	0.00002
Exposure Point Total										9.E-07							0.1
RM 7 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	4.1E-08	1.2E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.6E-08	2.7E-07	3.E-04	9.E-04	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-09	0.E+00	6.E-05	0.0001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.3E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	6.4E+00	ug/kg	--	--	1.7E-10	1.4E-10	--	--	--	3.0E-04	3.0E-04	3.9E-10	3.3E-10	1.E-06	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+03	ug/kg	7.3E-01	7.3E-01	7.5E-08	4.8E-08	5.E-08	4.E-08	9.E-08	--	--	1.7E-07	1.1E-07	--	--	--
	Benzo(a)pyrene	1.7E+03	ug/kg	7.3E+00	7.3E+00	5.7E-08	3.7E-08	4.E-07	3.E-07	7.E-07	--	--	1.3E-07	8.7E-08	--	--	--
	Benzo(b)fluoranthene	4.5E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	9.8E-08	1.E-07	7.E-08	2.E-07	--	--	3.5E-07	2.3E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+03	ug/kg	7.3E-02	7.3E-02	4.8E-08	3.1E-08	4.E-09	2.E-09	6.E-09	--	--	1.1E-07	7.3E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	5.6E-08	3.6E-08	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	1.4E+03	ug/kg	7.3E-01	7.3E-01	4.7E-08	3.0E-08	3.E-08	2.E-08	6.E-08	--	--	1.1E-07	7.1E-08	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	3.7E-10	2.4E-10	--	--	--	2.0E-02	2.0E-02	8.6E-10	5.6E-10	4.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.7E+02	ug/kg	1.4E-02	1.4E-02	7.1E-09	6.0E-09	1.E-10	8.E-11	2.E-10	2.0E-02	2.0E-02	1.7E-08	1.4E-08	8.E-07	7.E-07	0.000002
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	2.8E-09	9.6E-10	1.E-09	4.E-10	2.E-09	5.0E-03	5.0E-03	6.6E-09	2.2E-09	1.E-06	4.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	9.3E+01	ug/kg	2.0E+00	2.0E+00	3.4E-09	2.0E-09	7.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	7.8E-09	4.7E-09	4.E-04	2.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	1.3E+05	1.3E+05	1.1E-10	3.1E-10	1.E-05	4.E-05	5.E-05	1.0E-09	1.0E-09	2.6E-10	7.2E-10	3.E-01	7.E-01	1
	Total PCB TEQ	2.7E+01	pg/g	1.3E+05	1.3E+05	9.7E-13	5.8E-13	1.E-07	8.E-08	2.E-07	1.0E-09	1.0E-09	2.3E-12	1.4E-12	2.E-03	1.E-03	0.004
	Pesticides																
	Aldrin	1.9E+02	ug/kg	1.7E+01	1.7E+01	5.0E-09	4.2E-09	8.E-08	7.E-08	2.E-07	3.0E-05	3.0E-05	1.2E-08	9.8E-09	4.E-04	3.E-04	0.001
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	5.3E-11	4.4E-11	8.E-10	7.E-10	2.E-09	5.0E-05	5.0E-05	1.2E-10	1.0E-10	2.E-06	2.E-06	0.000005
	Total DDT	6.3E+03	ug/kg	3.4E-01	3.4E-01	4.9E-08	1.4E-07	2.E-08	5.E-08	6.E-08	5.0E-04	5.0E-04	1.1E-07	3.2E-07	2.E-04	6.E-04	0.001
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	6.0E-06	--	--	--	7.0E-04	7.0E-04	0.0E+00	1.4E-05	0.E+00	2.E-02	0.02
Exposure Point Total										6.E-05							1
RM 7 East	**Metals**																
	Arsenic	1.5E+01	mg/kg	1.5E+00	1.5E+00	1.1E-07	3.2E-07	2.E-07	5.E-07	7.E-07	3.0E-04	3.0E-04	2.7E-07	7.5E-07	9.E-04	2.E-03	0.003
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.4E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.5E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	1.0E+03	ug/kg	--	--	2.7E-08	2.3E-08	--	--	--	3.0E-04	3.0E-04	6.3E-08	5.3E-08	2.E-04	2.E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.2E+02	ug/kg	7.3E-01	7.3E-01	1.4E-08	9.1E-09	1.E-08	7.E-09	2.E-08	--	--	3.3E-08	2.1E-08	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.0E-08	1.3E-08	1.E-07	9.E-08	2.E-07	--	--	4.6E-08	3.0E-08	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.2E-08	3.4E-08	--	--	--
	Benzo(k)fluoranthene	6.5E+02	ug/kg	7.3E-02	7.3E-02	2.2E-08	1.4E-08	2.E-09	1.E-09	3.E-09	--	--	5.1E-08	3.3E-08	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	6.3E-09	4.1E-09	5.E-08	3.E-08	8.E-08	--	--	1.5E-08	9.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+02	ug/kg	7.3E-01	7.3E-01	1.3E-08	8.5E-09	1.E-08	6.E-09	2.E-08	--	--	3.1E-08	2.0E-08	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	1.5E-09	9.8E-10	--	--	--	2.0E-02	2.0E-02	3.5E-09	2.3E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	3.4E-08	2.9E-08	5.E-10	4.E-10	9.E-10	2.0E-02	2.0E-02	7.9E-08	6.7E-08	4.E-06	3.E-06	0.00001
	Phenols																
	Pentachlorophenol	1.2E+02	ug/kg	4.0E-01	4.0E-01	7.6E-09	2.6E-09	3.E-09	1.E-09	4.E-09	5.0E-03	5.0E-03	1.8E-08	6.0E-09	4.E-06	1.E-06	0.000005

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	2.6E-09	1.5E-09	5.E-09	3.E-09	8.E-09	2.0E-05	2.0E-05	6.0E-09	3.6E-09	3.E-04	2.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	1.3E+05	1.3E+05	3.1E-13	8.7E-13	4.E-08	1.E-07	2.E-07	1.0E-09	1.0E-09	7.2E-13	2.0E-12	7.E-04	2.E-03	0.003
	Total PCB TEQ	7.4E-01	pg/g	1.3E+05	1.3E+05	2.7E-14	1.6E-14	3.E-09	2.E-09	6.E-09	1.0E-09	1.0E-09	6.3E-14	3.8E-14	6.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	4.6E-01	ug/kg	1.7E+01	1.7E+01	1.2E-11	1.0E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	2.8E-11	2.3E-11	9.E-07	8.E-07	0.000002
	Dieldrin	1.2E-01	ug/kg	1.6E+01	1.6E+01	3.0E-12	2.5E-12	5.E-11	4.E-11	9.E-11	5.0E-05	5.0E-05	7.0E-12	5.9E-12	1.E-07	1.E-07	0.0000003
	Total DDT	1.3E+01	ug/kg	3.4E-01	3.4E-01	9.9E-11	2.8E-10	3.E-11	9.E-11	1.E-10	5.0E-04	5.0E-04	2.3E-10	6.5E-10	5.E-07	1.E-06	0.000002
Exposure Point Total										1.E-06							0.1
RM 7.5 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	2.9E-08	8.0E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.7E-08	1.9E-07	2.E-04	6.E-04	0.0008
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	2.9E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.7E-09	0.E+00	7.E-05	0.0001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.3E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	9.7E+00	ug/kg	--	--	2.5E-10	2.1E-10	--	--	--	3.0E-04	3.0E-04	5.9E-10	4.9E-10	2.E-06	2.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	9.5E-09	1.E-08	7.E-09	2.E-08	--	--	3.4E-08	2.2E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.5E-09	8.E-08	5.E-08	1.E-07	--	--	2.7E-08	1.7E-08	--	--	--
	Benzo(b)fluoranthene	4.6E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	3.6E-08	2.4E-08	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	4.4E-09	2.8E-09	3.E-10	2.E-10	5.E-10	--	--	1.0E-08	6.6E-09	--	--	--
	Dibenzo(a,h)anthracene	5.0E+01	ug/kg	7.3E+00	7.3E+00	1.7E-09	1.1E-09	1.E-08	8.E-09	2.E-08	--	--	3.9E-09	2.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E+02	ug/kg	7.3E-01	7.3E-01	6.4E-09	4.1E-09	5.E-09	3.E-09	8.E-09	--	--	1.5E-08	9.7E-09	--	--	--
	Naphthalene	3.3E+01	ug/kg	--	--	1.1E-09	7.2E-10	--	--	--	2.0E-02	2.0E-02	2.6E-09	1.7E-09	1.E-07	8.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	4.8E-09	4.0E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.1E-08	9.3E-09	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.1E+00	ug/kg	4.0E-01	4.0E-01	1.3E-10	4.5E-11	5.E-11	2.E-11	7.E-11	5.0E-03	5.0E-03	3.1E-10	1.1E-10	6.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+02	ug/kg	2.0E+00	2.0E+00	9.1E-09	5.5E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	2.1E-08	1.3E-08	1.E-03	6.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	2.0E-14	5.7E-14	3.E-09	7.E-09	1.E-08	1.0E-09	1.0E-09	4.7E-14	1.3E-13	5.E-05	1.E-04	0.0002
	Total PCB TEQ	9.2E-01	pg/g	1.3E+05	1.3E+05	3.3E-14	2.0E-14	4.E-09	3.E-09	7.E-09	1.0E-09	1.0E-09	7.8E-14	4.7E-14	8.E-05	5.E-05	0.0001

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	7.4E-12	6.2E-12	1.E-10	1.E-10	2.E-10	3.0E-05	3.0E-05	1.7E-11	1.5E-11	6.E-07	5.E-07	0.000001
	Dieldrin	7.7E-01	ug/kg	1.6E+01	1.6E+01	2.0E-11	1.7E-11	3.E-10	3.E-10	6.E-10	5.0E-05	5.0E-05	4.6E-11	3.9E-11	9.E-07	8.E-07	0.000002
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.0E-09	2.8E-09	3.E-10	1.E-09	1.E-09	5.0E-04	5.0E-04	2.3E-09	6.5E-09	5.E-06	1.E-05	0.00002
Exposure Point Total										4.E-07							0.1
RM 7.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	3.3E-08	9.2E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.6E-08	2.1E-07	3.E-04	7.E-04	0.001
	Mercury	1.0E-01	mg/kg	--	--	0.0E+00	2.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.1E-09	0.E+00	5.E-05	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.5E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	2.3E+02	ug/kg	--	--	5.9E-09	5.0E-09	--	--	--	3.0E-04	3.0E-04	1.4E-08	1.2E-08	5.E-05	4.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.0E+01	ug/kg	7.3E-01	7.3E-01	1.3E-09	8.6E-10	1.E-09	6.E-10	2.E-09	--	--	3.1E-09	2.0E-09	--	--	--
	Benzo(a)pyrene	3.5E+01	ug/kg	7.3E+00	7.3E+00	1.2E-09	7.7E-10	9.E-09	6.E-09	1.E-08	--	--	2.8E-09	1.8E-09	--	--	--
	Benzo(b)fluoranthene	4.4E+01	ug/kg	7.3E-01	7.3E-01	1.5E-09	9.7E-10	1.E-09	7.E-10	2.E-09	--	--	3.5E-09	2.3E-09	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	1.0E-09	6.8E-10	8.E-11	5.E-11	1.E-10	--	--	2.4E-09	1.6E-09	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	3.7E-10	2.4E-10	3.E-09	2.E-09	4.E-09	--	--	8.6E-10	5.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+01	ug/kg	7.3E-01	7.3E-01	8.0E-10	5.2E-10	6.E-10	4.E-10	1.E-09	--	--	1.9E-09	1.2E-09	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	3.7E-10	2.4E-10	--	--	--	2.0E-02	2.0E-02	8.6E-10	5.6E-10	4.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+03	ug/kg	1.4E-02	1.4E-02	9.5E-08	8.0E-08	1.E-09	1.E-09	2.E-09	2.0E-02	2.0E-02	2.2E-07	1.9E-07	1.E-05	9.E-06	0.00002
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+01	ug/kg	2.0E+00	2.0E+00	1.6E-09	9.8E-10	3.E-09	2.E-09	5.E-09	2.0E-05	2.0E-05	3.8E-09	2.3E-09	2.E-04	1.E-04	0.0003
	Pesticides																
	Dieldrin	3.4E-01	ug/kg	1.6E+01	1.6E+01	8.8E-12	7.4E-12	1.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.1E-11	1.7E-11	4.E-07	3.E-07	0.000001
	Total DDT	3.3E+00	ug/kg	3.4E-01	3.4E-01	2.6E-11	7.3E-11	9.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	6.0E-11	1.7E-10	1.E-07	3.E-07	0.0000005
Exposure Point Total										2.E-07							0.1
RM 8 West	**Metals**																
	Arsenic	8.0E+00	mg/kg	1.5E+00	1.5E+00	6.2E-08	1.7E-07	9.E-08	3.E-07	4.E-07	3.0E-04	3.0E-04	1.5E-07	4.1E-07	5.E-04	1.E-03	0.002
	Mercury	3.3E-01	mg/kg	--	--	0.0E+00	7.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.2E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.2E-06	0.E+00	7.E-02	0.1
	Butyltins																
	Tributyltin ion	2.5E+01	ug/kg	--	--	6.4E-10	5.4E-10	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.3E-09	5.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	4.3E-08	2.8E-08	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	1.6E-08	1.1E-08	1.E-07	8.E-08	2.E-07	--	--	3.8E-08	2.5E-08	--	--	--
	Benzo(b)fluoranthene	6.9E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.4E-08	3.5E-08	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	4.2E-09	2.7E-09	3.E-10	2.E-10	5.E-10	--	--	9.7E-09	6.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	4.6E-09	3.0E-09	3.E-08	2.E-08	6.E-08	--	--	1.1E-08	7.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.1E-08	6.9E-09	8.E-09	5.E-09	1.E-08	--	--	2.5E-08	1.6E-08	--	--	--
	Naphthalene	8.1E+01	ug/kg	--	--	2.7E-09	1.8E-09	--	--	--	2.0E-02	2.0E-02	6.3E-09	4.1E-09	3.E-07	2.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+03	ug/kg	1.4E-02	1.4E-02	7.8E-08	6.6E-08	1.E-09	9.E-10	2.E-09	2.0E-02	2.0E-02	1.8E-07	1.5E-07	9.E-06	8.E-06	0.00002
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	9.8E-10	3.3E-10	4.E-10	1.E-10	5.E-10	5.0E-03	5.0E-03	2.3E-09	7.7E-10	5.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+02	ug/kg	2.0E+00	2.0E+00	1.5E-08	8.8E-09	3.E-08	2.E-08	5.E-08	2.0E-05	2.0E-05	3.4E-08	2.0E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.3E+05	1.3E+05	3.3E-15	9.3E-15	4.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	7.7E-15	2.2E-14	8.E-06	2.E-05	0.00003
	Total PCB TEQ	6.1E+00	pg/g	1.3E+05	1.3E+05	2.2E-13	1.3E-13	3.E-08	2.E-08	5.E-08	1.0E-09	1.0E-09	5.1E-13	3.1E-13	5.E-04	3.E-04	0.001
	Pesticides																
	Aldrin	1.2E-01	ug/kg	1.7E+01	1.7E+01	3.0E-12	2.5E-12	5.E-11	4.E-11	9.E-11	3.0E-05	3.0E-05	7.0E-12	5.9E-12	2.E-07	2.E-07	0.0000004
	Dieldrin	4.6E+00	ug/kg	1.6E+01	1.6E+01	1.2E-10	9.9E-11	2.E-09	2.E-09	3.E-09	5.0E-05	5.0E-05	2.8E-10	2.3E-10	6.E-06	5.E-06	0.00001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	1.6E-10	4.6E-10	6.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	3.8E-10	1.1E-09	8.E-07	2.E-06	0.000003
Exposure Point Total										8.E-07							0.1
RM 8 East	**Metals**																
	Arsenic	9.1E+00	mg/kg	1.5E+00	1.5E+00	7.1E-08	2.0E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.7E-07	4.6E-07	6.E-04	2.E-03	0.002
	Mercury	2.2E-01	mg/kg	--	--	0.0E+00	4.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.5E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	5.8E+03	ug/kg	--	--	1.5E-07	1.3E-07	--	--	--	3.0E-04	3.0E-04	3.5E-07	2.9E-07	1.E-03	1.E-03	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+02	ug/kg	7.3E-01	7.3E-01	1.7E-08	1.1E-08	1.E-08	8.E-09	2.E-08	--	--	3.9E-08	2.5E-08	--	--	--
	Benzo(a)pyrene	5.3E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.2E-08	1.E-07	8.E-08	2.E-07	--	--	4.1E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	5.5E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	4.3E-08	2.8E-08	--	--	--
	Benzo(k)fluoranthene	3.7E+02	ug/kg	7.3E-02	7.3E-02	1.2E-08	8.0E-09	9.E-10	6.E-10	1.E-09	--	--	2.9E-08	1.9E-08	--	--	--
	Dibenzo(a,h)anthracene	4.0E+01	ug/kg	7.3E+00	7.3E+00	1.4E-09	8.8E-10	1.E-08	6.E-09	2.E-08	--	--	3.2E-09	2.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	8.0E-09	9.E-09	6.E-09	1.E-08	--	--	2.9E-08	1.9E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	7.3E-10	4.8E-10	--	--	--	2.0E-02	2.0E-02	1.7E-09	1.1E-09	9.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	3.4E-08	2.9E-08	5.E-10	4.E-10	9.E-10	2.0E-02	2.0E-02	7.9E-08	6.7E-08	4.E-06	3.E-06	0.00001
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	1.7E-09	5.8E-10	7.E-10	2.E-10	9.E-10	5.0E-03	5.0E-03	4.0E-09	1.4E-09	8.E-07	3.E-07	0.000001

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	5.8E+02	ug/kg	2.0E+00	2.0E+00	2.1E-08	1.3E-08	4.E-08	3.E-08	7.E-08	2.0E-05	2.0E-05	4.9E-08	2.9E-08	2.E-03	1.E-03	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	1.6E-14	4.5E-14	2.E-09	6.E-09	8.E-09	1.0E-09	1.0E-09	3.8E-14	1.1E-13	4.E-05	1.E-04	0.0001
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	6.3E-13	3.8E-13	8.E-08	5.E-08	1.E-07	1.0E-09	1.0E-09	1.5E-12	8.8E-13	1.E-03	9.E-04	0.002
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	1.2E-11	9.7E-12	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	2.7E-11	2.3E-11	9.E-07	8.E-07	0.000002
	Dieldrin	4.7E+00	ug/kg	1.6E+01	1.6E+01	1.2E-10	1.0E-10	2.E-09	2.E-09	4.E-09	5.0E-05	5.0E-05	2.8E-10	2.4E-10	6.E-06	5.E-06	0.00001
	Total DDT	9.4E+01	ug/kg	3.4E-01	3.4E-01	7.3E-10	2.0E-09	2.E-10	7.E-10	9.E-10	5.0E-04	5.0E-04	1.7E-09	4.8E-09	3.E-06	1.E-05	0.00001
Exposure Point Total										9.E-07							0.1
RM 8 SIL	**Metals**																
	Arsenic	5.9E+00	mg/kg	1.5E+00	1.5E+00	4.6E-08	1.3E-07	7.E-08	2.E-07	3.E-07	3.0E-04	3.0E-04	1.1E-07	3.0E-07	4.E-04	1.E-03	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	3.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-09	0.E+00	7.E-05	0.0001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	2.7E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.3E-06	0.E+00	9.E-02	0.1
	Butyltins																
	Tributyltin ion	2.1E+04	ug/kg	--	--	5.5E-07	4.6E-07	--	--	--	3.0E-04	3.0E-04	1.3E-06	1.1E-06	4.E-03	4.E-03	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.4E+02	ug/kg	7.3E-01	7.3E-01	1.8E-08	1.2E-08	1.E-08	9.E-09	2.E-08	--	--	4.2E-08	2.7E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.8E-09	9.E-08	6.E-08	1.E-07	--	--	2.8E-08	1.8E-08	--	--	--
	Benzo(b)fluoranthene	7.0E+02	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.5E-08	2.E-08	1.E-08	3.E-08	--	--	5.5E-08	3.6E-08	--	--	--
	Benzo(k)fluoranthene	3.5E+02	ug/kg	7.3E-02	7.3E-02	1.2E-08	7.6E-09	9.E-10	6.E-10	1.E-09	--	--	2.7E-08	1.8E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	5.6E-09	3.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+02	ug/kg	7.3E-01	7.3E-01	7.0E-09	4.5E-09	5.E-09	3.E-09	8.E-09	--	--	1.6E-08	1.1E-08	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.0E-09	6.6E-10	--	--	--	2.0E-02	2.0E-02	2.4E-09	1.5E-09	1.E-07	8.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.1E+04	ug/kg	1.4E-02	1.4E-02	1.1E-06	8.9E-07	1.E-08	1.E-08	3.E-08	2.0E-02	2.0E-02	2.5E-06	2.1E-06	1.E-04	1.E-04	0.0002
	Phenols																
	Pentachlorophenol	3.3E+01	ug/kg	4.0E-01	4.0E-01	2.1E-09	7.1E-10	8.E-10	3.E-10	1.E-09	5.0E-03	5.0E-03	4.9E-09	1.7E-09	1.E-06	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.3E+02	ug/kg	2.0E+00	2.0E+00	1.9E-08	1.2E-08	4.E-08	2.E-08	6.E-08	2.0E-05	2.0E-05	4.5E-08	2.7E-08	2.E-03	1.E-03	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	2.6E-13	7.2E-13	3.E-08	9.E-08	1.E-07	1.0E-09	1.0E-09	6.0E-13	1.7E-12	6.E-04	2.E-03	0.002
	Total PCB TEQ	8.8E+01	pg/g	1.3E+05	1.3E+05	3.2E-12	1.9E-12	4.E-07	2.E-07	7.E-07	1.0E-09	1.0E-09	7.4E-12	4.5E-12	7.E-03	4.E-03	0.01

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	9.2E-12	7.7E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	2.1E-11	1.8E-11	7.E-07	6.E-07	0.000001
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	3.7E-11	3.1E-11	6.E-10	5.E-10	1.E-09	5.0E-05	5.0E-05	8.6E-11	7.2E-11	2.E-06	1.E-06	0.000003
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	9.3E-11	2.6E-10	3.E-11	9.E-11	1.E-10	5.0E-04	5.0E-04	2.2E-10	6.1E-10	4.E-07	1.E-06	0.000002
Exposure Point Total										1.E-06							0.1
RM 8.5 West	**Metals**																
	Arsenic	1.2E+01	mg/kg	1.5E+00	1.5E+00	9.0E-08	2.5E-07	1.E-07	4.E-07	5.E-07	3.0E-04	3.0E-04	2.1E-07	5.9E-07	7.E-04	2.E-03	0.003
	Mercury	4.7E-01	mg/kg	--	--	0.0E+00	1.0E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.4E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.5E-06	0.E+00	8.E-02	0.08
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	4.3E-10	3.6E-10	--	--	--	3.0E-04	3.0E-04	1.0E-09	8.5E-10	3.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	6.0E-09	3.9E-09	4.E-09	3.E-09	7.E-09	--	--	1.4E-08	9.0E-09	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	7.5E-09	4.9E-09	5.E-08	4.E-08	9.E-08	--	--	1.8E-08	1.1E-08	--	--	--
	Benzo(b)fluoranthene	1.8E+02	ug/kg	7.3E-01	7.3E-01	6.1E-09	4.0E-09	4.E-09	3.E-09	7.E-09	--	--	1.4E-08	9.3E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	3.8E-09	2.4E-09	3.E-10	2.E-10	5.E-10	--	--	8.8E-09	5.7E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	5.6E-10	3.6E-10	4.E-09	3.E-09	7.E-09	--	--	1.3E-09	8.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	7.6E+01	ug/kg	7.3E-01	7.3E-01	2.6E-09	1.7E-09	2.E-09	1.E-09	3.E-09	--	--	6.0E-09	3.9E-09	--	--	--
	Naphthalene	3.7E+01	ug/kg	--	--	1.2E-09	8.0E-10	--	--	--	2.0E-02	2.0E-02	2.9E-09	1.9E-09	1.E-07	9.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+03	ug/kg	1.4E-02	1.4E-02	4.5E-08	3.8E-08	6.E-10	5.E-10	1.E-09	2.0E-02	2.0E-02	1.0E-07	8.8E-08	5.E-06	4.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	2.5E-10	8.5E-11	1.E-10	3.E-11	1.E-10	5.0E-03	5.0E-03	5.9E-10	2.0E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	8.5E+03	ug/kg	2.0E+00	2.0E+00	3.1E-07	1.8E-07	6.E-07	4.E-07	1.E-06	2.0E-05	2.0E-05	7.2E-07	4.3E-07	4.E-02	2.E-02	0.06
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	1.3E+05	1.3E+05	1.4E-13	4.0E-13	2.E-08	5.E-08	7.E-08	1.0E-09	1.0E-09	3.3E-13	9.3E-13	3.E-04	9.E-04	0.001
	Total PCB TEQ	2.4E+02	pg/g	1.3E+05	1.3E+05	8.7E-12	5.2E-12	1.E-06	7.E-07	2.E-06	1.0E-09	1.0E-09	2.0E-11	1.2E-11	2.E-02	1.E-02	0.03
	Pesticides																
	Aldrin	3.2E+01	ug/kg	1.7E+01	1.7E+01	8.4E-10	7.1E-10	1.E-08	1.E-08	3.E-08	3.0E-05	3.0E-05	2.0E-09	1.6E-09	7.E-05	5.E-05	0.0001
	Dieldrin	3.9E+01	ug/kg	1.6E+01	1.6E+01	1.0E-09	8.4E-10	2.E-08	1.E-08	3.E-08	5.0E-05	5.0E-05	2.3E-09	2.0E-09	5.E-05	4.E-05	0.0001
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	1.7E-10	4.8E-10	6.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	4.0E-10	1.1E-09	8.E-07	2.E-06	0.000003
Exposure Point Total										4.E-06							0.2
RM 8.5 East	**Metals**																
	Arsenic	9.0E+00	mg/kg	1.5E+00	1.5E+00	7.0E-08	2.0E-07	1.E-07	3.E-07	4.E-07	3.0E-04	3.0E-04	1.6E-07	4.6E-07	5.E-04	2.E-03	0.002
	Mercury	1.8E-01	mg/kg	--	--	0.0E+00	4.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.4E-09	0.E+00	9.E-05	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.3E-06	0.E+00	8.E-02	0.1

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	3.1E+01	ug/kg	--	--	7.9E-10	6.7E-10	--	--	--	3.0E-04	3.0E-04	1.8E-09	1.6E-09	6.E-06	5.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	3.3E-09	2.1E-09	2.E-09	2.E-09	4.E-09	--	--	7.6E-09	4.9E-09	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	3.4E-09	2.2E-09	2.E-08	2.E-08	4.E-08	--	--	7.9E-09	5.1E-09	--	--	--
	Benzo(b)fluoranthene	1.4E+02	ug/kg	7.3E-01	7.3E-01	4.6E-09	3.0E-09	3.E-09	2.E-09	5.E-09	--	--	1.1E-08	6.9E-09	--	--	--
	Benzo(k)fluoranthene	9.8E+01	ug/kg	7.3E-02	7.3E-02	3.3E-09	2.1E-09	2.E-10	2.E-10	4.E-10	--	--	7.7E-09	5.0E-09	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	3.9E-10	2.5E-10	3.E-09	2.E-09	5.E-09	--	--	9.1E-10	5.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.0E+01	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.7E-09	2.E-09	1.E-09	3.E-09	--	--	6.3E-09	4.1E-09	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	5.0E-09	3.2E-09	--	--	--	2.0E-02	2.0E-02	1.2E-08	7.5E-09	6.E-07	4.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+02	ug/kg	1.4E-02	1.4E-02	2.4E-08	2.0E-08	3.E-10	3.E-10	6.E-10	2.0E-02	2.0E-02	5.6E-08	4.7E-08	3.E-06	2.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.2E+01	ug/kg	2.0E+00	2.0E+00	2.6E-09	1.6E-09	5.E-09	3.E-09	8.E-09	2.0E-05	2.0E-05	6.1E-09	3.7E-09	3.E-04	2.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	1.3E+05	1.3E+05	7.3E-15	2.1E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	1.7E-14	4.8E-14	2.E-05	5.E-05	0.0001
	Total PCB TEQ	5.9E-01	pg/g	1.3E+05	1.3E+05	2.1E-14	1.3E-14	3.E-09	2.E-09	4.E-09	1.0E-09	1.0E-09	5.0E-14	3.0E-14	5.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	4.1E-02	ug/kg	1.7E+01	1.7E+01	1.1E-12	9.0E-13	2.E-11	2.E-11	3.E-11	3.0E-05	3.0E-05	2.5E-12	2.1E-12	8.E-08	7.E-08	0.0000002
	Dieldrin	4.4E-01	ug/kg	1.6E+01	1.6E+01	1.1E-11	9.6E-12	2.E-10	2.E-10	3.E-10	5.0E-05	5.0E-05	2.6E-11	2.2E-11	5.E-07	4.E-07	0.000001
	Total DDT	2.3E+00	ug/kg	3.4E-01	3.4E-01	1.8E-11	5.0E-11	6.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	4.2E-11	1.2E-10	8.E-08	2.E-07	0.0000003
Exposure Point Total										5.E-07							0.1
RM 9 West	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	3.9E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.0E-08	2.5E-07	3.E-04	8.E-04	0.001
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	5.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.5E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.7E-06	0.E+00	8.E-02	0.1
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	4.3E-10	3.6E-10	--	--	--	3.0E-04	3.0E-04	1.0E-09	8.5E-10	3.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.1E-08	6.9E-09	8.E-09	5.E-09	1.E-08	--	--	2.5E-08	1.6E-08	--	--	--
	Benzo(a)pyrene	1.9E+02	ug/kg	7.3E+00	7.3E+00	6.5E-09	4.2E-09	5.E-08	3.E-08	8.E-08	--	--	1.5E-08	9.8E-09	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.6E-09	7.E-09	5.E-09	1.E-08	--	--	2.4E-08	1.6E-08	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	3.8E-09	2.5E-09	3.E-10	2.E-10	5.E-10	--	--	9.0E-09	5.8E-09	--	--	--
	Dibenzo(a,h)anthracene	4.8E+01	ug/kg	7.3E+00	7.3E+00	1.6E-09	1.0E-09	1.E-08	8.E-09	2.E-08	--	--	3.7E-09	2.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	4.0E-09	2.6E-09	3.E-09	2.E-09	5.E-09	--	--	9.4E-09	6.1E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	8.4E-10	5.4E-10	--	--	--	2.0E-02	2.0E-02	2.0E-09	1.3E-09	1.E-07	6.E-08	0.0000002

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+02	ug/kg	1.4E-02	1.4E-02	1.2E-08	9.7E-09	2.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	2.7E-08	2.3E-08	1.E-06	1.E-06	0.000002
	Phenols																
	Pentachlorophenol	4.5E+01	ug/kg	4.0E-01	4.0E-01	2.9E-09	9.8E-10	1.E-09	4.E-10	2.E-09	5.0E-03	5.0E-03	6.8E-09	2.3E-09	1.E-06	5.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+03	ug/kg	2.0E+00	2.0E+00	8.4E-08	5.1E-08	2.E-07	1.E-07	3.E-07	2.0E-05	2.0E-05	2.0E-07	1.2E-07	1.E-02	6.E-03	0.02
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	1.3E+05	1.3E+05	4.6E-14	1.3E-13	6.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	1.1E-13	3.0E-13	1.E-04	3.E-04	0.0004
	Total PCB TEQ	3.2E+01	pg/g	1.3E+05	1.3E+05	1.2E-12	7.0E-13	2.E-07	9.E-08	2.E-07	1.0E-09	1.0E-09	2.7E-12	1.6E-12	3.E-03	2.E-03	0.004
	Pesticides																
	Aldrin	1.4E+00	ug/kg	1.7E+01	1.7E+01	3.7E-11	3.1E-11	6.E-10	5.E-10	1.E-09	3.0E-05	3.0E-05	8.6E-11	7.2E-11	3.E-06	2.E-06	0.00001
	Dieldrin	6.3E-01	ug/kg	1.6E+01	1.6E+01	1.6E-11	1.4E-11	3.E-10	2.E-10	5.E-10	5.0E-05	5.0E-05	3.8E-11	3.2E-11	8.E-07	6.E-07	0.000001
	Total DDT	9.9E+00	ug/kg	3.4E-01	3.4E-01	7.7E-11	2.2E-10	3.E-11	7.E-11	1.E-10	5.0E-04	5.0E-04	1.8E-10	5.0E-10	4.E-07	1.E-06	0.000001
Exposure Point Total										9.E-07							0.1
RM 9 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	3.7E-08	1.0E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.7E-08	2.4E-07	3.E-04	8.E-04	0.001
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	1.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.1E-09	0.E+00	3.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	4.7E-10	3.0E-10	3.E-10	2.E-10	6.E-10	--	--	1.1E-09	7.1E-10	--	--	--
	Benzo(a)pyrene	1.7E+01	ug/kg	7.3E+00	7.3E+00	5.9E-10	3.8E-10	4.E-09	3.E-09	7.E-09	--	--	1.4E-09	8.9E-10	--	--	--
	Benzo(b)fluoranthene	2.4E+01	ug/kg	7.3E-01	7.3E-01	8.0E-10	5.2E-10	6.E-10	4.E-10	1.E-09	--	--	1.9E-09	1.2E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+01	ug/kg	7.3E-02	7.3E-02	3.6E-10	2.3E-10	3.E-11	2.E-11	4.E-11	--	--	8.3E-10	5.4E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	9.8E-11	6.3E-11	7.E-10	5.E-10	1.E-09	--	--	2.3E-10	1.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	4.8E-10	3.1E-10	4.E-10	2.E-10	6.E-10	--	--	1.1E-09	7.3E-10	--	--	--
	Naphthalene	8.9E+00	ug/kg	--	--	3.0E-10	1.9E-10	--	--	--	2.0E-02	2.0E-02	7.0E-10	4.5E-10	3.E-08	2.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.0E+03	ug/kg	1.4E-02	1.4E-02	5.1E-08	4.3E-08	7.E-10	6.E-10	1.E-09	2.0E-02	2.0E-02	1.2E-07	1.0E-07	6.E-06	5.E-06	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	3.6E-09	2.2E-09	7.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	8.5E-09	5.1E-09	4.E-04	3.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	1.7E-15	4.7E-15	2.E-10	6.E-10	8.E-10	1.0E-09	1.0E-09	3.9E-15	1.1E-14	4.E-06	1.E-05	0.00001
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	2.3E-14	1.4E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	5.3E-14	3.2E-14	5.E-05	3.E-05	0.0001
	Pesticides																
	Dieldrin	2.6E-01	ug/kg	1.6E+01	1.6E+01	6.8E-12	5.7E-12	1.E-10	9.E-11	2.E-10	5.0E-05	5.0E-05	1.6E-11	1.3E-11	3.E-07	3.E-07	0.000001
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	1.5E-11	4.2E-11	5.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	3.5E-11	9.9E-11	7.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-07							0.002

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 9.5 West	**Metals**																
	Arsenic	4.5E+00	mg/kg	1.5E+00	1.5E+00	3.5E-08	9.8E-08	5.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	8.2E-08	2.3E-07	3.E-04	8.E-04	0.001
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.8E-09	0.E+00	4.E-05	0.00004
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	2.6E-10	2.2E-10	--	--	--	3.0E-04	3.0E-04	6.0E-10	5.1E-10	2.E-06	2.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	8.6E-09	5.6E-09	6.E-09	4.E-09	1.E-08	--	--	2.0E-08	1.3E-08	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.8E-09	9.E-08	6.E-08	1.E-07	--	--	2.8E-08	1.8E-08	--	--	--
	Benzo(b)fluoranthene	5.3E+02	ug/kg	7.3E-01	7.3E-01	1.8E-08	1.2E-08	1.E-08	8.E-09	2.E-08	--	--	4.2E-08	2.7E-08	--	--	--
	Benzo(k)fluoranthene	2.4E+02	ug/kg	7.3E-02	7.3E-02	8.0E-09	5.2E-09	6.E-10	4.E-10	1.E-09	--	--	1.9E-08	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	4.4E-09	2.8E-09	3.E-08	2.E-08	5.E-08	--	--	1.0E-08	6.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.5E-09	7.E-09	5.E-09	1.E-08	--	--	2.4E-08	1.5E-08	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	7.5E-09	4.9E-09	--	--	--	2.0E-02	2.0E-02	1.7E-08	1.1E-08	9.E-07	6.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.4E+03	ug/kg	1.4E-02	1.4E-02	6.1E-08	5.1E-08	9.E-10	7.E-10	2.E-09	2.0E-02	2.0E-02	1.4E-07	1.2E-07	7.E-06	6.E-06	0.00001
	Phenols																
	Pentachlorophenol	9.8E+01	ug/kg	4.0E-01	4.0E-01	6.3E-09	2.1E-09	3.E-09	9.E-10	3.E-09	5.0E-03	5.0E-03	1.5E-08	5.0E-09	3.E-06	1.E-06	0.000004
	Polychlorinated Biphenyls																
	Total Aroclors	3.0E+02	ug/kg	2.0E+00	2.0E+00	1.1E-08	6.6E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	2.5E-08	1.5E-08	1.E-03	8.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.3E-13	3.6E-13	2.E-08	5.E-08	6.E-08	1.0E-09	1.0E-09	3.0E-13	8.4E-13	3.E-04	8.E-04	0.001
	Total PCB TEQ	4.8E+00	pg/g	1.3E+05	1.3E+05	1.7E-13	1.0E-13	2.E-08	1.E-08	4.E-08	1.0E-09	1.0E-09	4.0E-13	2.4E-13	4.E-04	2.E-04	0.001
	Pesticides																
	Aldrin	2.8E+00	ug/kg	1.7E+01	1.7E+01	7.2E-11	6.1E-11	1.E-09	1.E-09	2.E-09	3.0E-05	3.0E-05	1.7E-10	1.4E-10	6.E-06	5.E-06	0.00001
	Dieldrin	4.9E+00	ug/kg	1.6E+01	1.6E+01	1.3E-10	1.1E-10	2.E-09	2.E-09	4.E-09	5.0E-05	5.0E-05	2.9E-10	2.5E-10	6.E-06	5.E-06	0.00001
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	3.5E-11	9.9E-11	1.E-11	3.E-11	5.E-11	5.0E-04	5.0E-04	8.2E-11	2.3E-10	2.E-07	5.E-07	0.00000
Exposure Point Total										6.E-07							0.005
RM 9.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	2.8E-08	8.0E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.6E-08	1.9E-07	2.E-04	6.E-04	0.0008
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	2.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.3E-09	0.E+00	6.E-05	0.0001
	Butyltins																
	Tributyltin ion	3.6E+00	ug/kg	--	--	9.3E-11	7.9E-11	--	--	--	3.0E-04	3.0E-04	2.2E-10	1.8E-10	7.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+01	ug/kg	7.3E-01	7.3E-01	1.0E-09	6.6E-10	7.E-10	5.E-10	1.E-09	--	--	2.4E-09	1.5E-09	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	1.2E-09	7.5E-10	8.E-09	5.E-09	1.E-08	--	--	2.7E-09	1.7E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	1.3E-09	8.7E-10	1.E-09	6.E-10	2.E-09	--	--	3.1E-09	2.0E-09	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	2.4E+01	ug/kg	7.3E-02	7.3E-02	8.1E-10	5.2E-10	6.E-11	4.E-11	1.E-10	--	--	1.9E-09	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	3.1E-10	2.0E-10	2.E-09	1.E-09	4.E-09	--	--	7.2E-10	4.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	9.2E-10	6.0E-10	7.E-10	4.E-10	1.E-09	--	--	2.1E-09	1.4E-09	--	--	--
	Naphthalene	4.8E+00	ug/kg	--	--	1.6E-10	1.1E-10	--	--	--	2.0E-02	2.0E-02	3.8E-10	2.5E-10	2.E-08	1.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	6.7E-09	5.6E-09	9.E-11	8.E-11	2.E-10	2.0E-02	2.0E-02	1.6E-08	1.3E-08	8.E-07	7.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	2.2E-10	7.4E-11	9.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	5.1E-10	1.7E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	2.0E-09	1.2E-09	4.E-09	2.E-09	7.E-09	2.0E-05	2.0E-05	4.8E-09	2.9E-09	2.E-04	1.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	8.9E-15	2.5E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	2.1E-14	5.8E-14	2.E-05	6.E-05	0.0001
	Total PCB TEQ	3.3E-01	pg/g	1.3E+05	1.3E+05	1.2E-14	7.1E-15	2.E-09	9.E-10	2.E-09	1.0E-09	1.0E-09	2.8E-14	1.7E-14	3.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	1.2E-11	1.0E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	2.8E-11	2.4E-11	9.E-07	8.E-07	0.000002
	Dieldrin	4.3E-02	ug/kg	1.6E+01	1.6E+01	1.1E-12	9.4E-13	2.E-11	2.E-11	3.E-11	5.0E-05	5.0E-05	2.6E-12	2.2E-12	5.E-08	4.E-08	0.0000001
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	1.2E-11	3.4E-11	4.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	2.8E-11	7.9E-11	6.E-08	2.E-07	0.0000002
Exposure Point Total										2.E-07							0.001
RM 10 West	**Metals**																
	Arsenic	2.9E+01	mg/kg	1.5E+00	1.5E+00	2.2E-07	6.3E-07	3.E-07	9.E-07	1.E-06	3.0E-04	3.0E-04	5.2E-07	1.5E-06	2.E-03	5.E-03	0.01
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.6E-09	0.E+00	6.E-05	0.0001
	Butyltins																
	Tributyltin ion	3.4E+00	ug/kg	--	--	8.8E-11	7.4E-11	--	--	--	3.0E-04	3.0E-04	2.1E-10	1.7E-10	7.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.1E-08	7.0E-09	8.E-09	5.E-09	1.E-08	--	--	2.5E-08	1.6E-08	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	7.4E-09	8.E-08	5.E-08	1.E-07	--	--	2.7E-08	1.7E-08	--	--	--
	Benzo(b)fluoranthene	4.3E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	9.4E-09	1.E-08	7.E-09	2.E-08	--	--	3.4E-08	2.2E-08	--	--	--
	Benzo(k)fluoranthene	1.8E+02	ug/kg	7.3E-02	7.3E-02	6.2E-09	4.0E-09	5.E-10	3.E-10	7.E-10	--	--	1.4E-08	9.4E-09	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	5.9E-09	3.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	6.6E-09	7.E-09	5.E-09	1.E-08	--	--	2.4E-08	1.5E-08	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	2.0E-09	1.3E-09	--	--	--	2.0E-02	2.0E-02	4.6E-09	3.0E-09	2.E-07	1.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	4.7E-09	4.0E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.1E-08	9.3E-09	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	7.5E+00	ug/kg	4.0E-01	4.0E-01	4.9E-10	1.6E-10	2.E-10	7.E-11	3.E-10	5.0E-03	5.0E-03	1.1E-09	3.8E-10	2.E-07	8.E-08	0.0000003

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+02	ug/kg	2.0E+00	2.0E+00	1.6E-08	9.7E-09	3.E-08	2.E-08	5.E-08	2.0E-05	2.0E-05	3.7E-08	2.3E-08	2.E-03	1.E-03	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	1.3E+05	1.3E+05	7.7E-14	2.2E-13	1.E-08	3.E-08	4.E-08	1.0E-09	1.0E-09	1.8E-13	5.0E-13	2.E-04	5.E-04	0.001
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.1E-13	6.5E-14	1.E-08	8.E-09	2.E-08	1.0E-09	1.0E-09	2.5E-13	1.5E-13	3.E-04	2.E-04	0.0004
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	1.3E-11	1.1E-11	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	3.0E-11	2.6E-11	1.E-06	9.E-07	0.000002
	Total DDT	6.7E+00	ug/kg	3.4E-01	3.4E-01	5.2E-11	1.5E-10	2.E-11	5.E-11	7.E-11	5.0E-04	5.0E-04	1.2E-10	3.4E-10	2.E-07	7.E-07	0.000001
Exposure Point Total										2.E-06							0.01
RM 10 East	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	2.7E-08	7.6E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.4E-08	1.8E-07	2.E-04	6.E-04	0.001
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	2.0E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.6E-09	0.E+00	5.E-05	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.7E+02	ug/kg	7.3E-01	7.3E-01	9.2E-09	6.0E-09	7.E-09	4.E-09	1.E-08	--	--	2.2E-08	1.4E-08	--	--	--
	Benzo(a)pyrene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	7.6E-09	9.E-08	6.E-08	1.E-07	--	--	2.8E-08	1.8E-08	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	1.4E-08	8.8E-09	1.E-08	6.E-09	2.E-08	--	--	3.2E-08	2.1E-08	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	3.5E-09	2.2E-09	3.E-10	2.E-10	4.E-10	--	--	8.1E-09	5.2E-09	--	--	--
	Dibenzo(a,h)anthracene	5.2E+01	ug/kg	7.3E+00	7.3E+00	1.8E-09	1.1E-09	1.E-08	8.E-09	2.E-08	--	--	4.1E-09	2.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	9.3E-09	6.0E-09	7.E-09	4.E-09	1.E-08	--	--	2.2E-08	1.4E-08	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	7.5E-10	4.9E-10	--	--	--	2.0E-02	2.0E-02	1.8E-09	1.1E-09	9.E-08	6.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	5.0E-09	4.2E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.2E-08	9.7E-09	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.3E+00	ug/kg	4.0E-01	4.0E-01	2.1E-10	7.2E-11	9.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	5.0E-10	1.7E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.8E+01	ug/kg	2.0E+00	2.0E+00	1.7E-09	1.1E-09	3.E-09	2.E-09	6.E-09	2.0E-05	2.0E-05	4.1E-09	2.5E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	4.2E-15	1.2E-14	5.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	9.8E-15	2.8E-14	1.E-05	3.E-05	0.00004
	Total PCB TEQ	8.0E-01	pg/g	1.3E+05	1.3E+05	2.9E-14	1.8E-14	4.E-09	2.E-09	6.E-09	1.0E-09	1.0E-09	6.8E-14	4.1E-14	7.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	8.3E-02	ug/kg	1.7E+01	1.7E+01	2.2E-12	1.8E-12	4.E-11	3.E-11	7.E-11	3.0E-05	3.0E-05	5.0E-12	4.2E-12	2.E-07	1.E-07	0.0000003
	Dieldrin	9.4E-02	ug/kg	1.6E+01	1.6E+01	2.4E-12	2.0E-12	4.E-11	3.E-11	7.E-11	5.0E-05	5.0E-05	5.7E-12	4.8E-12	1.E-07	1.E-07	0.0000002
	Total DDT	7.7E-01	ug/kg	3.4E-01	3.4E-01	6.0E-12	1.7E-11	2.E-12	6.E-12	8.E-12	5.0E-04	5.0E-04	1.4E-11	3.9E-11	3.E-08	8.E-08	0.0000001
Exposure Point Total										4.E-07							0.001
RM 10.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	3.6E-08	1.0E-07	5.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	8.5E-08	2.4E-07	3.E-04	8.E-04	0.0011
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	1.7E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-09	0.E+00	4.E-05	0.00004

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E+01	ug/kg	7.3E-01	7.3E-01	2.0E-09	1.3E-09	1.E-09	1.E-09	2.E-09	--	--	4.8E-09	3.1E-09	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	1.6E-09	1.0E-09	1.E-08	8.E-09	2.E-08	--	--	3.8E-09	2.4E-09	--	--	--
	Benzo(b)fluoranthene	6.8E+01	ug/kg	7.3E-01	7.3E-01	2.3E-09	1.5E-09	2.E-09	1.E-09	3.E-09	--	--	5.3E-09	3.4E-09	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	6.8E-10	4.4E-10	5.E-11	3.E-11	8.E-11	--	--	1.6E-09	1.0E-09	--	--	--
	Dibenzo(a,h)anthracene	7.9E+00	ug/kg	7.3E+00	7.3E+00	2.7E-10	1.7E-10	2.E-09	1.E-09	3.E-09	--	--	6.2E-10	4.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.3E-09	8.2E-10	9.E-10	6.E-10	2.E-09	--	--	2.9E-09	1.9E-09	--	--	--
	Naphthalene	2.6E+02	ug/kg	--	--	8.8E-09	5.7E-09	--	--	--	2.0E-02	2.0E-02	2.0E-08	1.3E-08	1.E-06	7.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.5E+02	ug/kg	1.4E-02	1.4E-02	6.3E-09	5.3E-09	9.E-11	7.E-11	2.E-10	2.0E-02	2.0E-02	1.5E-08	1.2E-08	7.E-07	6.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.8E+01	ug/kg	4.0E-01	4.0E-01	2.5E-09	8.3E-10	1.E-09	3.E-10	1.E-09	5.0E-03	5.0E-03	5.7E-09	1.9E-09	1.E-06	4.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	8.5E-10	3.E-09	2.E-09	5.E-09	2.0E-05	2.0E-05	3.3E-09	2.0E-09	2.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	2.5E-14	1.5E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	5.8E-14	3.5E-14	6.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	9.3E-01	ug/kg	1.7E+01	1.7E+01	2.4E-11	2.0E-11	4.E-10	3.E-10	8.E-10	3.0E-05	3.0E-05	5.6E-11	4.7E-11	2.E-06	2.E-06	0.000003
	Total DDT	2.7E+00	ug/kg	3.4E-01	3.4E-01	2.1E-11	5.8E-11	7.E-12	2.E-11	3.E-11	5.0E-04	5.0E-04	4.8E-11	1.3E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										2.E-07							0.001
RM 10.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	2.6E-08	7.3E-08	4.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	6.1E-08	1.7E-07	2.E-04	6.E-04	0.0008
	Mercury	7.4E-02	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-09	0.E+00	4.E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+02	ug/kg	7.3E-01	7.3E-01	3.4E-09	2.2E-09	2.E-09	2.E-09	4.E-09	--	--	8.0E-09	5.2E-09	--	--	--
	Benzo(a)pyrene	7.1E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.5E-09	2.E-08	1.E-08	3.E-08	--	--	5.6E-09	3.6E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	3.7E-09	2.4E-09	3.E-09	2.E-09	4.E-09	--	--	8.7E-09	5.6E-09	--	--	--
	Benzo(k)fluoranthene	7.2E+01	ug/kg	7.3E-02	7.3E-02	2.4E-09	1.6E-09	2.E-10	1.E-10	3.E-10	--	--	5.6E-09	3.6E-09	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	3.1E-10	2.0E-10	2.E-09	1.E-09	4.E-09	--	--	7.2E-10	4.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	1.6E-09	1.0E-09	1.E-09	7.E-10	2.E-09	--	--	3.7E-09	2.4E-09	--	--	--
	Naphthalene	5.2E+00	ug/kg	--	--	1.8E-10	1.1E-10	--	--	--	2.0E-02	2.0E-02	4.1E-10	2.6E-10	2.E-08	1.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	2.8E-09	2.4E-09	4.E-11	3.E-11	7.E-11	2.0E-02	2.0E-02	6.6E-09	5.6E-09	3.E-07	3.E-07	0.000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	7.1E-10	2.4E-10	3.E-10	1.E-10	4.E-10	5.0E-03	5.0E-03	1.7E-09	5.6E-10	3.E-07	1.E-07	0.0000004

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	5.6E-09	3.4E-09	1.E-08	7.E-09	2.E-08	2.0E-05	2.0E-05	1.3E-08	7.9E-09	7.E-04	4.E-04	0.001
	Dioxin/Furan																
	Total PCB TEQ	3.9E-01	pg/g	1.3E+05	1.3E+05	1.4E-14	8.5E-15	2.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	3.3E-14	2.0E-14	3.E-05	2.E-05	0.0001
	Pesticides																
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	9.4E-11	2.6E-10	3.E-11	9.E-11	1.E-10	5.0E-04	5.0E-04	2.2E-10	6.1E-10	4.E-07	1.E-06	0.000002
Exposure Point Total										2.E-07							0.002
RM 11 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	2.8E-08	7.9E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.6E-08	1.9E-07	2.E-04	6.E-04	0.001
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	1.5E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.5E-09	0.E+00	3.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+02	ug/kg	7.3E-01	7.3E-01	6.7E-09	4.3E-09	5.E-09	3.E-09	8.E-09	--	--	1.6E-08	1.0E-08	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	7.3E-09	4.7E-09	5.E-08	3.E-08	9.E-08	--	--	1.7E-08	1.1E-08	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	3.4E-09	2.2E-09	2.E-09	2.E-09	4.E-09	--	--	7.9E-09	5.1E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	3.5E-09	2.3E-09	3.E-10	2.E-10	4.E-10	--	--	8.3E-09	5.3E-09	--	--	--
	Dibenzo(a,h)anthracene	2.7E+01	ug/kg	7.3E+00	7.3E+00	9.0E-10	5.9E-10	7.E-09	4.E-09	1.E-08	--	--	2.1E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	3.9E-09	2.5E-09	3.E-09	2.E-09	5.E-09	--	--	9.1E-09	5.9E-09	--	--	--
	Naphthalene	3.2E+02	ug/kg	--	--	1.1E-08	7.0E-09	--	--	--	2.0E-02	2.0E-02	2.5E-08	1.6E-08	1.E-06	8.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.0E+03	ug/kg	1.4E-02	1.4E-02	2.7E-08	2.3E-08	4.E-10	3.E-10	7.E-10	2.0E-02	2.0E-02	6.2E-08	5.3E-08	3.E-06	3.E-06	0.00001
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	2.0E-10	6.8E-11	8.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	4.7E-10	1.6E-10	9.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	1.3E-09	7.5E-10	3.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	2.9E-09	1.8E-09	1.E-04	9.E-05	0.0002
	Pesticides																
	Dieldrin	2.5E+00	ug/kg	1.6E+01	1.6E+01	6.5E-11	5.5E-11	1.E-09	9.E-10	2.E-09	5.0E-05	5.0E-05	1.5E-10	1.3E-10	3.E-06	3.E-06	0.00001
	Total DDT	2.1E+00	ug/kg	3.4E-01	3.4E-01	1.6E-11	4.6E-11	6.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	3.8E-11	1.1E-10	8.E-08	2.E-07	0.0000003
Exposure Point Total										3.E-07							0.001
RM 11 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	2.5E-08	7.0E-08	4.E-08	1.E-07	1.E-07	3.0E-04	3.0E-04	5.8E-08	1.6E-07	2.E-04	5.E-04	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	2.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.5E-09	0.E+00	6.E-05	0.0001
	Butyltins																
	Tributyltin ion	5.8E+00	ug/kg	--	--	1.5E-10	1.3E-10	--	--	--	3.0E-04	3.0E-04	3.5E-10	3.0E-10	1.E-06	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+02	ug/kg	7.3E-01	7.3E-01	5.4E-09	3.5E-09	4.E-09	3.E-09	6.E-09	--	--	1.2E-08	8.1E-09	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	4.0E-09	2.6E-09	3.E-08	2.E-08	5.E-08	--	--	9.4E-09	6.1E-09	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	8.4E-09	5.4E-09	6.E-09	4.E-09	1.E-08	--	--	2.0E-08	1.3E-08	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	9.4E+01	ug/kg	7.3E-02	7.3E-02	3.2E-09	2.0E-09	2.E-10	1.E-10	4.E-10	--	--	7.4E-09	4.8E-09	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	6.7E-10	4.4E-10	5.E-09	3.E-09	8.E-09	--	--	1.6E-09	1.0E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+01	ug/kg	7.3E-01	7.3E-01	1.8E-09	1.2E-09	1.E-09	8.E-10	2.E-09	--	--	4.2E-09	2.7E-09	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.0E-09	6.5E-10	--	--	--	2.0E-02	2.0E-02	2.4E-09	1.5E-09	1.E-07	8.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	3.6E-09	3.1E-09	5.E-11	4.E-11	9.E-11	2.0E-02	2.0E-02	8.5E-09	7.1E-09	4.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	8.7E+00	ug/kg	4.0E-01	4.0E-01	5.6E-10	1.9E-10	2.E-10	8.E-11	3.E-10	5.0E-03	5.0E-03	1.3E-09	4.4E-10	3.E-07	9.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+03	ug/kg	2.0E+00	2.0E+00	1.4E-07	8.4E-08	3.E-07	2.E-07	4.E-07	2.0E-05	2.0E-05	3.3E-07	2.0E-07	2.E-02	1.E-02	0.03
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	2.3E-14	6.6E-14	3.E-09	9.E-09	1.E-08	1.0E-09	1.0E-09	5.5E-14	1.5E-13	5.E-05	2.E-04	0.0002
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	1.1E-12	6.8E-13	1.E-07	9.E-08	2.E-07	1.0E-09	1.0E-09	2.6E-12	1.6E-12	3.E-03	2.E-03	0.004
	Pesticides																
	Total DDT	3.8E+02	ug/kg	3.4E-01	3.4E-01	3.0E-09	8.3E-09	1.E-09	3.E-09	4.E-09	5.0E-04	5.0E-04	6.9E-09	1.9E-08	1.E-05	4.E-05	0.0001
Exposure Point Total										9.E-07							0.03
RM 11.5 West	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	2.7E-08	7.7E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	6.4E-08	1.8E-07	2.E-04	6.E-04	0.001
	Mercury	3.1E-02	mg/kg	--	--	0.0E+00	6.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+01	ug/kg	7.3E-01	7.3E-01	5.4E-10	3.5E-10	4.E-10	3.E-10	6.E-10	--	--	1.3E-09	8.1E-10	--	--	--
	Benzo(a)pyrene	1.8E+01	ug/kg	7.3E+00	7.3E+00	6.1E-10	3.9E-10	4.E-09	3.E-09	7.E-09	--	--	1.4E-09	9.2E-10	--	--	--
	Benzo(b)fluoranthene	1.7E+01	ug/kg	7.3E-01	7.3E-01	5.7E-10	3.7E-10	4.E-10	3.E-10	7.E-10	--	--	1.3E-09	8.6E-10	--	--	--
	Benzo(k)fluoranthene	1.4E+01	ug/kg	7.3E-02	7.3E-02	4.7E-10	3.1E-10	3.E-11	2.E-11	6.E-11	--	--	1.1E-09	7.1E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	9.8E-11	6.3E-11	7.E-10	5.E-10	1.E-09	--	--	2.3E-10	1.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	4.7E-10	3.1E-10	3.E-10	2.E-10	6.E-10	--	--	1.1E-09	7.1E-10	--	--	--
	Naphthalene	6.4E+00	ug/kg	--	--	2.2E-10	1.4E-10	--	--	--	2.0E-02	2.0E-02	5.0E-10	3.3E-10	3.E-08	2.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.2E+02	ug/kg	1.4E-02	1.4E-02	1.3E-08	1.1E-08	2.E-10	2.E-10	3.E-10	2.0E-02	2.0E-02	3.1E-08	2.6E-08	2.E-06	1.E-06	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.4E+01	ug/kg	2.0E+00	2.0E+00	8.6E-10	5.2E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	2.0E-09	1.2E-09	1.E-04	6.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	1.4E-15	3.9E-15	2.E-10	5.E-10	7.E-10	1.0E-09	1.0E-09	3.2E-15	9.0E-15	3.E-06	9.E-06	0.00001
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	1.1E-14	6.4E-15	1.E-09	8.E-10	2.E-09	1.0E-09	1.0E-09	2.5E-14	1.5E-14	2.E-05	1.E-05	0.0000

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	2.3E-12	2.0E-12	4.E-11	3.E-11	7.E-11	5.0E-05	5.0E-05	5.4E-12	4.6E-12	1.E-07	9.E-08	0.0000002
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	1.5E-11	4.2E-11	5.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	3.5E-11	9.8E-11	7.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-07							0.001
RM 12 West	**Metals**																
	Arsenic	3.9E+00	mg/kg	1.5E+00	1.5E+00	3.0E-08	8.4E-08	4.E-08	1.E-07	2.E-07	3.0E-04	3.0E-04	7.0E-08	2.0E-07	2.E-04	7.E-04	0.001
	Mercury	7.4E-01	mg/kg	--	--	0.0E+00	1.6E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-08	0.E+00	4.E-04	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+03	ug/kg	7.3E-01	7.3E-01	3.7E-08	2.4E-08	3.E-08	2.E-08	5.E-08	--	--	8.7E-08	5.7E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	6.1E-08	3.9E-08	4.E-07	3.E-07	7.E-07	--	--	1.4E-07	9.2E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	4.8E-08	3.1E-08	3.E-08	2.E-08	6.E-08	--	--	1.1E-07	7.2E-08	--	--	--
	Benzo(k)fluoranthene	5.9E+02	ug/kg	7.3E-02	7.3E-02	2.0E-08	1.3E-08	1.E-09	9.E-10	2.E-09	--	--	4.7E-08	3.0E-08	--	--	--
	Dibenzo(a,h)anthracene	2.1E+02	ug/kg	7.3E+00	7.3E+00	7.1E-09	4.6E-09	5.E-08	3.E-08	9.E-08	--	--	1.7E-08	1.1E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	5.0E-08	3.2E-08	4.E-08	2.E-08	6.E-08	--	--	1.2E-07	7.5E-08	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	5.0E-09	3.2E-09	--	--	--	2.0E-02	2.0E-02	1.2E-08	7.5E-09	6.E-07	4.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	4.9E-09	4.1E-09	7.E-11	6.E-11	1.E-10	2.0E-02	2.0E-02	1.1E-08	9.7E-09	6.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.0E+01	ug/kg	4.0E-01	4.0E-01	1.3E-09	4.4E-10	5.E-10	2.E-10	7.E-10	5.0E-03	5.0E-03	3.0E-09	1.0E-09	6.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	4.4E-09	2.6E-09	9.E-09	5.E-09	1.E-08	2.0E-05	2.0E-05	1.0E-08	6.2E-09	5.E-04	3.E-04	0.0008
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	1.3E-15	3.6E-15	2.E-10	5.E-10	6.E-10	1.0E-09	1.0E-09	3.0E-15	8.5E-15	3.E-06	8.E-06	0.00001
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	1.6E-14	9.9E-15	2.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	3.8E-14	2.3E-14	4.E-05	2.E-05	0.0001
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	1.8E-11	1.5E-11	3.E-10	3.E-10	6.E-10	3.0E-05	3.0E-05	4.2E-11	3.6E-11	1.E-06	1.E-06	0.000003
	Total DDT	9.5E+00	ug/kg	3.4E-01	3.4E-01	7.4E-11	2.1E-10	3.E-11	7.E-11	1.E-10	5.0E-04	5.0E-04	1.7E-10	4.8E-10	3.E-07	1.E-06	0.000001
Exposure Point Total										1.E-06							0.002
RM 12 East	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	2.0E-08	5.7E-08	3.E-08	9.E-08	1.E-07	3.0E-04	3.0E-04	4.8E-08	1.3E-07	2.E-04	4.E-04	0.001
	Mercury	6.5E-02	mg/kg	--	--	0.0E+00	1.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.3E-09	0.E+00	3.E-05	0.00003
	Butyltins																
	Tributyltin ion	4.8E+00	ug/kg	--	--	1.2E-10	1.0E-10	--	--	--	3.0E-04	3.0E-04	2.9E-10	2.4E-10	1.E-06	8.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	6.1E-10	3.9E-10	4.E-10	3.E-10	7.E-10	--	--	1.4E-09	9.2E-10	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	6.4E-10	4.1E-10	5.E-09	3.E-09	8.E-09	--	--	1.5E-09	9.7E-10	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	9.1E-10	5.9E-10	7.E-10	4.E-10	1.E-09	--	--	2.1E-09	1.4E-09	--	--	--

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(k)fluoranthene	8.4E+00	ug/kg	7.3E-02	7.3E-02	2.8E-10	1.8E-10	2.E-11	1.E-11	3.E-11	--	--	6.6E-10	4.3E-10	--	--	--
	Dibenzo(a,h)anthracene	4.5E+00	ug/kg	7.3E+00	7.3E+00	1.5E-10	9.8E-11	1.E-09	7.E-10	2.E-09	--	--	3.5E-10	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+01	ug/kg	7.3E-01	7.3E-01	5.7E-10	3.7E-10	4.E-10	3.E-10	7.E-10	--	--	1.3E-09	8.6E-10	--	--	--
	Naphthalene	4.2E+01	ug/kg	--	--	1.4E-09	9.2E-10	--	--	--	2.0E-02	2.0E-02	3.3E-09	2.1E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+04	ug/kg	1.4E-02	1.4E-02	4.7E-07	3.9E-07	7.E-09	5.E-09	1.E-08	2.0E-02	2.0E-02	1.1E-06	9.2E-07	5.E-05	5.E-05	0.0001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	2.1E-10	7.0E-11	8.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	4.8E-10	1.6E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	6.6E-09	3.9E-09	1.E-08	8.E-09	2.E-08	2.0E-05	2.0E-05	1.5E-08	9.2E-09	8.E-04	5.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	1.4E-14	3.8E-14	2.E-09	5.E-09	7.E-09	1.0E-09	1.0E-09	3.2E-14	8.9E-14	3.E-05	9.E-05	0.0001
	Total PCB TEQ	4.6E+00	pg/g	1.3E+05	1.3E+05	1.7E-13	9.9E-14	2.E-08	1.E-08	3.E-08	1.0E-09	1.0E-09	3.9E-13	2.3E-13	4.E-04	2.E-04	0.001
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	7.3E-11	2.0E-10	2.E-11	7.E-11	9.E-11	5.0E-04	5.0E-04	1.7E-10	4.8E-10	3.E-07	1.E-06	0.000001
Exposure Point Total										2.E-07							0.003
Study Area-wide[c]	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	3.9E-08	1.1E-07	6.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	9.1E-08	2.6E-07	3.E-04	9.E-04	0.001
	Mercury	3.0E-01	mg/kg	--	--	0.0E+00	6.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-08	0.E+00	2.E-04	0.0002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.3E-06	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.3E-06	0.E+00	8.E-02	0.08
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	6.1E-08	5.2E-08	--	--	--	3.0E-04	3.0E-04	1.4E-07	1.2E-07	5.E-04	4.E-04	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.0E-07	6.7E-08	8.E-08	5.E-08	1.E-07	--	--	2.4E-07	1.6E-07	--	--	--
	Benzo(a)pyrene	3.7E+03	ug/kg	7.3E+00	7.3E+00	1.3E-07	8.2E-08	9.E-07	6.E-07	2.E-06	--	--	2.9E-07	1.9E-07	--	--	--
	Benzo(b)fluoranthene	2.9E+03	ug/kg	7.3E-01	7.3E-01	9.8E-08	6.4E-08	7.E-08	5.E-08	1.E-07	--	--	2.3E-07	1.5E-07	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	6.7E-08	4.4E-08	5.E-09	3.E-09	8.E-09	--	--	1.6E-07	1.0E-07	--	--	--
	Dibenzo(a,h)anthracene	3.8E+02	ug/kg	7.3E+00	7.3E+00	1.3E-08	8.3E-09	9.E-08	6.E-08	2.E-07	--	--	3.0E-08	1.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	8.8E-08	5.7E-08	6.E-08	4.E-08	1.E-07	--	--	2.1E-07	1.3E-07	--	--	--
	Naphthalene	1.5E+03	ug/kg	--	--	4.9E-08	3.2E-08	--	--	--	2.0E-02	2.0E-02	1.1E-07	7.4E-08	6.E-06	4.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.9E+03	ug/kg	1.4E-02	1.4E-02	7.5E-08	6.3E-08	1.E-09	9.E-10	2.E-09	2.0E-02	2.0E-02	1.7E-07	1.5E-07	9.E-06	7.E-06	0.00002
	Phenols																
	Pentachlorophenol	5.6E+01	ug/kg	4.0E-01	4.0E-01	3.6E-09	1.2E-09	1.E-09	5.E-10	2.E-09	5.0E-03	5.0E-03	8.5E-09	2.8E-09	2.E-06	6.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	1.3E-08	7.8E-09	3.E-08	2.E-08	4.E-08	2.0E-05	2.0E-05	3.0E-08	1.8E-08	2.E-03	9.E-04	0.002

TABLE 5-27.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	1.3E+05	1.3E+05	5.1E-12	1.4E-11	7.E-07	2.E-06	3.E-06	1.0E-09	1.0E-09	1.2E-11	3.4E-11	1.E-02	3.E-02	0.05
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	6.1E-13	3.7E-13	8.E-08	5.E-08	1.E-07	1.0E-09	1.0E-09	1.4E-12	8.6E-13	1.E-03	9.E-04	0.002
	Pesticides																
	Aldrin	5.8E+00	ug/kg	1.7E+01	1.7E+01	1.5E-10	1.3E-10	3.E-09	2.E-09	5.E-09	3.0E-05	3.0E-05	3.5E-10	3.0E-10	1.E-05	1.E-05	0.00002
	Dieldrin	2.8E+00	ug/kg	1.6E+01	1.6E+01	7.2E-11	6.1E-11	1.E-09	1.E-09	2.E-09	5.0E-05	5.0E-05	1.7E-10	1.4E-10	3.E-06	3.E-06	0.00001
	Total DDT	3.7E+02	ug/kg	3.4E-01	3.4E-01	2.9E-09	8.2E-09	1.E-09	3.E-09	4.E-09	5.0E-04	5.0E-04	6.8E-09	1.9E-08	1.E-05	4.E-05	0.0001
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	6.0E-06	--	--	--	7.0E-04	7.0E-04	0.0E+00	1.4E-05	0.E+00	2.E-02	0.02
Exposure Point Total										5.E-06							0.1

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	5.7E-10	3.4E-09	9.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.5E-09	2.7E-08	1.E-05	9.E-05	0.0001
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	5.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-10	0.E+00	4.E-06	0.000004
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	3.8E-13	6.9E-13	--	--	--	3.0E-04	3.0E-04	3.0E-12	5.3E-12	1.E-08	2.E-08	0.00000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+01	ug/kg	7.3E-01	7.3E-01	2.9E-11	4.1E-11	2.E-11	3.E-11	5.E-11	--	--	2.3E-10	3.2E-10	--	--	--
	Benzo(a)pyrene	7.4E+01	ug/kg	7.3E+00	7.3E+00	4.4E-11	6.1E-11	3.E-10	4.E-10	8.E-10	--	--	3.4E-10	4.7E-10	--	--	--
	Benzo(b)fluoranthene	7.4E+01	ug/kg	7.3E-01	7.3E-01	4.3E-11	6.0E-11	3.E-11	4.E-11	8.E-11	--	--	3.4E-10	4.7E-10	--	--	--
	Benzo(k)fluoranthene	3.0E+01	ug/kg	7.3E-02	7.3E-02	1.8E-11	2.5E-11	1.E-12	2.E-12	3.E-12	--	--	1.4E-10	1.9E-10	--	--	--
	Dibenzo(a,h)anthracene	9.4E+00	ug/kg	7.3E+00	7.3E+00	5.6E-12	7.7E-12	4.E-11	6.E-11	1.E-10	--	--	4.3E-11	6.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-11	4.7E-11	2.E-11	3.E-11	6.E-11	--	--	2.6E-10	3.7E-10	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	7.8E-12	1.1E-11	--	--	--	2.0E-02	2.0E-02	6.0E-11	8.4E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+01	ug/kg	1.4E-02	1.4E-02	8.4E-12	1.5E-11	1.E-13	2.E-13	3.E-13	2.0E-02	2.0E-02	6.5E-11	1.2E-10	3.E-09	6.E-09	0.00000001
	Phenols																
	Pentachlorophenol	7.2E-01	ug/kg	4.0E-01	4.0E-01	8.1E-13	5.8E-13	3.E-13	2.E-13	6.E-13	5.0E-03	5.0E-03	6.3E-12	4.5E-12	1.E-09	9.E-10	0.000000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	7.2E-12	9.3E-12	1.E-11	2.E-11	3.E-11	2.0E-05	2.0E-05	5.6E-11	7.2E-11	3.E-06	4.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	1.3E+05	1.3E+05	1.0E-16	6.2E-16	1.E-11	8.E-11	9.E-11	1.0E-09	1.0E-09	8.0E-16	4.8E-15	8.E-07	5.E-06	0.00001
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	2.0E-16	2.6E-16	3.E-11	3.E-11	6.E-11	1.0E-09	1.0E-09	1.6E-15	2.0E-15	2.E-06	2.E-06	0.000004
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	7.8E-14	1.4E-13	1.E-12	2.E-12	4.E-12	3.0E-05	3.0E-05	6.0E-13	1.1E-12	2.E-08	4.E-08	0.0000001
	Total DDT	2.5E+00	ug/kg	3.4E-01	3.4E-01	3.4E-13	2.0E-12	1.E-13	7.E-13	8.E-13	5.0E-04	5.0E-04	2.6E-12	1.6E-11	5.E-09	3.E-08	0.00000004
Exposure Point Total[b]										7.E-09							0.0001
RM 1 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	5.6E-10	3.3E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.3E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	1.4E+00	mg/kg	--	--	0.0E+00	1.2E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.2E-09	0.E+00	9.E-05	0.0001
	Butyltins																
	Tributyltin ion	1.1E+00	ug/kg	--	--	5.0E-13	9.0E-13	--	--	--	3.0E-04	3.0E-04	3.9E-12	7.0E-12	1.E-08	2.E-08	0.00000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	1.9E-11	2.6E-11	1.E-11	2.E-11	3.E-11	--	--	1.4E-10	2.0E-10	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	2.7E-11	3.8E-11	2.E-10	3.E-10	5.E-10	--	--	2.1E-10	2.9E-10	--	--	--
	Benzo(b)fluoranthene	4.2E+01	ug/kg	7.3E-01	7.3E-01	2.5E-11	3.4E-11	2.E-11	3.E-11	4.E-11	--	--	1.9E-10	2.7E-10	--	--	--
	Benzo(k)fluoranthene	2.7E+01	ug/kg	7.3E-02	7.3E-02	1.6E-11	2.2E-11	1.E-12	2.E-12	3.E-12	--	--	1.2E-10	1.7E-10	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	3.2E-12	4.5E-12	2.E-11	3.E-11	6.E-11	--	--	2.5E-11	3.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+01	ug/kg	7.3E-01	7.3E-01	1.9E-11	2.7E-11	1.E-11	2.E-11	3.E-11	--	--	1.5E-10	2.1E-10	--	--	--
	Naphthalene	8.3E+00	ug/kg	--	--	4.9E-12	6.8E-12	--	--	--	2.0E-02	2.0E-02	3.8E-11	5.3E-11	2.E-09	3.E-09	0.000000005

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	1.8E-11	3.3E-11	3.E-13	5.E-13	7.E-13	2.0E-02	2.0E-02	1.4E-10	2.5E-10	7.E-09	1.E-08	0.00000002
	Phenols																
	Pentachlorophenol	7.6E-01	ug/kg	4.0E-01	4.0E-01	8.6E-13	6.2E-13	3.E-13	2.E-13	6.E-13	5.0E-03	5.0E-03	6.7E-12	4.8E-12	1.E-09	1.E-09	0.000000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	6.5E-11	8.4E-11	1.E-10	2.E-10	3.E-10	2.0E-05	2.0E-05	5.1E-10	6.5E-10	3.E-05	3.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	6.4E-17	3.8E-16	8.E-12	5.E-11	6.E-11	1.0E-09	1.0E-09	5.0E-16	3.0E-15	5.E-07	3.E-06	0.000003
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	1.7E-16	2.2E-16	2.E-11	3.E-11	5.E-11	1.0E-09	1.0E-09	1.3E-15	1.7E-15	1.E-06	2.E-06	0.000003
	Pesticides																
	Total DDT	1.8E+00	ug/kg	3.4E-01	3.4E-01	2.4E-13	1.5E-12	8.E-14	5.E-13	6.E-13	5.0E-04	5.0E-04	1.9E-12	1.1E-11	4.E-09	2.E-08	0.00000003
Exposure Point Total										7.E-09							0.0003
RM 1.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	4.9E-10	2.9E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.8E-09	2.3E-08	1.E-05	8.E-05	0.0001
	Mercury	5.1E-02	mg/kg	--	--	0.0E+00	4.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.2E-10	0.E+00	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.9E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	1.5E-11	8.E-12	1.E-11	2.E-11	--	--	8.5E-11	1.2E-10	--	--	--
	Benzo(a)pyrene	2.7E+01	ug/kg	7.3E+00	7.3E+00	1.6E-11	2.2E-11	1.E-10	2.E-10	3.E-10	--	--	1.2E-10	1.7E-10	--	--	--
	Benzo(b)fluoranthene	2.3E+01	ug/kg	7.3E-01	7.3E-01	1.4E-11	1.9E-11	1.E-11	1.E-11	2.E-11	--	--	1.1E-10	1.5E-10	--	--	--
	Benzo(k)fluoranthene	1.9E+01	ug/kg	7.3E-02	7.3E-02	1.1E-11	1.6E-11	8.E-13	1.E-12	2.E-12	--	--	8.8E-11	1.2E-10	--	--	--
	Dibenzo(a,h)anthracene	3.3E+00	ug/kg	7.3E+00	7.3E+00	1.9E-12	2.7E-12	1.E-11	2.E-11	3.E-11	--	--	1.5E-11	2.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+01	ug/kg	7.3E-01	7.3E-01	1.2E-11	1.7E-11	9.E-12	1.E-11	2.E-11	--	--	9.7E-11	1.3E-10	--	--	--
	Naphthalene	5.3E+00	ug/kg	--	--	3.1E-12	4.4E-12	--	--	--	2.0E-02	2.0E-02	2.4E-11	3.4E-11	1.E-09	2.E-09	0.000000003
	Phenols																
	Pentachlorophenol	8.1E-01	ug/kg	4.0E-01	4.0E-01	9.1E-13	6.6E-13	4.E-13	3.E-13	6.E-13	5.0E-03	5.0E-03	7.1E-12	5.1E-12	1.E-09	1.E-09	0.000000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	7.3E-12	9.4E-12	1.E-11	2.E-11	3.E-11	2.0E-05	2.0E-05	5.7E-11	7.3E-11	3.E-06	4.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	1.3E+05	1.3E+05	1.2E-17	7.0E-17	2.E-12	9.E-12	1.E-11	1.0E-09	1.0E-09	9.0E-17	5.4E-16	9.E-08	5.E-07	0.000001
	Pesticides																
	Total DDT	7.9E-01	ug/kg	3.4E-01	3.4E-01	1.1E-13	6.5E-13	4.E-14	2.E-13	3.E-13	5.0E-04	5.0E-04	8.4E-13	5.0E-12	2.E-09	1.E-08	0.00000001
Exposure Point Total										6.E-09							0.0001
RM 1.5 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	5.9E-10	3.6E-09	9.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.6E-09	2.8E-08	2.E-05	9.E-05	0.0001
	Mercury	6.4E-02	mg/kg	--	--	0.0E+00	5.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.1E-10	0.E+00	4.E-06	0.000004
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	1.7E-13	3.0E-13	--	--	--	3.0E-04	3.0E-04	1.3E-12	2.4E-12	4.E-09	8.E-09	0.00000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.0E-10	1.E-10	1.E-10	3.E-10	--	--	1.1E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	2.2E-10	3.0E-10	2.E-09	2.E-09	4.E-09	--	--	1.7E-09	2.3E-09	--	--	--
	Benzo(b)fluoranthene	2.2E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.8E-10	9.E-11	1.E-10	2.E-10	--	--	1.0E-09	1.4E-09	--	--	--
	Benzo(k)fluoranthene	2.2E+02	ug/kg	7.3E-02	7.3E-02	1.3E-10	1.8E-10	9.E-12	1.E-11	2.E-11	--	--	9.9E-10	1.4E-09	--	--	--
	Dibenzo(a,h)anthracene	3.7E+01	ug/kg	7.3E+00	7.3E+00	2.2E-11	3.0E-11	2.E-10	2.E-10	4.E-10	--	--	1.7E-10	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.2E-10	1.E-10	2.E-10	3.E-10	--	--	1.2E-09	1.7E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	5.8E-11	8.0E-11	--	--	--	2.0E-02	2.0E-02	4.5E-10	6.2E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	3.2E-11	5.8E-11	5.E-13	8.E-13	1.E-12	2.0E-02	2.0E-02	2.5E-10	4.5E-10	1.E-08	2.E-08	0.00000004
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	1.8E-12	1.3E-12	7.E-13	5.E-13	1.E-12	5.0E-03	5.0E-03	1.4E-11	1.0E-11	3.E-09	2.E-09	0.000000005
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	1.4E-11	1.8E-11	3.E-11	4.E-11	6.E-11	2.0E-05	2.0E-05	1.1E-10	1.4E-10	5.E-06	7.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	1.3E+05	1.3E+05	7.8E-17	4.7E-16	1.E-11	6.E-11	7.E-11	1.0E-09	1.0E-09	6.1E-16	3.7E-15	6.E-07	4.E-06	0.000004
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	6.7E-17	8.6E-17	9.E-12	1.E-11	2.E-11	1.0E-09	1.0E-09	5.2E-16	6.7E-16	5.E-07	7.E-07	0.000001
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	3.1E-14	5.6E-14	5.E-13	9.E-13	1.E-12	5.0E-05	5.0E-05	2.4E-13	4.4E-13	5.E-09	9.E-09	0.00000001
	Total DDT	6.8E+00	ug/kg	3.4E-01	3.4E-01	9.3E-13	5.6E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	7.2E-12	4.3E-11	1.E-08	9.E-08	0.0000001
Exposure Point Total										1.E-08							0.0001
RM 2 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	4.7E-10	2.8E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.6E-09	2.2E-08	1.E-05	7.E-05	0.0001
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	5.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.0E-10	0.E+00	4.E-06	0.000004
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	9.5E-13	1.7E-12	--	--	--	3.0E-04	3.0E-04	7.4E-12	1.3E-11	2.E-08	4.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	1.8E-11	2.5E-11	1.E-11	2.E-11	3.E-11	--	--	1.4E-10	1.9E-10	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	3.3E-11	4.5E-11	2.E-10	3.E-10	6.E-10	--	--	2.5E-10	3.5E-10	--	--	--
	Benzo(b)fluoranthene	5.6E+01	ug/kg	7.3E-01	7.3E-01	3.3E-11	4.6E-11	2.E-11	3.E-11	6.E-11	--	--	2.6E-10	3.6E-10	--	--	--
	Benzo(k)fluoranthene	1.8E+01	ug/kg	7.3E-02	7.3E-02	1.0E-11	1.5E-11	8.E-13	1.E-12	2.E-12	--	--	8.2E-11	1.1E-10	--	--	--
	Dibenzo(a,h)anthracene	6.1E+00	ug/kg	7.3E+00	7.3E+00	3.6E-12	5.0E-12	3.E-11	4.E-11	6.E-11	--	--	2.8E-11	3.9E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+01	ug/kg	7.3E-01	7.3E-01	2.7E-11	3.7E-11	2.E-11	3.E-11	5.E-11	--	--	2.1E-10	2.9E-10	--	--	--
	Naphthalene	7.2E+00	ug/kg	--	--	4.2E-12	5.9E-12	--	--	--	2.0E-02	2.0E-02	3.3E-11	4.6E-11	2.E-09	2.E-09	0.000000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+01	ug/kg	1.4E-02	1.4E-02	1.5E-11	2.7E-11	2.E-13	4.E-13	6.E-13	2.0E-02	2.0E-02	1.2E-10	2.1E-10	6.E-09	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+01	ug/kg	2.0E+00	2.0E+00	8.3E-12	1.1E-11	2.E-11	2.E-11	4.E-11	2.0E-05	2.0E-05	6.4E-11	8.3E-11	3.E-06	4.E-06	0.00001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	1.3E+05	1.3E+05	1.1E-16	6.7E-16	1.E-11	9.E-11	1.E-10	1.0E-09	1.0E-09	8.6E-16	5.2E-15	9.E-07	5.E-06	0.00001
	Total PCB TEQ	2.5E-01	pg/g	1.3E+05	1.3E+05	1.6E-16	2.0E-16	2.E-11	3.E-11	5.E-11	1.0E-09	1.0E-09	1.2E-15	1.6E-15	1.E-06	2.E-06	0.000003
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	4.1E-14	7.4E-14	7.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	3.2E-13	5.8E-13	1.E-08	2.E-08	0.00000003
	Dieldrin	1.1E-01	ug/kg	1.6E+01	1.6E+01	5.1E-14	9.3E-14	8.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	4.0E-13	7.2E-13	8.E-09	1.E-08	0.00000002
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	1.9E-13	1.1E-12	6.E-14	4.E-13	4.E-13	5.0E-04	5.0E-04	1.5E-12	8.7E-12	3.E-09	2.E-08	0.00000002
Exposure Point Total										6.E-09							0.0001
RM 2 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	5.5E-10	3.3E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.3E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	6.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.2E-10	0.E+00	5.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.7E+00	ug/kg	--	--	1.2E-12	2.2E-12	--	--	--	3.0E-04	3.0E-04	9.3E-12	1.7E-11	3.E-08	6.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-11	4.7E-11	2.E-11	3.E-11	6.E-11	--	--	2.6E-10	3.7E-10	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	5.1E-11	7.1E-11	4.E-10	5.E-10	9.E-10	--	--	4.0E-10	5.5E-10	--	--	--
	Benzo(b)fluoranthene	9.4E+01	ug/kg	7.3E-01	7.3E-01	5.5E-11	7.7E-11	4.E-11	6.E-11	1.E-10	--	--	4.3E-10	6.0E-10	--	--	--
	Benzo(k)fluoranthene	4.1E+01	ug/kg	7.3E-02	7.3E-02	2.4E-11	3.4E-11	2.E-12	2.E-12	4.E-12	--	--	1.9E-10	2.6E-10	--	--	--
	Dibenzo(a,h)anthracene	1.3E+01	ug/kg	7.3E+00	7.3E+00	7.6E-12	1.0E-11	6.E-11	8.E-11	1.E-10	--	--	5.9E-11	8.2E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	7.5E+01	ug/kg	7.3E-01	7.3E-01	4.4E-11	6.2E-11	3.E-11	4.E-11	8.E-11	--	--	3.4E-10	4.8E-10	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	8.5E-12	1.2E-11	--	--	--	2.0E-02	2.0E-02	6.6E-11	9.2E-11	3.E-09	5.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.9E+01	ug/kg	1.4E-02	1.4E-02	4.5E-11	8.1E-11	6.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	3.5E-10	6.3E-10	2.E-08	3.E-08	0.00000005
	Phenols																
	Pentachlorophenol	5.3E-01	ug/kg	4.0E-01	4.0E-01	6.0E-13	4.4E-13	2.E-13	2.E-13	4.E-13	5.0E-03	5.0E-03	4.7E-12	3.4E-12	9.E-10	7.E-10	0.000000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+02	ug/kg	2.0E+00	2.0E+00	2.7E-10	3.5E-10	5.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	2.1E-09	2.7E-09	1.E-04	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	1.7E-16	1.0E-15	2.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	1.3E-15	7.8E-15	1.E-06	8.E-06	0.00001
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	8.5E-15	1.1E-14	1.E-09	1.E-09	3.E-09	1.0E-09	1.0E-09	6.6E-14	8.5E-14	7.E-05	9.E-05	0.0002
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	2.1E-13	3.8E-13	4.E-12	6.E-12	1.E-11	3.0E-05	3.0E-05	1.6E-12	3.0E-12	5.E-08	1.E-07	0.0000002
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	2.7E-13	4.9E-13	4.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	2.1E-12	3.8E-12	4.E-08	8.E-08	0.0000001
	Total DDT	2.6E+00	ug/kg	3.4E-01	3.4E-01	3.5E-13	2.1E-12	1.E-13	7.E-13	8.E-13	5.0E-04	5.0E-04	2.7E-12	1.6E-11	5.E-09	3.E-08	0.00000004
Exposure Point Total										1.E-08							0.0005
RM 2.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	5.5E-10	3.3E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.2E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	5.5E-02	mg/kg	--	--	0.0E+00	4.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.5E-10	0.E+00	4.E-06	0.000004
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	1.0E-12	1.9E-12	--	--	--	3.0E-04	3.0E-04	8.1E-12	1.5E-11	3.E-08	5.E-08	0.0000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.7E-10	9.E-11	1.E-10	2.E-10	--	--	9.4E-10	1.3E-09	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	2.2E-10	3.0E-10	2.E-09	2.E-09	4.E-09	--	--	1.7E-09	2.3E-09	--	--	--
	Benzo(b)fluoranthene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.6E-10	2.3E-10	1.E-10	2.E-10	3.E-10	--	--	1.3E-09	1.8E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	7.4E-11	1.0E-10	5.E-12	7.E-12	1.E-11	--	--	5.7E-10	7.9E-10	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	2.4E-11	3.3E-11	2.E-10	2.E-10	4.E-10	--	--	1.9E-10	2.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.8E-10	2.5E-10	1.E-10	2.E-10	3.E-10	--	--	1.4E-09	2.0E-09	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	2.4E-11	3.3E-11	--	--	--	2.0E-02	2.0E-02	1.9E-10	2.6E-10	9.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.5E+01	ug/kg	1.4E-02	1.4E-02	7.0E-12	1.3E-11	1.E-13	2.E-13	3.E-13	2.0E-02	2.0E-02	5.4E-11	9.8E-11	3.E-09	5.E-09	0.00000001
	Phenols																
	Pentachlorophenol	4.5E-01	ug/kg	4.0E-01	4.0E-01	5.1E-13	3.6E-13	2.E-13	1.E-13	3.E-13	5.0E-03	5.0E-03	3.9E-12	2.8E-12	8.E-10	6.E-10	0.000000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	6.8E-12	8.7E-12	1.E-11	2.E-11	3.E-11	2.0E-05	2.0E-05	5.3E-11	6.8E-11	3.E-06	3.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	3.6E-17	2.2E-16	5.E-12	3.E-11	3.E-11	1.0E-09	1.0E-09	2.8E-16	1.7E-15	3.E-07	2.E-06	0.000002
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	1.3E-16	1.7E-16	2.E-11	2.E-11	4.E-11	1.0E-09	1.0E-09	1.0E-15	1.3E-15	1.E-06	1.E-06	0.000002
	Pesticides																
	Aldrin	9.3E-02	ug/kg	1.7E+01	1.7E+01	4.2E-14	7.6E-14	7.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	3.3E-13	5.9E-13	1.E-08	2.E-08	0.00000003
	Dieldrin	1.4E-01	ug/kg	1.6E+01	1.6E+01	6.2E-14	1.1E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	4.8E-13	8.7E-13	1.E-08	2.E-08	0.00000003
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	2.0E-13	1.2E-12	7.E-14	4.E-13	5.E-13	5.0E-04	5.0E-04	1.5E-12	9.2E-12	3.E-09	2.E-08	0.00000002
Exposure Point Total										1.E-08							0.0001
RM 2.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	5.7E-10	3.4E-09	9.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.5E-09	2.7E-08	1.E-05	9.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	5.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.3E-10	0.E+00	4.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+02	ug/kg	7.3E-01	7.3E-01	3.4E-10	4.8E-10	3.E-10	3.E-10	6.E-10	--	--	2.7E-09	3.7E-09	--	--	--
	Benzo(a)pyrene	4.8E+02	ug/kg	7.3E+00	7.3E+00	2.8E-10	3.9E-10	2.E-09	3.E-09	5.E-09	--	--	2.2E-09	3.0E-09	--	--	--
	Benzo(b)fluoranthene	4.4E+02	ug/kg	7.3E-01	7.3E-01	2.6E-10	3.6E-10	2.E-10	3.E-10	5.E-10	--	--	2.0E-09	2.8E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	8.3E-11	1.1E-10	6.E-12	8.E-12	1.E-11	--	--	6.4E-10	8.9E-10	--	--	--
	Dibenzo(a,h)anthracene	4.9E+01	ug/kg	7.3E+00	7.3E+00	2.9E-11	4.0E-11	2.E-10	3.E-10	5.E-10	--	--	2.2E-10	3.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.3E-10	1.E-10	2.E-10	3.E-10	--	--	1.3E-09	1.8E-09	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	3.0E-11	4.2E-11	--	--	--	2.0E-02	2.0E-02	2.3E-10	3.2E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.8E+01	ug/kg	1.4E-02	1.4E-02	3.5E-11	6.4E-11	5.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	2.7E-10	5.0E-10	1.E-08	2.E-08	0.00000004
	Phenols																
	Pentachlorophenol	4.3E+00	ug/kg	4.0E-01	4.0E-01	4.8E-12	3.5E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	3.7E-11	2.7E-11	7.E-09	5.E-09	0.00000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	3.5E-11	4.6E-11	7.E-11	9.E-11	2.E-10	2.0E-05	2.0E-05	2.8E-10	3.6E-10	1.E-05	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	9.0E-17	5.4E-16	1.E-11	7.E-11	8.E-11	1.0E-09	1.0E-09	7.0E-16	4.2E-15	7.E-07	4.E-06	0.000005
	Total PCB TEQ	1.3E+00	pg/g	1.3E+05	1.3E+05	8.5E-16	1.1E-15	1.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	6.6E-15	8.5E-15	7.E-06	8.E-06	0.00002
	Pesticides																
	Aldrin	5.1E-01	ug/kg	1.7E+01	1.7E+01	2.3E-13	4.1E-13	4.E-12	7.E-12	1.E-11	3.0E-05	3.0E-05	1.8E-12	3.2E-12	6.E-08	1.E-07	0.0000002
	Dieldrin	1.7E-01	ug/kg	1.6E+01	1.6E+01	7.5E-14	1.4E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	5.8E-13	1.1E-12	1.E-08	2.E-08	0.00000003
	Total DDT	2.4E+00	ug/kg	3.4E-01	3.4E-01	3.2E-13	1.9E-12	1.E-13	7.E-13	8.E-13	5.0E-04	5.0E-04	2.5E-12	1.5E-11	5.E-09	3.E-08	0.00000004
Exposure Point Total										1.E-08							0.0002
RM 2.5 MC	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	5.8E-10	3.5E-09	9.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.5E-09	2.7E-08	2.E-05	9.E-05	0.0001
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	6.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.0E-10	0.E+00	5.E-06	0.000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.7E-10	9.E-11	1.E-10	2.E-10	--	--	9.7E-10	1.4E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	2.0E-10	2.8E-10	1.E-09	2.E-09	4.E-09	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.8E-10	2.6E-10	1.E-10	2.E-10	3.E-10	--	--	1.4E-09	2.0E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	5.9E-11	8.2E-11	4.E-12	6.E-12	1.E-11	--	--	4.6E-10	6.4E-10	--	--	--
	Dibenzo(a,h)anthracene	3.4E+01	ug/kg	7.3E+00	7.3E+00	2.0E-11	2.7E-11	1.E-10	2.E-10	3.E-10	--	--	1.5E-10	2.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.1E-10	1.E-10	2.E-10	3.E-10	--	--	1.2E-09	1.7E-09	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	3.5E-11	4.8E-11	--	--	--	2.0E-02	2.0E-02	2.7E-10	3.7E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	2.6E-11	4.7E-11	4.E-13	7.E-13	1.E-12	2.0E-02	2.0E-02	2.0E-10	3.7E-10	1.E-08	2.E-08	0.00000003
	Phenols																
	Pentachlorophenol	5.5E-01	ug/kg	4.0E-01	4.0E-01	6.2E-13	4.5E-13	2.E-13	2.E-13	4.E-13	5.0E-03	5.0E-03	4.9E-12	3.5E-12	1.E-09	7.E-10	0.000000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.6E-11	2.1E-11	3.E-11	4.E-11	7.E-11	2.0E-05	2.0E-05	1.3E-10	1.6E-10	6.E-06	8.E-06	0.00001
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	9.3E-14	1.7E-13	2.E-12	3.E-12	4.E-12	3.0E-05	3.0E-05	7.2E-13	1.3E-12	2.E-08	4.E-08	0.0000001
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	1.4E-13	2.5E-13	2.E-12	4.E-12	6.E-12	5.0E-05	5.0E-05	1.1E-12	2.0E-12	2.E-08	4.E-08	0.0000001
	Total DDT	3.7E+00	ug/kg	3.4E-01	3.4E-01	5.1E-13	3.1E-12	2.E-13	1.E-12	1.E-12	5.0E-04	5.0E-04	4.0E-12	2.4E-11	8.E-09	5.E-08	0.0000001
Exposure Point Total										1.E-08							0.0001
RM 3 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	5.0E-10	3.0E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.9E-09	2.3E-08	1.E-05	8.E-05	0.0001
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	6.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.1E-10	0.E+00	5.E-06	0.00001
	Vanadium	8.6E+01	mg/kg	--	--	0.0E+00	7.0E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.5E-07	0.E+00	8.E-03	0.01
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	4.7E-12	8.4E-12	--	--	--	3.0E-04	3.0E-04	3.6E-11	6.6E-11	1.E-07	2.E-07	0.0000003

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.4E-10	1.E-10	2.E-10	3.E-10	--	--	1.3E-09	1.8E-09	--	--	--
	Benzo(a)pyrene	4.6E+02	ug/kg	7.3E+00	7.3E+00	2.7E-10	3.8E-10	2.E-09	3.E-09	5.E-09	--	--	2.1E-09	2.9E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	2.3E-10	3.2E-10	2.E-10	2.E-10	4.E-10	--	--	1.8E-09	2.5E-09	--	--	--
	Benzo(k)fluoranthene	2.3E+02	ug/kg	7.3E-02	7.3E-02	1.4E-10	1.9E-10	1.E-11	1.E-11	2.E-11	--	--	1.1E-09	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	5.3E+01	ug/kg	7.3E+00	7.3E+00	3.1E-11	4.3E-11	2.E-10	3.E-10	5.E-10	--	--	2.4E-10	3.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.7E-10	1.E-10	2.E-10	3.E-10	--	--	1.5E-09	2.1E-09	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	5.8E-11	8.0E-11	--	--	--	2.0E-02	2.0E-02	4.5E-10	6.3E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	1.8E-11	3.3E-11	3.E-13	5.E-13	7.E-13	2.0E-02	2.0E-02	1.4E-10	2.6E-10	7.E-09	1.E-08	0.00000002
	Phenols																
	Pentachlorophenol	1.6E+01	ug/kg	4.0E-01	4.0E-01	1.9E-11	1.3E-11	7.E-12	5.E-12	1.E-11	5.0E-03	5.0E-03	1.4E-10	1.0E-10	3.E-08	2.E-08	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	7.2E-12	9.2E-12	1.E-11	2.E-11	3.E-11	2.0E-05	2.0E-05	5.6E-11	7.2E-11	3.E-06	4.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	1.3E+05	8.2E-17	4.9E-16	1.E-11	6.E-11	8.E-11	1.0E-09	1.0E-09	6.4E-16	3.8E-15	6.E-07	4.E-06	0.000004
	Total PCB TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	2.6E-16	3.4E-16	3.E-11	4.E-11	8.E-11	1.0E-09	1.0E-09	2.0E-15	2.6E-15	2.E-06	3.E-06	0.000005
	Pesticides																
	Aldrin	3.5E-01	ug/kg	1.7E+01	1.7E+01	1.6E-13	2.9E-13	3.E-12	5.E-12	8.E-12	3.0E-05	3.0E-05	1.2E-12	2.2E-12	4.E-08	7.E-08	0.0000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	8.9E-14	1.6E-13	1.E-12	3.E-12	4.E-12	5.0E-05	5.0E-05	6.9E-13	1.2E-12	1.E-08	2.E-08	0.00000004
	Total DDT	2.8E+01	ug/kg	3.4E-01	3.4E-01	3.8E-12	2.3E-11	1.E-12	8.E-12	9.E-12	5.0E-04	5.0E-04	3.0E-11	1.8E-10	6.E-08	4.E-07	0.0000004
Exposure Point Total										1.E-08							0.01
RM 3 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	5.6E-10	3.4E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.4E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	4.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.6E-10	0.E+00	4.E-06	0.000004
	Vanadium	8.8E+01	mg/kg	--	--	0.0E+00	7.2E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.6E-07	0.E+00	8.E-03	0.01
	Butyltins																
	Tributyltin ion	8.3E+00	ug/kg	--	--	3.7E-12	6.7E-12	--	--	--	3.0E-04	3.0E-04	2.9E-11	5.2E-11	1.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	4.5E-11	6.3E-11	3.E-11	5.E-11	8.E-11	--	--	3.5E-10	4.9E-10	--	--	--
	Benzo(a)pyrene	8.4E+01	ug/kg	7.3E+00	7.3E+00	4.9E-11	6.9E-11	4.E-10	5.E-10	9.E-10	--	--	3.8E-10	5.3E-10	--	--	--
	Benzo(b)fluoranthene	9.9E+01	ug/kg	7.3E-01	7.3E-01	5.8E-11	8.1E-11	4.E-11	6.E-11	1.E-10	--	--	4.5E-10	6.3E-10	--	--	--
	Benzo(k)fluoranthene	6.0E+01	ug/kg	7.3E-02	7.3E-02	3.6E-11	4.9E-11	3.E-12	4.E-12	6.E-12	--	--	2.8E-10	3.8E-10	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	8.1E-12	1.1E-11	6.E-11	8.E-11	1.E-10	--	--	6.3E-11	8.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	4.0E-11	5.5E-11	3.E-11	4.E-11	7.E-11	--	--	3.1E-10	4.3E-10	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	7.5E-12	1.0E-11	--	--	--	2.0E-02	2.0E-02	5.8E-11	8.0E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.5E+01	ug/kg	1.4E-02	1.4E-02	2.9E-11	5.3E-11	4.E-13	7.E-13	1.E-12	2.0E-02	2.0E-02	2.3E-10	4.1E-10	1.E-08	2.E-08	0.00000003

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	1.9E+00	ug/kg	4.0E-01	4.0E-01	2.2E-12	1.6E-12	9.E-13	6.E-13	2.E-12	5.0E-03	5.0E-03	1.7E-11	1.2E-11	3.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+01	ug/kg	2.0E+00	2.0E+00	1.2E-11	1.6E-11	2.E-11	3.E-11	6.E-11	2.0E-05	2.0E-05	9.4E-11	1.2E-10	5.E-06	6.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	1.3E+05	1.3E+05	3.9E-16	2.3E-15	5.E-11	3.E-10	4.E-10	1.0E-09	1.0E-09	3.0E-15	1.8E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	7.7E-02	pg/g	1.3E+05	1.3E+05	4.9E-17	6.3E-17	6.E-12	8.E-12	1.E-11	1.0E-09	1.0E-09	3.8E-16	4.9E-16	4.E-07	5.E-07	0.000001
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.3E-13	2.3E-13	2.E-12	4.E-12	6.E-12	3.0E-05	3.0E-05	1.0E-12	1.8E-12	3.E-08	6.E-08	0.0000001
	Dieldrin	5.7E-02	ug/kg	1.6E+01	1.6E+01	2.6E-14	4.7E-14	4.E-13	8.E-13	1.E-12	5.0E-05	5.0E-05	2.0E-13	3.7E-13	4.E-09	7.E-09	0.00000001
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	2.2E-13	1.3E-12	7.E-14	4.E-13	5.E-13	5.0E-04	5.0E-04	1.7E-12	1.0E-11	3.E-09	2.E-08	0.00000002
Exposure Point Total										8.E-09							0.01
RM 3.5 West	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	7.9E-10	4.7E-09	1.E-09	7.E-09	8.E-09	3.0E-04	3.0E-04	6.1E-09	3.7E-08	2.E-05	1.E-04	0.0001
	Mercury	7.1E-02	mg/kg	--	--	0.0E+00	5.8E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.5E-10	0.E+00	4.E-06	0.000004
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	8.1E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.3E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	3.7E-11	6.6E-11	--	--	--	3.0E-04	3.0E-04	2.9E-10	5.2E-10	1.E-06	2.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.1E-10	1.E-10	2.E-10	3.E-10	--	--	1.2E-09	1.7E-09	--	--	--
	Benzo(a)pyrene	3.9E+02	ug/kg	7.3E+00	7.3E+00	2.3E-10	3.2E-10	2.E-09	2.E-09	4.E-09	--	--	1.8E-09	2.5E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	2.9E-10	2.E-10	2.E-10	4.E-10	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	8.5E-11	1.2E-10	6.E-12	9.E-12	1.E-11	--	--	6.6E-10	9.2E-10	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	2.5E-11	3.5E-11	2.E-10	3.E-10	4.E-10	--	--	2.0E-10	2.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.6E-10	1.E-10	2.E-10	3.E-10	--	--	1.5E-09	2.0E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	7.8E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	6.1E-10	8.4E-10	3.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	2.1E-11	3.8E-11	3.E-13	5.E-13	8.E-13	2.0E-02	2.0E-02	1.6E-10	3.0E-10	8.E-09	1.E-08	0.00000002
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	2.8E-12	2.0E-12	1.E-12	8.E-13	2.E-12	5.0E-03	5.0E-03	2.2E-11	1.6E-11	4.E-09	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	1.4E-11	1.9E-11	3.E-11	4.E-11	7.E-11	2.0E-05	2.0E-05	1.1E-10	1.4E-10	6.E-06	7.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	1.3E+05	1.3E+05	1.2E-16	7.4E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	9.6E-16	5.8E-15	1.E-06	6.E-06	0.00001
	Total PCB TEQ	5.1E-01	pg/g	1.3E+05	1.3E+05	3.2E-16	4.2E-16	4.E-11	5.E-11	1.E-10	1.0E-09	1.0E-09	2.5E-15	3.3E-15	3.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	2.7E-01	ug/kg	1.7E+01	1.7E+01	1.2E-13	2.2E-13	2.E-12	4.E-12	6.E-12	3.0E-05	3.0E-05	9.3E-13	1.7E-12	3.E-08	6.E-08	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	5.7E-14	1.0E-13	9.E-13	2.E-12	3.E-12	5.0E-05	5.0E-05	4.4E-13	8.0E-13	9.E-09	2.E-08	0.00000002
	Total DDT	5.8E+00	ug/kg	3.4E-01	3.4E-01	7.9E-13	4.8E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	6.2E-12	3.7E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										1.E-08							0.01

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	5.0E-10	3.0E-09	8.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	3.9E-09	2.3E-08	1.E-05	8.E-05	0.0001
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	6.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.0E-10	0.E+00	5.E-06	0.00001
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	8.1E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.3E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	1.8E+03	ug/kg	--	--	8.1E-10	1.5E-09	--	--	--	3.0E-04	3.0E-04	6.3E-09	1.1E-08	2.E-05	4.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	1.7E-10	2.4E-10	1.E-10	2.E-10	3.E-10	--	--	1.3E-09	1.9E-09	--	--	--
	Benzo(a)pyrene	2.5E+02	ug/kg	7.3E+00	7.3E+00	1.5E-10	2.0E-10	1.E-09	1.E-09	3.E-09	--	--	1.1E-09	1.6E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	2.9E-10	2.E-10	2.E-10	4.E-10	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(k)fluoranthene	1.7E+02	ug/kg	7.3E-02	7.3E-02	1.0E-10	1.4E-10	7.E-12	1.E-11	2.E-11	--	--	7.8E-10	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	2.4E-11	3.3E-11	2.E-10	2.E-10	4.E-10	--	--	1.9E-10	2.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+02	ug/kg	7.3E-01	7.3E-01	8.8E-11	1.2E-10	6.E-11	9.E-11	2.E-10	--	--	6.8E-10	9.4E-10	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	8.2E-12	1.1E-11	--	--	--	2.0E-02	2.0E-02	6.4E-11	8.8E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	6.0E-10	1.1E-09	8.E-12	2.E-11	2.E-11	2.0E-02	2.0E-02	4.7E-09	8.4E-09	2.E-07	4.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.0E+00	ug/kg	4.0E-01	4.0E-01	2.3E-12	1.7E-12	9.E-13	7.E-13	2.E-12	5.0E-03	5.0E-03	1.8E-11	1.3E-11	4.E-09	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+02	ug/kg	2.0E+00	2.0E+00	2.4E-10	3.1E-10	5.E-10	6.E-10	1.E-09	2.0E-05	2.0E-05	1.9E-09	2.4E-09	9.E-05	1.E-04	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	4.5E-16	2.7E-15	6.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	3.5E-15	2.1E-14	4.E-06	2.E-05	0.00002
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.1E-14	1.4E-14	1.E-09	2.E-09	3.E-09	1.0E-09	1.0E-09	8.6E-14	1.1E-13	9.E-05	1.E-04	0.0002
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	1.7E-13	3.0E-13	3.E-12	5.E-12	8.E-12	3.0E-05	3.0E-05	1.3E-12	2.4E-12	4.E-08	8.E-08	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	5.7E-14	1.0E-13	9.E-13	2.E-12	3.E-12	5.0E-05	5.0E-05	4.4E-13	8.0E-13	9.E-09	2.E-08	0.00000002
	Total DDT	6.2E+00	ug/kg	3.4E-01	3.4E-01	8.4E-13	5.0E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	6.5E-12	3.9E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										1.E-08							0.01
RM 4 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	4.6E-10	2.8E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.6E-09	2.1E-08	1.E-05	7.E-05	0.0001
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	6.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.2E-10	0.E+00	5.E-06	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.4E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.5E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	6.1E+00	ug/kg	--	--	2.8E-12	5.0E-12	--	--	--	3.0E-04	3.0E-04	2.2E-11	3.9E-11	7.E-08	1.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.1E-10	1.E-10	2.E-10	3.E-10	--	--	1.2E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	4.0E+02	ug/kg	7.3E+00	7.3E+00	2.3E-10	3.2E-10	2.E-09	2.E-09	4.E-09	--	--	1.8E-09	2.5E-09	--	--	--
	Benzo(b)fluoranthene	3.6E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	2.9E-10	2.E-10	2.E-10	4.E-10	--	--	1.6E-09	2.3E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	7.8E-11	1.1E-10	6.E-12	8.E-12	1.E-11	--	--	6.1E-10	8.4E-10	--	--	--

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	4.4E+01	ug/kg	7.3E+00	7.3E+00	2.6E-11	3.6E-11	2.E-10	3.E-10	5.E-10	--	--	2.0E-10	2.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.6E-10	1.E-10	2.E-10	3.E-10	--	--	1.4E-09	2.0E-09	--	--	--
	Naphthalene	7.7E+01	ug/kg	--	--	4.5E-11	6.3E-11	--	--	--	2.0E-02	2.0E-02	3.5E-10	4.9E-10	2.E-08	2.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.2E+01	ug/kg	1.4E-02	1.4E-02	1.9E-11	3.4E-11	3.E-13	5.E-13	7.E-13	2.0E-02	2.0E-02	1.5E-10	2.7E-10	7.E-09	1.E-08	0.00000002
	Phenols																
	Pentachlorophenol	4.5E+00	ug/kg	4.0E-01	4.0E-01	5.1E-12	3.7E-12	2.E-12	1.E-12	4.E-12	5.0E-03	5.0E-03	4.0E-11	2.9E-11	8.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	1.4E-11	1.7E-11	3.E-11	3.E-11	6.E-11	2.0E-05	2.0E-05	1.1E-10	1.4E-10	5.E-06	7.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	2.2E-16	1.3E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.7E-15	1.0E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	3.0E-16	3.9E-16	4.E-11	5.E-11	9.E-11	1.0E-09	1.0E-09	2.3E-15	3.0E-15	2.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	3.9E-01	ug/kg	1.7E+01	1.7E+01	1.8E-13	3.2E-13	3.E-12	5.E-12	8.E-12	3.0E-05	3.0E-05	1.4E-12	2.5E-12	5.E-08	8.E-08	0.0000001
	Dieldrin	7.1E-02	ug/kg	1.6E+01	1.6E+01	3.2E-14	5.8E-14	5.E-13	9.E-13	1.E-12	5.0E-05	5.0E-05	2.5E-13	4.5E-13	5.E-09	9.E-09	0.00000001
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	2.6E-12	1.5E-11	9.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	2.0E-11	1.2E-10	4.E-08	2.E-07	0.0000003
Exposure Point Total										1.E-08							0.01
RM 4 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	5.7E-10	3.5E-09	9.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.5E-09	2.7E-08	1.E-05	9.E-05	0.0001
	Mercury	6.6E-02	mg/kg	--	--	0.0E+00	5.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.2E-10	0.E+00	4.E-06	0.000004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	8.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.8E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	1.2E-11	2.1E-11	--	--	--	3.0E-04	3.0E-04	9.2E-11	1.7E-10	3.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.3E+02	ug/kg	7.3E-01	7.3E-01	3.7E-10	5.2E-10	3.E-10	4.E-10	7.E-10	--	--	2.9E-09	4.0E-09	--	--	--
	Benzo(a)pyrene	8.8E+02	ug/kg	7.3E+00	7.3E+00	5.2E-10	7.2E-10	4.E-09	5.E-09	9.E-09	--	--	4.0E-09	5.6E-09	--	--	--
	Benzo(b)fluoranthene	9.0E+02	ug/kg	7.3E-01	7.3E-01	5.3E-10	7.4E-10	4.E-10	5.E-10	9.E-10	--	--	4.1E-09	5.8E-09	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	4.2E-10	5.8E-10	3.E-11	4.E-11	7.E-11	--	--	3.3E-09	4.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	8.3E-11	1.2E-10	6.E-10	8.E-10	1.E-09	--	--	6.5E-10	9.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.4E+02	ug/kg	7.3E-01	7.3E-01	3.8E-10	5.2E-10	3.E-10	4.E-10	7.E-10	--	--	2.9E-09	4.1E-09	--	--	--
	Naphthalene	3.9E+01	ug/kg	--	--	2.3E-11	3.1E-11	--	--	--	2.0E-02	2.0E-02	1.8E-10	2.4E-10	9.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+02	ug/kg	1.4E-02	1.4E-02	4.1E-10	7.5E-10	6.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	3.2E-09	5.8E-09	2.E-07	3.E-07	0.0000005
	Phenols																
	Pentachlorophenol	4.5E+02	ug/kg	4.0E-01	4.0E-01	5.1E-10	3.7E-10	2.E-10	1.E-10	4.E-10	5.0E-03	5.0E-03	4.0E-09	2.9E-09	8.E-07	6.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	9.6E-11	1.2E-10	2.E-10	2.E-10	4.E-10	2.0E-05	2.0E-05	7.4E-10	9.6E-10	4.E-05	5.E-05	0.0001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	5.6E-16	3.4E-15	7.E-11	4.E-10	5.E-10	1.0E-09	1.0E-09	4.4E-15	2.6E-14	4.E-06	3.E-05	0.00003
	Total PCB TEQ	1.9E+00	pg/g	1.3E+05	1.3E+05	1.2E-15	1.6E-15	2.E-10	2.E-10	4.E-10	1.0E-09	1.0E-09	9.5E-15	1.2E-14	9.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	2.1E-13	3.9E-13	4.E-12	7.E-12	1.E-11	3.0E-05	3.0E-05	1.7E-12	3.0E-12	6.E-08	1.E-07	0.0000002
	Dieldrin	8.9E-02	ug/kg	1.6E+01	1.6E+01	4.0E-14	7.3E-14	6.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	3.1E-13	5.6E-13	6.E-09	1.E-08	0.00000002
	Total DDT	5.4E+00	ug/kg	3.4E-01	3.4E-01	7.4E-13	4.4E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	5.7E-12	3.4E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										2.E-08							0.01
RM 4.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	4.9E-10	2.9E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.8E-09	2.3E-08	1.E-05	8.E-05	0.0001
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	7.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.4E-10	0.E+00	5.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	8.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.8E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	7.5E+00	ug/kg	--	--	3.4E-12	6.1E-12	--	--	--	3.0E-04	3.0E-04	2.6E-11	4.8E-11	9.E-08	2.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	3.3E-10	4.5E-10	2.E-10	3.E-10	6.E-10	--	--	2.5E-09	3.5E-09	--	--	--
	Benzo(a)pyrene	7.6E+02	ug/kg	7.3E+00	7.3E+00	4.5E-10	6.2E-10	3.E-09	5.E-09	8.E-09	--	--	3.5E-09	4.8E-09	--	--	--
	Benzo(b)fluoranthene	6.6E+02	ug/kg	7.3E-01	7.3E-01	3.9E-10	5.4E-10	3.E-10	4.E-10	7.E-10	--	--	3.0E-09	4.2E-09	--	--	--
	Benzo(k)fluoranthene	2.9E+02	ug/kg	7.3E-02	7.3E-02	1.7E-10	2.4E-10	1.E-11	2.E-11	3.E-11	--	--	1.3E-09	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	8.5E+01	ug/kg	7.3E+00	7.3E+00	5.0E-11	6.9E-11	4.E-10	5.E-10	9.E-10	--	--	3.9E-10	5.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	3.5E-10	4.9E-10	3.E-10	4.E-10	6.E-10	--	--	2.7E-09	3.8E-09	--	--	--
	Naphthalene	1.6E+02	ug/kg	--	--	9.6E-11	1.3E-10	--	--	--	2.0E-02	2.0E-02	7.5E-10	1.0E-09	4.E-08	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.0E+01	ug/kg	1.4E-02	1.4E-02	2.2E-11	4.1E-11	3.E-13	6.E-13	9.E-13	2.0E-02	2.0E-02	1.7E-10	3.2E-10	9.E-09	2.E-08	0.00000002
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	1.9E-12	1.4E-12	8.E-13	6.E-13	1.E-12	5.0E-03	5.0E-03	1.5E-11	1.1E-11	3.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.6E-11	2.0E-11	3.E-11	4.E-11	7.E-11	2.0E-05	2.0E-05	1.2E-10	1.6E-10	6.E-06	8.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	3.6E-16	2.1E-15	5.E-11	3.E-10	3.E-10	1.0E-09	1.0E-09	2.8E-15	1.7E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	8.9E-16	1.2E-15	1.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	7.0E-15	9.0E-15	7.E-06	9.E-06	0.00002
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	7.6E-14	1.4E-13	1.E-12	2.E-12	4.E-12	3.0E-05	3.0E-05	5.9E-13	1.1E-12	2.E-08	4.E-08	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	6.1E-14	1.1E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	4.7E-13	8.5E-13	9.E-09	2.E-08	0.00000003
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	6.2E-13	3.7E-12	2.E-13	1.E-12	1.E-12	5.0E-04	5.0E-04	4.8E-12	2.9E-11	1.E-08	6.E-08	0.0000001
Exposure Point Total										2.E-08							0.01
RM 4.5 East	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	5.4E-10	3.3E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.2E-09	2.5E-08	1.E-05	8.E-05	0.0001
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	5.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.0E-10	0.E+00	4.E-06	0.000004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.7E-07	0.E+00	1.E-02	0.01

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	4.1E+01	ug/kg	--	--	1.8E-11	3.3E-11	--	--	--	3.0E-04	3.0E-04	1.4E-10	2.6E-10	5.E-07	9.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+03	ug/kg	7.3E-01	7.3E-01	2.0E-09	2.7E-09	1.E-09	2.E-09	3.E-09	--	--	1.5E-08	2.1E-08	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	2.5E-09	3.5E-09	2.E-08	3.E-08	4.E-08	--	--	2.0E-08	2.7E-08	--	--	--
	Benzo(b)fluoranthene	3.8E+03	ug/kg	7.3E-01	7.3E-01	2.2E-09	3.1E-09	2.E-09	2.E-09	4.E-09	--	--	1.7E-08	2.4E-08	--	--	--
	Benzo(k)fluoranthene	3.4E+03	ug/kg	7.3E-02	7.3E-02	2.0E-09	2.8E-09	1.E-10	2.E-10	3.E-10	--	--	1.6E-08	2.2E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	4.2E-10	5.8E-10	3.E-09	4.E-09	7.E-09	--	--	3.3E-09	4.5E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.8E-09	2.5E-09	1.E-09	2.E-09	3.E-09	--	--	1.4E-08	1.9E-08	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	8.6E-11	1.2E-10	--	--	--	2.0E-02	2.0E-02	6.7E-10	9.3E-10	3.E-08	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.3E+01	ug/kg	1.4E-02	1.4E-02	3.8E-11	6.8E-11	5.E-13	1.E-12	1.E-12	2.0E-02	2.0E-02	2.9E-10	5.3E-10	1.E-08	3.E-08	0.00000004
	Phenols																
	Pentachlorophenol	1.8E+00	ug/kg	4.0E-01	4.0E-01	2.0E-12	1.5E-12	8.E-13	6.E-13	1.E-12	5.0E-03	5.0E-03	1.6E-11	1.1E-11	3.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	2.2E-11	2.8E-11	4.E-11	6.E-11	1.E-10	2.0E-05	2.0E-05	1.7E-10	2.2E-10	9.E-06	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	3.8E-17	2.3E-16	5.E-12	3.E-11	3.E-11	1.0E-09	1.0E-09	2.9E-16	1.8E-15	3.E-07	2.E-06	0.000002
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	2.0E-16	2.6E-16	3.E-11	3.E-11	6.E-11	1.0E-09	1.0E-09	1.6E-15	2.0E-15	2.E-06	2.E-06	0.000004
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	4.9E-14	8.8E-14	8.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	3.8E-13	6.8E-13	1.E-08	2.E-08	0.00000004
	Dieldrin	5.8E-02	ug/kg	1.6E+01	1.6E+01	2.6E-14	4.8E-14	4.E-13	8.E-13	1.E-12	5.0E-05	5.0E-05	2.1E-13	3.7E-13	4.E-09	7.E-09	0.00000001
	Total DDT	4.9E+00	ug/kg	3.4E-01	3.4E-01	6.6E-13	4.0E-12	2.E-13	1.E-12	2.E-12	5.0E-04	5.0E-04	5.1E-12	3.1E-11	1.E-08	6.E-08	0.0000001
Exposure Point Total										7.E-08							0.01
RM 5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	4.4E-10	2.7E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.4E-09	2.1E-08	1.E-05	7.E-05	0.0001
	Mercury	5.2E-02	mg/kg	--	--	0.0E+00	4.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.3E-10	0.E+00	3.E-06	0.000003
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	8.0E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.3E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	8.2E-12	1.5E-11	--	--	--	3.0E-04	3.0E-04	6.3E-11	1.1E-10	2.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E+02	ug/kg	7.3E-01	7.3E-01	3.5E-10	4.8E-10	3.E-10	4.E-10	6.E-10	--	--	2.7E-09	3.8E-09	--	--	--
	Benzo(a)pyrene	7.9E+02	ug/kg	7.3E+00	7.3E+00	4.7E-10	6.5E-10	3.E-09	5.E-09	8.E-09	--	--	3.6E-09	5.0E-09	--	--	--
	Benzo(b)fluoranthene	5.7E+02	ug/kg	7.3E-01	7.3E-01	3.3E-10	4.6E-10	2.E-10	3.E-10	6.E-10	--	--	2.6E-09	3.6E-09	--	--	--
	Benzo(k)fluoranthene	4.1E+02	ug/kg	7.3E-02	7.3E-02	2.4E-10	3.4E-10	2.E-11	2.E-11	4.E-11	--	--	1.9E-09	2.6E-09	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	4.8E-11	6.7E-11	4.E-10	5.E-10	8.E-10	--	--	3.7E-10	5.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	3.5E-10	4.8E-10	3.E-10	3.E-10	6.E-10	--	--	2.7E-09	3.7E-09	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	8.1E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	6.3E-10	8.7E-10	3.E-08	4.E-08	0.0000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	3.2E-11	5.8E-11	5.E-13	8.E-13	1.E-12	2.0E-02	2.0E-02	2.5E-10	4.5E-10	1.E-08	2.E-08	0.00000004
	Phenols																
	Pentachlorophenol	2.1E+01	ug/kg	4.0E-01	4.0E-01	2.4E-11	1.7E-11	9.E-12	7.E-12	2.E-11	5.0E-03	5.0E-03	1.8E-10	1.3E-10	4.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	1.1E-11	1.4E-11	2.E-11	3.E-11	5.E-11	2.0E-05	2.0E-05	8.4E-11	1.1E-10	4.E-06	5.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	1.3E+05	1.3E+05	4.7E-16	2.8E-15	6.E-11	4.E-10	4.E-10	1.0E-09	1.0E-09	3.7E-15	2.2E-14	4.E-06	2.E-05	0.00003
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	7.4E-16	9.5E-16	1.E-10	1.E-10	2.E-10	1.0E-09	1.0E-09	5.8E-15	7.4E-15	6.E-06	7.E-06	0.00001
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	2.0E-13	3.6E-13	3.E-12	6.E-12	1.E-11	3.0E-05	3.0E-05	1.6E-12	2.8E-12	5.E-08	9.E-08	0.0000001
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	6.7E-14	1.2E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	5.2E-13	9.4E-13	1.E-08	2.E-08	0.00000003
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.6E-12	9.5E-12	5.E-13	3.E-12	4.E-12	5.0E-04	5.0E-04	1.2E-11	7.4E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										2.E-08							0.01
RM 5 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	4.4E-10	2.6E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.4E-09	2.1E-08	1.E-05	7.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	5.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.3E-10	0.E+00	4.E-06	0.000004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.4E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.6E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	5.7E+01	ug/kg	--	--	2.6E-11	4.7E-11	--	--	--	3.0E-04	3.0E-04	2.0E-10	3.6E-10	7.E-07	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.7E-10	9.E-11	1.E-10	2.E-10	--	--	9.8E-10	1.4E-09	--	--	--
	Benzo(a)pyrene	3.0E+02	ug/kg	7.3E+00	7.3E+00	1.8E-10	2.4E-10	1.E-09	2.E-09	3.E-09	--	--	1.4E-09	1.9E-09	--	--	--
	Benzo(b)fluoranthene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.6E-10	1.E-10	2.E-10	3.E-10	--	--	1.5E-09	2.0E-09	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	8.9E-11	1.2E-10	7.E-12	9.E-12	2.E-11	--	--	6.9E-10	9.6E-10	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	2.5E-11	3.5E-11	2.E-10	3.E-10	4.E-10	--	--	2.0E-10	2.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.0E-10	1.E-10	1.E-10	2.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Naphthalene	5.5E+01	ug/kg	--	--	3.2E-11	4.5E-11	--	--	--	2.0E-02	2.0E-02	2.5E-10	3.5E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.5E+01	ug/kg	1.4E-02	1.4E-02	3.9E-11	7.0E-11	5.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	3.0E-10	5.4E-10	2.E-08	3.E-08	0.00000004
	Phenols																
	Pentachlorophenol	6.5E+00	ug/kg	4.0E-01	4.0E-01	7.4E-12	5.3E-12	3.E-12	2.E-12	5.E-12	5.0E-03	5.0E-03	5.8E-11	4.2E-11	1.E-08	8.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+01	ug/kg	2.0E+00	2.0E+00	1.2E-11	1.6E-11	2.E-11	3.E-11	6.E-11	2.0E-05	2.0E-05	9.7E-11	1.2E-10	5.E-06	6.E-06	0.00001
	Pesticides																
	Aldrin	1.9E-01	ug/kg	1.7E+01	1.7E+01	8.6E-14	1.6E-13	1.E-12	3.E-12	4.E-12	3.0E-05	3.0E-05	6.7E-13	1.2E-12	2.E-08	4.E-08	0.0000001
	Dieldrin	1.9E-01	ug/kg	1.6E+01	1.6E+01	8.6E-14	1.5E-13	1.E-12	2.E-12	4.E-12	5.0E-05	5.0E-05	6.7E-13	1.2E-12	1.E-08	2.E-08	0.00000004
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	1.9E-13	1.1E-12	6.E-14	4.E-13	4.E-13	5.0E-04	5.0E-04	1.5E-12	8.7E-12	3.E-09	2.E-08	0.00000002
Exposure Point Total										9.E-09							0.01

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 West	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	5.8E-10	3.5E-09	9.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.5E-09	2.7E-08	1.E-05	9.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	5.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.3E-10	0.E+00	4.E-06	0.000004
	Vanadium	9.2E+01	mg/kg	--	--	0.0E+00	7.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.9E-07	0.E+00	8.E-03	0.01
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	7.9E-12	1.4E-11	--	--	--	3.0E-04	3.0E-04	6.1E-11	1.1E-10	2.E-07	4.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	7.8E-10	1.1E-09	6.E-10	8.E-10	1.E-09	--	--	6.1E-09	8.5E-09	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	1.1E-09	1.5E-09	8.E-09	1.E-08	2.E-08	--	--	8.7E-09	1.2E-08	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	9.0E-10	1.3E-09	7.E-10	9.E-10	2.E-09	--	--	7.0E-09	9.8E-09	--	--	--
	Benzo(k)fluoranthene	7.5E+02	ug/kg	7.3E-02	7.3E-02	4.4E-10	6.1E-10	3.E-11	4.E-11	8.E-11	--	--	3.4E-09	4.8E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	1.0E-10	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.8E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	8.7E-10	1.2E-09	6.E-10	9.E-10	2.E-09	--	--	6.8E-09	9.4E-09	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	6.9E-11	9.6E-11	--	--	--	2.0E-02	2.0E-02	5.4E-10	7.5E-10	3.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.4E+01	ug/kg	1.4E-02	1.4E-02	3.4E-11	6.1E-11	5.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	2.6E-10	4.7E-10	1.E-08	2.E-08	0.00000004
	Phenols																
	Pentachlorophenol	1.2E+01	ug/kg	4.0E-01	4.0E-01	1.4E-11	9.9E-12	5.E-12	4.E-12	9.E-12	5.0E-03	5.0E-03	1.1E-10	7.7E-11	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	2.1E-11	2.6E-11	4.E-11	5.E-11	9.E-11	2.0E-05	2.0E-05	1.6E-10	2.1E-10	8.E-06	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	2.0E-16	1.2E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.5E-15	9.3E-15	2.E-06	9.E-06	0.00001
	Total PCB TEQ	5.8E-01	pg/g	1.3E+05	1.3E+05	3.7E-16	4.7E-16	5.E-11	6.E-11	1.E-10	1.0E-09	1.0E-09	2.9E-15	3.7E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	4.2E-01	ug/kg	1.7E+01	1.7E+01	1.9E-13	3.4E-13	3.E-12	6.E-12	9.E-12	3.0E-05	3.0E-05	1.5E-12	2.7E-12	5.E-08	9.E-08	0.0000001
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	1.4E-13	2.6E-13	2.E-12	4.E-12	6.E-12	5.0E-05	5.0E-05	1.1E-12	2.0E-12	2.E-08	4.E-08	0.0000001
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	2.6E-12	1.6E-11	9.E-13	5.E-12	6.E-12	5.0E-04	5.0E-04	2.0E-11	1.2E-10	4.E-08	2.E-07	0.0000003
Exposure Point Total										3.E-08							0.01
RM 5.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	7.8E-10	4.7E-09	1.E-09	7.E-09	8.E-09	3.0E-04	3.0E-04	6.1E-09	3.7E-08	2.E-05	1.E-04	0.0001
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	1.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	8.5E+01	mg/kg	--	--	0.0E+00	6.9E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.4E-07	0.E+00	8.E-03	0.01
	Butyltins																
	Tributyltin ion	1.7E+02	ug/kg	--	--	7.8E-11	1.4E-10	--	--	--	3.0E-04	3.0E-04	6.1E-10	1.1E-09	2.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.6E+02	ug/kg	7.3E-01	7.3E-01	2.7E-10	3.8E-10	2.E-10	3.E-10	5.E-10	--	--	2.1E-09	2.9E-09	--	--	--
	Benzo(a)pyrene	5.6E+02	ug/kg	7.3E+00	7.3E+00	3.3E-10	4.6E-10	2.E-09	3.E-09	6.E-09	--	--	2.6E-09	3.6E-09	--	--	--
	Benzo(b)fluoranthene	6.8E+02	ug/kg	7.3E-01	7.3E-01	4.0E-10	5.5E-10	3.E-10	4.E-10	7.E-10	--	--	3.1E-09	4.3E-09	--	--	--
	Benzo(k)fluoranthene	2.6E+02	ug/kg	7.3E-02	7.3E-02	1.5E-10	2.1E-10	1.E-11	2.E-11	3.E-11	--	--	1.2E-09	1.7E-09	--	--	--

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	8.8E+01	ug/kg	7.3E+00	7.3E+00	5.2E-11	7.2E-11	4.E-10	5.E-10	9.E-10	--	--	4.0E-10	5.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.3E+02	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.5E-10	2.E-10	3.E-10	4.E-10	--	--	2.0E-09	2.7E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	7.9E-11	1.1E-10	--	--	--	2.0E-02	2.0E-02	6.2E-10	8.5E-10	3.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	1.2E-10	2.1E-10	2.E-12	3.E-12	5.E-12	2.0E-02	2.0E-02	9.1E-10	1.6E-09	5.E-08	8.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	1.5E-11	1.1E-11	6.E-12	4.E-12	1.E-11	5.0E-03	5.0E-03	1.2E-10	8.6E-11	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+02	ug/kg	2.0E+00	2.0E+00	6.7E-11	8.6E-11	1.E-10	2.E-10	3.E-10	2.0E-05	2.0E-05	5.2E-10	6.7E-10	3.E-05	3.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	1.3E+05	1.3E+05	6.1E-16	3.6E-15	8.E-11	5.E-10	6.E-10	1.0E-09	1.0E-09	4.7E-15	2.8E-14	5.E-06	3.E-05	0.00003
	Total PCB TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	1.3E-15	1.7E-15	2.E-10	2.E-10	4.E-10	1.0E-09	1.0E-09	1.0E-14	1.3E-14	1.E-05	1.E-05	0.00002
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	1.9E-13	3.3E-13	3.E-12	6.E-12	9.E-12	3.0E-05	3.0E-05	1.4E-12	2.6E-12	5.E-08	9.E-08	0.0000001
	Dieldrin	4.7E-01	ug/kg	1.6E+01	1.6E+01	2.1E-13	3.9E-13	3.E-12	6.E-12	1.E-11	5.0E-05	5.0E-05	1.7E-12	3.0E-12	3.E-08	6.E-08	0.0000001
	Total DDT	8.2E+00	ug/kg	3.4E-01	3.4E-01	1.1E-12	6.7E-12	4.E-13	2.E-12	3.E-12	5.0E-04	5.0E-04	8.7E-12	5.2E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										2.E-08							0.01
RM 6 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	5.0E-10	3.0E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.9E-09	2.3E-08	1.E-05	8.E-05	0.0001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	9.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.2E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	9.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.5E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	5.8E-12	1.1E-11	--	--	--	3.0E-04	3.0E-04	4.5E-11	8.2E-11	2.E-07	3.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+04	ug/kg	7.3E-01	7.3E-01	1.5E-08	2.1E-08	1.E-08	2.E-08	3.E-08	--	--	1.2E-07	1.6E-07	--	--	--
	Benzo(a)pyrene	3.1E+04	ug/kg	7.3E+00	7.3E+00	1.8E-08	2.5E-08	1.E-07	2.E-07	3.E-07	--	--	1.4E-07	2.0E-07	--	--	--
	Benzo(b)fluoranthene	2.2E+04	ug/kg	7.3E-01	7.3E-01	1.3E-08	1.8E-08	1.E-08	1.E-08	2.E-08	--	--	1.0E-07	1.4E-07	--	--	--
	Benzo(k)fluoranthene	1.4E+04	ug/kg	7.3E-02	7.3E-02	8.3E-09	1.1E-08	6.E-10	8.E-10	1.E-09	--	--	6.4E-08	8.9E-08	--	--	--
	Dibenzo(a,h)anthracene	2.9E+03	ug/kg	7.3E+00	7.3E+00	1.7E-09	2.4E-09	1.E-08	2.E-08	3.E-08	--	--	1.3E-08	1.9E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+04	ug/kg	7.3E-01	7.3E-01	1.2E-08	1.7E-08	9.E-09	1.E-08	2.E-08	--	--	9.7E-08	1.3E-07	--	--	--
	Naphthalene	1.1E+04	ug/kg	--	--	6.4E-09	8.9E-09	--	--	--	2.0E-02	2.0E-02	5.0E-08	6.9E-08	2.E-06	3.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.2E+02	ug/kg	1.4E-02	1.4E-02	1.0E-10	1.8E-10	1.E-12	3.E-12	4.E-12	2.0E-02	2.0E-02	7.7E-10	1.4E-09	4.E-08	7.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.2E+01	ug/kg	4.0E-01	4.0E-01	2.5E-11	1.8E-11	1.E-11	7.E-12	2.E-11	5.0E-03	5.0E-03	1.9E-10	1.4E-10	4.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+01	ug/kg	2.0E+00	2.0E+00	2.7E-11	3.5E-11	5.E-11	7.E-11	1.E-10	2.0E-05	2.0E-05	2.1E-10	2.7E-10	1.E-05	1.E-05	0.00002

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	2.1E-16	1.2E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.6E-15	9.7E-15	2.E-06	1.E-05	0.00001
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	9.1E-16	1.2E-15	1.E-10	2.E-10	3.E-10	1.0E-09	1.0E-09	7.1E-15	9.1E-15	7.E-06	9.E-06	0.00002
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	5.6E-13	1.0E-12	1.E-11	2.E-11	3.E-11	3.0E-05	3.0E-05	4.4E-12	7.9E-12	1.E-07	3.E-07	0.0000004
	Dieldrin	1.1E+00	ug/kg	1.6E+01	1.6E+01	5.1E-13	9.1E-13	8.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	3.9E-12	7.1E-12	8.E-08	1.E-07	0.0000002
	Total DDT	3.6E+01	ug/kg	3.4E-01	3.4E-01	4.9E-12	2.9E-11	2.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	3.8E-11	2.3E-10	8.E-08	5.E-07	0.000001
Exposure Point Total										4.E-07							0.01
RM 6 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	5.0E-10	3.0E-09	8.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	3.9E-09	2.3E-08	1.E-05	8.E-05	0.0001
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-09	0.E+00	2.E-05	0.00002
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	7.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	5.8E-07	0.E+00	8.E-03	0.008
	Butyltins																
	Tributyltin ion	1.8E+02	ug/kg	--	--	8.1E-11	1.5E-10	--	--	--	3.0E-04	3.0E-04	6.3E-10	1.1E-09	2.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+02	ug/kg	7.3E-01	7.3E-01	3.1E-10	4.3E-10	2.E-10	3.E-10	5.E-10	--	--	2.4E-09	3.4E-09	--	--	--
	Benzo(a)pyrene	7.5E+02	ug/kg	7.3E+00	7.3E+00	4.4E-10	6.1E-10	3.E-09	4.E-09	8.E-09	--	--	3.4E-09	4.8E-09	--	--	--
	Benzo(b)fluoranthene	7.3E+02	ug/kg	7.3E-01	7.3E-01	4.3E-10	5.9E-10	3.E-10	4.E-10	7.E-10	--	--	3.3E-09	4.6E-09	--	--	--
	Benzo(k)fluoranthene	4.6E+02	ug/kg	7.3E-02	7.3E-02	2.7E-10	3.8E-10	2.E-11	3.E-11	5.E-11	--	--	2.1E-09	2.9E-09	--	--	--
	Dibenzo(a,h)anthracene	9.6E+01	ug/kg	7.3E+00	7.3E+00	5.6E-11	7.8E-11	4.E-10	6.E-10	1.E-09	--	--	4.4E-10	6.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.2E+02	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.4E-10	2.E-10	3.E-10	4.E-10	--	--	1.9E-09	2.7E-09	--	--	--
	Naphthalene	2.5E+02	ug/kg	--	--	1.5E-10	2.0E-10	--	--	--	2.0E-02	2.0E-02	1.1E-09	1.6E-09	6.E-08	8.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	3.7E-11	6.7E-11	5.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	2.9E-10	5.2E-10	1.E-08	3.E-08	0.00000004
	Phenols																
	Pentachlorophenol	7.7E+00	ug/kg	4.0E-01	4.0E-01	8.8E-12	6.3E-12	4.E-12	3.E-12	6.E-12	5.0E-03	5.0E-03	6.8E-11	4.9E-11	1.E-08	1.E-08	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	4.9E-11	6.3E-11	1.E-10	1.E-10	2.E-10	2.0E-05	2.0E-05	3.8E-10	4.9E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	1.3E+05	1.3E+05	4.3E-16	2.6E-15	6.E-11	3.E-10	4.E-10	1.0E-09	1.0E-09	3.4E-15	2.0E-14	3.E-06	2.E-05	0.00002
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	7.8E-16	1.0E-15	1.E-10	1.E-10	2.E-10	1.0E-09	1.0E-09	6.1E-15	7.9E-15	6.E-06	8.E-06	0.00001
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	1.9E-13	3.3E-13	3.E-12	6.E-12	9.E-12	3.0E-05	3.0E-05	1.4E-12	2.6E-12	5.E-08	9.E-08	0.0000001
	Dieldrin	4.4E-02	ug/kg	1.6E+01	1.6E+01	2.0E-14	3.6E-14	3.E-13	6.E-13	9.E-13	5.0E-05	5.0E-05	1.6E-13	2.8E-13	3.E-09	6.E-09	0.00000001
	Total DDT	2.9E+00	ug/kg	3.4E-01	3.4E-01	4.0E-13	2.4E-12	1.E-13	8.E-13	9.E-13	5.0E-04	5.0E-04	3.1E-12	1.9E-11	6.E-09	4.E-08	0.00000004
Exposure Point Total										2.E-08							0.01
RM 6.5 West	**Metals**																
	Arsenic	7.4E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	6.1E-09	2.E-09	9.E-09	1.E-08	3.0E-04	3.0E-04	7.8E-09	4.7E-08	3.E-05	2.E-04	0.0002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	8.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.9E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	9.9E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	7.7E-07	0.E+00	1.E-02	0.01

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	1.2E-11	2.1E-11	--	--	--	3.0E-04	3.0E-04	9.3E-11	1.7E-10	3.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.4E+02	ug/kg	7.3E-01	7.3E-01	4.4E-10	6.1E-10	3.E-10	4.E-10	8.E-10	--	--	3.4E-09	4.7E-09	--	--	--
	Benzo(a)pyrene	9.1E+02	ug/kg	7.3E+00	7.3E+00	5.4E-10	7.5E-10	4.E-09	5.E-09	9.E-09	--	--	4.2E-09	5.8E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+03	ug/kg	7.3E-01	7.3E-01	6.0E-10	8.3E-10	4.E-10	6.E-10	1.E-09	--	--	4.6E-09	6.4E-09	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	2.4E-10	3.3E-10	2.E-11	2.E-11	4.E-11	--	--	1.9E-09	2.6E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	9.9E-11	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.7E-10	1.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	6.2E+02	ug/kg	7.3E-01	7.3E-01	3.7E-10	5.1E-10	3.E-10	4.E-10	6.E-10	--	--	2.9E-09	4.0E-09	--	--	--
	Naphthalene	1.1E+02	ug/kg	--	--	6.2E-11	8.6E-11	--	--	--	2.0E-02	2.0E-02	4.8E-10	6.7E-10	2.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+01	ug/kg	1.4E-02	1.4E-02	3.7E-11	6.6E-11	5.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	2.9E-10	5.2E-10	1.E-08	3.E-08	0.00000004
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	1.8E-12	1.3E-12	7.E-13	5.E-13	1.E-12	5.0E-03	5.0E-03	1.4E-11	1.0E-11	3.E-09	2.E-09	0.000000005
	Polychlorinated Biphenyls																
	Total Aroclors	6.4E+01	ug/kg	2.0E+00	2.0E+00	4.0E-11	5.2E-11	8.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.1E-10	4.0E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	1.3E+05	1.3E+05	2.8E-15	1.7E-14	4.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	2.2E-14	1.3E-13	2.E-05	1.E-04	0.0002
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	1.1E-15	1.5E-15	1.E-10	2.E-10	3.E-10	1.0E-09	1.0E-09	8.9E-15	1.1E-14	9.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	1.7E+00	ug/kg	1.7E+01	1.7E+01	7.9E-13	1.4E-12	1.E-11	2.E-11	4.E-11	3.0E-05	3.0E-05	6.1E-12	1.1E-11	2.E-07	4.E-07	0.000001
	Dieldrin	5.4E-01	ug/kg	1.6E+01	1.6E+01	2.5E-13	4.4E-13	4.E-12	7.E-12	1.E-11	5.0E-05	5.0E-05	1.9E-12	3.4E-12	4.E-08	7.E-08	0.0000001
	Total DDT	9.2E+01	ug/kg	3.4E-01	3.4E-01	1.3E-11	7.5E-11	4.E-12	3.E-11	3.E-11	5.0E-04	5.0E-04	9.7E-11	5.9E-10	2.E-07	1.E-06	0.000001
Exposure Point Total										3.E-08							0.01
RM 6.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	5.7E-10	3.4E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.4E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	2.2E+00	mg/kg	--	--	0.0E+00	1.8E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-08	0.E+00	1.E-04	0.0001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.7E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	1.9E-11	3.5E-11	--	--	--	3.0E-04	3.0E-04	1.5E-10	2.7E-10	5.E-07	9.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+02	ug/kg	7.3E-01	7.3E-01	6.4E-11	8.9E-11	5.E-11	6.E-11	1.E-10	--	--	5.0E-10	6.9E-10	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	5.1E-11	7.0E-11	4.E-10	5.E-10	9.E-10	--	--	3.9E-10	5.5E-10	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	6.7E-11	9.2E-11	5.E-11	7.E-11	1.E-10	--	--	5.2E-10	7.2E-10	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	3.6E-11	5.0E-11	3.E-12	4.E-12	6.E-12	--	--	2.8E-10	3.9E-10	--	--	--
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	8.7E-12	1.2E-11	6.E-11	9.E-11	2.E-10	--	--	6.8E-11	9.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+01	ug/kg	7.3E-01	7.3E-01	3.4E-11	4.8E-11	3.E-11	3.E-11	6.E-11	--	--	2.7E-10	3.7E-10	--	--	--
	Naphthalene	6.5E+01	ug/kg	--	--	3.8E-11	5.3E-11	--	--	--	2.0E-02	2.0E-02	3.0E-10	4.1E-10	1.E-08	2.E-08	0.00000004

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	4.2E-11	7.6E-11	6.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	3.3E-10	5.9E-10	2.E-08	3.E-08	0.00000005
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	4.4E-12	3.2E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	3.4E-11	2.5E-11	7.E-09	5.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+02	ug/kg	2.0E+00	2.0E+00	1.3E-10	1.7E-10	3.E-10	3.E-10	6.E-10	2.0E-05	2.0E-05	1.0E-09	1.3E-09	5.E-05	6.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	1.3E+05	1.3E+05	2.7E-15	1.6E-14	4.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	2.1E-14	1.3E-13	2.E-05	1.E-04	0.0001
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.9E-15	2.5E-15	2.E-10	3.E-10	6.E-10	1.0E-09	1.0E-09	1.5E-14	1.9E-14	1.E-05	2.E-05	0.00003
	Pesticides																
	Aldrin	7.6E-02	ug/kg	1.7E+01	1.7E+01	3.5E-14	6.2E-14	6.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	2.7E-13	4.8E-13	9.E-09	2.E-08	0.00000003
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	6.8E-14	1.2E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	5.3E-13	9.6E-13	1.E-08	2.E-08	0.00000003
	Total DDT	1.5E+01	ug/kg	3.4E-01	3.4E-01	2.0E-12	1.2E-11	7.E-13	4.E-12	5.E-12	5.0E-04	5.0E-04	1.6E-11	9.6E-11	3.E-08	2.E-07	0.0000002
Exposure Point Total										1.E-08							0.01
RM 7 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	5.6E-10	3.4E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.4E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	8.1E-02	mg/kg	--	--	0.0E+00	6.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.2E-10	0.E+00	5.E-06	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.2E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.3E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	6.0E+00	ug/kg	--	--	2.7E-12	4.9E-12	--	--	--	3.0E-04	3.0E-04	2.1E-11	3.8E-11	7.E-08	1.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.6E+02	ug/kg	7.3E-01	7.3E-01	3.3E-10	4.6E-10	2.E-10	3.E-10	6.E-10	--	--	2.6E-09	3.6E-09	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	2.7E-10	3.8E-10	2.E-09	3.E-09	5.E-09	--	--	2.1E-09	3.0E-09	--	--	--
	Benzo(b)fluoranthene	1.1E+03	ug/kg	7.3E-01	7.3E-01	6.3E-10	8.7E-10	5.E-10	6.E-10	1.E-09	--	--	4.9E-09	6.8E-09	--	--	--
	Benzo(k)fluoranthene	3.9E+02	ug/kg	7.3E-02	7.3E-02	2.3E-10	3.2E-10	2.E-11	2.E-11	4.E-11	--	--	1.8E-09	2.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	7.5E-11	1.0E-10	6.E-10	8.E-10	1.E-09	--	--	5.9E-10	8.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	2.2E-10	3.0E-10	2.E-10	2.E-10	4.E-10	--	--	1.7E-09	2.3E-09	--	--	--
	Naphthalene	8.8E+00	ug/kg	--	--	5.2E-12	7.2E-12	--	--	--	2.0E-02	2.0E-02	4.0E-11	5.6E-11	2.E-09	3.E-09	0.000000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.1E+02	ug/kg	1.4E-02	1.4E-02	9.4E-11	1.7E-10	1.E-12	2.E-12	4.E-12	2.0E-02	2.0E-02	7.3E-10	1.3E-09	4.E-08	7.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	3.1E-11	2.2E-11	1.E-11	9.E-12	2.E-11	5.0E-03	5.0E-03	2.4E-10	1.7E-10	5.E-08	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.1E+01	ug/kg	2.0E+00	2.0E+00	4.5E-11	5.8E-11	9.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.5E-10	4.5E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	1.3E+05	1.3E+05	2.3E-13	1.4E-12	3.E-08	2.E-07	2.E-07	1.0E-09	1.0E-09	1.8E-12	1.1E-11	2.E-03	1.E-02	0.01
	Total PCB TEQ	7.7E+00	pg/g	1.3E+05	1.3E+05	4.9E-15	6.3E-15	6.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	3.8E-14	4.9E-14	4.E-05	5.E-05	0.0001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	2.7E+01	ug/kg	1.7E+01	1.7E+01	1.2E-11	2.2E-11	2.E-10	4.E-10	6.E-10	3.0E-05	3.0E-05	9.4E-11	1.7E-10	3.E-06	6.E-06	0.00001
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	5.8E-13	1.0E-12	9.E-12	2.E-11	3.E-11	5.0E-05	5.0E-05	4.5E-12	8.1E-12	9.E-08	2.E-07	0.0000003
	Total DDT	2.3E+03	ug/kg	3.4E-01	3.4E-01	3.2E-10	1.9E-09	1.E-10	7.E-10	8.E-10	5.0E-04	5.0E-04	2.5E-09	1.5E-08	5.E-06	3.E-05	0.00003
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	4.0E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	3.1E-07	0.E+00	4.E-04	0.0004
Exposure Point Total										2.E-07							0.02
RM 7 East	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.4E-09	8.2E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	1.1E-08	6.4E-08	4.E-05	2.E-04	0.0002
	Mercury	5.8E-02	mg/kg	--	--	0.0E+00	4.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.7E-10	0.E+00	4.E-06	0.000004
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	8.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.7E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.6E+02	ug/kg	--	--	1.2E-10	2.2E-10	--	--	--	3.0E-04	3.0E-04	9.3E-10	1.7E-09	3.E-06	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	7.3E-11	1.0E-10	5.E-11	7.E-11	1.E-10	--	--	5.7E-10	7.9E-10	--	--	--
	Benzo(a)pyrene	1.6E+02	ug/kg	7.3E+00	7.3E+00	9.3E-11	1.3E-10	7.E-10	9.E-10	2.E-09	--	--	7.2E-10	1.0E-09	--	--	--
	Benzo(b)fluoranthene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.7E-10	9.E-11	1.E-10	2.E-10	--	--	9.6E-10	1.3E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	6.7E-11	9.3E-11	5.E-12	7.E-12	1.E-11	--	--	5.2E-10	7.2E-10	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	2.5E-11	3.5E-11	2.E-10	3.E-10	4.E-10	--	--	2.0E-10	2.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	6.2E-11	8.7E-11	5.E-11	6.E-11	1.E-10	--	--	4.9E-10	6.7E-10	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.3E-11	1.8E-11	--	--	--	2.0E-02	2.0E-02	1.0E-10	1.4E-10	5.E-09	7.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+02	ug/kg	1.4E-02	1.4E-02	1.4E-10	2.5E-10	2.E-12	3.E-12	5.E-12	2.0E-02	2.0E-02	1.1E-09	1.9E-09	5.E-08	1.E-07	0.0000001
	Phenols																
	Pentachlorophenol	7.7E+01	ug/kg	4.0E-01	4.0E-01	8.7E-11	6.3E-11	3.E-11	3.E-11	6.E-11	5.0E-03	5.0E-03	6.8E-10	4.9E-10	1.E-07	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.2E+01	ug/kg	2.0E+00	2.0E+00	2.7E-11	3.4E-11	5.E-11	7.E-11	1.E-10	2.0E-05	2.0E-05	2.1E-10	2.7E-10	1.E-05	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	2.3E-15	1.4E-14	3.E-10	2.E-09	2.E-09	1.0E-09	1.0E-09	1.8E-14	1.1E-13	2.E-05	1.E-04	0.0001
	Total PCB TEQ	5.5E-01	pg/g	1.3E+05	1.3E+05	3.5E-16	4.5E-16	5.E-11	6.E-11	1.E-10	1.0E-09	1.0E-09	2.7E-15	3.5E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	1.3E-01	ug/kg	1.7E+01	1.7E+01	6.0E-14	1.1E-13	1.E-12	2.E-12	3.E-12	3.0E-05	3.0E-05	4.7E-13	8.4E-13	2.E-08	3.E-08	0.00000004
	Dieldrin	8.2E-02	ug/kg	1.6E+01	1.6E+01	3.7E-14	6.7E-14	6.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	2.9E-13	5.2E-13	6.E-09	1.E-08	0.00000002
	Total DDT	3.6E+00	ug/kg	3.4E-01	3.4E-01	4.8E-13	2.9E-12	2.E-13	1.E-12	1.E-12	5.0E-04	5.0E-04	3.8E-12	2.3E-11	8.E-09	5.E-08	0.0000001
Exposure Point Total										2.E-08							0.01
RM 7.5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	4.4E-10	2.6E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.4E-09	2.1E-08	1.E-05	7.E-05	0.0001
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	6.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.9E-10	0.E+00	5.E-06	0.000005
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	7.8E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.1E-07	0.E+00	9.E-03	0.01

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	5.4E+00	ug/kg	--	--	2.4E-12	4.4E-12	--	--	--	3.0E-04	3.0E-04	1.9E-11	3.4E-11	6.E-08	1.E-07	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	8.7E-11	1.2E-10	6.E-11	9.E-11	2.E-10	--	--	6.8E-10	9.4E-10	--	--	--
	Benzo(a)pyrene	1.3E+02	ug/kg	7.3E+00	7.3E+00	7.6E-11	1.1E-10	6.E-10	8.E-10	1.E-09	--	--	5.9E-10	8.2E-10	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	1.0E-10	1.4E-10	7.E-11	1.E-10	2.E-10	--	--	7.8E-10	1.1E-09	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	3.6E-11	5.0E-11	3.E-12	4.E-12	6.E-12	--	--	2.8E-10	3.9E-10	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	1.2E-11	1.6E-11	9.E-11	1.E-10	2.E-10	--	--	9.1E-11	1.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.4E+01	ug/kg	7.3E-01	7.3E-01	4.9E-11	6.9E-11	4.E-11	5.E-11	9.E-11	--	--	3.8E-10	5.3E-10	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	1.5E-11	2.0E-11	--	--	--	2.0E-02	2.0E-02	1.1E-10	1.6E-10	6.E-09	8.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	6.4E-11	1.2E-10	9.E-13	2.E-12	3.E-12	2.0E-02	2.0E-02	5.0E-10	9.0E-10	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	1.7E-12	1.3E-12	7.E-13	5.E-13	1.E-12	5.0E-03	5.0E-03	1.3E-11	9.7E-12	3.E-09	2.E-09	0.000000005
	Polychlorinated Biphenyls																
	Total Aroclors	8.6E+01	ug/kg	2.0E+00	2.0E+00	5.4E-11	7.0E-11	1.E-10	1.E-10	2.E-10	2.0E-05	2.0E-05	4.2E-10	5.5E-10	2.E-05	3.E-05	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	1.3E-16	7.6E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	9.8E-16	5.9E-15	1.E-06	6.E-06	0.00001
	Total PCB TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	4.2E-16	5.4E-16	5.E-11	7.E-11	1.E-10	1.0E-09	1.0E-09	3.3E-15	4.2E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	1.8E-01	ug/kg	1.7E+01	1.7E+01	8.3E-14	1.5E-13	1.E-12	3.E-12	4.E-12	3.0E-05	3.0E-05	6.5E-13	1.2E-12	2.E-08	4.E-08	0.0000001
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	8.1E-14	1.5E-13	1.E-12	2.E-12	4.E-12	5.0E-05	5.0E-05	6.3E-13	1.1E-12	1.E-08	2.E-08	0.00000004
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	2.9E-12	1.7E-11	1.E-12	6.E-12	7.E-12	5.0E-04	5.0E-04	2.2E-11	1.3E-10	4.E-08	3.E-07	0.0000003
Exposure Point Total										7.E-09							0.01
RM 7.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	4.5E-10	2.7E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.5E-09	2.1E-08	1.E-05	7.E-05	0.0001
	Mercury	7.6E-02	mg/kg	--	--	0.0E+00	6.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.8E-10	0.E+00	5.E-06	0.000005
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	8.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.8E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	1.6E+02	ug/kg	--	--	7.3E-11	1.3E-10	--	--	--	3.0E-04	3.0E-04	5.7E-10	1.0E-09	2.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	1.5E-11	2.1E-11	1.E-11	2.E-11	3.E-11	--	--	1.2E-10	1.6E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	1.5E-11	2.1E-11	1.E-10	2.E-10	3.E-10	--	--	1.2E-10	1.6E-10	--	--	--
	Benzo(b)fluoranthene	3.2E+01	ug/kg	7.3E-01	7.3E-01	1.9E-11	2.6E-11	1.E-11	2.E-11	3.E-11	--	--	1.5E-10	2.1E-10	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	1.2E-11	1.6E-11	9.E-13	1.E-12	2.E-12	--	--	9.1E-11	1.3E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	5.4E-12	7.5E-12	4.E-11	5.E-11	9.E-11	--	--	4.2E-11	5.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	1.5E-11	8.E-12	1.E-11	2.E-11	--	--	8.2E-11	1.1E-10	--	--	--
	Naphthalene	6.1E+00	ug/kg	--	--	3.6E-12	5.0E-12	--	--	--	2.0E-02	2.0E-02	2.8E-11	3.9E-11	1.E-09	2.E-09	0.000000003

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.1E+02	ug/kg	1.4E-02	1.4E-02	2.8E-10	5.0E-10	4.E-12	7.E-12	1.E-11	2.0E-02	2.0E-02	2.2E-09	3.9E-09	1.E-07	2.E-07	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	2.0E-11	2.6E-11	4.E-11	5.E-11	9.E-11	2.0E-05	2.0E-05	1.6E-10	2.0E-10	8.E-06	1.E-05	0.00002
	Pesticides																
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	6.6E-14	1.2E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	5.1E-13	9.3E-13	1.E-08	2.E-08	0.00000003
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	1.4E-13	8.6E-13	5.E-14	3.E-13	3.E-13	5.0E-04	5.0E-04	1.1E-12	6.7E-12	2.E-09	1.E-08	0.00000002
Exposure Point Total										5.E-09							0.01
RM 8 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	5.6E-10	3.4E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.4E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	1.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	7.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.0E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	6.0E-12	1.1E-11	--	--	--	3.0E-04	3.0E-04	4.7E-11	8.4E-11	2.E-07	3.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	1.0E-10	1.4E-10	8.E-11	1.E-10	2.E-10	--	--	8.1E-10	1.1E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	9.8E-11	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.7E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	1.9E-10	1.E-10	1.E-10	2.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Benzo(k)fluoranthene	5.0E+01	ug/kg	7.3E-02	7.3E-02	3.0E-11	4.1E-11	2.E-12	3.E-12	5.E-12	--	--	2.3E-10	3.2E-10	--	--	--
	Dibenzo(a,h)anthracene	3.1E+01	ug/kg	7.3E+00	7.3E+00	1.8E-11	2.5E-11	1.E-10	2.E-10	3.E-10	--	--	1.4E-10	2.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	6.7E-11	9.2E-11	5.E-11	7.E-11	1.E-10	--	--	5.2E-10	7.2E-10	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	3.0E-11	4.2E-11	--	--	--	2.0E-02	2.0E-02	2.4E-10	3.3E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.0E+02	ug/kg	1.4E-02	1.4E-02	2.7E-10	4.9E-10	4.E-12	7.E-12	1.E-11	2.0E-02	2.0E-02	2.1E-09	3.8E-09	1.E-07	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	3.5E-12	2.5E-12	1.E-12	1.E-12	2.E-12	5.0E-03	5.0E-03	2.7E-11	2.0E-11	5.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	7.5E-11	9.7E-11	2.E-10	2.E-10	3.E-10	2.0E-05	2.0E-05	5.9E-10	7.6E-10	3.E-05	4.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	3.6E-17	2.1E-16	5.E-12	3.E-11	3.E-11	1.0E-09	1.0E-09	2.8E-16	1.7E-15	3.E-07	2.E-06	0.000002
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	2.3E-15	2.9E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	1.8E-14	2.3E-14	2.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	1.8E-14	3.3E-14	3.E-13	6.E-13	9.E-13	3.0E-05	3.0E-05	1.4E-13	2.6E-13	5.E-09	9.E-09	0.00000001
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	9.0E-13	1.6E-12	1.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	7.0E-12	1.3E-11	1.E-07	3.E-07	0.0000004
	Total DDT	6.5E+00	ug/kg	3.4E-01	3.4E-01	8.8E-13	5.3E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	6.9E-12	4.1E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										1.E-08							0.01
RM 8 East	**Metals**																
	Arsenic	6.2E+00	mg/kg	1.5E+00	1.5E+00	8.4E-10	5.0E-09	1.E-09	8.E-09	9.E-09	3.0E-04	3.0E-04	6.5E-09	3.9E-08	2.E-05	1.E-04	0.0002
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	9.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.5E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	8.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.7E-07	0.E+00	1.E-02	0.01

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	1.1E-09	1.9E-09	--	--	--	3.0E-04	3.0E-04	8.4E-09	1.5E-08	3.E-05	5.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.7E+02	ug/kg	7.3E-01	7.3E-01	9.8E-11	1.4E-10	7.E-11	1.E-10	2.E-10	--	--	7.6E-10	1.1E-09	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	1.0E-10	1.4E-10	8.E-10	1.E-09	2.E-09	--	--	8.0E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	2.0E+02	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.6E-10	8.E-11	1.E-10	2.E-10	--	--	9.0E-10	1.3E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	7.6E-11	1.1E-10	6.E-12	8.E-12	1.E-11	--	--	5.9E-10	8.2E-10	--	--	--
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	1.5E-11	2.1E-11	1.E-10	2.E-10	3.E-10	--	--	1.2E-10	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	7.2E-11	1.0E-10	5.E-11	7.E-11	1.E-10	--	--	5.6E-10	7.8E-10	--	--	--
	Naphthalene	1.6E+01	ug/kg	--	--	9.6E-12	1.3E-11	--	--	--	2.0E-02	2.0E-02	7.5E-11	1.0E-10	4.E-09	5.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.7E+02	ug/kg	1.4E-02	1.4E-02	3.5E-10	6.3E-10	5.E-12	9.E-12	1.E-11	2.0E-02	2.0E-02	2.7E-09	4.9E-09	1.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	1.5E-11	1.1E-11	6.E-12	4.E-12	1.E-11	5.0E-03	5.0E-03	1.2E-10	8.4E-11	2.E-08	2.E-08	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+02	ug/kg	2.0E+00	2.0E+00	1.1E-10	1.4E-10	2.E-10	3.E-10	5.E-10	2.0E-05	2.0E-05	8.5E-10	1.1E-09	4.E-05	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	1.3E-16	7.6E-16	2.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	9.9E-16	5.9E-15	1.E-06	6.E-06	0.00001
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	3.7E-15	4.8E-15	5.E-10	6.E-10	1.E-09	1.0E-09	1.0E-09	2.9E-14	3.7E-14	3.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	5.2E-14	9.3E-14	9.E-13	2.E-12	2.E-12	3.0E-05	3.0E-05	4.0E-13	7.3E-13	1.E-08	2.E-08	0.00000004
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	3.6E-13	6.4E-13	6.E-12	1.E-11	2.E-11	5.0E-05	5.0E-05	2.8E-12	5.0E-12	6.E-08	1.E-07	0.0000002
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.4E-12	8.7E-12	5.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	1.1E-11	6.8E-11	2.E-08	1.E-07	0.0000002
Exposure Point Total										1.E-08							0.01
RM 8 SIL	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	7.3E-10	4.4E-09	1.E-09	7.E-09	8.E-09	3.0E-04	3.0E-04	5.7E-09	3.4E-08	2.E-05	1.E-04	0.0001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	9.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.4E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	8.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.8E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.2E+03	ug/kg	--	--	1.0E-09	1.8E-09	--	--	--	3.0E-04	3.0E-04	7.8E-09	1.4E-08	3.E-05	5.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.4E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.0E-10	1.E-10	1.E-10	2.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Benzo(a)pyrene	2.0E+02	ug/kg	7.3E+00	7.3E+00	1.2E-10	1.6E-10	8.E-10	1.E-09	2.E-09	--	--	9.0E-10	1.3E-09	--	--	--
	Benzo(b)fluoranthene	3.8E+02	ug/kg	7.3E-01	7.3E-01	2.2E-10	3.1E-10	2.E-10	2.E-10	4.E-10	--	--	1.7E-09	2.4E-09	--	--	--
	Benzo(k)fluoranthene	2.1E+02	ug/kg	7.3E-02	7.3E-02	1.2E-10	1.7E-10	9.E-12	1.E-11	2.E-11	--	--	9.5E-10	1.3E-09	--	--	--
	Dibenzo(a,h)anthracene	3.6E+01	ug/kg	7.3E+00	7.3E+00	2.1E-11	2.9E-11	2.E-10	2.E-10	4.E-10	--	--	1.6E-10	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	7.3E-11	1.0E-10	5.E-11	7.E-11	1.E-10	--	--	5.7E-10	7.9E-10	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	1.5E-11	2.1E-11	--	--	--	2.0E-02	2.0E-02	1.2E-10	1.6E-10	6.E-09	8.E-09	0.00000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+03	ug/kg	1.4E-02	1.4E-02	3.7E-09	6.6E-09	5.E-11	9.E-11	1.E-10	2.0E-02	2.0E-02	2.9E-08	5.2E-08	1.E-06	3.E-06	0.000004
	Phenols																
	Pentachlorophenol	3.9E+01	ug/kg	4.0E-01	4.0E-01	4.5E-11	3.2E-11	2.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	3.5E-10	2.5E-10	7.E-08	5.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+02	ug/kg	2.0E+00	2.0E+00	1.8E-10	2.3E-10	4.E-10	5.E-10	8.E-10	2.0E-05	2.0E-05	1.4E-09	1.8E-09	7.E-05	9.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	1.3E+05	1.3E+05	8.6E-16	5.1E-15	1.E-10	7.E-10	8.E-10	1.0E-09	1.0E-09	6.7E-15	4.0E-14	7.E-06	4.E-05	0.00005
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	7.6E-15	9.9E-15	1.E-09	1.E-09	2.E-09	1.0E-09	1.0E-09	5.9E-14	7.7E-14	6.E-05	8.E-05	0.0001
	Pesticides																
	Aldrin	6.2E-01	ug/kg	1.7E+01	1.7E+01	2.8E-13	5.0E-13	5.E-12	9.E-12	1.E-11	3.0E-05	3.0E-05	2.2E-12	3.9E-12	7.E-08	1.E-07	0.0000002
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	6.3E-13	1.1E-12	1.E-11	2.E-11	3.E-11	5.0E-05	5.0E-05	4.9E-12	8.8E-12	1.E-07	2.E-07	0.0000003
	Total DDT	5.2E+00	ug/kg	3.4E-01	3.4E-01	7.1E-13	4.3E-12	2.E-13	1.E-12	2.E-12	5.0E-04	5.0E-04	5.5E-12	3.3E-11	1.E-08	7.E-08	0.0000001
Exposure Point Total										1.E-08							0.01
RM 8.5 West	**Metals**																
	Arsenic	6.7E+00	mg/kg	1.5E+00	1.5E+00	9.1E-10	5.5E-09	1.E-09	8.E-09	1.E-08	3.0E-04	3.0E-04	7.1E-09	4.2E-08	2.E-05	1.E-04	0.0002
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	1.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.2E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.4E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	5.7E-12	1.0E-11	--	--	--	3.0E-04	3.0E-04	4.5E-11	8.0E-11	1.E-07	3.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+01	ug/kg	7.3E-01	7.3E-01	5.5E-11	7.7E-11	4.E-11	6.E-11	1.E-10	--	--	4.3E-10	6.0E-10	--	--	--
	Benzo(a)pyrene	9.1E+01	ug/kg	7.3E+00	7.3E+00	5.3E-11	7.4E-11	4.E-10	5.E-10	9.E-10	--	--	4.2E-10	5.8E-10	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	7.7E-11	1.1E-10	6.E-11	8.E-11	1.E-10	--	--	6.0E-10	8.3E-10	--	--	--
	Benzo(k)fluoranthene	5.5E+01	ug/kg	7.3E-02	7.3E-02	3.3E-11	4.5E-11	2.E-12	3.E-12	6.E-12	--	--	2.5E-10	3.5E-10	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	6.7E-12	9.3E-12	5.E-11	7.E-11	1.E-10	--	--	5.2E-11	7.3E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.2E+01	ug/kg	7.3E-01	7.3E-01	3.1E-11	4.2E-11	2.E-11	3.E-11	5.E-11	--	--	2.4E-10	3.3E-10	--	--	--
	Naphthalene	2.4E+01	ug/kg	--	--	1.4E-11	2.0E-11	--	--	--	2.0E-02	2.0E-02	1.1E-10	1.6E-10	6.E-09	8.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.3E+02	ug/kg	1.4E-02	1.4E-02	2.9E-10	5.2E-10	4.E-12	7.E-12	1.E-11	2.0E-02	2.0E-02	2.2E-09	4.0E-09	1.E-07	2.E-07	0.0000003
	Phenols																
	Pentachlorophenol	2.8E+00	ug/kg	4.0E-01	4.0E-01	3.1E-12	2.3E-12	1.E-12	9.E-13	2.E-12	5.0E-03	5.0E-03	2.4E-11	1.8E-11	5.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.4E+03	ug/kg	2.0E+00	2.0E+00	8.8E-10	1.1E-09	2.E-09	2.E-09	4.E-09	2.0E-05	2.0E-05	6.8E-09	8.8E-09	3.E-04	4.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	1.3E+05	1.3E+05	6.8E-16	4.1E-15	9.E-11	5.E-10	6.E-10	1.0E-09	1.0E-09	5.3E-15	3.2E-14	5.E-06	3.E-05	0.00004
	Total PCB TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	2.1E-14	2.7E-14	3.E-09	4.E-09	6.E-09	1.0E-09	1.0E-09	1.6E-13	2.1E-13	2.E-04	2.E-04	0.0004

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	1.1E+01	ug/kg	1.7E+01	1.7E+01	4.8E-12	8.7E-12	8.E-11	1.E-10	2.E-10	3.0E-05	3.0E-05	3.8E-11	6.8E-11	1.E-06	2.E-06	0.000004
	Dieldrin	1.5E+01	ug/kg	1.6E+01	1.6E+01	6.7E-12	1.2E-11	1.E-10	2.E-10	3.E-10	5.0E-05	5.0E-05	5.2E-11	9.4E-11	1.E-06	2.E-06	0.000003
	Total DDT	6.0E+00	ug/kg	3.4E-01	3.4E-01	8.2E-13	4.9E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	6.4E-12	3.8E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										2.E-08							0.01
RM 8.5 East	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	6.4E-10	3.8E-09	1.E-09	6.E-09	7.E-09	3.0E-04	3.0E-04	5.0E-09	3.0E-08	2.E-05	1.E-04	0.0001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.8E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.2E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.4E-07	0.E+00	9.E-03	0.01
	Butyltins																
	Tributyltin ion	2.3E+01	ug/kg	--	--	1.1E-11	1.9E-11	--	--	--	3.0E-04	3.0E-04	8.2E-11	1.5E-10	3.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.1E+01	ug/kg	7.3E-01	7.3E-01	2.4E-11	3.4E-11	2.E-11	2.E-11	4.E-11	--	--	1.9E-10	2.6E-10	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	2.7E-11	3.8E-11	2.E-10	3.E-10	5.E-10	--	--	2.1E-10	2.9E-10	--	--	--
	Benzo(b)fluoranthene	7.1E+01	ug/kg	7.3E-01	7.3E-01	4.2E-11	5.8E-11	3.E-11	4.E-11	7.E-11	--	--	3.2E-10	4.5E-10	--	--	--
	Benzo(k)fluoranthene	3.6E+01	ug/kg	7.3E-02	7.3E-02	2.1E-11	2.9E-11	2.E-12	2.E-12	4.E-12	--	--	1.6E-10	2.3E-10	--	--	--
	Dibenzo(a,h)anthracene	8.3E+00	ug/kg	7.3E+00	7.3E+00	4.9E-12	6.8E-12	4.E-11	5.E-11	9.E-11	--	--	3.8E-11	5.3E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	2.3E-11	3.2E-11	2.E-11	2.E-11	4.E-11	--	--	1.8E-10	2.5E-10	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	1.2E-11	1.6E-11	--	--	--	2.0E-02	2.0E-02	9.0E-11	1.2E-10	4.E-09	6.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.5E+02	ug/kg	1.4E-02	1.4E-02	2.0E-10	3.7E-10	3.E-12	5.E-12	8.E-12	2.0E-02	2.0E-02	1.6E-09	2.9E-09	8.E-08	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.6E+01	ug/kg	2.0E+00	2.0E+00	2.9E-11	3.8E-11	6.E-11	8.E-11	1.E-10	2.0E-05	2.0E-05	2.3E-10	2.9E-10	1.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	8.6E-17	5.2E-16	1.E-11	7.E-11	8.E-11	1.0E-09	1.0E-09	6.7E-16	4.0E-15	7.E-07	4.E-06	0.000005
	Total PCB TEQ	4.2E-01	pg/g	1.3E+05	1.3E+05	2.7E-16	3.5E-16	3.E-11	4.E-11	8.E-11	1.0E-09	1.0E-09	2.1E-15	2.7E-15	2.E-06	3.E-06	0.000005
	Pesticides																
	Aldrin	3.2E-02	ug/kg	1.7E+01	1.7E+01	1.5E-14	2.6E-14	2.E-13	4.E-13	7.E-13	3.0E-05	3.0E-05	1.1E-13	2.0E-13	4.E-09	7.E-09	0.00000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	6.1E-14	1.1E-13	1.E-12	2.E-12	3.E-12	5.0E-05	5.0E-05	4.8E-13	8.6E-13	1.E-08	2.E-08	0.00000003
	Total DDT	1.5E+00	ug/kg	3.4E-01	3.4E-01	2.0E-13	1.2E-12	7.E-14	4.E-13	5.E-13	5.0E-04	5.0E-04	1.6E-12	9.5E-12	3.E-09	2.E-08	0.00000002
Exposure Point Total										8.E-09							0.01
RM 9 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	5.6E-10	3.4E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.4E-09	2.6E-08	1.E-05	9.E-05	0.0001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	1.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.8E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	8.8E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.9E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	9.9E+00	ug/kg	--	--	4.5E-12	8.1E-12	--	--	--	3.0E-04	3.0E-04	3.5E-11	6.3E-11	1.E-07	2.E-07	0.0000003

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	9.1E-11	1.3E-10	7.E-11	9.E-11	2.E-10	--	--	7.1E-10	9.8E-10	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	6.1E-11	8.4E-11	4.E-10	6.E-10	1.E-09	--	--	4.7E-10	6.5E-10	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	9.4E-11	1.3E-10	7.E-11	1.E-10	2.E-10	--	--	7.3E-10	1.0E-09	--	--	--
	Benzo(k)fluoranthene	6.2E+01	ug/kg	7.3E-02	7.3E-02	3.6E-11	5.0E-11	3.E-12	4.E-12	6.E-12	--	--	2.8E-10	3.9E-10	--	--	--
	Dibenzo(a,h)anthracene	1.8E+01	ug/kg	7.3E+00	7.3E+00	1.0E-11	1.4E-11	8.E-11	1.E-10	2.E-10	--	--	8.1E-11	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	3.9E-11	5.5E-11	3.E-11	4.E-11	7.E-11	--	--	3.1E-10	4.2E-10	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	9.9E-12	1.4E-11	--	--	--	2.0E-02	2.0E-02	7.7E-11	1.1E-10	4.E-09	5.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	7.9E-11	1.4E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	6.1E-10	1.1E-09	3.E-08	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	4.7E+00	ug/kg	4.0E-01	4.0E-01	5.3E-12	3.8E-12	2.E-12	2.E-12	4.E-12	5.0E-03	5.0E-03	4.1E-11	3.0E-11	8.E-09	6.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+02	ug/kg	2.0E+00	2.0E+00	2.9E-10	3.7E-10	6.E-10	7.E-10	1.E-09	2.0E-05	2.0E-05	2.2E-09	2.9E-09	1.E-04	1.E-04	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	5.3E-16	3.2E-15	7.E-11	4.E-10	5.E-10	1.0E-09	1.0E-09	4.2E-15	2.5E-14	4.E-06	2.E-05	0.00003
	Total PCB TEQ	1.6E+01	pg/g	1.3E+05	1.3E+05	9.9E-15	1.3E-14	1.E-09	2.E-09	3.E-09	1.0E-09	1.0E-09	7.7E-14	9.9E-14	8.E-05	1.E-04	0.0002
	Pesticides																
	Aldrin	2.2E-01	ug/kg	1.7E+01	1.7E+01	1.0E-13	1.8E-13	2.E-12	3.E-12	5.E-12	3.0E-05	3.0E-05	7.9E-13	1.4E-12	3.E-08	5.E-08	0.0000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	9.2E-14	1.7E-13	1.E-12	3.E-12	4.E-12	5.0E-05	5.0E-05	7.2E-13	1.3E-12	1.E-08	3.E-08	0.00000004
	Total DDT	4.4E+00	ug/kg	3.4E-01	3.4E-01	6.0E-13	3.6E-12	2.E-13	1.E-12	1.E-12	5.0E-04	5.0E-04	4.6E-12	2.8E-11	9.E-09	6.E-08	0.0000001
Exposure Point Total										1.E-08							0.01
RM 9 East	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	5.2E-10	3.1E-09	8.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	4.0E-09	2.4E-08	1.E-05	8.E-05	0.0001
	Mercury	5.0E-02	mg/kg	--	--	0.0E+00	4.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.2E-10	0.E+00	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+01	ug/kg	7.3E-01	7.3E-01	6.0E-12	8.3E-12	4.E-12	6.E-12	1.E-11	--	--	4.7E-11	6.5E-11	--	--	--
	Benzo(a)pyrene	1.3E+01	ug/kg	7.3E+00	7.3E+00	7.4E-12	1.0E-11	5.E-11	8.E-11	1.E-10	--	--	5.8E-11	8.0E-11	--	--	--
	Benzo(b)fluoranthene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	1.5E-11	8.E-12	1.E-11	2.E-11	--	--	8.3E-11	1.2E-10	--	--	--
	Benzo(k)fluoranthene	8.3E+00	ug/kg	7.3E-02	7.3E-02	4.9E-12	6.8E-12	4.E-13	5.E-13	8.E-13	--	--	3.8E-11	5.3E-11	--	--	--
	Dibenzo(a,h)anthracene	2.1E+00	ug/kg	7.3E+00	7.3E+00	1.3E-12	1.8E-12	9.E-12	1.E-11	2.E-11	--	--	9.8E-12	1.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	6.3E-12	8.7E-12	5.E-12	6.E-12	1.E-11	--	--	4.9E-11	6.8E-11	--	--	--
	Naphthalene	2.7E+00	ug/kg	--	--	1.6E-12	2.2E-12	--	--	--	2.0E-02	2.0E-02	1.2E-11	1.7E-11	6.E-10	9.E-10	0.000000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.6E+02	ug/kg	1.4E-02	1.4E-02	1.6E-10	2.9E-10	2.E-12	4.E-12	6.E-12	2.0E-02	2.0E-02	1.3E-09	2.3E-09	6.E-08	1.E-07	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	3.3E-11	4.3E-11	7.E-11	9.E-11	2.E-10	2.0E-05	2.0E-05	2.6E-10	3.3E-10	1.E-05	2.E-05	0.00003

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	2.9E-17	1.8E-16	4.E-12	2.E-11	3.E-11	1.0E-09	1.0E-09	2.3E-16	1.4E-15	2.E-07	1.E-06	0.000002
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	4.0E-16	5.2E-16	5.E-11	7.E-11	1.E-10	1.0E-09	1.0E-09	3.1E-15	4.0E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Dieldrin	8.8E-02	ug/kg	1.6E+01	1.6E+01	4.0E-14	7.2E-14	6.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	3.1E-13	5.6E-13	6.E-09	1.E-08	0.00000002
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	2.0E-13	1.2E-12	7.E-14	4.E-13	5.E-13	5.0E-04	5.0E-04	1.5E-12	9.2E-12	3.E-09	2.E-08	0.00000002
Exposure Point Total										6.E-09							0.0001
RM 9.5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	5.1E-10	3.1E-09	8.E-10	5.E-09	5.E-09	3.0E-04	3.0E-04	4.0E-09	2.4E-08	1.E-05	8.E-05	0.0001
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	5.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.0E-10	0.E+00	4.E-06	0.000004
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	4.5E-12	8.2E-12	--	--	--	3.0E-04	3.0E-04	3.5E-11	6.4E-11	1.E-07	2.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	7.1E-11	9.9E-11	5.E-11	7.E-11	1.E-10	--	--	5.5E-10	7.7E-10	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	9.8E-11	1.4E-10	7.E-10	1.E-09	2.E-09	--	--	7.6E-10	1.1E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.4E-10	1.9E-10	1.E-10	1.E-10	2.E-10	--	--	1.1E-09	1.5E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	6.1E-11	8.5E-11	4.E-12	6.E-12	1.E-11	--	--	4.8E-10	6.6E-10	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	1.9E-11	2.6E-11	1.E-10	2.E-10	3.E-10	--	--	1.5E-10	2.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	8.1E-11	1.1E-10	6.E-11	8.E-11	1.E-10	--	--	6.3E-10	8.8E-10	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	2.4E-11	3.4E-11	--	--	--	2.0E-02	2.0E-02	1.9E-10	2.6E-10	9.E-09	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.6E+02	ug/kg	1.4E-02	1.4E-02	3.9E-10	7.0E-10	5.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	3.0E-09	5.4E-09	2.E-07	3.E-07	0.0000004
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	1.3E-11	9.1E-12	5.E-12	4.E-12	9.E-12	5.0E-03	5.0E-03	9.8E-11	7.1E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+02	ug/kg	2.0E+00	2.0E+00	1.3E-10	1.7E-10	3.E-10	3.E-10	6.E-10	2.0E-05	2.0E-05	1.0E-09	1.3E-09	5.E-05	7.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	1.3E+05	1.3E+05	1.2E-15	7.0E-15	2.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	9.1E-15	5.4E-14	9.E-06	5.E-05	0.0001
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	2.3E-15	3.0E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	1.8E-14	2.3E-14	2.E-05	2.E-05	0.00004
	Pesticides																
	Aldrin	5.8E-01	ug/kg	1.7E+01	1.7E+01	2.7E-13	4.8E-13	5.E-12	8.E-12	1.E-11	3.0E-05	3.0E-05	2.1E-12	3.7E-12	7.E-08	1.E-07	0.0000002
	Dieldrin	6.1E-01	ug/kg	1.6E+01	1.6E+01	2.8E-13	5.0E-13	4.E-12	8.E-12	1.E-11	5.0E-05	5.0E-05	2.1E-12	3.9E-12	4.E-08	8.E-08	0.0000001
	Total DDT	3.1E+00	ug/kg	3.4E-01	3.4E-01	4.2E-13	2.5E-12	1.E-13	8.E-13	1.E-12	5.0E-04	5.0E-04	3.2E-12	1.9E-11	6.E-09	4.E-08	0.00000005
Exposure Point Total										1.E-08							0.0003
RM 9.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	4.5E-10	2.7E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.5E-09	2.1E-08	1.E-05	7.E-05	0.0001
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	5.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.0E-10	0.E+00	4.E-06	0.000004
	Butyltins																
	Tributyltin ion	2.6E+00	ug/kg	--	--	1.2E-12	2.1E-12	--	--	--	3.0E-04	3.0E-04	9.0E-12	1.6E-11	3.E-08	5.E-08	0.0000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+01	ug/kg	7.3E-01	7.3E-01	1.3E-11	1.8E-11	9.E-12	1.E-11	2.E-11	--	--	1.0E-10	1.4E-10	--	--	--
	Benzo(a)pyrene	2.5E+01	ug/kg	7.3E+00	7.3E+00	1.4E-11	2.0E-11	1.E-10	1.E-10	3.E-10	--	--	1.1E-10	1.6E-10	--	--	--
	Benzo(b)fluoranthene	2.9E+01	ug/kg	7.3E-01	7.3E-01	1.7E-11	2.4E-11	1.E-11	2.E-11	3.E-11	--	--	1.3E-10	1.9E-10	--	--	--
	Benzo(k)fluoranthene	1.7E+01	ug/kg	7.3E-02	7.3E-02	1.0E-11	1.4E-11	7.E-13	1.E-12	2.E-12	--	--	7.8E-11	1.1E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	2.6E-12	3.6E-12	2.E-11	3.E-11	4.E-11	--	--	2.0E-11	2.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+01	ug/kg	7.3E-01	7.3E-01	1.2E-11	1.6E-11	8.E-12	1.E-11	2.E-11	--	--	9.0E-11	1.3E-10	--	--	--
	Naphthalene	3.4E+00	ug/kg	--	--	2.0E-12	2.8E-12	--	--	--	2.0E-02	2.0E-02	1.6E-11	2.2E-11	8.E-10	1.E-09	0.000000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.6E+02	ug/kg	1.4E-02	1.4E-02	7.5E-11	1.3E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	5.8E-10	1.0E-09	3.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.1E+00	ug/kg	4.0E-01	4.0E-01	1.3E-12	9.2E-13	5.E-13	4.E-13	9.E-13	5.0E-03	5.0E-03	9.9E-12	7.1E-12	2.E-09	1.E-09	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+01	ug/kg	2.0E+00	2.0E+00	2.5E-11	3.3E-11	5.E-11	7.E-11	1.E-10	2.0E-05	2.0E-05	2.0E-10	2.6E-10	1.E-05	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	1.3E+05	1.3E+05	1.2E-16	7.3E-16	2.E-11	9.E-11	1.E-10	1.0E-09	1.0E-09	9.4E-16	5.6E-15	9.E-07	6.E-06	0.00001
	Total PCB TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	1.7E-16	2.1E-16	2.E-11	3.E-11	5.E-11	1.0E-09	1.0E-09	1.3E-15	1.7E-15	1.E-06	2.E-06	0.000003
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	4.1E-14	7.5E-14	7.E-13	1.E-12	2.E-12	3.0E-05	3.0E-05	3.2E-13	5.8E-13	1.E-08	2.E-08	0.00000003
	Dieldrin	3.0E-02	ug/kg	1.6E+01	1.6E+01	1.3E-14	2.4E-14	2.E-13	4.E-13	6.E-13	5.0E-05	5.0E-05	1.0E-13	1.9E-13	2.E-09	4.E-09	0.00000001
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	1.5E-13	9.3E-13	5.E-14	3.E-13	4.E-13	5.0E-04	5.0E-04	1.2E-12	7.2E-12	2.E-09	1.E-08	0.00000002
Exposure Point Total										5.E-09							0.0001
RM 10 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.4E-09	8.3E-09	2.E-09	1.E-08	1.E-08	3.0E-04	3.0E-04	1.1E-08	6.5E-08	4.E-05	2.E-04	0.0003
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	7.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-10	0.E+00	6.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.4E+00	ug/kg	--	--	1.1E-12	2.0E-12	--	--	--	3.0E-04	3.0E-04	8.6E-12	1.5E-11	3.E-08	5.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	8.3E-11	1.2E-10	6.E-11	8.E-11	1.E-10	--	--	6.5E-10	9.0E-10	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	8.8E-11	1.2E-10	6.E-10	9.E-10	2.E-09	--	--	6.9E-10	9.5E-10	--	--	--
	Benzo(b)fluoranthene	1.9E+02	ug/kg	7.3E-01	7.3E-01	1.1E-10	1.5E-10	8.E-11	1.E-10	2.E-10	--	--	8.6E-10	1.2E-09	--	--	--
	Benzo(k)fluoranthene	7.9E+01	ug/kg	7.3E-02	7.3E-02	4.6E-11	6.4E-11	3.E-12	5.E-12	8.E-12	--	--	3.6E-10	5.0E-10	--	--	--
	Dibenzo(a,h)anthracene	3.5E+01	ug/kg	7.3E+00	7.3E+00	2.1E-11	2.9E-11	2.E-10	2.E-10	4.E-10	--	--	1.6E-10	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	8.1E-11	1.1E-10	6.E-11	8.E-11	1.E-10	--	--	6.3E-10	8.8E-10	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	1.2E-11	1.6E-11	--	--	--	2.0E-02	2.0E-02	9.0E-11	1.2E-10	4.E-09	6.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	5.5E-11	9.9E-11	8.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	4.3E-10	7.7E-10	2.E-08	4.E-08	0.0000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	3.0E+00	ug/kg	4.0E-01	4.0E-01	3.4E-12	2.4E-12	1.E-12	1.E-12	2.E-12	5.0E-03	5.0E-03	2.6E-11	1.9E-11	5.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	1.2E-10	1.5E-10	2.E-10	3.E-10	5.E-10	2.0E-05	2.0E-05	9.0E-10	1.2E-09	4.E-05	6.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	1.3E+05	1.3E+05	7.0E-16	4.2E-15	9.E-11	5.E-10	6.E-10	1.0E-09	1.0E-09	5.4E-15	3.3E-14	5.E-06	3.E-05	0.00004
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	1.2E-15	1.5E-15	1.E-10	2.E-10	3.E-10	1.0E-09	1.0E-09	9.0E-15	1.2E-14	9.E-06	1.E-05	0.00002
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	6.6E-14	1.2E-13	1.E-12	2.E-12	3.E-12	3.0E-05	3.0E-05	5.2E-13	9.3E-13	2.E-08	3.E-08	0.00000005
	Total DDT	4.7E+00	ug/kg	3.4E-01	3.4E-01	6.4E-13	3.8E-12	2.E-13	1.E-12	2.E-12	5.0E-04	5.0E-04	4.9E-12	3.0E-11	1.E-08	6.E-08	0.0000001
Exposure Point Total										2.E-08							0.0004
RM 10 East	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	4.1E-10	2.5E-09	6.E-10	4.E-09	4.E-09	3.0E-04	3.0E-04	3.2E-09	1.9E-08	1.E-05	6.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	5.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.3E-10	0.E+00	4.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	6.8E-11	9.5E-11	5.E-11	7.E-11	1.E-10	--	--	5.3E-10	7.4E-10	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	8.5E-11	1.2E-10	6.E-10	9.E-10	1.E-09	--	--	6.6E-10	9.2E-10	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	1.0E-10	1.4E-10	7.E-11	1.E-10	2.E-10	--	--	7.9E-10	1.1E-09	--	--	--
	Benzo(k)fluoranthene	6.3E+01	ug/kg	7.3E-02	7.3E-02	3.7E-11	5.1E-11	3.E-12	4.E-12	6.E-12	--	--	2.9E-10	4.0E-10	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	1.4E-11	1.9E-11	1.E-10	1.E-10	2.E-10	--	--	1.1E-10	1.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	7.0E-11	9.7E-11	5.E-11	7.E-11	1.E-10	--	--	5.4E-10	7.6E-10	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	7.3E-12	1.0E-11	--	--	--	2.0E-02	2.0E-02	5.7E-11	7.9E-11	3.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	5.8E-11	1.1E-10	8.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	4.5E-10	8.2E-10	2.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.6E+00	ug/kg	4.0E-01	4.0E-01	3.0E-12	2.1E-12	1.E-12	9.E-13	2.E-12	5.0E-03	5.0E-03	2.3E-11	1.7E-11	5.E-09	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.4E+01	ug/kg	2.0E+00	2.0E+00	2.2E-11	2.8E-11	4.E-11	6.E-11	1.E-10	2.0E-05	2.0E-05	1.7E-10	2.2E-10	8.E-06	1.E-05	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	7.4E-17	4.4E-16	1.E-11	6.E-11	7.E-11	1.0E-09	1.0E-09	5.7E-16	3.5E-15	6.E-07	3.E-06	0.000004
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	4.4E-16	5.6E-16	6.E-11	7.E-11	1.E-10	1.0E-09	1.0E-09	3.4E-15	4.4E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	1.8E-14	3.3E-14	3.E-13	6.E-13	9.E-13	3.0E-05	3.0E-05	1.4E-13	2.6E-13	5.E-09	9.E-09	0.00000001
	Dieldrin	4.7E-02	ug/kg	1.6E+01	1.6E+01	2.1E-14	3.9E-14	3.E-13	6.E-13	1.E-12	5.0E-05	5.0E-05	1.7E-13	3.0E-13	3.E-09	6.E-09	0.00000001
	Total DDT	5.3E-01	ug/kg	3.4E-01	3.4E-01	7.2E-14	4.3E-13	2.E-14	1.E-13	2.E-13	5.0E-04	5.0E-04	5.6E-13	3.4E-12	1.E-09	7.E-09	0.00000001
Exposure Point Total										7.E-09							0.0001
RM 10.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	5.4E-10	3.2E-09	8.E-10	5.E-09	6.E-09	3.0E-04	3.0E-04	4.2E-09	2.5E-08	1.E-05	8.E-05	0.0001
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	5.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.4E-10	0.E+00	4.E-06	0.000004

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.8E+01	ug/kg	7.3E-01	7.3E-01	1.6E-11	2.3E-11	1.E-11	2.E-11	3.E-11	--	--	1.3E-10	1.8E-10	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	1.6E-11	2.2E-11	1.E-10	2.E-10	3.E-10	--	--	1.2E-10	1.7E-10	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	2.1E-11	2.9E-11	2.E-11	2.E-11	4.E-11	--	--	1.6E-10	2.3E-10	--	--	--
	Benzo(k)fluoranthene	1.3E+01	ug/kg	7.3E-02	7.3E-02	7.6E-12	1.0E-11	6.E-13	8.E-13	1.E-12	--	--	5.9E-11	8.2E-11	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	2.6E-12	3.6E-12	2.E-11	3.E-11	5.E-11	--	--	2.0E-11	2.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+01	ug/kg	7.3E-01	7.3E-01	1.3E-11	1.8E-11	9.E-12	1.E-11	2.E-11	--	--	9.9E-11	1.4E-10	--	--	--
	Naphthalene	2.7E+01	ug/kg	--	--	1.6E-11	2.2E-11	--	--	--	2.0E-02	2.0E-02	1.2E-10	1.7E-10	6.E-09	9.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	6.2E-11	1.1E-10	9.E-13	2.E-12	2.E-12	2.0E-02	2.0E-02	4.8E-10	8.7E-10	2.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	8.6E+00	ug/kg	4.0E-01	4.0E-01	9.7E-12	7.0E-12	4.E-12	3.E-12	7.E-12	5.0E-03	5.0E-03	7.6E-11	5.5E-11	2.E-08	1.E-08	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	2.0E-11	2.6E-11	4.E-11	5.E-11	9.E-11	2.0E-05	2.0E-05	1.6E-10	2.0E-10	8.E-06	1.E-05	0.00002
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	4.4E-16	5.6E-16	6.E-11	7.E-11	1.E-10	1.0E-09	1.0E-09	3.4E-15	4.4E-15	3.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	9.1E-14	1.6E-13	2.E-12	3.E-12	4.E-12	3.0E-05	3.0E-05	7.1E-13	1.3E-12	2.E-08	4.E-08	0.0000001
	Total DDT	1.7E+00	ug/kg	3.4E-01	3.4E-01	2.3E-13	1.4E-12	8.E-14	5.E-13	5.E-13	5.0E-04	5.0E-04	1.8E-12	1.1E-11	4.E-09	2.E-08	0.00000002
Exposure Point Total										6.E-09							0.0001
RM 10.5 East	**Metals**																
	Arsenic	3.1E+00	mg/kg	1.5E+00	1.5E+00	4.2E-10	2.5E-09	6.E-10	4.E-09	4.E-09	3.0E-04	3.0E-04	3.3E-09	2.0E-08	1.E-05	7.E-05	0.0001
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	5.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-10	0.E+00	4.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.9E+01	ug/kg	7.3E-01	7.3E-01	2.3E-11	3.2E-11	2.E-11	2.E-11	4.E-11	--	--	1.8E-10	2.5E-10	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	2.0E-11	2.8E-11	1.E-10	2.E-10	3.E-10	--	--	1.6E-10	2.2E-10	--	--	--
	Benzo(b)fluoranthene	5.0E+01	ug/kg	7.3E-01	7.3E-01	3.0E-11	4.1E-11	2.E-11	3.E-11	5.E-11	--	--	2.3E-10	3.2E-10	--	--	--
	Benzo(k)fluoranthene	2.5E+01	ug/kg	7.3E-02	7.3E-02	1.5E-11	2.1E-11	1.E-12	2.E-12	3.E-12	--	--	1.2E-10	1.6E-10	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	3.2E-12	4.5E-12	2.E-11	3.E-11	6.E-11	--	--	2.5E-11	3.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.6E-11	2.2E-11	1.E-11	2.E-11	3.E-11	--	--	1.3E-10	1.7E-10	--	--	--
	Naphthalene	3.5E+00	ug/kg	--	--	2.1E-12	2.9E-12	--	--	--	2.0E-02	2.0E-02	1.6E-11	2.2E-11	8.E-10	1.E-09	0.000000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	2.1E-11	3.7E-11	3.E-13	5.E-13	8.E-13	2.0E-02	2.0E-02	1.6E-10	2.9E-10	8.E-09	1.E-08	0.00000002
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	3.6E-12	2.6E-12	1.E-12	1.E-12	2.E-12	5.0E-03	5.0E-03	2.8E-11	2.0E-11	6.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	3.3E-11	4.2E-11	7.E-11	8.E-11	1.E-10	2.0E-05	2.0E-05	2.5E-10	3.3E-10	1.E-05	2.E-05	0.00003

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	2.3E-16	2.9E-16	3.E-11	4.E-11	7.E-11	1.0E-09	1.0E-09	1.8E-15	2.3E-15	2.E-06	2.E-06	0.000004
	Pesticides																
	Total DDT	2.8E+00	ug/kg	3.4E-01	3.4E-01	3.8E-13	2.3E-12	1.E-13	8.E-13	9.E-13	5.0E-04	5.0E-04	3.0E-12	1.8E-11	6.E-09	4.E-08	0.00000004
Exposure Point Total										5.E-09							0.0001
RM 11 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	4.6E-10	2.8E-09	7.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.6E-09	2.2E-08	1.E-05	7.E-05	0.0001
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	4.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.6E-10	0.E+00	4.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+01	ug/kg	7.3E-01	7.3E-01	3.7E-11	5.1E-11	3.E-11	4.E-11	6.E-11	--	--	2.9E-10	4.0E-10	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	3.9E-11	5.4E-11	3.E-10	4.E-10	7.E-10	--	--	3.0E-10	4.2E-10	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.4E-11	3.3E-11	2.E-11	2.E-11	4.E-11	--	--	1.8E-10	2.5E-10	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	2.2E-11	3.0E-11	2.E-12	2.E-12	4.E-12	--	--	1.7E-10	2.3E-10	--	--	--
	Dibenzo(a,h)anthracene	8.8E+00	ug/kg	7.3E+00	7.3E+00	5.2E-12	7.2E-12	4.E-11	5.E-11	9.E-11	--	--	4.0E-11	5.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.4E-11	3.3E-11	2.E-11	2.E-11	4.E-11	--	--	1.8E-10	2.6E-10	--	--	--
	Naphthalene	5.4E+01	ug/kg	--	--	3.2E-11	4.4E-11	--	--	--	2.0E-02	2.0E-02	2.5E-10	3.4E-10	1.E-08	2.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+02	ug/kg	1.4E-02	1.4E-02	1.7E-10	3.1E-10	2.E-12	4.E-12	7.E-12	2.0E-02	2.0E-02	1.3E-09	2.4E-09	7.E-08	1.E-07	0.0000002
	Phenols																
	Pentachlorophenol	9.8E-01	ug/kg	4.0E-01	4.0E-01	1.1E-12	8.0E-13	4.E-13	3.E-13	8.E-13	5.0E-03	5.0E-03	8.6E-12	6.2E-12	2.E-09	1.E-09	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+01	ug/kg	2.0E+00	2.0E+00	1.8E-11	2.3E-11	4.E-11	5.E-11	8.E-11	2.0E-05	2.0E-05	1.4E-10	1.8E-10	7.E-06	9.E-06	0.00002
	Pesticides																
	Dieldrin	5.7E-01	ug/kg	1.6E+01	1.6E+01	2.6E-13	4.6E-13	4.E-12	7.E-12	1.E-11	5.0E-05	5.0E-05	2.0E-12	3.6E-12	4.E-08	7.E-08	0.0000001
	Total DDT	1.3E+00	ug/kg	3.4E-01	3.4E-01	1.8E-13	1.1E-12	6.E-14	4.E-13	4.E-13	5.0E-04	5.0E-04	1.4E-12	8.4E-12	3.E-09	2.E-08	0.00000002
Exposure Point Total										6.E-09							0.0001
RM 11 East	**Metals**																
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	3.7E-10	2.2E-09	6.E-10	3.E-09	4.E-09	3.0E-04	3.0E-04	2.9E-09	1.7E-08	1.E-05	6.E-05	0.0001
	Mercury	7.0E-02	mg/kg	--	--	0.0E+00	5.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.5E-10	0.E+00	4.E-06	0.000004
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	1.8E-12	3.3E-12	--	--	--	3.0E-04	3.0E-04	1.4E-11	2.5E-11	5.E-08	8.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	8.3E+01	ug/kg	7.3E-01	7.3E-01	4.9E-11	6.8E-11	4.E-11	5.E-11	9.E-11	--	--	3.8E-10	5.3E-10	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	3.3E-11	4.5E-11	2.E-10	3.E-10	6.E-10	--	--	2.5E-10	3.5E-10	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	7.6E-11	1.0E-10	6.E-11	8.E-11	1.E-10	--	--	5.9E-10	8.2E-10	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	2.2E-11	3.0E-11	2.E-12	2.E-12	4.E-12	--	--	1.7E-10	2.3E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	7.1E-12	9.9E-12	5.E-11	7.E-11	1.E-10	--	--	5.6E-11	7.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	2.3E-11	3.1E-11	2.E-11	2.E-11	4.E-11	--	--	1.8E-10	2.4E-10	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	7.0E-12	9.7E-12	--	--	--	2.0E-02	2.0E-02	5.4E-11	7.5E-11	3.E-09	4.E-09	0.00000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.4E+01	ug/kg	1.4E-02	1.4E-02	4.2E-11	7.7E-11	6.E-13	1.E-12	2.E-12	2.0E-02	2.0E-02	3.3E-10	6.0E-10	2.E-08	3.E-08	0.00000005
	Phenols																
	Pentachlorophenol	2.7E+00	ug/kg	4.0E-01	4.0E-01	3.0E-12	2.2E-12	1.E-12	9.E-13	2.E-12	5.0E-03	5.0E-03	2.3E-11	1.7E-11	5.E-09	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+03	ug/kg	2.0E+00	2.0E+00	7.2E-10	9.2E-10	1.E-09	2.E-09	3.E-09	2.0E-05	2.0E-05	5.6E-09	7.2E-09	3.E-04	4.E-04	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	2.8E-16	1.7E-15	4.E-11	2.E-10	3.E-10	1.0E-09	1.0E-09	2.2E-15	1.3E-14	2.E-06	1.E-05	0.00002
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	7.9E-15	1.0E-14	1.E-09	1.E-09	2.E-09	1.0E-09	1.0E-09	6.1E-14	7.9E-14	6.E-05	8.E-05	0.0001
	Pesticides																
	Total DDT	9.9E+01	ug/kg	3.4E-01	3.4E-01	1.3E-11	8.1E-11	5.E-12	3.E-11	3.E-11	5.0E-04	5.0E-04	1.0E-10	6.3E-10	2.E-07	1.E-06	0.000001
Exposure Point Total										1.E-08							0.001
RM 11.5 West	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	4.0E-10	2.4E-09	6.E-10	4.E-09	4.E-09	3.0E-04	3.0E-04	3.1E-09	1.9E-08	1.E-05	6.E-05	0.0001
	Mercury	3.0E-02	mg/kg	--	--	0.0E+00	2.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.9E-10	0.E+00	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.5E+00	ug/kg	7.3E-01	7.3E-01	5.6E-12	7.7E-12	4.E-12	6.E-12	1.E-11	--	--	4.3E-11	6.0E-11	--	--	--
	Benzo(a)pyrene	1.1E+01	ug/kg	7.3E+00	7.3E+00	6.2E-12	8.6E-12	5.E-11	6.E-11	1.E-10	--	--	4.8E-11	6.7E-11	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	5.7E-12	7.9E-12	4.E-12	6.E-12	1.E-11	--	--	4.4E-11	6.2E-11	--	--	--
	Benzo(k)fluoranthene	6.4E+00	ug/kg	7.3E-02	7.3E-02	3.8E-12	5.2E-12	3.E-13	4.E-13	7.E-13	--	--	2.9E-11	4.1E-11	--	--	--
	Dibenzo(a,h)anthracene	1.2E+00	ug/kg	7.3E+00	7.3E+00	6.9E-13	9.5E-13	5.E-12	7.E-12	1.E-11	--	--	5.4E-12	7.4E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	7.4E+00	ug/kg	7.3E-01	7.3E-01	4.4E-12	6.1E-12	3.E-12	4.E-12	8.E-12	--	--	3.4E-11	4.7E-11	--	--	--
	Naphthalene	3.3E+00	ug/kg	--	--	2.0E-12	2.7E-12	--	--	--	2.0E-02	2.0E-02	1.5E-11	2.1E-11	8.E-10	1.E-09	0.000000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	8.2E-11	1.5E-10	1.E-12	2.E-12	3.E-12	2.0E-02	2.0E-02	6.4E-10	1.2E-09	3.E-08	6.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	7.8E-12	1.0E-11	2.E-11	2.E-11	4.E-11	2.0E-05	2.0E-05	6.0E-11	7.8E-11	3.E-06	4.E-06	0.00001
	Total PCB Congeners	6.3E+04	pg/g	NA	NA	4.0E-11	5.1E-11	NA	NA	--	NA	NA	3.1E-10	4.0E-10	NA	NA	--
	Total PCBs, Adjusted	6.2E+04	pg/g	2.0E+00	2.0E+00	3.9E-11	5.1E-11	8.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.1E-10	3.9E-10	2.E-05	2.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	2.4E-17	1.4E-16	3.E-12	2.E-11	2.E-11	1.0E-09	1.0E-09	1.9E-16	1.1E-15	2.E-07	1.E-06	0.000001
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	1.9E-16	2.4E-16	2.E-11	3.E-11	6.E-11	1.0E-09	1.0E-09	1.5E-15	1.9E-15	1.E-06	2.E-06	0.000003
	Total TEQ	--	pg/g	--	--	--	--	3.E-11	5.E-11	8.E-11	--	--	--	--	2.E-06	3.E-06	0.000005
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	4.1E-14	7.4E-14	7.E-13	1.E-12	2.E-12	5.0E-05	5.0E-05	3.2E-13	5.7E-13	6.E-09	1.E-08	0.00000002
	Total DDT	9.8E-01	ug/kg	3.4E-01	3.4E-01	1.3E-13	8.0E-13	5.E-14	3.E-13	3.E-13	5.0E-04	5.0E-04	1.0E-12	6.2E-12	2.E-09	1.E-08	0.00000001
Exposure Point Total										5.E-09							0.0001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations[a]							Noncancer Hazard Calculations[a]						
		Value	Units	Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 12 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	4.3E-10	2.6E-09	6.E-10	4.E-09	5.E-09	3.0E-04	3.0E-04	3.3E-09	2.0E-08	1.E-05	7.E-05	0.0001
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.9E-09	0.E+00	2.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.5E-10	2.1E-10	1.E-10	2.E-10	3.E-10	--	--	1.2E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	4.1E+02	ug/kg	7.3E+00	7.3E+00	2.4E-10	3.4E-10	2.E-09	2.E-09	4.E-09	--	--	1.9E-09	2.6E-09	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	2.9E-10	2.E-10	2.E-10	4.E-10	--	--	1.6E-09	2.2E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	7.0E-11	9.7E-11	5.E-12	7.E-12	1.E-11	--	--	5.4E-10	7.5E-10	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	1.9E-11	2.7E-11	1.E-10	2.E-10	3.E-10	--	--	1.5E-10	2.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.4E+02	ug/kg	7.3E-01	7.3E-01	2.0E-10	2.7E-10	1.E-10	2.E-10	3.E-10	--	--	1.5E-09	2.1E-09	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	2.6E-11	3.7E-11	--	--	--	2.0E-02	2.0E-02	2.1E-10	2.9E-10	1.E-08	1.E-08	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.0E+01	ug/kg	1.4E-02	1.4E-02	3.6E-11	6.5E-11	5.E-13	9.E-13	1.E-12	2.0E-02	2.0E-02	2.8E-10	5.1E-10	1.E-08	3.E-08	0.00000004
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	3.8E-12	2.8E-12	2.E-12	1.E-12	3.E-12	5.0E-03	5.0E-03	3.0E-11	2.1E-11	6.E-09	4.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	4.4E-11	5.7E-11	9.E-11	1.E-10	2.E-10	2.0E-05	2.0E-05	3.5E-10	4.5E-10	2.E-05	2.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	2.3E-17	1.4E-16	3.E-12	2.E-11	2.E-11	1.0E-09	1.0E-09	1.8E-16	1.1E-15	2.E-07	1.E-06	0.000001
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	2.9E-16	3.7E-16	4.E-11	5.E-11	9.E-11	1.0E-09	1.0E-09	2.2E-15	2.9E-15	2.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	3.2E-01	ug/kg	1.7E+01	1.7E+01	1.5E-13	2.6E-13	2.E-12	4.E-12	7.E-12	3.0E-05	3.0E-05	1.1E-12	2.0E-12	4.E-08	7.E-08	0.0000001
	Total DDT	5.9E+00	ug/kg	3.4E-01	3.4E-01	8.0E-13	4.8E-12	3.E-13	2.E-12	2.E-12	5.0E-04	5.0E-04	6.3E-12	3.8E-11	1.E-08	8.E-08	0.0000001
Exposure Point Total										1.E-08							0.0001
RM 12 East	**Metals**																
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	3.1E-10	1.9E-09	5.E-10	3.E-09	3.E-09	3.0E-04	3.0E-04	2.4E-09	1.4E-08	8.E-06	5.E-05	0.0001
	Mercury	4.5E-02	mg/kg	--	--	0.0E+00	3.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.8E-10	0.E+00	3.E-06	0.000003
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	1.8E-12	3.2E-12	--	--	--	3.0E-04	3.0E-04	1.4E-11	2.5E-11	5.E-08	8.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.1E-11	1.5E-11	8.E-12	1.E-11	2.E-11	--	--	8.3E-11	1.1E-10	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	1.1E-11	1.5E-11	8.E-11	1.E-10	2.E-10	--	--	8.5E-11	1.2E-10	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.6E-11	2.2E-11	1.E-11	2.E-11	3.E-11	--	--	1.2E-10	1.7E-10	--	--	--
	Benzo(k)fluoranthene	7.8E+00	ug/kg	7.3E-02	7.3E-02	4.6E-12	6.3E-12	3.E-13	5.E-13	8.E-13	--	--	3.6E-11	4.9E-11	--	--	--
	Dibenzo(a,h)anthracene	4.0E+00	ug/kg	7.3E+00	7.3E+00	2.3E-12	3.2E-12	2.E-11	2.E-11	4.E-11	--	--	1.8E-11	2.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	9.4E-12	1.3E-11	7.E-12	1.E-11	2.E-11	--	--	7.3E-11	1.0E-10	--	--	--
	Naphthalene	2.6E+01	ug/kg	--	--	1.5E-11	2.1E-11	--	--	--	2.0E-02	2.0E-02	1.2E-10	1.6E-10	6.E-09	8.E-09	0.00000001

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+03	ug/kg	1.4E-02	1.4E-02	4.2E-09	7.5E-09	6.E-11	1.E-10	2.E-10	2.0E-02	2.0E-02	3.2E-08	5.8E-08	2.E-06	3.E-06	0.000005
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	1.9E-12	1.4E-12	8.E-13	5.E-13	1.E-12	5.0E-03	5.0E-03	1.5E-11	1.1E-11	3.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.6E+02	ug/kg	2.0E+00	2.0E+00	1.0E-10	1.3E-10	2.E-10	3.E-10	5.E-10	2.0E-05	2.0E-05	7.9E-10	1.0E-09	4.E-05	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	2.4E-16	1.4E-15	3.E-11	2.E-10	2.E-10	1.0E-09	1.0E-09	1.8E-15	1.1E-14	2.E-06	1.E-05	0.00001
	Total PCB TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	2.5E-15	3.2E-15	3.E-10	4.E-10	7.E-10	1.0E-09	1.0E-09	1.9E-14	2.5E-14	2.E-05	2.E-05	0.00004
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	1.3E-12	7.7E-12	4.E-13	3.E-12	3.E-12	5.0E-04	5.0E-04	9.9E-12	6.0E-11	2.E-08	1.E-07	0.0000001
Exposure Point Total										5.E-09							0.0002
Study Area-wide[c]	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	6.4E-10	3.8E-09	1.E-09	6.E-09	7.E-09	3.0E-04	3.0E-04	5.0E-09	3.0E-08	2.E-05	1.E-04	0.0001
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	1.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	8.4E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	6.5E-07	0.E+00	9.E-03	0.009
	Butyltins																
	Tributyltin ion	6.1E+02	ug/kg	--	--	2.8E-10	5.0E-10	--	--	--	3.0E-04	3.0E-04	2.1E-09	3.9E-09	7.E-06	1.E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+03	ug/kg	7.3E-01	7.3E-01	8.4E-10	1.2E-09	6.E-10	9.E-10	1.E-09	--	--	6.6E-09	9.1E-09	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	1.0E-09	1.4E-09	8.E-09	1.E-08	2.E-08	--	--	8.0E-09	1.1E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	8.3E-10	1.2E-09	6.E-10	8.E-10	1.E-09	--	--	6.5E-09	9.0E-09	--	--	--
	Benzo(k)fluoranthene	9.3E+02	ug/kg	7.3E-02	7.3E-02	5.5E-10	7.6E-10	4.E-11	6.E-11	1.E-10	--	--	4.3E-09	5.9E-09	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	1.1E-10	1.6E-10	8.E-10	1.E-09	2.E-09	--	--	8.8E-10	1.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+03	ug/kg	7.3E-01	7.3E-01	7.2E-10	9.9E-10	5.E-10	7.E-10	1.E-09	--	--	5.6E-09	7.7E-09	--	--	--
	Naphthalene	5.0E+02	ug/kg	--	--	3.0E-10	4.1E-10	--	--	--	2.0E-02	2.0E-02	2.3E-09	3.2E-09	1.E-07	2.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.6E+02	ug/kg	1.4E-02	1.4E-02	4.4E-10	7.9E-10	6.E-12	1.E-11	2.E-11	2.0E-02	2.0E-02	3.4E-09	6.1E-09	2.E-07	3.E-07	0.0000005
	Phenols																
	Pentachlorophenol	3.2E+01	ug/kg	4.0E-01	4.0E-01	3.6E-11	2.6E-11	1.E-11	1.E-11	3.E-11	5.0E-03	5.0E-03	2.8E-10	2.0E-10	6.E-08	4.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+02	ug/kg	2.0E+00	2.0E+00	1.2E-10	1.5E-10	2.E-10	3.E-10	5.E-10	2.0E-05	2.0E-05	9.3E-10	1.2E-09	5.E-05	6.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	1.3E+05	1.3E+05	1.4E-14	8.3E-14	2.E-09	1.E-08	1.E-08	1.0E-09	1.0E-09	1.1E-13	6.4E-13	1.E-04	6.E-04	0.001
	Total PCB TEQ	6.6E+00	pg/g	1.3E+05	1.3E+05	4.2E-15	5.4E-15	5.E-10	7.E-10	1.E-09	1.0E-09	1.0E-09	3.2E-14	4.2E-14	3.E-05	4.E-05	0.0001
	Pesticides																
	Aldrin	2.4E+00	ug/kg	1.7E+01	1.7E+01	1.1E-12	2.0E-12	2.E-11	3.E-11	5.E-11	3.0E-05	3.0E-05	8.6E-12	1.6E-11	3.E-07	5.E-07	0.000001
	Dieldrin	2.1E+00	ug/kg	1.6E+01	1.6E+01	9.7E-13	1.7E-12	2.E-11	3.E-11	4.E-11	5.0E-05	5.0E-05	7.5E-12	1.4E-11	2.E-07	3.E-07	0.0000004
	Total DDT	1.4E+02	ug/kg	3.4E-01	3.4E-01	1.9E-11	1.1E-10	6.E-12	4.E-11	4.E-11	5.0E-04	5.0E-04	1.5E-10	8.8E-10	3.E-07	2.E-06	0.000002

TABLE 5-28.
Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Low frequency Fisher
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	4.0E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	3.1E-07	0.E+00	4.E-04	0.0004
Exposure Point Total										5.E-08							0.01

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	6.0E-08	1.8E-08	9.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.7E-07	5.2E-08	6.E-04	2.E-04	0.001
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.4E-10	0.E+00	7.E-06	0.00001
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	3.2E-11	2.9E-12	--	--	--	3.0E-04	3.0E-04	9.0E-11	8.2E-12	3.E-07	3.E-08	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	7.4E-09	5.2E-10	5.E-09	4.E-10	6.E-09	--	--	2.1E-08	1.5E-09	--	--	--
	Benzo(a)pyrene	2.4E+02	ug/kg	7.3E+00	7.3E+00	1.2E-08	8.4E-10	9.E-08	6.E-09	9.E-08	--	--	3.3E-08	2.3E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.1E-08	8.0E-10	8.E-09	6.E-10	9.E-09	--	--	3.2E-08	2.3E-09	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	3.8E-09	2.7E-10	3.E-10	2.E-11	3.E-10	--	--	1.1E-08	7.5E-10	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.2E-09	8.6E-11	9.E-09	6.E-10	9.E-09	--	--	3.4E-09	2.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+02	ug/kg	7.3E-01	7.3E-01	9.9E-09	7.0E-10	7.E-09	5.E-10	8.E-09	--	--	2.8E-08	2.0E-09	--	--	--
	Naphthalene	2.9E+01	ug/kg	--	--	1.4E-09	1.0E-10	--	--	--	2.0E-02	2.0E-02	4.0E-09	2.8E-10	2.E-07	1.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+01	ug/kg	1.4E-02	1.4E-02	1.7E-09	1.5E-10	2.E-11	2.E-12	3.E-11	2.0E-02	2.0E-02	4.7E-09	4.3E-10	2.E-07	2.E-08	0.0000003
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.1E-10	4.2E-12	5.E-11	2.E-12	5.E-11	5.0E-03	5.0E-03	3.2E-10	1.2E-11	6.E-08	2.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	9.1E-10	5.9E-11	2.E-09	1.E-10	2.E-09	2.0E-05	2.0E-05	2.5E-09	1.7E-10	1.E-04	8.E-06	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	1.3E+05	1.3E+05	3.0E-14	9.3E-15	4.E-09	1.E-09	5.E-09	1.0E-09	1.0E-09	8.5E-14	2.6E-14	9.E-05	3.E-05	0.0001
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	1.7E-14	1.1E-15	2.E-09	1.E-10	2.E-09	1.0E-09	1.0E-09	4.7E-14	3.1E-15	5.E-05	3.E-06	0.0001
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	1.4E-11	1.3E-12	2.E-10	2.E-11	3.E-10	3.0E-05	3.0E-05	3.9E-11	3.6E-12	1.E-06	1.E-07	0.000001
	Total DDT	4.6E+00	ug/kg	3.4E-01	3.4E-01	5.2E-11	1.6E-11	2.E-11	5.E-12	2.E-11	5.0E-04	5.0E-04	1.5E-10	4.5E-11	3.E-07	9.E-08	0.0000004
Exposure Point Total[b]										3.E-07							0.001
RM 1 East	**Metals**																
	Arsenic	5.7E+00	mg/kg	1.5E+00	1.5E+00	6.5E-08	2.0E-08	1.E-07	3.E-08	1.E-07	3.0E-04	3.0E-04	1.8E-07	5.6E-08	6.E-04	2.E-04	0.001
	Mercury	7.1E+00	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.0E-08	0.E+00	7.E-04	0.001
	Butyltins																
	Tributyltin ion	1.2E+00	ug/kg	--	--	4.6E-11	4.2E-12	--	--	--	3.0E-04	3.0E-04	1.3E-10	1.2E-11	4.E-07	4.E-08	0.0000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+01	ug/kg	7.3E-01	7.3E-01	2.6E-09	1.8E-10	2.E-09	1.E-10	2.E-09	--	--	7.3E-09	5.2E-10	--	--	--
	Benzo(a)pyrene	8.1E+01	ug/kg	7.3E+00	7.3E+00	4.0E-09	2.8E-10	3.E-08	2.E-09	3.E-08	--	--	1.1E-08	7.9E-10	--	--	--
	Benzo(b)fluoranthene	6.9E+01	ug/kg	7.3E-01	7.3E-01	3.4E-09	2.4E-10	2.E-09	2.E-10	3.E-09	--	--	9.6E-09	6.8E-10	--	--	--
	Benzo(k)fluoranthene	4.8E+01	ug/kg	7.3E-02	7.3E-02	2.4E-09	1.7E-10	2.E-10	1.E-11	2.E-10	--	--	6.6E-09	4.7E-10	--	--	--
	Dibenzo(a,h)anthracene	9.1E+00	ug/kg	7.3E+00	7.3E+00	4.5E-10	3.2E-11	3.E-09	2.E-10	4.E-09	--	--	1.3E-09	8.9E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+01	ug/kg	7.3E-01	7.3E-01	2.8E-09	2.0E-10	2.E-09	1.E-10	2.E-09	--	--	7.8E-09	5.5E-10	--	--	--
	Naphthalene	2.3E+01	ug/kg	--	--	1.1E-09	8.0E-11	--	--	--	2.0E-02	2.0E-02	3.2E-09	2.3E-10	2.E-07	1.E-08	0.0000002

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	2.7E-09	2.5E-10	4.E-11	3.E-12	4.E-11	2.0E-02	2.0E-02	7.6E-09	6.9E-10	4.E-07	3.E-08	0.0000004
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	2.4E-10	8.7E-12	1.E-10	3.E-12	1.E-10	5.0E-03	5.0E-03	6.7E-10	2.4E-11	1.E-07	5.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+02	ug/kg	2.0E+00	2.0E+00	2.7E-08	1.8E-09	5.E-08	4.E-09	6.E-08	2.0E-05	2.0E-05	7.6E-08	5.0E-09	4.E-03	2.E-04	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.3E+05	1.3E+05	8.5E-15	2.6E-15	1.E-09	3.E-10	1.E-09	1.0E-09	1.0E-09	2.4E-14	7.3E-15	2.E-05	7.E-06	0.00003
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	1.4E-14	9.5E-16	2.E-09	1.E-10	2.E-09	1.0E-09	1.0E-09	4.0E-14	2.7E-15	4.E-05	3.E-06	0.00004
	Pesticides																
	Total DDT	4.0E+00	ug/kg	3.4E-01	3.4E-01	4.5E-11	1.4E-11	2.E-11	5.E-12	2.E-11	5.0E-04	5.0E-04	1.3E-10	3.9E-11	3.E-07	8.E-08	0.0000003
Exposure Point Total										2.E-07							0.01
RM 1.5 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	5.0E-08	1.5E-08	8.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.4E-07	4.3E-08	5.E-04	1.E-04	0.001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.7E-10	0.E+00	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+01	ug/kg	7.3E-01	7.3E-01	1.6E-09	1.2E-10	1.E-09	8.E-11	1.E-09	--	--	4.6E-09	3.2E-10	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.7E-10	2.E-08	1.E-09	2.E-08	--	--	6.6E-09	4.7E-10	--	--	--
	Benzo(b)fluoranthene	4.1E+01	ug/kg	7.3E-01	7.3E-01	2.0E-09	1.4E-10	1.E-09	1.E-10	2.E-09	--	--	5.7E-09	4.0E-10	--	--	--
	Benzo(k)fluoranthene	3.4E+01	ug/kg	7.3E-02	7.3E-02	1.7E-09	1.2E-10	1.E-10	9.E-12	1.E-10	--	--	4.7E-09	3.3E-10	--	--	--
	Dibenzo(a,h)anthracene	5.9E+00	ug/kg	7.3E+00	7.3E+00	2.9E-10	2.1E-11	2.E-09	2.E-10	2.E-09	--	--	8.2E-10	5.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.8E-09	1.3E-10	1.E-09	9.E-11	1.E-09	--	--	5.1E-09	3.6E-10	--	--	--
	Naphthalene	9.6E+00	ug/kg	--	--	4.7E-10	3.4E-11	--	--	--	2.0E-02	2.0E-02	1.3E-09	9.4E-11	7.E-08	5.E-09	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	1.4E-10	5.2E-12	6.E-11	2.E-12	6.E-11	5.0E-03	5.0E-03	4.0E-10	1.5E-11	8.E-08	3.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	1.2E-09	7.6E-11	2.E-09	2.E-10	2.E-09	2.0E-05	2.0E-05	3.2E-09	2.1E-10	2.E-04	1.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	1.3E+05	1.3E+05	1.1E-15	3.3E-16	1.E-10	4.E-11	2.E-10	1.0E-09	1.0E-09	3.0E-15	9.2E-16	3.E-06	9.E-07	0.000004
	Pesticides																
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	1.2E-11	3.8E-12	4.E-12	1.E-12	6.E-12	5.0E-04	5.0E-04	3.5E-11	1.1E-11	7.E-08	2.E-08	0.0000001
Exposure Point Total										1.E-07							0.001
RM 1.5 East	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	6.2E-08	1.9E-08	9.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.7E-07	5.3E-08	6.E-04	2.E-04	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	1.4E-11	1.3E-12	--	--	--	3.0E-04	3.0E-04	3.9E-11	3.6E-12	1.E-07	1.E-08	0.0000001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+02	ug/kg	7.3E-01	7.3E-01	4.7E-08	3.3E-09	3.E-08	2.E-09	4.E-08	--	--	1.3E-07	9.2E-09	--	--	--
	Benzo(a)pyrene	1.4E+03	ug/kg	7.3E+00	7.3E+00	6.9E-08	4.9E-09	5.E-07	4.E-08	5.E-07	--	--	1.9E-07	1.4E-08	--	--	--
	Benzo(b)fluoranthene	8.2E+02	ug/kg	7.3E-01	7.3E-01	4.1E-08	2.9E-09	3.E-08	2.E-09	3.E-08	--	--	1.1E-07	8.0E-09	--	--	--
	Benzo(k)fluoranthene	8.2E+02	ug/kg	7.3E-02	7.3E-02	4.1E-08	2.9E-09	3.E-09	2.E-10	3.E-09	--	--	1.1E-07	8.0E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.9E-09	4.9E-10	5.E-08	4.E-09	5.E-08	--	--	1.9E-08	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+03	ug/kg	7.3E-01	7.3E-01	4.9E-08	3.5E-09	4.E-08	3.E-09	4.E-08	--	--	1.4E-07	9.8E-09	--	--	--
	Naphthalene	3.7E+02	ug/kg	--	--	1.8E-08	1.3E-09	--	--	--	2.0E-02	2.0E-02	5.1E-08	3.6E-09	3.E-06	2.E-07	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	6.5E-09	5.9E-10	9.E-11	8.E-12	1.E-10	2.0E-02	2.0E-02	1.8E-08	1.7E-09	9.E-07	8.E-08	0.000001
	Phenols																
	Pentachlorophenol	4.1E+00	ug/kg	4.0E-01	4.0E-01	3.9E-10	1.4E-11	2.E-10	6.E-12	2.E-10	5.0E-03	5.0E-03	1.1E-09	4.0E-11	2.E-07	8.E-09	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.1E+01	ug/kg	2.0E+00	2.0E+00	2.2E-09	1.4E-10	4.E-09	3.E-10	5.E-09	2.0E-05	2.0E-05	6.0E-09	4.0E-10	3.E-04	2.E-05	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	2.1E-14	6.3E-15	3.E-09	8.E-10	4.E-09	1.0E-09	1.0E-09	5.8E-14	1.8E-14	6.E-05	2.E-05	0.0001
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	5.6E-15	3.7E-16	7.E-10	5.E-11	8.E-10	1.0E-09	1.0E-09	1.6E-14	1.0E-15	2.E-05	1.E-06	0.00002
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	2.6E-12	2.4E-13	4.E-11	4.E-12	5.E-11	5.0E-05	5.0E-05	7.4E-12	6.8E-13	1.E-07	1.E-08	0.0000002
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	2.5E-10	7.6E-11	8.E-11	3.E-11	1.E-10	5.0E-04	5.0E-04	7.0E-10	2.1E-10	1.E-06	4.E-07	0.000002
Exposure Point Total										8.E-07							0.001
RM 2 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	4.4E-08	1.3E-08	7.E-08	2.E-08	9.E-08	3.0E-04	3.0E-04	1.2E-07	3.8E-08	4.E-04	1.E-04	0.001
	Mercury	7.8E-02	mg/kg	--	--	0.0E+00	2.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.6E-10	0.E+00	8.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	8.0E-11	7.3E-12	--	--	--	3.0E-04	3.0E-04	2.2E-10	2.1E-11	7.E-07	7.E-08	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+01	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.9E-10	2.E-09	1.E-10	2.E-09	--	--	7.6E-09	5.3E-10	--	--	--
	Benzo(a)pyrene	9.8E+01	ug/kg	7.3E+00	7.3E+00	4.9E-09	3.4E-10	4.E-08	3.E-09	4.E-08	--	--	1.4E-08	9.6E-10	--	--	--
	Benzo(b)fluoranthene	9.8E+01	ug/kg	7.3E-01	7.3E-01	4.8E-09	3.4E-10	4.E-09	2.E-10	4.E-09	--	--	1.4E-08	9.6E-10	--	--	--
	Benzo(k)fluoranthene	3.2E+01	ug/kg	7.3E-02	7.3E-02	1.6E-09	1.1E-10	1.E-10	8.E-12	1.E-10	--	--	4.4E-09	3.1E-10	--	--	--
	Dibenzo(a,h)anthracene	1.0E+01	ug/kg	7.3E+00	7.3E+00	5.1E-10	3.6E-11	4.E-09	3.E-10	4.E-09	--	--	1.4E-09	1.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.1E+01	ug/kg	7.3E-01	7.3E-01	4.0E-09	2.8E-10	3.E-09	2.E-10	3.E-09	--	--	1.1E-08	7.9E-10	--	--	--
	Naphthalene	1.0E+01	ug/kg	--	--	4.9E-10	3.5E-11	--	--	--	2.0E-02	2.0E-02	1.4E-09	9.8E-11	7.E-08	5.E-09	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.8E+01	ug/kg	1.4E-02	1.4E-02	1.8E-09	1.7E-10	3.E-11	2.E-12	3.E-11	2.0E-02	2.0E-02	5.1E-09	4.7E-10	3.E-07	2.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	9.7E-10	6.4E-11	2.E-09	1.E-10	2.E-09	2.0E-05	2.0E-05	2.7E-09	1.8E-10	1.E-04	9.E-06	0.0001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	1.3E+05	1.3E+05	2.5E-14	7.6E-15	3.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	7.0E-14	2.1E-14	7.E-05	2.E-05	0.0001
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	1.9E-14	1.2E-15	2.E-09	2.E-10	3.E-09	1.0E-09	1.0E-09	5.3E-14	3.5E-15	5.E-05	3.E-06	0.0001
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.4E-11	1.3E-12	2.E-10	2.E-11	3.E-10	3.0E-05	3.0E-05	3.8E-11	3.5E-12	1.E-06	1.E-07	0.000001
	Dieldrin	2.7E-01	ug/kg	1.6E+01	1.6E+01	1.0E-11	9.4E-13	2.E-10	2.E-11	2.E-10	5.0E-05	5.0E-05	2.9E-11	2.6E-12	6.E-07	5.E-08	0.000001
	Total DDT	3.2E+00	ug/kg	3.4E-01	3.4E-01	3.6E-11	1.1E-11	1.E-11	4.E-12	2.E-11	5.0E-04	5.0E-04	1.0E-10	3.1E-11	2.E-07	6.E-08	0.0000003
Exposure Point Total										1.E-07							0.001
RM 2 East	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	4.9E-08	1.5E-08	7.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.4E-07	4.2E-08	5.E-04	1.E-04	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.9E-10	0.E+00	9.E-06	0.00001
	Butyltins																
	Tributyltin ion	3.7E+00	ug/kg	--	--	1.4E-10	1.3E-11	--	--	--	3.0E-04	3.0E-04	3.9E-10	3.6E-11	1.E-06	1.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	4.8E-09	3.4E-10	4.E-09	2.E-10	4.E-09	--	--	1.3E-08	9.5E-10	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	5.9E-09	4.2E-10	4.E-08	3.E-09	5.E-08	--	--	1.7E-08	1.2E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	6.5E-09	4.6E-10	5.E-09	3.E-10	5.E-09	--	--	1.8E-08	1.3E-09	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	3.8E-09	2.7E-10	3.E-10	2.E-11	3.E-10	--	--	1.1E-08	7.6E-10	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.2E-09	8.2E-11	8.E-09	6.E-10	9.E-09	--	--	3.3E-09	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	5.2E-09	3.7E-10	4.E-09	3.E-10	4.E-09	--	--	1.5E-08	1.0E-09	--	--	--
	Naphthalene	2.1E+01	ug/kg	--	--	1.0E-09	7.3E-11	--	--	--	2.0E-02	2.0E-02	2.9E-09	2.1E-10	1.E-07	1.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.6E-09	4.2E-10	6.E-11	6.E-12	7.E-11	2.0E-02	2.0E-02	1.3E-08	1.2E-09	6.E-07	6.E-08	0.000001
	Phenols																
	Pentachlorophenol	2.2E+00	ug/kg	4.0E-01	4.0E-01	2.1E-10	7.7E-12	8.E-11	3.E-12	9.E-11	5.0E-03	5.0E-03	5.9E-10	2.2E-11	1.E-07	4.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+03	ug/kg	2.0E+00	2.0E+00	8.1E-08	5.3E-09	2.E-07	1.E-08	2.E-07	2.0E-05	2.0E-05	2.3E-07	1.5E-08	1.E-02	7.E-04	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	1.3E+05	1.3E+05	4.6E-14	1.4E-14	6.E-09	2.E-09	8.E-09	1.0E-09	1.0E-09	1.3E-13	3.9E-14	1.E-04	4.E-05	0.0002
	Total PCB TEQ	8.5E+01	pg/g	1.3E+05	1.3E+05	4.5E-12	3.0E-13	6.E-07	4.E-08	6.E-07	1.0E-09	1.0E-09	1.3E-11	8.3E-13	1.E-02	8.E-04	0.01
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	2.6E-11	2.4E-12	4.E-10	4.E-11	5.E-10	3.0E-05	3.0E-05	7.4E-11	6.8E-12	2.E-06	2.E-07	0.000003
	Dieldrin	1.2E+00	ug/kg	1.6E+01	1.6E+01	4.7E-11	4.4E-12	8.E-10	7.E-11	8.E-10	5.0E-05	5.0E-05	1.3E-10	1.2E-11	3.E-06	2.E-07	0.000003
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	4.8E-11	1.5E-11	2.E-11	5.E-12	2.E-11	5.0E-04	5.0E-04	1.3E-10	4.1E-11	3.E-07	8.E-08	0.0000004
Exposure Point Total										1.E-06							0.03
RM 2.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	5.4E-08	1.6E-08	8.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.5E-07	4.6E-08	5.E-04	2.E-04	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.9E-10	0.E+00	9.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	8.8E-11	8.0E-12	--	--	--	3.0E-04	3.0E-04	2.5E-10	2.3E-11	8.E-07	8.E-08	0.000001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.1E-09	1.E-08	8.E-10	1.E-08	--	--	4.2E-08	3.0E-09	--	--	--
	Benzo(a)pyrene	5.5E+02	ug/kg	7.3E+00	7.3E+00	2.7E-08	1.9E-09	2.E-07	1.E-08	2.E-07	--	--	7.6E-08	5.3E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.4E-09	1.E-08	1.E-09	2.E-08	--	--	5.5E-08	3.9E-09	--	--	--
	Benzo(k)fluoranthene	2.5E+02	ug/kg	7.3E-02	7.3E-02	1.3E-08	8.9E-10	9.E-10	6.E-11	1.E-09	--	--	3.5E-08	2.5E-09	--	--	--
	Dibenzo(a,h)anthracene	6.4E+01	ug/kg	7.3E+00	7.3E+00	3.2E-09	2.2E-10	2.E-08	2.E-09	2.E-08	--	--	8.8E-09	6.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.6E-09	2.E-08	1.E-09	2.E-08	--	--	6.5E-08	4.6E-09	--	--	--
	Naphthalene	7.6E+01	ug/kg	--	--	3.8E-09	2.7E-10	--	--	--	2.0E-02	2.0E-02	1.1E-08	7.4E-10	5.E-07	4.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.3E+01	ug/kg	1.4E-02	1.4E-02	1.6E-09	1.5E-10	2.E-11	2.E-12	3.E-11	2.0E-02	2.0E-02	4.6E-09	4.2E-10	2.E-07	2.E-08	0.0000003
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.1E-10	4.2E-12	5.E-11	2.E-12	5.E-11	5.0E-03	5.0E-03	3.2E-10	1.2E-11	6.E-08	2.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	1.1E-09	7.5E-11	2.E-09	1.E-10	2.E-09	2.0E-05	2.0E-05	3.2E-09	2.1E-10	2.E-04	1.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	4.7E-15	1.4E-15	6.E-10	2.E-10	8.E-10	1.0E-09	1.0E-09	1.3E-14	4.0E-15	1.E-05	4.E-06	0.00002
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	1.1E-14	7.2E-16	1.E-09	9.E-11	2.E-09	1.0E-09	1.0E-09	3.1E-14	2.0E-15	3.E-05	2.E-06	0.00003
	Pesticides																
	Aldrin	2.6E-01	ug/kg	1.7E+01	1.7E+01	9.8E-12	9.0E-13	2.E-10	2.E-11	2.E-10	3.0E-05	3.0E-05	2.7E-11	2.5E-12	9.E-07	8.E-08	0.000001
	Dieldrin	2.2E-01	ug/kg	1.6E+01	1.6E+01	8.4E-12	7.7E-13	1.E-10	1.E-11	1.E-10	5.0E-05	5.0E-05	2.3E-11	2.2E-12	5.E-07	4.E-08	0.000001
	Total DDT	3.4E+00	ug/kg	3.4E-01	3.4E-01	3.9E-11	1.2E-11	1.E-11	4.E-12	2.E-11	5.0E-04	5.0E-04	1.1E-10	3.3E-11	2.E-07	7.E-08	0.0000003
Exposure Point Total										4.E-07							0.001
RM 2.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.5E-08	1.7E-08	8.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.5E-07	4.7E-08	5.E-04	2.E-04	0.001
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.9E-10	0.E+00	9.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+03	ug/kg	7.3E-01	7.3E-01	2.9E-07	2.0E-08	2.E-07	1.E-08	2.E-07	--	--	8.0E-07	5.7E-08	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	2.2E-07	1.6E-08	2.E-06	1.E-07	2.E-06	--	--	6.3E-07	4.4E-08	--	--	--
	Benzo(b)fluoranthene	3.9E+03	ug/kg	7.3E-01	7.3E-01	1.9E-07	1.4E-08	1.E-07	1.E-08	2.E-07	--	--	5.4E-07	3.8E-08	--	--	--
	Benzo(k)fluoranthene	1.2E+03	ug/kg	7.3E-02	7.3E-02	6.1E-08	4.3E-09	4.E-09	3.E-10	5.E-09	--	--	1.7E-07	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	4.5E+02	ug/kg	7.3E+00	7.3E+00	2.2E-08	1.6E-09	2.E-07	1.E-08	2.E-07	--	--	6.2E-08	4.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.3E-07	9.0E-09	9.E-08	7.E-09	1.E-07	--	--	3.5E-07	2.5E-08	--	--	--
	Naphthalene	2.8E+02	ug/kg	--	--	1.4E-08	9.7E-10	--	--	--	2.0E-02	2.0E-02	3.8E-08	2.7E-09	2.E-06	1.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	4.0E-09	3.7E-10	6.E-11	5.E-12	6.E-11	2.0E-02	2.0E-02	1.1E-08	1.0E-09	6.E-07	5.E-08	0.000001
	Phenols																
	Pentachlorophenol	5.7E+01	ug/kg	4.0E-01	4.0E-01	5.4E-09	2.0E-10	2.E-09	8.E-11	2.E-09	5.0E-03	5.0E-03	1.5E-08	5.6E-10	3.E-06	1.E-07	0.000003

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	4.1E-09	2.7E-10	8.E-09	5.E-10	9.E-09	2.0E-05	2.0E-05	1.2E-08	7.6E-10	6.E-04	4.E-05	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.2E-14	3.7E-15	2.E-09	5.E-10	2.E-09	1.0E-09	1.0E-09	3.4E-14	1.0E-14	3.E-05	1.E-05	0.00004
	Total PCB TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	1.8E-13	1.2E-14	2.E-08	2.E-09	2.E-08	1.0E-09	1.0E-09	4.9E-13	3.2E-14	5.E-04	3.E-05	0.0005
	Pesticides																
	Aldrin	7.5E-01	ug/kg	1.7E+01	1.7E+01	2.9E-11	2.6E-12	5.E-10	4.E-11	5.E-10	3.0E-05	3.0E-05	8.0E-11	7.4E-12	3.E-06	2.E-07	0.000003
	Dieldrin	3.3E-01	ug/kg	1.6E+01	1.6E+01	1.3E-11	1.1E-12	2.E-10	2.E-11	2.E-10	5.0E-05	5.0E-05	3.5E-11	3.2E-12	7.E-07	6.E-08	0.000001
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.3E-10	3.9E-11	4.E-11	1.E-11	6.E-11	5.0E-04	5.0E-04	3.6E-10	1.1E-10	7.E-07	2.E-07	0.000001
Exposure Point Total										3.E-06							0.002
RM 2.5 MC	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.4E-08	1.7E-08	8.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.5E-07	4.7E-08	5.E-04	2.E-04	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.1E-09	1.E-08	8.E-10	1.E-08	--	--	4.2E-08	3.0E-09	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.7E-09	2.E-07	1.E-08	2.E-07	--	--	6.8E-08	4.8E-09	--	--	--
	Benzo(b)fluoranthene	4.5E+02	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.6E-09	2.E-08	1.E-09	2.E-08	--	--	6.2E-08	4.4E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	7.1E-09	5.0E-10	5.E-10	4.E-11	6.E-10	--	--	2.0E-08	1.4E-09	--	--	--
	Dibenzo(a,h)anthracene	4.7E+01	ug/kg	7.3E+00	7.3E+00	2.3E-09	1.6E-10	2.E-08	1.E-09	2.E-08	--	--	6.5E-09	4.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.3E-09	1.E-08	1.E-09	1.E-08	--	--	5.2E-08	3.7E-09	--	--	--
	Naphthalene	9.9E+01	ug/kg	--	--	4.9E-09	3.5E-10	--	--	--	2.0E-02	2.0E-02	1.4E-08	9.7E-10	7.E-07	5.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	3.5E-09	3.3E-10	5.E-11	5.E-12	5.E-11	2.0E-02	2.0E-02	9.9E-09	9.1E-10	5.E-07	5.E-08	0.000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	1.5E-10	5.6E-12	6.E-11	2.E-12	6.E-11	5.0E-03	5.0E-03	4.3E-10	1.6E-11	9.E-08	3.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.1E-09	1.4E-10	4.E-09	3.E-10	4.E-09	2.0E-05	2.0E-05	5.8E-09	3.8E-10	3.E-04	2.E-05	0.0003
	Pesticides																
	Aldrin	6.5E-01	ug/kg	1.7E+01	1.7E+01	2.5E-11	2.3E-12	4.E-10	4.E-11	5.E-10	3.0E-05	3.0E-05	6.9E-11	6.4E-12	2.E-06	2.E-07	0.000003
	Dieldrin	9.7E-01	ug/kg	1.6E+01	1.6E+01	3.7E-11	3.4E-12	6.E-10	5.E-11	6.E-10	5.0E-05	5.0E-05	1.0E-10	9.5E-12	2.E-06	2.E-07	0.000002
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.2E-10	3.8E-11	4.E-11	1.E-11	6.E-11	5.0E-04	5.0E-04	3.5E-10	1.1E-10	7.E-07	2.E-07	0.000001
Exposure Point Total										4.E-07							0.001
RM 3 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	4.7E-08	1.4E-08	7.E-08	2.E-08	9.E-08	3.0E-04	3.0E-04	1.3E-07	4.0E-08	4.E-04	1.E-04	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.00001
	Vanadium	9.3E+01	mg/kg	--	--	0.0E+00	3.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.1E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	6.9E-10	6.3E-11	--	--	--	3.0E-04	3.0E-04	1.9E-09	1.8E-10	6.E-06	6.E-07	0.00001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.7E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.6E-09	2.E-08	1.E-09	2.E-08	--	--	6.5E-08	4.6E-09	--	--	--
	Benzo(a)pyrene	7.1E+02	ug/kg	7.3E+00	7.3E+00	3.5E-08	2.5E-09	3.E-07	2.E-08	3.E-07	--	--	9.8E-08	6.9E-09	--	--	--
	Benzo(b)fluoranthene	6.0E+02	ug/kg	7.3E-01	7.3E-01	3.0E-08	2.1E-09	2.E-08	2.E-09	2.E-08	--	--	8.4E-08	5.9E-09	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	2.0E-08	1.4E-09	1.E-09	1.E-10	2.E-09	--	--	5.5E-08	3.9E-09	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	4.0E-09	2.9E-10	3.E-08	2.E-09	3.E-08	--	--	1.1E-08	8.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.7E-09	2.E-08	1.E-09	2.E-08	--	--	6.6E-08	4.7E-09	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.1E-08	7.8E-10	--	--	--	2.0E-02	2.0E-02	3.1E-08	2.2E-09	2.E-06	1.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	2.2E-09	2.0E-10	3.E-11	3.E-12	3.E-11	2.0E-02	2.0E-02	6.1E-09	5.6E-10	3.E-07	3.E-08	0.0000003
	Phenols																
	Pentachlorophenol	1.1E+02	ug/kg	4.0E-01	4.0E-01	1.0E-08	3.8E-10	4.E-09	2.E-10	4.E-09	5.0E-03	5.0E-03	2.9E-08	1.1E-09	6.E-06	2.E-07	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	9.4E-10	6.2E-11	2.E-09	1.E-10	2.E-09	2.0E-05	2.0E-05	2.6E-09	1.7E-10	1.E-04	9.E-06	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	1.9E-14	5.8E-15	2.E-09	8.E-10	3.E-09	1.0E-09	1.0E-09	5.3E-14	1.6E-14	5.E-05	2.E-05	0.0001
	Total PCB TEQ	4.4E-01	pg/g	1.3E+05	1.3E+05	2.4E-14	1.5E-15	3.E-09	2.E-10	3.E-09	1.0E-09	1.0E-09	6.6E-14	4.3E-15	7.E-05	4.E-06	0.0001
	Pesticides																
	Aldrin	5.2E-01	ug/kg	1.7E+01	1.7E+01	2.0E-11	1.8E-12	3.E-10	3.E-11	4.E-10	3.0E-05	3.0E-05	5.5E-11	5.1E-12	2.E-06	2.E-07	0.000002
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	5.0E-11	4.6E-12	8.E-10	7.E-11	9.E-10	5.0E-05	5.0E-05	1.4E-10	1.3E-11	3.E-06	3.E-07	0.000003
	Total DDT	2.1E+02	ug/kg	3.4E-01	3.4E-01	2.4E-09	7.4E-10	8.E-10	3.E-10	1.E-09	5.0E-04	5.0E-04	6.8E-09	2.1E-09	1.E-05	4.E-06	0.00002
Exposure Point Total										5.E-07							0.01
RM 3 East	**Metals**																
	Arsenic	5.5E+00	mg/kg	1.5E+00	1.5E+00	6.2E-08	1.9E-08	9.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.7E-07	5.3E-08	6.E-04	2.E-04	0.0008
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.3E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	1.6E+01	ug/kg	--	--	6.1E-10	5.6E-11	--	--	--	3.0E-04	3.0E-04	1.7E-09	1.6E-10	6.E-06	5.E-07	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	7.2E-09	5.1E-10	5.E-09	4.E-10	6.E-09	--	--	2.0E-08	1.4E-09	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.7E-09	4.7E-10	5.E-08	3.E-09	5.E-08	--	--	1.9E-08	1.3E-09	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	7.8E-09	5.5E-10	6.E-09	4.E-10	6.E-09	--	--	2.2E-08	1.5E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.5E-09	3.9E-10	4.E-10	3.E-11	4.E-10	--	--	1.5E-08	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.3E-10	5.9E-11	6.E-09	4.E-10	7.E-09	--	--	2.3E-09	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+01	ug/kg	7.3E-01	7.3E-01	4.1E-09	2.9E-10	3.E-09	2.E-10	3.E-09	--	--	1.2E-08	8.1E-10	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	8.3E-10	5.9E-11	--	--	--	2.0E-02	2.0E-02	2.3E-09	1.6E-10	1.E-07	8.E-09	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.8E+01	ug/kg	1.4E-02	1.4E-02	3.3E-09	3.1E-10	5.E-11	4.E-12	5.E-11	2.0E-02	2.0E-02	9.4E-09	8.6E-10	5.E-07	4.E-08	0.000001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	4.6E+00	ug/kg	4.0E-01	4.0E-01	4.4E-10	1.6E-11	2.E-10	6.E-12	2.E-10	5.0E-03	5.0E-03	1.2E-09	4.5E-11	2.E-07	9.E-09	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	1.2E-09	8.0E-11	2.E-09	2.E-10	3.E-09	2.0E-05	2.0E-05	3.4E-09	2.2E-10	2.E-04	1.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	6.1E-14	1.9E-14	8.E-09	2.E-09	1.E-08	1.0E-09	1.0E-09	1.7E-13	5.3E-14	2.E-04	5.E-05	0.0002
	Total PCB TEQ	1.0E-01	pg/g	1.3E+05	1.3E+05	5.4E-15	3.5E-16	7.E-10	5.E-11	7.E-10	1.0E-09	1.0E-09	1.5E-14	9.9E-16	2.E-05	1.E-06	0.00002
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.5E-11	1.4E-12	3.E-10	2.E-11	3.E-10	3.0E-05	3.0E-05	4.2E-11	3.9E-12	1.E-06	1.E-07	0.000002
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	7.5E-12	6.8E-13	1.E-10	1.E-11	1.E-10	5.0E-05	5.0E-05	2.1E-11	1.9E-12	4.E-07	4.E-08	0.0000005
	Total DDT	3.8E+00	ug/kg	3.4E-01	3.4E-01	4.3E-11	1.3E-11	1.E-11	5.E-12	2.E-11	5.0E-04	5.0E-04	1.2E-10	3.7E-11	2.E-07	7.E-08	0.0000003
Exposure Point Total										2.E-07							0.02
RM 3.5 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.2E-07	3.7E-08	2.E-07	5.E-08	2.E-07	3.0E-04	3.0E-04	3.3E-07	1.0E-07	1.E-03	3.E-04	0.001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	4.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.5E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.7E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	3.1E-09	2.8E-10	--	--	--	3.0E-04	3.0E-04	8.6E-09	7.9E-10	3.E-05	3.E-06	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+03	ug/kg	7.3E-01	7.3E-01	8.7E-08	6.2E-09	6.E-08	5.E-09	7.E-08	--	--	2.4E-07	1.7E-08	--	--	--
	Benzo(a)pyrene	2.6E+03	ug/kg	7.3E+00	7.3E+00	1.3E-07	8.9E-09	9.E-07	7.E-08	1.E-06	--	--	3.5E-07	2.5E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.9E-09	8.E-08	6.E-09	9.E-08	--	--	3.1E-07	2.2E-08	--	--	--
	Benzo(k)fluoranthene	8.0E+02	ug/kg	7.3E-02	7.3E-02	4.0E-08	2.8E-09	3.E-09	2.E-10	3.E-09	--	--	1.1E-07	7.8E-09	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	3.7E-09	2.6E-10	3.E-08	2.E-09	3.E-08	--	--	1.0E-08	7.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+03	ug/kg	7.3E-01	7.3E-01	1.0E-07	7.2E-09	7.E-08	5.E-09	8.E-08	--	--	2.9E-07	2.0E-08	--	--	--
	Naphthalene	5.2E+02	ug/kg	--	--	2.6E-08	1.8E-09	--	--	--	2.0E-02	2.0E-02	7.2E-08	5.1E-09	4.E-06	3.E-07	0.000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	3.1E-09	2.9E-10	4.E-11	4.E-12	5.E-11	2.0E-02	2.0E-02	8.8E-09	8.1E-10	4.E-07	4.E-08	0.0000005
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	1.4E-09	5.1E-11	6.E-10	2.E-11	6.E-10	5.0E-03	5.0E-03	3.9E-09	1.4E-10	8.E-07	3.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.7E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	9.3E-11	3.E-09	2.E-10	3.E-09	2.0E-05	2.0E-05	4.0E-09	2.6E-10	2.E-04	1.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	1.8E-14	5.6E-15	2.E-09	7.E-10	3.E-09	1.0E-09	1.0E-09	5.1E-14	1.6E-14	5.E-05	2.E-05	0.0001
	Total PCB TEQ	7.7E-01	pg/g	1.3E+05	1.3E+05	4.1E-14	2.7E-15	5.E-09	4.E-10	6.E-09	1.0E-09	1.0E-09	1.2E-13	7.6E-15	1.E-04	8.E-06	0.0001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.7E-12	3.E-10	3.E-11	3.E-10	3.0E-05	3.0E-05	5.2E-11	4.8E-12	2.E-06	2.E-07	0.000002
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	6.9E-12	6.4E-13	1.E-10	1.E-11	1.E-10	5.0E-05	5.0E-05	1.9E-11	1.8E-12	4.E-07	4.E-08	0.0000004
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	2.4E-10	7.3E-11	8.E-11	2.E-11	1.E-10	5.0E-04	5.0E-04	6.7E-10	2.0E-10	1.E-06	4.E-07	0.000002
Exposure Point Total										2.E-06							0.02
RM 3.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.5E-08	1.7E-08	8.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.5E-07	4.7E-08	5.E-04	2.E-04	0.001
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.9E+04	ug/kg	--	--	7.3E-07	6.7E-08	--	--	--	3.0E-04	3.0E-04	2.0E-06	1.9E-07	7.E-03	6.E-04	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+03	ug/kg	7.3E-01	7.3E-01	6.2E-08	4.4E-09	5.E-08	3.E-09	5.E-08	--	--	1.7E-07	1.2E-08	--	--	--
	Benzo(a)pyrene	8.7E+02	ug/kg	7.3E+00	7.3E+00	4.3E-08	3.1E-09	3.E-07	2.E-08	3.E-07	--	--	1.2E-07	8.6E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+03	ug/kg	7.3E-01	7.3E-01	6.5E-08	4.6E-09	5.E-08	3.E-09	5.E-08	--	--	1.8E-07	1.3E-08	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	3.5E-08	2.5E-09	3.E-09	2.E-10	3.E-09	--	--	9.8E-08	6.9E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	6.5E-09	4.6E-10	5.E-08	3.E-09	5.E-08	--	--	1.8E-08	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.2E-09	1.E-08	8.E-10	1.E-08	--	--	4.6E-08	3.2E-09	--	--	--
	Naphthalene	1.8E+01	ug/kg	--	--	8.9E-10	6.3E-11	--	--	--	2.0E-02	2.0E-02	2.5E-09	1.8E-10	1.E-07	9.E-09	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.9E+03	ug/kg	1.4E-02	1.4E-02	2.6E-07	2.4E-08	4.E-09	3.E-10	4.E-09	2.0E-02	2.0E-02	7.4E-07	6.8E-08	4.E-05	3.E-06	0.00004
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	2.4E-10	8.7E-12	9.E-11	3.E-12	1.E-10	5.0E-03	5.0E-03	6.6E-10	2.4E-11	1.E-07	5.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+03	ug/kg	2.0E+00	2.0E+00	8.9E-08	5.8E-09	2.E-07	1.E-08	2.E-07	2.0E-05	2.0E-05	2.5E-07	1.6E-08	1.E-02	8.E-04	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	1.3E+05	1.3E+05	1.3E-13	3.9E-14	2.E-08	5.E-09	2.E-08	1.0E-09	1.0E-09	3.6E-13	1.1E-13	4.E-04	1.E-04	0.0005
	Total PCB TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	6.1E-12	4.0E-13	8.E-07	5.E-08	8.E-07	1.0E-09	1.0E-09	1.7E-11	1.1E-12	2.E-02	1.E-03	0.02
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.7E-12	3.E-10	3.E-11	4.E-10	3.0E-05	3.0E-05	5.3E-11	4.9E-12	2.E-06	2.E-07	0.000002
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	5.6E-12	5.2E-13	9.E-11	8.E-12	1.E-10	5.0E-05	5.0E-05	1.6E-11	1.4E-12	3.E-07	3.E-08	0.0000003
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	3.1E-10	9.5E-11	1.E-10	3.E-11	1.E-10	5.0E-04	5.0E-04	8.7E-10	2.7E-10	2.E-06	5.E-07	0.000002
Exposure Point Total										2.E-06							0.1
RM 4 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	5.0E-08	1.5E-08	7.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.4E-07	4.3E-08	5.E-04	1.E-04	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	8.2E+00	ug/kg	--	--	3.1E-10	2.9E-11	--	--	--	3.0E-04	3.0E-04	8.7E-10	8.0E-11	3.E-06	3.E-07	0.000003

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.0E+02	ug/kg	7.3E-01	7.3E-01	4.4E-08	3.1E-09	3.E-08	2.E-09	3.E-08	--	--	1.2E-07	8.8E-09	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.9E-08	2.0E-09	2.E-07	1.E-08	2.E-07	--	--	8.1E-08	5.7E-09	--	--	--
	Benzo(b)fluoranthene	5.2E+02	ug/kg	7.3E-01	7.3E-01	2.6E-08	1.8E-09	2.E-08	1.E-09	2.E-08	--	--	7.2E-08	5.1E-09	--	--	--
	Benzo(k)fluoranthene	3.2E+02	ug/kg	7.3E-02	7.3E-02	1.6E-08	1.1E-09	1.E-09	8.E-11	1.E-09	--	--	4.4E-08	3.1E-09	--	--	--
	Dibenzo(a,h)anthracene	8.9E+01	ug/kg	7.3E+00	7.3E+00	4.4E-09	3.1E-10	3.E-08	2.E-09	3.E-08	--	--	1.2E-08	8.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.6E-09	2.E-08	1.E-09	2.E-08	--	--	6.4E-08	4.5E-09	--	--	--
	Naphthalene	1.9E+02	ug/kg	--	--	9.5E-09	6.7E-10	--	--	--	2.0E-02	2.0E-02	2.7E-08	1.9E-09	1.E-06	9.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	2.7E-09	2.5E-10	4.E-11	3.E-12	4.E-11	2.0E-02	2.0E-02	7.6E-09	7.0E-10	4.E-07	3.E-08	0.0000004
	Phenols																
	Pentachlorophenol	6.7E+00	ug/kg	4.0E-01	4.0E-01	6.4E-10	2.3E-11	3.E-10	9.E-12	3.E-10	5.0E-03	5.0E-03	1.8E-09	6.5E-11	4.E-07	1.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.6E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	9.3E-11	3.E-09	2.E-10	3.E-09	2.0E-05	2.0E-05	3.9E-09	2.6E-10	2.E-04	1.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	3.7E-14	1.1E-14	5.E-09	1.E-09	6.E-09	1.0E-09	1.0E-09	1.0E-13	3.2E-14	1.E-04	3.E-05	0.0001
	Total PCB TEQ	6.5E-01	pg/g	1.3E+05	1.3E+05	3.5E-14	2.3E-15	5.E-09	3.E-10	5.E-09	1.0E-09	1.0E-09	9.7E-14	6.4E-15	1.E-04	6.E-06	0.0001
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.7E-12	3.E-10	3.E-11	3.E-10	3.0E-05	3.0E-05	5.2E-11	4.8E-12	2.E-06	2.E-07	0.000002
	Dieldrin	2.8E-01	ug/kg	1.6E+01	1.6E+01	1.1E-11	9.8E-13	2.E-10	2.E-11	2.E-10	5.0E-05	5.0E-05	3.0E-11	2.7E-12	6.E-07	5.E-08	0.000001
	Total DDT	5.6E+01	ug/kg	3.4E-01	3.4E-01	6.3E-10	1.9E-10	2.E-10	7.E-11	3.E-10	5.0E-04	5.0E-04	1.8E-09	5.4E-10	4.E-06	1.E-06	0.000005
Exposure Point Total										4.E-07							0.02
RM 4 East	**Metals**																
	Arsenic	5.6E+00	mg/kg	1.5E+00	1.5E+00	6.4E-08	2.0E-08	1.E-07	3.E-08	1.E-07	3.0E-04	3.0E-04	1.8E-07	5.5E-08	6.E-04	2.E-04	0.001
	Mercury	9.6E-02	mg/kg	--	--	0.0E+00	3.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.4E-10	0.E+00	9.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	3.6E+01	ug/kg	--	--	1.4E-09	1.3E-10	--	--	--	3.0E-04	3.0E-04	3.9E-09	3.6E-10	1.E-05	1.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	7.7E-08	5.4E-09	6.E-08	4.E-09	6.E-08	--	--	2.2E-07	1.5E-08	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.1E-07	7.8E-09	8.E-07	6.E-08	9.E-07	--	--	3.1E-07	2.2E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	8.0E-09	8.E-08	6.E-09	9.E-08	--	--	3.2E-07	2.2E-08	--	--	--
	Benzo(k)fluoranthene	1.8E+03	ug/kg	7.3E-02	7.3E-02	9.1E-08	6.4E-09	7.E-09	5.E-10	7.E-09	--	--	2.5E-07	1.8E-08	--	--	--
	Dibenzo(a,h)anthracene	3.7E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.3E-09	1.E-07	9.E-09	1.E-07	--	--	5.1E-08	3.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	8.3E-08	5.9E-09	6.E-08	4.E-09	6.E-08	--	--	2.3E-07	1.6E-08	--	--	--
	Naphthalene	7.4E+01	ug/kg	--	--	3.7E-09	2.6E-10	--	--	--	2.0E-02	2.0E-02	1.0E-08	7.2E-10	5.E-07	4.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+03	ug/kg	1.4E-02	1.4E-02	1.2E-07	1.1E-08	2.E-09	2.E-10	2.E-09	2.0E-02	2.0E-02	3.5E-07	3.2E-08	2.E-05	2.E-06	0.00002

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	4.3E+03	ug/kg	4.0E-01	4.0E-01	4.1E-07	1.5E-08	2.E-07	6.E-09	2.E-07	5.0E-03	5.0E-03	1.2E-06	4.2E-08	2.E-04	8.E-06	0.0002
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	1.9E-08	1.3E-09	4.E-08	3.E-09	4.E-08	2.0E-05	2.0E-05	5.4E-08	3.5E-09	3.E-03	2.E-04	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	1.3E+05	1.3E+05	7.9E-14	2.4E-14	1.E-08	3.E-09	1.E-08	1.0E-09	1.0E-09	2.2E-13	6.8E-14	2.E-04	7.E-05	0.0003
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.8E-13	1.2E-14	2.E-08	2.E-09	2.E-08	1.0E-09	1.0E-09	5.0E-13	3.3E-14	5.E-04	3.E-05	0.001
	Pesticides																
	Aldrin	7.9E-01	ug/kg	1.7E+01	1.7E+01	3.0E-11	2.7E-12	5.E-10	5.E-11	6.E-10	3.0E-05	3.0E-05	8.4E-11	7.7E-12	3.E-06	3.E-07	0.000003
	Dieldrin	1.6E-01	ug/kg	1.6E+01	1.6E+01	5.9E-12	5.5E-13	9.E-11	9.E-12	1.E-10	5.0E-05	5.0E-05	1.7E-11	1.5E-12	3.E-07	3.E-08	0.0000004
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.4E-10	4.1E-11	5.E-11	1.E-11	6.E-11	5.0E-04	5.0E-04	3.8E-10	1.2E-10	8.E-07	2.E-07	0.000001
Exposure Point Total										2.E-06							0.02
RM 4.5 West	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	5.6E-08	1.7E-08	8.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.6E-07	4.8E-08	5.E-04	2.E-04	0.001
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	6.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.4E+01	ug/kg	--	--	5.3E-10	4.9E-11	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.4E-10	5.E-06	5.E-07	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	7.7E-08	5.4E-09	6.E-08	4.E-09	6.E-08	--	--	2.2E-07	1.5E-08	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.1E-07	7.5E-09	8.E-07	6.E-08	8.E-07	--	--	3.0E-07	2.1E-08	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	7.4E-08	5.2E-09	5.E-08	4.E-09	6.E-08	--	--	2.1E-07	1.5E-08	--	--	--
	Benzo(k)fluoranthene	6.2E+02	ug/kg	7.3E-02	7.3E-02	3.1E-08	2.2E-09	2.E-09	2.E-10	2.E-09	--	--	8.7E-08	6.1E-09	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	8.1E-10	8.E-08	6.E-09	9.E-08	--	--	3.2E-08	2.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	8.3E-08	5.8E-09	6.E-08	4.E-09	6.E-08	--	--	2.3E-07	1.6E-08	--	--	--
	Naphthalene	3.9E+02	ug/kg	--	--	1.9E-08	1.4E-09	--	--	--	2.0E-02	2.0E-02	5.4E-08	3.8E-09	3.E-06	2.E-07	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.0E+01	ug/kg	1.4E-02	1.4E-02	2.7E-09	2.4E-10	4.E-11	3.E-12	4.E-11	2.0E-02	2.0E-02	7.5E-09	6.8E-10	4.E-07	3.E-08	0.0000004
	Phenols																
	Pentachlorophenol	2.3E+00	ug/kg	4.0E-01	4.0E-01	2.2E-10	7.9E-12	9.E-11	3.E-12	9.E-11	5.0E-03	5.0E-03	6.0E-10	2.2E-11	1.E-07	4.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+01	ug/kg	2.0E+00	2.0E+00	2.0E-09	1.3E-10	4.E-09	3.E-10	4.E-09	2.0E-05	2.0E-05	5.7E-09	3.8E-10	3.E-04	2.E-05	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	1.3E+05	1.3E+05	7.8E-14	2.4E-14	1.E-08	3.E-09	1.E-08	1.0E-09	1.0E-09	2.2E-13	6.7E-14	2.E-04	7.E-05	0.0003
	Total PCB TEQ	2.5E+00	pg/g	1.3E+05	1.3E+05	1.3E-13	8.7E-15	2.E-08	1.E-09	2.E-08	1.0E-09	1.0E-09	3.7E-13	2.4E-14	4.E-04	2.E-05	0.0004
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	4.6E-11	4.2E-12	8.E-10	7.E-11	8.E-10	3.0E-05	3.0E-05	1.3E-10	1.2E-11	4.E-06	4.E-07	0.000005
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	7.0E-12	6.4E-13	1.E-10	1.E-11	1.E-10	5.0E-05	5.0E-05	2.0E-11	1.8E-12	4.E-07	4.E-08	0.0000004
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	3.1E-10	9.6E-11	1.E-10	3.E-11	1.E-10	5.0E-04	5.0E-04	8.8E-10	2.7E-10	2.E-06	5.E-07	0.000002
Exposure Point Total										1.E-06							0.02

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 4.5 East	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	5.6E-08	1.7E-08	8.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.6E-07	4.8E-08	5.E-04	2.E-04	0.001
	Mercury	7.3E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	7.2E+01	ug/kg	--	--	2.7E-09	2.5E-10	--	--	--	3.0E-04	3.0E-04	7.7E-09	7.0E-10	3.E-05	2.E-06	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+04	ug/kg	7.3E-01	7.3E-01	9.8E-07	6.9E-08	7.E-07	5.E-08	8.E-07	--	--	2.7E-06	1.9E-07	--	--	--
	Benzo(a)pyrene	8.7E+03	ug/kg	7.3E+00	7.3E+00	4.3E-07	3.0E-08	3.E-06	2.E-07	3.E-06	--	--	1.2E-06	8.5E-08	--	--	--
	Benzo(b)fluoranthene	7.5E+03	ug/kg	7.3E-01	7.3E-01	3.7E-07	2.6E-08	3.E-07	2.E-08	3.E-07	--	--	1.0E-06	7.4E-08	--	--	--
	Benzo(k)fluoranthene	6.9E+03	ug/kg	7.3E-02	7.3E-02	3.4E-07	2.4E-08	3.E-08	2.E-09	3.E-08	--	--	9.6E-07	6.8E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+03	ug/kg	7.3E+00	7.3E+00	7.1E-08	5.0E-09	5.E-07	4.E-08	6.E-07	--	--	2.0E-07	1.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E+03	ug/kg	7.3E-01	7.3E-01	3.0E-07	2.1E-08	2.E-07	2.E-08	2.E-07	--	--	8.4E-07	5.9E-08	--	--	--
	Naphthalene	4.4E+02	ug/kg	--	--	2.2E-08	1.5E-09	--	--	--	2.0E-02	2.0E-02	6.1E-08	4.3E-09	3.E-06	2.E-07	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.7E-09	4.3E-10	7.E-11	6.E-12	7.E-11	2.0E-02	2.0E-02	1.3E-08	1.2E-09	7.E-07	6.E-08	0.000001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	3.0E-10	1.1E-11	1.E-10	4.E-12	1.E-10	5.0E-03	5.0E-03	8.5E-10	3.1E-11	2.E-07	6.E-09	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+01	ug/kg	2.0E+00	2.0E+00	2.4E-09	1.5E-10	5.E-09	3.E-10	5.E-09	2.0E-05	2.0E-05	6.6E-09	4.3E-10	3.E-04	2.E-05	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	3.2E-15	9.6E-16	4.E-10	1.E-10	5.E-10	1.0E-09	1.0E-09	8.8E-15	2.7E-15	9.E-06	3.E-06	0.00001
	Total PCB TEQ	3.4E-01	pg/g	1.3E+05	1.3E+05	1.8E-14	1.2E-15	2.E-09	2.E-10	2.E-09	1.0E-09	1.0E-09	5.0E-14	3.3E-15	5.E-05	3.E-06	0.0001
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	5.8E-12	5.3E-13	1.E-10	9.E-12	1.E-10	3.0E-05	3.0E-05	1.6E-11	1.5E-12	5.E-07	5.E-08	0.000001
	Dieldrin	8.4E-02	ug/kg	1.6E+01	1.6E+01	3.2E-12	2.9E-13	5.E-11	5.E-12	6.E-11	5.0E-05	5.0E-05	8.9E-12	8.2E-13	2.E-07	2.E-08	0.0000002
	Total DDT	8.7E+00	ug/kg	3.4E-01	3.4E-01	9.9E-11	3.0E-11	3.E-11	1.E-11	4.E-11	5.0E-04	5.0E-04	2.8E-10	8.5E-11	6.E-07	2.E-07	0.000001
Exposure Point Total										5.E-06							0.02
RM 5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	4.3E-08	1.3E-08	6.E-08	2.E-08	8.E-08	3.0E-04	3.0E-04	1.2E-07	3.7E-08	4.E-04	1.E-04	0.0005
	Mercury	6.0E-02	mg/kg	--	--	0.0E+00	2.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-10	0.E+00	6.E-06	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.1E+01	ug/kg	--	--	8.0E-10	7.3E-11	--	--	--	3.0E-04	3.0E-04	2.2E-09	2.1E-10	7.E-06	7.E-07	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E+03	ug/kg	7.3E-01	7.3E-01	1.7E-07	1.2E-08	1.E-07	9.E-09	1.E-07	--	--	4.7E-07	3.4E-08	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	2.2E-07	1.6E-08	2.E-06	1.E-07	2.E-06	--	--	6.2E-07	4.4E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	1.0E-08	1.E-07	8.E-09	1.E-07	--	--	4.1E-07	2.9E-08	--	--	--
	Benzo(k)fluoranthene	5.7E+02	ug/kg	7.3E-02	7.3E-02	2.8E-08	2.0E-09	2.E-09	1.E-10	2.E-09	--	--	7.9E-08	5.6E-09	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	8.0E-10	8.E-08	6.E-09	9.E-08	--	--	3.2E-08	2.2E-09	--	--	--

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.1E-08	1.E-07	8.E-09	1.E-07	--	--	4.5E-07	3.2E-08	--	--	--
	Naphthalene	4.2E+02	ug/kg	--	--	2.1E-08	1.5E-09	--	--	--	2.0E-02	2.0E-02	5.9E-08	4.1E-09	3.E-06	2.E-07	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+01	ug/kg	1.4E-02	1.4E-02	3.5E-09	3.2E-10	5.E-11	4.E-12	5.E-11	2.0E-02	2.0E-02	9.7E-09	8.9E-10	5.E-07	4.E-08	0.000001
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.7E-09	6.4E-11	7.E-10	3.E-11	7.E-10	5.0E-03	5.0E-03	4.9E-09	1.8E-10	1.E-06	4.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.3E-09	8.8E-11	3.E-09	2.E-10	3.E-09	2.0E-05	2.0E-05	3.8E-09	2.5E-10	2.E-04	1.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	6.2E-14	1.9E-14	8.E-09	2.E-09	1.E-08	1.0E-09	1.0E-09	1.7E-13	5.3E-14	2.E-04	5.E-05	0.0002
	Total PCB TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	1.1E-13	7.3E-15	1.E-08	9.E-10	2.E-08	1.0E-09	1.0E-09	3.1E-13	2.0E-14	3.E-04	2.E-05	0.0003
	Pesticides																
	Aldrin	1.9E+00	ug/kg	1.7E+01	1.7E+01	7.2E-11	6.6E-12	1.E-09	1.E-10	1.E-09	3.0E-05	3.0E-05	2.0E-10	1.9E-11	7.E-06	6.E-07	0.00001
	Dieldrin	7.8E-01	ug/kg	1.6E+01	1.6E+01	3.0E-11	2.7E-12	5.E-10	4.E-11	5.E-10	5.0E-05	5.0E-05	8.3E-11	7.6E-12	2.E-06	2.E-07	0.000002
	Total DDT	8.2E+01	ug/kg	3.4E-01	3.4E-01	9.3E-10	2.9E-10	3.E-10	1.E-10	4.E-10	5.0E-04	5.0E-04	2.6E-09	8.0E-10	5.E-06	2.E-06	0.00001
Exposure Point Total										2.E-06							0.02
RM 5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.2E-08	1.3E-08	6.E-08	2.E-08	8.E-08	3.0E-04	3.0E-04	1.2E-07	3.6E-08	4.E-04	1.E-04	0.001
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	3.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.4E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.2E+02	ug/kg	--	--	4.6E-09	4.2E-10	--	--	--	3.0E-04	3.0E-04	1.3E-08	1.2E-09	4.E-05	4.E-06	0.00005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.2E-09	1.E-08	8.E-10	1.E-08	--	--	4.6E-08	3.2E-09	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	2.3E-08	1.7E-09	2.E-07	1.E-08	2.E-07	--	--	6.6E-08	4.6E-09	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	3.3E-08	2.3E-09	2.E-08	2.E-09	3.E-08	--	--	9.3E-08	6.5E-09	--	--	--
	Benzo(k)fluoranthene	3.0E+02	ug/kg	7.3E-02	7.3E-02	1.5E-08	1.1E-09	1.E-09	8.E-11	1.E-09	--	--	4.2E-08	3.0E-09	--	--	--
	Dibenzo(a,h)anthracene	9.1E+01	ug/kg	7.3E+00	7.3E+00	4.5E-09	3.2E-10	3.E-08	2.E-09	4.E-08	--	--	1.3E-08	8.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.7E-09	2.E-08	1.E-09	2.E-08	--	--	6.7E-08	4.7E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	6.6E-09	4.7E-10	--	--	--	2.0E-02	2.0E-02	1.9E-08	1.3E-09	9.E-07	7.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	5.0E-09	4.6E-10	7.E-11	6.E-12	8.E-11	2.0E-02	2.0E-02	1.4E-08	1.3E-09	7.E-07	6.E-08	0.000001
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	1.3E-09	4.7E-11	5.E-10	2.E-11	5.E-10	5.0E-03	5.0E-03	3.6E-09	1.3E-10	7.E-07	3.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.4E-09	8.9E-11	3.E-09	2.E-10	3.E-09	2.0E-05	2.0E-05	3.8E-09	2.5E-10	2.E-04	1.E-05	0.0002

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	8.0E-01	ug/kg	1.7E+01	1.7E+01	3.0E-11	2.8E-12	5.E-10	5.E-11	6.E-10	3.0E-05	3.0E-05	8.5E-11	7.8E-12	3.E-06	3.E-07	0.000003
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	3.0E-11	2.8E-12	5.E-10	4.E-11	5.E-10	5.0E-05	5.0E-05	8.4E-11	7.7E-12	2.E-06	2.E-07	0.000002
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.1E-11	6.5E-12	7.E-12	2.E-12	9.E-12	5.0E-04	5.0E-04	6.0E-11	1.8E-11	1.E-07	4.E-08	0.0000002
Exposure Point Total										4.E-07							0.02
RM 5.5 West	**Metals**																
	Arsenic	6.1E+00	mg/kg	1.5E+00	1.5E+00	6.9E-08	2.1E-08	1.E-07	3.E-08	1.E-07	3.0E-04	3.0E-04	1.9E-07	6.0E-08	6.E-04	2.E-04	0.001
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	2.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.9E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	1.7E-09	1.5E-10	--	--	--	3.0E-04	3.0E-04	4.6E-09	4.2E-10	2.E-05	1.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	1.1E-08	1.E-07	8.E-09	1.E-07	--	--	4.2E-07	3.0E-08	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	2.1E-07	1.5E-08	2.E-06	1.E-07	2.E-06	--	--	6.0E-07	4.2E-08	--	--	--
	Benzo(b)fluoranthene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	1.1E-08	1.E-07	8.E-09	1.E-07	--	--	4.3E-07	3.0E-08	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	1.0E-07	7.1E-09	7.E-09	5.E-10	8.E-09	--	--	2.8E-07	2.0E-08	--	--	--
	Dibenzo(a,h)anthracene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.7E-08	1.2E-09	1.E-07	9.E-09	1.E-07	--	--	4.9E-08	3.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.5E+03	ug/kg	7.3E-01	7.3E-01	1.7E-07	1.2E-08	1.E-07	9.E-09	1.E-07	--	--	4.8E-07	3.4E-08	--	--	--
	Naphthalene	3.3E+02	ug/kg	--	--	1.6E-08	1.2E-09	--	--	--	2.0E-02	2.0E-02	4.6E-08	3.2E-09	2.E-06	2.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+01	ug/kg	1.4E-02	1.4E-02	6.9E-10	6.3E-11	1.E-11	9.E-13	1.E-11	2.0E-02	2.0E-02	1.9E-09	1.8E-10	1.E-07	9.E-09	0.0000001
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.7E-09	6.3E-11	7.E-10	3.E-11	7.E-10	5.0E-03	5.0E-03	4.8E-09	1.8E-10	1.E-06	4.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+01	ug/kg	2.0E+00	2.0E+00	2.7E-09	1.8E-10	5.E-09	4.E-10	6.E-09	2.0E-05	2.0E-05	7.7E-09	5.0E-10	4.E-04	3.E-05	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	1.3E+05	1.3E+05	2.7E-14	8.2E-15	3.E-09	1.E-09	5.E-09	1.0E-09	1.0E-09	7.5E-14	2.3E-14	7.E-05	2.E-05	0.0001
	Total PCB TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	5.8E-14	3.8E-15	8.E-09	5.E-10	8.E-09	1.0E-09	1.0E-09	1.6E-13	1.1E-14	2.E-04	1.E-05	0.0002
	Pesticides																
	Aldrin	6.7E-01	ug/kg	1.7E+01	1.7E+01	2.6E-11	2.3E-12	4.E-10	4.E-11	5.E-10	3.0E-05	3.0E-05	7.2E-11	6.6E-12	2.E-06	2.E-07	0.000003
	Dieldrin	4.1E-01	ug/kg	1.6E+01	1.6E+01	1.6E-11	1.4E-12	2.E-10	2.E-11	3.E-10	5.0E-05	5.0E-05	4.3E-11	4.0E-12	9.E-07	8.E-08	0.000001
	Total DDT	6.2E+01	ug/kg	3.4E-01	3.4E-01	7.0E-10	2.1E-10	2.E-10	7.E-11	3.E-10	5.0E-04	5.0E-04	2.0E-09	6.0E-10	4.E-06	1.E-06	0.00001
Exposure Point Total										2.E-06							0.02
RM 5.5 East	**Metals**																
	Arsenic	8.9E+00	mg/kg	1.5E+00	1.5E+00	1.0E-07	3.1E-08	2.E-07	5.E-08	2.E-07	3.0E-04	3.0E-04	2.8E-07	8.7E-08	9.E-04	3.E-04	0.001
	Mercury	6.7E-01	mg/kg	--	--	0.0E+00	2.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.5E-09	0.E+00	7.E-05	0.0001
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	3.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.9E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	3.2E+02	ug/kg	--	--	1.2E-08	1.1E-09	--	--	--	3.0E-04	3.0E-04	3.4E-08	3.1E-09	1.E-04	1.E-05	0.0001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.7E+02	ug/kg	7.3E-01	7.3E-01	2.8E-08	2.0E-09	2.E-08	1.E-09	2.E-08	--	--	8.0E-08	5.6E-09	--	--	--
	Benzo(a)pyrene	7.0E+02	ug/kg	7.3E+00	7.3E+00	3.5E-08	2.4E-09	3.E-07	2.E-08	3.E-07	--	--	9.7E-08	6.8E-09	--	--	--
	Benzo(b)fluoranthene	8.4E+02	ug/kg	7.3E-01	7.3E-01	4.1E-08	2.9E-09	3.E-08	2.E-09	3.E-08	--	--	1.2E-07	8.2E-09	--	--	--
	Benzo(k)fluoranthene	4.4E+02	ug/kg	7.3E-02	7.3E-02	2.2E-08	1.5E-09	2.E-09	1.E-10	2.E-09	--	--	6.1E-08	4.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.9E-09	4.9E-10	5.E-08	4.E-09	5.E-08	--	--	1.9E-08	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+02	ug/kg	7.3E-01	7.3E-01	2.6E-08	1.8E-09	2.E-08	1.E-09	2.E-08	--	--	7.3E-08	5.2E-09	--	--	--
	Naphthalene	3.5E+02	ug/kg	--	--	1.7E-08	1.2E-09	--	--	--	2.0E-02	2.0E-02	4.9E-08	3.4E-09	2.E-06	2.E-07	0.000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+02	ug/kg	1.4E-02	1.4E-02	1.3E-08	1.2E-09	2.E-10	2.E-11	2.E-10	2.0E-02	2.0E-02	3.5E-08	3.2E-09	2.E-06	2.E-07	0.000002
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	1.7E-09	6.1E-11	7.E-10	2.E-11	7.E-10	5.0E-03	5.0E-03	4.7E-09	1.7E-10	9.E-07	3.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.6E-09	6.3E-10	2.E-08	1.E-09	2.E-08	2.0E-05	2.0E-05	2.7E-08	1.8E-09	1.E-03	9.E-05	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	1.3E+05	1.3E+05	1.0E-13	3.1E-14	1.E-08	4.E-09	2.E-08	1.0E-09	1.0E-09	2.8E-13	8.7E-14	3.E-04	9.E-05	0.0004
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	3.1E-13	2.0E-14	4.E-08	3.E-09	4.E-08	1.0E-09	1.0E-09	8.7E-13	5.7E-14	9.E-04	6.E-05	0.001
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	1.5E-11	1.4E-12	3.E-10	2.E-11	3.E-10	3.0E-05	3.0E-05	4.3E-11	3.9E-12	1.E-06	1.E-07	0.000002
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	2.3E-11	2.1E-12	4.E-10	3.E-11	4.E-10	5.0E-05	5.0E-05	6.4E-11	5.9E-12	1.E-06	1.E-07	0.000001
	Total DDT	2.0E+01	ug/kg	3.4E-01	3.4E-01	2.2E-10	6.9E-11	8.E-11	2.E-11	1.E-10	5.0E-04	5.0E-04	6.3E-10	1.9E-10	1.E-06	4.E-07	0.000002
Exposure Point Total										7.E-07							0.02
RM 6 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	4.7E-08	1.4E-08	7.E-08	2.E-08	9.E-08	3.0E-04	3.0E-04	1.3E-07	4.0E-08	4.E-04	1.E-04	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.3E+02	mg/kg	--	--	0.0E+00	4.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.0E+01	ug/kg	--	--	7.5E-10	6.9E-11	--	--	--	3.0E-04	3.0E-04	2.1E-09	1.9E-10	7.E-06	6.E-07	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+04	ug/kg	7.3E-01	7.3E-01	2.4E-06	1.7E-07	2.E-06	1.E-07	2.E-06	--	--	6.6E-06	4.7E-07	--	--	--
	Benzo(a)pyrene	5.8E+04	ug/kg	7.3E+00	7.3E+00	2.9E-06	2.0E-07	2.E-05	1.E-06	2.E-05	--	--	8.0E-06	5.6E-07	--	--	--
	Benzo(b)fluoranthene	4.3E+04	ug/kg	7.3E-01	7.3E-01	2.1E-06	1.5E-07	2.E-06	1.E-07	2.E-06	--	--	5.9E-06	4.2E-07	--	--	--
	Benzo(k)fluoranthene	2.7E+04	ug/kg	7.3E-02	7.3E-02	1.3E-06	9.4E-08	1.E-07	7.E-09	1.E-07	--	--	3.7E-06	2.6E-07	--	--	--
	Dibenzo(a,h)anthracene	5.4E+03	ug/kg	7.3E+00	7.3E+00	2.6E-07	1.9E-08	2.E-06	1.E-07	2.E-06	--	--	7.4E-07	5.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+04	ug/kg	7.3E-01	7.3E-01	2.0E-06	1.4E-07	1.E-06	1.E-07	2.E-06	--	--	5.6E-06	3.9E-07	--	--	--
	Naphthalene	4.4E+04	ug/kg	--	--	2.2E-06	1.6E-07	--	--	--	2.0E-02	2.0E-02	6.2E-06	4.3E-07	3.E-04	2.E-05	0.0003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.8E+02	ug/kg	1.4E-02	1.4E-02	1.4E-08	1.3E-09	2.E-10	2.E-11	2.E-10	2.0E-02	2.0E-02	4.0E-08	3.7E-09	2.E-06	2.E-07	0.000002

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	3.5E+01	ug/kg	4.0E-01	4.0E-01	3.3E-09	1.2E-10	1.E-09	5.E-11	1.E-09	5.0E-03	5.0E-03	9.2E-09	3.4E-10	2.E-06	7.E-08	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	6.1E+01	ug/kg	2.0E+00	2.0E+00	3.3E-09	2.1E-10	7.E-09	4.E-10	7.E-09	2.0E-05	2.0E-05	9.1E-09	6.0E-10	5.E-04	3.E-05	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	1.7E-14	5.3E-15	2.E-09	7.E-10	3.E-09	1.0E-09	1.0E-09	4.9E-14	1.5E-14	5.E-05	1.E-05	0.0001
	Total PCB TEQ	2.8E+00	pg/g	1.3E+05	1.3E+05	1.5E-13	9.9E-15	2.E-08	1.E-09	2.E-08	1.0E-09	1.0E-09	4.2E-13	2.8E-14	4.E-04	3.E-05	0.0004
	Pesticides																
	Aldrin	2.3E+00	ug/kg	1.7E+01	1.7E+01	8.9E-11	8.2E-12	2.E-09	1.E-10	2.E-09	3.0E-05	3.0E-05	2.5E-10	2.3E-11	8.E-06	8.E-07	0.00001
	Dieldrin	1.8E+00	ug/kg	1.6E+01	1.6E+01	7.0E-11	6.4E-12	1.E-09	1.E-10	1.E-09	5.0E-05	5.0E-05	1.9E-10	1.8E-11	4.E-06	4.E-07	0.000004
	Total DDT	8.1E+01	ug/kg	3.4E-01	3.4E-01	9.3E-10	2.8E-10	3.E-10	1.E-10	4.E-10	5.0E-04	5.0E-04	2.6E-09	8.0E-10	5.E-06	2.E-06	0.00001
Exposure Point Total										3.E-05							0.02
RM 6 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	5.0E-08	1.5E-08	7.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.4E-07	4.3E-08	5.E-04	1.E-04	0.0006
	Mercury	4.0E-01	mg/kg	--	--	0.0E+00	1.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-09	0.E+00	4.E-05	0.00004
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	3.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.6E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	3.5E+02	ug/kg	--	--	1.3E-08	1.2E-09	--	--	--	3.0E-04	3.0E-04	3.7E-08	3.4E-09	1.E-04	1.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	6.6E-08	4.7E-09	5.E-08	3.E-09	5.E-08	--	--	1.9E-07	1.3E-08	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	9.5E-08	6.7E-09	7.E-07	5.E-08	7.E-07	--	--	2.7E-07	1.9E-08	--	--	--
	Benzo(b)fluoranthene	3.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-07	1.1E-08	1.E-07	8.E-09	1.E-07	--	--	4.5E-07	3.2E-08	--	--	--
	Benzo(k)fluoranthene	2.5E+03	ug/kg	7.3E-02	7.3E-02	1.2E-07	8.8E-09	9.E-09	6.E-10	1.E-08	--	--	3.5E-07	2.5E-08	--	--	--
	Dibenzo(a,h)anthracene	2.7E+02	ug/kg	7.3E+00	7.3E+00	1.3E-08	9.4E-10	1.E-07	7.E-09	1.E-07	--	--	3.7E-08	2.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+03	ug/kg	7.3E-01	7.3E-01	5.6E-08	3.9E-09	4.E-08	3.E-09	4.E-08	--	--	1.6E-07	1.1E-08	--	--	--
	Naphthalene	8.4E+02	ug/kg	--	--	4.1E-08	2.9E-09	--	--	--	2.0E-02	2.0E-02	1.2E-07	8.2E-09	6.E-06	4.E-07	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	5.3E-09	4.9E-10	7.E-11	7.E-12	8.E-11	2.0E-02	2.0E-02	1.5E-08	1.4E-09	7.E-07	7.E-08	0.000001
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	4.2E-09	1.5E-10	2.E-09	6.E-11	2.E-09	5.0E-03	5.0E-03	1.2E-08	4.3E-10	2.E-06	9.E-08	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.3E-09	6.1E-10	2.E-08	1.E-09	2.E-08	2.0E-05	2.0E-05	2.6E-08	1.7E-09	1.E-03	9.E-05	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	4.7E-14	1.4E-14	6.E-09	2.E-09	8.E-09	1.0E-09	1.0E-09	1.3E-13	4.0E-14	1.E-04	4.E-05	0.0002
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	1.8E-13	1.2E-14	2.E-08	2.E-09	3.E-08	1.0E-09	1.0E-09	5.1E-13	3.3E-14	5.E-04	3.E-05	0.001
	Pesticides																
	Aldrin	6.4E-01	ug/kg	1.7E+01	1.7E+01	2.4E-11	2.2E-12	4.E-10	4.E-11	5.E-10	3.0E-05	3.0E-05	6.8E-11	6.2E-12	2.E-06	2.E-07	0.000002
	Dieldrin	1.0E-01	ug/kg	1.6E+01	1.6E+01	3.8E-12	3.5E-13	6.E-11	6.E-12	7.E-11	5.0E-05	5.0E-05	1.1E-11	9.8E-13	2.E-07	2.E-08	0.0000002
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	4.9E-11	1.5E-11	2.E-11	5.E-12	2.E-11	5.0E-04	5.0E-04	1.4E-10	4.2E-11	3.E-07	8.E-08	0.0000004
Exposure Point Total										1.E-06							0.02

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 6.5 West	**Metals**																
	Arsenic	1.4E+01	mg/kg	1.5E+00	1.5E+00	1.6E-07	4.9E-08	2.E-07	7.E-08	3.E-07	3.0E-04	3.0E-04	4.5E-07	1.4E-07	2.E-03	5.E-04	0.002
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	7.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.0E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.4E+02	mg/kg	--	--	0.0E+00	4.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	4.6E+01	ug/kg	--	--	1.8E-09	1.6E-10	--	--	--	3.0E-04	3.0E-04	5.0E-09	4.5E-10	2.E-05	2.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+03	ug/kg	7.3E-01	7.3E-01	5.0E-08	3.5E-09	4.E-08	3.E-09	4.E-08	--	--	1.4E-07	9.9E-09	--	--	--
	Benzo(a)pyrene	1.2E+03	ug/kg	7.3E+00	7.3E+00	6.1E-08	4.3E-09	4.E-07	3.E-08	5.E-07	--	--	1.7E-07	1.2E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	6.9E-08	4.8E-09	5.E-08	4.E-09	5.E-08	--	--	1.9E-07	1.4E-08	--	--	--
	Benzo(k)fluoranthene	6.6E+02	ug/kg	7.3E-02	7.3E-02	3.3E-08	2.3E-09	2.E-09	2.E-10	3.E-09	--	--	9.1E-08	6.4E-09	--	--	--
	Dibenzo(a,h)anthracene	4.2E+02	ug/kg	7.3E+00	7.3E+00	2.1E-08	1.5E-09	2.E-07	1.E-08	2.E-07	--	--	5.9E-08	4.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+02	ug/kg	7.3E-01	7.3E-01	4.1E-08	2.9E-09	3.E-08	2.E-09	3.E-08	--	--	1.1E-07	8.1E-09	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	6.9E-09	4.9E-10	--	--	--	2.0E-02	2.0E-02	1.9E-08	1.4E-09	1.E-06	7.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	4.0E-09	3.7E-10	6.E-11	5.E-12	6.E-11	2.0E-02	2.0E-02	1.1E-08	1.0E-09	6.E-07	5.E-08	0.000001
	Phenols																
	Pentachlorophenol	2.4E+00	ug/kg	4.0E-01	4.0E-01	2.3E-10	8.4E-12	9.E-11	3.E-12	9.E-11	5.0E-03	5.0E-03	6.4E-10	2.3E-11	1.E-07	5.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	9.1E+01	ug/kg	2.0E+00	2.0E+00	4.9E-09	3.2E-10	1.E-08	6.E-10	1.E-08	2.0E-05	2.0E-05	1.4E-08	8.9E-10	7.E-04	4.E-05	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	1.3E-12	4.0E-13	2.E-07	5.E-08	2.E-07	1.0E-09	1.0E-09	3.6E-12	1.1E-12	4.E-03	1.E-03	0.005
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.6E-13	1.0E-14	2.E-08	1.E-09	2.E-08	1.0E-09	1.0E-09	4.4E-13	2.9E-14	4.E-04	3.E-05	0.0005
	Pesticides																
	Aldrin	2.5E+00	ug/kg	1.7E+01	1.7E+01	9.5E-11	8.7E-12	2.E-09	1.E-10	2.E-09	3.0E-05	3.0E-05	2.7E-10	2.4E-11	9.E-06	8.E-07	0.00001
	Dieldrin	5.9E-01	ug/kg	1.6E+01	1.6E+01	2.3E-11	2.1E-12	4.E-10	3.E-11	4.E-10	5.0E-05	5.0E-05	6.3E-11	5.8E-12	1.E-06	1.E-07	0.000001
	Total DDT	1.7E+02	ug/kg	3.4E-01	3.4E-01	1.9E-09	5.9E-10	7.E-10	2.E-10	9.E-10	5.0E-04	5.0E-04	5.4E-09	1.6E-09	1.E-05	3.E-06	0.00001
Exposure Point Total										1.E-06							0.03
RM 6.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	6.6E-08	2.0E-08	1.E-07	3.E-08	1.E-07	3.0E-04	3.0E-04	1.9E-07	5.7E-08	6.E-04	2.E-04	0.001
	Mercury	1.4E+01	mg/kg	--	--	0.0E+00	5.1E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-07	0.E+00	1.E-03	0.001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.1E+02	ug/kg	--	--	4.0E-09	3.7E-10	--	--	--	3.0E-04	3.0E-04	1.1E-08	1.0E-09	4.E-05	3.E-06	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	8.2E-10	8.E-09	6.E-10	9.E-09	--	--	3.2E-08	2.3E-09	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	7.3E-09	5.2E-10	5.E-08	4.E-09	6.E-08	--	--	2.0E-08	1.4E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	8.2E-10	8.E-09	6.E-10	9.E-09	--	--	3.2E-08	2.3E-09	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	7.3E-09	5.1E-10	5.E-10	4.E-11	6.E-10	--	--	2.0E-08	1.4E-09	--	--	--

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.9E+01	ug/kg	7.3E+00	7.3E+00	9.4E-10	6.6E-11	7.E-09	5.E-10	7.E-09	--	--	2.6E-09	1.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+02	ug/kg	7.3E-01	7.3E-01	5.1E-09	3.6E-10	4.E-09	3.E-10	4.E-09	--	--	1.4E-08	1.0E-09	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	6.1E-09	4.3E-10	--	--	--	2.0E-02	2.0E-02	1.7E-08	1.2E-09	9.E-07	6.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	4.7E-09	4.3E-10	7.E-11	6.E-12	7.E-11	2.0E-02	2.0E-02	1.3E-08	1.2E-09	7.E-07	6.E-08	0.000001
	Phenols																
	Pentachlorophenol	4.9E+00	ug/kg	4.0E-01	4.0E-01	4.7E-10	1.7E-11	2.E-10	7.E-12	2.E-10	5.0E-03	5.0E-03	1.3E-09	4.8E-11	3.E-07	1.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+03	ug/kg	2.0E+00	2.0E+00	7.0E-08	4.6E-09	1.E-07	9.E-09	1.E-07	2.0E-05	2.0E-05	2.0E-07	1.3E-08	1.E-02	6.E-04	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	1.3E+05	1.3E+05	1.0E-12	3.1E-13	1.E-07	4.E-08	2.E-07	1.0E-09	1.0E-09	2.8E-12	8.7E-13	3.E-03	9.E-04	0.004
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	7.1E-13	4.7E-14	9.E-08	6.E-09	1.E-07	1.0E-09	1.0E-09	2.0E-12	1.3E-13	2.E-03	1.E-04	0.002
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.1E-11	1.0E-12	2.E-10	2.E-11	2.E-10	3.0E-05	3.0E-05	3.1E-11	2.8E-12	1.E-06	9.E-08	0.000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	7.5E-12	6.8E-13	1.E-10	1.E-11	1.E-10	5.0E-05	5.0E-05	2.1E-11	1.9E-12	4.E-07	4.E-08	0.0000005
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.5E-09	4.5E-10	5.E-10	2.E-10	7.E-10	5.0E-04	5.0E-04	4.1E-09	1.3E-09	8.E-06	3.E-06	0.00001
Exposure Point Total										6.E-07							0.03
RM 7 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	6.0E-08	1.8E-08	9.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.7E-07	5.2E-08	6.E-04	2.E-04	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	6.4E+00	ug/kg	--	--	2.4E-10	2.2E-11	--	--	--	3.0E-04	3.0E-04	6.8E-10	6.3E-11	2.E-06	2.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+03	ug/kg	7.3E-01	7.3E-01	1.1E-07	7.7E-09	8.E-08	6.E-09	9.E-08	--	--	3.1E-07	2.2E-08	--	--	--
	Benzo(a)pyrene	1.7E+03	ug/kg	7.3E+00	7.3E+00	8.4E-08	6.0E-09	6.E-07	4.E-08	7.E-07	--	--	2.4E-07	1.7E-08	--	--	--
	Benzo(b)fluoranthene	4.5E+03	ug/kg	7.3E-01	7.3E-01	2.2E-07	1.6E-08	2.E-07	1.E-08	2.E-07	--	--	6.2E-07	4.4E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+03	ug/kg	7.3E-02	7.3E-02	7.1E-08	5.0E-09	5.E-09	4.E-10	6.E-09	--	--	2.0E-07	1.4E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	3.5E-08	2.5E-09	3.E-07	2.E-08	3.E-07	--	--	9.8E-08	6.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+03	ug/kg	7.3E-01	7.3E-01	6.9E-08	4.9E-09	5.E-08	4.E-09	5.E-08	--	--	1.9E-07	1.4E-08	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	5.4E-10	3.8E-11	--	--	--	2.0E-02	2.0E-02	1.5E-09	1.1E-10	8.E-08	5.E-09	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.7E+02	ug/kg	1.4E-02	1.4E-02	1.0E-08	9.6E-10	1.E-10	1.E-11	2.E-10	2.0E-02	2.0E-02	2.9E-08	2.7E-09	1.E-06	1.E-07	0.000002
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	4.2E-09	1.5E-10	2.E-09	6.E-11	2.E-09	5.0E-03	5.0E-03	1.2E-08	4.3E-10	2.E-06	9.E-08	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	9.3E+01	ug/kg	2.0E+00	2.0E+00	4.9E-09	3.2E-10	1.E-08	6.E-10	1.E-08	2.0E-05	2.0E-05	1.4E-08	9.1E-10	7.E-04	5.E-05	0.0007

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	1.3E+05	1.3E+05	1.6E-10	4.9E-11	2.E-05	6.E-06	3.E-05	1.0E-09	1.0E-09	4.5E-10	1.4E-10	5.E-01	1.E-01	0.6
	Total PCB TEQ	2.7E+01	pg/g	1.3E+05	1.3E+05	1.4E-12	9.3E-14	2.E-07	1.E-08	2.E-07	1.0E-09	1.0E-09	4.0E-12	2.6E-13	4.E-03	3.E-04	0.004
	Pesticides																
	Aldrin	1.9E+02	ug/kg	1.7E+01	1.7E+01	7.3E-09	6.7E-10	1.E-07	1.E-08	1.E-07	3.0E-05	3.0E-05	2.0E-08	1.9E-09	7.E-04	6.E-05	0.001
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	7.8E-11	7.1E-12	1.E-09	1.E-10	1.E-09	5.0E-05	5.0E-05	2.2E-10	2.0E-11	4.E-06	4.E-07	0.000005
	Total DDT	6.3E+03	ug/kg	3.4E-01	3.4E-01	7.2E-08	2.2E-08	2.E-08	7.E-09	3.E-08	5.0E-04	5.0E-04	2.0E-07	6.2E-08	4.E-04	1.E-04	0.0005
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	9.6E-07	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.7E-06	0.E+00	4.E-03	0.004
Exposure Point Total										3.E-05							0.6
RM 7 East	**Metals**																
	Arsenic	1.5E+01	mg/kg	1.5E+00	1.5E+00	1.7E-07	5.2E-08	3.E-07	8.E-08	3.E-07	3.0E-04	3.0E-04	4.7E-07	1.4E-07	2.E-03	5.E-04	0.002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.6E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.0E+03	ug/kg	--	--	3.9E-08	3.6E-09	--	--	--	3.0E-04	3.0E-04	1.1E-07	1.0E-08	4.E-04	3.E-05	0.0004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.2E+02	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.5E-09	2.E-08	1.E-09	2.E-08	--	--	5.8E-08	4.1E-09	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	2.9E-08	2.0E-09	2.E-07	1.E-08	2.E-07	--	--	8.1E-08	5.7E-09	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	3.3E-08	2.3E-09	2.E-08	2.E-09	3.E-08	--	--	9.3E-08	6.5E-09	--	--	--
	Benzo(k)fluoranthene	6.5E+02	ug/kg	7.3E-02	7.3E-02	3.2E-08	2.3E-09	2.E-09	2.E-10	3.E-09	--	--	9.0E-08	6.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	9.3E-09	6.5E-10	7.E-08	5.E-09	7.E-08	--	--	2.6E-08	1.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+02	ug/kg	7.3E-01	7.3E-01	1.9E-08	1.4E-09	1.E-08	1.E-09	2.E-08	--	--	5.4E-08	3.8E-09	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	2.2E-09	1.6E-10	--	--	--	2.0E-02	2.0E-02	6.3E-09	4.4E-10	3.E-07	2.E-08	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	5.0E-08	4.6E-09	7.E-10	6.E-11	8.E-10	2.0E-02	2.0E-02	1.4E-07	1.3E-08	7.E-06	6.E-07	0.00001
	Phenols																
	Pentachlorophenol	1.2E+02	ug/kg	4.0E-01	4.0E-01	1.1E-08	4.1E-10	4.E-09	2.E-10	5.E-09	5.0E-03	5.0E-03	3.1E-08	1.2E-09	6.E-06	2.E-07	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	3.7E-09	2.5E-10	7.E-09	5.E-10	8.E-09	2.0E-05	2.0E-05	1.0E-08	6.9E-10	5.E-04	3.E-05	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	1.3E+05	1.3E+05	4.6E-13	1.4E-13	6.E-08	2.E-08	8.E-08	1.0E-09	1.0E-09	1.3E-12	3.9E-13	1.E-03	4.E-04	0.002
	Total PCB TEQ	7.4E-01	pg/g	1.3E+05	1.3E+05	3.9E-14	2.6E-15	5.E-09	3.E-10	5.E-09	1.0E-09	1.0E-09	1.1E-13	7.2E-15	1.E-04	7.E-06	0.0001
	Pesticides																
	Aldrin	4.6E-01	ug/kg	1.7E+01	1.7E+01	1.8E-11	1.6E-12	3.E-10	3.E-11	3.E-10	3.0E-05	3.0E-05	4.9E-11	4.5E-12	2.E-06	2.E-07	0.000002
	Dieldrin	1.2E-01	ug/kg	1.6E+01	1.6E+01	4.4E-12	4.0E-13	7.E-11	6.E-12	8.E-11	5.0E-05	5.0E-05	1.2E-11	1.1E-12	2.E-07	2.E-08	0.0000003
	Total DDT	1.3E+01	ug/kg	3.4E-01	3.4E-01	1.5E-10	4.5E-11	5.E-11	2.E-11	6.E-11	5.0E-04	5.0E-04	4.1E-10	1.3E-10	8.E-07	3.E-07	0.000001
Exposure Point Total										8.E-07							0.02

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 7.5 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.2E-08	1.3E-08	6.E-08	2.E-08	8.E-08	3.0E-04	3.0E-04	1.2E-07	3.6E-08	4.E-04	1.E-04	0.0005
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	9.7E+00	ug/kg	--	--	3.7E-10	3.4E-11	--	--	--	3.0E-04	3.0E-04	1.0E-09	9.5E-11	3.E-06	3.E-07	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+02	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.5E-09	2.E-08	1.E-09	2.E-08	--	--	6.0E-08	4.2E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.7E-08	1.2E-09	1.E-07	9.E-09	1.E-07	--	--	4.7E-08	3.3E-09	--	--	--
	Benzo(b)fluoranthene	4.6E+02	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.6E-09	2.E-08	1.E-09	2.E-08	--	--	6.4E-08	4.5E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	6.4E-09	4.5E-10	5.E-10	3.E-11	5.E-10	--	--	1.8E-08	1.3E-09	--	--	--
	Dibenzo(a,h)anthracene	5.0E+01	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.7E-10	2.E-08	1.E-09	2.E-08	--	--	6.9E-09	4.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E+02	ug/kg	7.3E-01	7.3E-01	9.4E-09	6.6E-10	7.E-09	5.E-10	7.E-09	--	--	2.6E-08	1.9E-09	--	--	--
	Naphthalene	3.3E+01	ug/kg	--	--	1.6E-09	1.2E-10	--	--	--	2.0E-02	2.0E-02	4.6E-09	3.2E-10	2.E-07	2.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	7.0E-09	6.4E-10	1.E-10	9.E-12	1.E-10	2.0E-02	2.0E-02	2.0E-08	1.8E-09	1.E-06	9.E-08	0.000001
	Phenols																
	Pentachlorophenol	2.1E+00	ug/kg	4.0E-01	4.0E-01	2.0E-10	7.2E-12	8.E-11	3.E-12	8.E-11	5.0E-03	5.0E-03	5.5E-10	2.0E-11	1.E-07	4.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+02	ug/kg	2.0E+00	2.0E+00	1.3E-08	8.7E-10	3.E-08	2.E-09	3.E-08	2.0E-05	2.0E-05	3.7E-08	2.4E-09	2.E-03	1.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	3.0E-14	9.1E-15	4.E-09	1.E-09	5.E-09	1.0E-09	1.0E-09	8.3E-14	2.6E-14	8.E-05	3.E-05	0.0001
	Total PCB TEQ	9.2E-01	pg/g	1.3E+05	1.3E+05	4.9E-14	3.2E-15	6.E-09	4.E-10	7.E-09	1.0E-09	1.0E-09	1.4E-13	9.0E-15	1.E-04	9.E-06	0.0001
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.1E-11	1.0E-12	2.E-10	2.E-11	2.E-10	3.0E-05	3.0E-05	3.0E-11	2.8E-12	1.E-06	9.E-08	0.000001
	Dieldrin	7.7E-01	ug/kg	1.6E+01	1.6E+01	2.9E-11	2.7E-12	5.E-10	4.E-11	5.E-10	5.0E-05	5.0E-05	8.2E-11	7.5E-12	2.E-06	2.E-07	0.000002
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	1.5E-09	4.5E-10	5.E-10	2.E-10	6.E-10	5.0E-04	5.0E-04	4.1E-09	1.3E-09	8.E-06	3.E-06	0.00001
Exposure Point Total										3.E-07							0.02
RM 7.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	4.8E-08	1.5E-08	7.E-08	2.E-08	9.E-08	3.0E-04	3.0E-04	1.3E-07	4.1E-08	4.E-04	1.E-04	0.0006
	Mercury	1.0E-01	mg/kg	--	--	0.0E+00	3.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-10	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.3E+02	ug/kg	--	--	8.7E-09	8.0E-10	--	--	--	3.0E-04	3.0E-04	2.4E-08	2.2E-09	8.E-05	7.E-06	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.0E-09	1.4E-10	1.E-09	1.E-10	2.E-09	--	--	5.5E-09	3.9E-10	--	--	--
	Benzo(a)pyrene	3.5E+01	ug/kg	7.3E+00	7.3E+00	1.7E-09	1.2E-10	1.E-08	9.E-10	1.E-08	--	--	4.9E-09	3.4E-10	--	--	--
	Benzo(b)fluoranthene	4.4E+01	ug/kg	7.3E-01	7.3E-01	2.2E-09	1.5E-10	2.E-09	1.E-10	2.E-09	--	--	6.1E-09	4.3E-10	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	1.5E-09	1.1E-10	1.E-10	8.E-12	1.E-10	--	--	4.3E-09	3.0E-10	--	--	--

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	5.4E-10	3.8E-11	4.E-09	3.E-10	4.E-09	--	--	1.5E-09	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.2E-09	8.3E-11	9.E-10	6.E-11	9.E-10	--	--	3.3E-09	2.3E-10	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	5.4E-10	3.8E-11	--	--	--	2.0E-02	2.0E-02	1.5E-09	1.1E-10	8.E-08	5.E-09	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+03	ug/kg	1.4E-02	1.4E-02	1.4E-07	1.3E-08	2.E-09	2.E-10	2.E-09	2.0E-02	2.0E-02	3.9E-07	3.6E-08	2.E-05	2.E-06	0.00002
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+01	ug/kg	2.0E+00	2.0E+00	2.4E-09	1.6E-10	5.E-09	3.E-10	5.E-09	2.0E-05	2.0E-05	6.7E-09	4.4E-10	3.E-04	2.E-05	0.0004
	Pesticides																
	Dieldrin	3.4E-01	ug/kg	1.6E+01	1.6E+01	1.3E-11	1.2E-12	2.E-10	2.E-11	2.E-10	5.0E-05	5.0E-05	3.6E-11	3.3E-12	7.E-07	7.E-08	0.000001
	Total DDT	3.3E+00	ug/kg	3.4E-01	3.4E-01	3.8E-11	1.2E-11	1.E-11	4.E-12	2.E-11	5.0E-04	5.0E-04	1.1E-10	3.3E-11	2.E-07	7.E-08	0.0000003
Exposure Point Total										1.E-07							0.02
RM 8 West	**Metals**																
	Arsenic	8.0E+00	mg/kg	1.5E+00	1.5E+00	9.1E-08	2.8E-08	1.E-07	4.E-08	2.E-07	3.0E-04	3.0E-04	2.6E-07	7.8E-08	9.E-04	3.E-04	0.001
	Mercury	3.3E-01	mg/kg	--	--	0.0E+00	1.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.2E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.5E+01	ug/kg	--	--	9.4E-10	8.6E-11	--	--	--	3.0E-04	3.0E-04	2.6E-09	2.4E-10	9.E-06	8.E-07	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.9E-09	2.E-08	1.E-09	2.E-08	--	--	7.6E-08	5.4E-09	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	2.4E-08	1.7E-09	2.E-07	1.E-08	2.E-07	--	--	6.8E-08	4.8E-09	--	--	--
	Benzo(b)fluoranthene	6.9E+02	ug/kg	7.3E-01	7.3E-01	3.4E-08	2.4E-09	2.E-08	2.E-09	3.E-08	--	--	9.5E-08	6.7E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	6.1E-09	4.3E-10	4.E-10	3.E-11	5.E-10	--	--	1.7E-08	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	6.8E-09	4.8E-10	5.E-08	4.E-09	5.E-08	--	--	1.9E-08	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.1E-09	1.E-08	8.E-10	1.E-08	--	--	4.4E-08	3.1E-09	--	--	--
	Naphthalene	8.1E+01	ug/kg	--	--	4.0E-09	2.8E-10	--	--	--	2.0E-02	2.0E-02	1.1E-08	7.9E-10	6.E-07	4.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+03	ug/kg	1.4E-02	1.4E-02	1.1E-07	1.1E-08	2.E-09	1.E-10	2.E-09	2.0E-02	2.0E-02	3.2E-07	2.9E-08	2.E-05	1.E-06	0.00002
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	1.4E-09	5.3E-11	6.E-10	2.E-11	6.E-10	5.0E-03	5.0E-03	4.0E-09	1.5E-10	8.E-07	3.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+02	ug/kg	2.0E+00	2.0E+00	2.1E-08	1.4E-09	4.E-08	3.E-09	5.E-08	2.0E-05	2.0E-05	6.0E-08	3.9E-09	3.E-03	2.E-04	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.3E+05	1.3E+05	4.9E-15	1.5E-15	6.E-10	2.E-10	8.E-10	1.0E-09	1.0E-09	1.4E-14	4.2E-15	1.E-05	4.E-06	0.00002
	Total PCB TEQ	6.1E+00	pg/g	1.3E+05	1.3E+05	3.2E-13	2.1E-14	4.E-08	3.E-09	4.E-08	1.0E-09	1.0E-09	9.0E-13	5.9E-14	9.E-04	6.E-05	0.001
	Pesticides																
	Aldrin	1.2E-01	ug/kg	1.7E+01	1.7E+01	4.4E-12	4.0E-13	7.E-11	7.E-12	8.E-11	3.0E-05	3.0E-05	1.2E-11	1.1E-12	4.E-07	4.E-08	0.0000004
	Dieldrin	4.6E+00	ug/kg	1.6E+01	1.6E+01	1.7E-10	1.6E-11	3.E-09	3.E-10	3.E-09	5.0E-05	5.0E-05	4.9E-10	4.5E-11	1.E-05	9.E-07	0.00001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	2.4E-10	7.4E-11	8.E-11	3.E-11	1.E-10	5.0E-04	5.0E-04	6.8E-10	2.1E-10	1.E-06	4.E-07	0.000002
Exposure Point Total										6.E-07							0.02

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 8 East	**Metals**																
	Arsenic	9.1E+00	mg/kg	1.5E+00	1.5E+00	1.0E-07	3.2E-08	2.E-07	5.E-08	2.E-07	3.0E-04	3.0E-04	2.9E-07	8.9E-08	1.E-03	3.E-04	0.001
	Mercury	2.2E-01	mg/kg	--	--	0.0E+00	7.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.2E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	5.8E+03	ug/kg	--	--	2.2E-07	2.0E-08	--	--	--	3.0E-04	3.0E-04	6.2E-07	5.7E-08	2.E-03	2.E-04	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+02	ug/kg	7.3E-01	7.3E-01	2.5E-08	1.7E-09	2.E-08	1.E-09	2.E-08	--	--	6.9E-08	4.9E-09	--	--	--
	Benzo(a)pyrene	5.3E+02	ug/kg	7.3E+00	7.3E+00	2.6E-08	1.8E-09	2.E-07	1.E-08	2.E-07	--	--	7.3E-08	5.2E-09	--	--	--
	Benzo(b)fluoranthene	5.5E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.9E-09	2.E-08	1.E-09	2.E-08	--	--	7.6E-08	5.4E-09	--	--	--
	Benzo(k)fluoranthene	3.7E+02	ug/kg	7.3E-02	7.3E-02	1.8E-08	1.3E-09	1.E-09	9.E-11	1.E-09	--	--	5.1E-08	3.6E-09	--	--	--
	Dibenzo(a,h)anthracene	4.0E+01	ug/kg	7.3E+00	7.3E+00	2.0E-09	1.4E-10	1.E-08	1.E-09	2.E-08	--	--	5.6E-09	3.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	1.8E-08	1.3E-09	1.E-08	9.E-10	1.E-08	--	--	5.1E-08	3.6E-09	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.1E-09	7.6E-11	--	--	--	2.0E-02	2.0E-02	3.0E-09	2.1E-10	2.E-07	1.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	5.0E-08	4.6E-09	7.E-10	6.E-11	8.E-10	2.0E-02	2.0E-02	1.4E-07	1.3E-08	7.E-06	6.E-07	0.00001
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	2.5E-09	9.4E-11	1.E-09	4.E-11	1.E-09	5.0E-03	5.0E-03	7.1E-09	2.6E-10	1.E-06	5.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	5.8E+02	ug/kg	2.0E+00	2.0E+00	3.1E-08	2.0E-09	6.E-08	4.E-09	7.E-08	2.0E-05	2.0E-05	8.6E-08	5.7E-09	4.E-03	3.E-04	0.005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	2.4E-14	7.3E-15	3.E-09	9.E-10	4.E-09	1.0E-09	1.0E-09	6.7E-14	2.0E-14	7.E-05	2.E-05	0.0001
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	9.3E-13	6.1E-14	1.E-07	8.E-09	1.E-07	1.0E-09	1.0E-09	2.6E-12	1.7E-13	3.E-03	2.E-04	0.003
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	1.7E-11	1.6E-12	3.E-10	3.E-11	3.E-10	3.0E-05	3.0E-05	4.7E-11	4.3E-12	2.E-06	1.E-07	0.000002
	Dieldrin	4.7E+00	ug/kg	1.6E+01	1.6E+01	1.8E-10	1.6E-11	3.E-09	3.E-10	3.E-09	5.0E-05	5.0E-05	5.0E-10	4.6E-11	1.E-05	9.E-07	0.00001
	Total DDT	9.4E+01	ug/kg	3.4E-01	3.4E-01	1.1E-09	3.3E-10	4.E-10	1.E-10	5.E-10	5.0E-04	5.0E-04	3.0E-09	9.2E-10	6.E-06	2.E-06	0.00001
Exposure Point Total										7.E-07							0.03
RM 8 SIL	**Metals**																
	Arsenic	5.9E+00	mg/kg	1.5E+00	1.5E+00	6.8E-08	2.1E-08	1.E-07	3.E-08	1.E-07	3.0E-04	3.0E-04	1.9E-07	5.8E-08	6.E-04	2.E-04	0.001
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	4.3E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.1E+04	ug/kg	--	--	8.1E-07	7.4E-08	--	--	--	3.0E-04	3.0E-04	2.3E-06	2.1E-07	8.E-03	7.E-04	0.01
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.4E+02	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.9E-09	2.E-08	1.E-09	2.E-08	--	--	7.4E-08	5.2E-09	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.3E-09	1.E-07	9.E-09	1.E-07	--	--	5.0E-08	3.5E-09	--	--	--
	Benzo(b)fluoranthene	7.0E+02	ug/kg	7.3E-01	7.3E-01	3.5E-08	2.4E-09	3.E-08	2.E-09	3.E-08	--	--	9.7E-08	6.8E-09	--	--	--
	Benzo(k)fluoranthene	3.5E+02	ug/kg	7.3E-02	7.3E-02	1.7E-08	1.2E-09	1.E-09	9.E-11	1.E-09	--	--	4.8E-08	3.4E-09	--	--	--

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	7.1E+01	ug/kg	7.3E+00	7.3E+00	3.5E-09	2.5E-10	3.E-08	2.E-09	3.E-08	--	--	9.9E-09	7.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.0E-08	7.3E-10	8.E-09	5.E-10	8.E-09	--	--	2.9E-08	2.0E-09	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.5E-09	1.1E-10	--	--	--	2.0E-02	2.0E-02	4.2E-09	3.0E-10	2.E-07	1.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.1E+04	ug/kg	1.4E-02	1.4E-02	1.6E-06	1.4E-07	2.E-08	2.E-09	2.E-08	2.0E-02	2.0E-02	4.4E-06	4.0E-07	2.E-04	2.E-05	0.0002
	Phenols																
	Pentachlorophenol	3.3E+01	ug/kg	4.0E-01	4.0E-01	3.1E-09	1.1E-10	1.E-09	5.E-11	1.E-09	5.0E-03	5.0E-03	8.7E-09	3.2E-10	2.E-06	6.E-08	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.3E+02	ug/kg	2.0E+00	2.0E+00	2.8E-08	1.8E-09	6.E-08	4.E-09	6.E-08	2.0E-05	2.0E-05	7.9E-08	5.2E-09	4.E-03	3.E-04	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	3.8E-13	1.2E-13	5.E-08	2.E-08	6.E-08	1.0E-09	1.0E-09	1.1E-12	3.2E-13	1.E-03	3.E-04	0.001
	Total PCB TEQ	8.8E+01	pg/g	1.3E+05	1.3E+05	4.7E-12	3.1E-13	6.E-07	4.E-08	6.E-07	1.0E-09	1.0E-09	1.3E-11	8.6E-13	1.E-02	9.E-04	0.01
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.4E-11	1.2E-12	2.E-10	2.E-11	3.E-10	3.0E-05	3.0E-05	3.8E-11	3.5E-12	1.E-06	1.E-07	0.000001
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	5.4E-11	5.0E-12	9.E-10	8.E-11	9.E-10	5.0E-05	5.0E-05	1.5E-10	1.4E-11	3.E-06	3.E-07	0.000003
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.4E-10	4.2E-11	5.E-11	1.E-11	6.E-11	5.0E-04	5.0E-04	3.8E-10	1.2E-10	8.E-07	2.E-07	0.000001
Exposure Point Total										1.E-06							0.05
RM 8.5 West	**Metals**																
	Arsenic	1.2E+01	mg/kg	1.5E+00	1.5E+00	1.3E-07	4.1E-08	2.E-07	6.E-08	3.E-07	3.0E-04	3.0E-04	3.7E-07	1.1E-07	1.E-03	4.E-04	0.002
	Mercury	4.7E-01	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.6E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	6.3E-10	5.8E-11	--	--	--	3.0E-04	3.0E-04	1.8E-09	1.6E-10	6.E-06	5.E-07	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	8.8E-09	6.2E-10	6.E-09	5.E-10	7.E-09	--	--	2.5E-08	1.7E-09	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	7.8E-10	8.E-08	6.E-09	9.E-08	--	--	3.1E-08	2.2E-09	--	--	--
	Benzo(b)fluoranthene	1.8E+02	ug/kg	7.3E-01	7.3E-01	9.0E-09	6.4E-10	7.E-09	5.E-10	7.E-09	--	--	2.5E-08	1.8E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.6E-09	3.9E-10	4.E-10	3.E-11	4.E-10	--	--	1.6E-08	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.2E-10	5.8E-11	6.E-09	4.E-10	6.E-09	--	--	2.3E-09	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	7.6E+01	ug/kg	7.3E-01	7.3E-01	3.8E-09	2.6E-10	3.E-09	2.E-10	3.E-09	--	--	1.1E-08	7.4E-10	--	--	--
	Naphthalene	3.7E+01	ug/kg	--	--	1.8E-09	1.3E-10	--	--	--	2.0E-02	2.0E-02	5.1E-09	3.6E-10	3.E-07	2.E-08	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+03	ug/kg	1.4E-02	1.4E-02	6.6E-08	6.1E-09	9.E-10	8.E-11	1.E-09	2.0E-02	2.0E-02	1.8E-07	1.7E-08	9.E-06	8.E-07	0.00001
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	3.7E-10	1.4E-11	1.E-10	5.E-12	2.E-10	5.0E-03	5.0E-03	1.0E-09	3.8E-11	2.E-07	8.E-09	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	8.5E+03	ug/kg	2.0E+00	2.0E+00	4.5E-07	3.0E-08	9.E-07	6.E-08	1.E-06	2.0E-05	2.0E-05	1.3E-06	8.3E-08	6.E-02	4.E-03	0.1

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	1.3E+05	1.3E+05	2.1E-13	6.4E-14	3.E-08	8.E-09	4.E-08	1.0E-09	1.0E-09	5.8E-13	1.8E-13	6.E-04	2.E-04	0.001
	Total PCB TEQ	2.4E+02	pg/g	1.3E+05	1.3E+05	1.3E-11	8.4E-13	2.E-06	1.E-07	2.E-06	1.0E-09	1.0E-09	3.6E-11	2.3E-12	4.E-02	2.E-03	0.04
	Pesticides																
	Aldrin	3.2E+01	ug/kg	1.7E+01	1.7E+01	1.2E-09	1.1E-10	2.E-08	2.E-09	2.E-08	3.0E-05	3.0E-05	3.5E-09	3.2E-10	1.E-04	1.E-05	0.0001
	Dieldrin	3.9E+01	ug/kg	1.6E+01	1.6E+01	1.5E-09	1.3E-10	2.E-08	2.E-09	3.E-08	5.0E-05	5.0E-05	4.1E-09	3.8E-10	8.E-05	8.E-06	0.0001
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	2.5E-10	7.7E-11	9.E-11	3.E-11	1.E-10	5.0E-04	5.0E-04	7.1E-10	2.2E-10	1.E-06	4.E-07	0.000002
Exposure Point Total										3.E-06							0.1
RM 8.5 East	**Metals**																
	Arsenic	9.0E+00	mg/kg	1.5E+00	1.5E+00	1.0E-07	3.2E-08	2.E-07	5.E-08	2.E-07	3.0E-04	3.0E-04	2.9E-07	8.9E-08	1.E-03	3.E-04	0.001
	Mercury	1.8E-01	mg/kg	--	--	0.0E+00	6.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	3.1E+01	ug/kg	--	--	1.2E-09	1.1E-10	--	--	--	3.0E-04	3.0E-04	3.2E-09	3.0E-10	1.E-05	1.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	4.8E-09	3.4E-10	4.E-09	2.E-10	4.E-09	--	--	1.3E-08	9.5E-10	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	5.0E-09	3.5E-10	4.E-08	3.E-09	4.E-08	--	--	1.4E-08	9.9E-10	--	--	--
	Benzo(b)fluoranthene	1.4E+02	ug/kg	7.3E-01	7.3E-01	6.7E-09	4.7E-10	5.E-09	3.E-10	5.E-09	--	--	1.9E-08	1.3E-09	--	--	--
	Benzo(k)fluoranthene	9.8E+01	ug/kg	7.3E-02	7.3E-02	4.8E-09	3.4E-10	4.E-10	2.E-11	4.E-10	--	--	1.4E-08	9.6E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	5.7E-10	4.0E-11	4.E-09	3.E-10	4.E-09	--	--	1.6E-09	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.0E+01	ug/kg	7.3E-01	7.3E-01	4.0E-09	2.8E-10	3.E-09	2.E-10	3.E-09	--	--	1.1E-08	7.9E-10	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	7.3E-09	5.2E-10	--	--	--	2.0E-02	2.0E-02	2.1E-08	1.4E-09	1.E-06	7.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+02	ug/kg	1.4E-02	1.4E-02	3.5E-08	3.2E-09	5.E-10	5.E-11	5.E-10	2.0E-02	2.0E-02	9.9E-08	9.0E-09	5.E-06	5.E-07	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	7.2E+01	ug/kg	2.0E+00	2.0E+00	3.9E-09	2.5E-10	8.E-09	5.E-10	8.E-09	2.0E-05	2.0E-05	1.1E-08	7.1E-10	5.E-04	4.E-05	0.0006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	1.3E+05	1.3E+05	1.1E-14	3.3E-15	1.E-09	4.E-10	2.E-09	1.0E-09	1.0E-09	3.0E-14	9.2E-15	3.E-05	9.E-06	0.00004
	Total PCB TEQ	5.9E-01	pg/g	1.3E+05	1.3E+05	3.2E-14	2.1E-15	4.E-09	3.E-10	4.E-09	1.0E-09	1.0E-09	8.8E-14	5.8E-15	9.E-05	6.E-06	0.0001
	Pesticides																
	Aldrin	4.1E-02	ug/kg	1.7E+01	1.7E+01	1.6E-12	1.4E-13	3.E-11	2.E-12	3.E-11	3.0E-05	3.0E-05	4.4E-12	4.0E-13	1.E-07	1.E-08	0.0000002
	Dieldrin	4.4E-01	ug/kg	1.6E+01	1.6E+01	1.7E-11	1.5E-12	3.E-10	2.E-11	3.E-10	5.0E-05	5.0E-05	4.7E-11	4.3E-12	9.E-07	9.E-08	0.000001
	Total DDT	2.3E+00	ug/kg	3.4E-01	3.4E-01	2.6E-11	8.0E-12	9.E-12	3.E-12	1.E-11	5.0E-04	5.0E-04	7.3E-11	2.2E-11	1.E-07	4.E-08	0.0000002
Exposure Point Total										3.E-07							0.02
RM 9 West	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	5.7E-08	1.7E-08	8.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.6E-07	4.9E-08	5.E-04	2.E-04	0.001
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	8.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	6.3E-10	5.8E-11	--	--	--	3.0E-04	3.0E-04	1.8E-09	1.6E-10	6.E-06	5.E-07	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.1E-09	1.E-08	8.E-10	1.E-08	--	--	4.4E-08	3.1E-09	--	--	--
	Benzo(a)pyrene	1.9E+02	ug/kg	7.3E+00	7.3E+00	9.5E-09	6.7E-10	7.E-08	5.E-09	7.E-08	--	--	2.7E-08	1.9E-09	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.1E-09	1.E-08	8.E-10	1.E-08	--	--	4.2E-08	3.0E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.6E-09	4.0E-10	4.E-10	3.E-11	4.E-10	--	--	1.6E-08	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.7E-10	2.E-08	1.E-09	2.E-08	--	--	6.6E-09	4.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	5.9E-09	4.2E-10	4.E-09	3.E-10	5.E-09	--	--	1.6E-08	1.2E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	1.2E-09	8.7E-11	--	--	--	2.0E-02	2.0E-02	3.5E-09	2.4E-10	2.E-07	1.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+02	ug/kg	1.4E-02	1.4E-02	1.7E-08	1.6E-09	2.E-10	2.E-11	3.E-10	2.0E-02	2.0E-02	4.7E-08	4.3E-09	2.E-06	2.E-07	0.000003
	Phenols																
	Pentachlorophenol	4.5E+01	ug/kg	4.0E-01	4.0E-01	4.3E-09	1.6E-10	2.E-09	6.E-11	2.E-09	5.0E-03	5.0E-03	1.2E-08	4.4E-10	2.E-06	9.E-08	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+03	ug/kg	2.0E+00	2.0E+00	1.2E-07	8.1E-09	2.E-07	2.E-08	3.E-07	2.0E-05	2.0E-05	3.5E-07	2.3E-08	2.E-02	1.E-03	0.02
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	1.3E+05	1.3E+05	6.8E-14	2.1E-14	9.E-09	3.E-09	1.E-08	1.0E-09	1.0E-09	1.9E-13	5.8E-14	2.E-04	6.E-05	0.0002
	Total PCB TEQ	3.2E+01	pg/g	1.3E+05	1.3E+05	1.7E-12	1.1E-13	2.E-07	1.E-08	2.E-07	1.0E-09	1.0E-09	4.8E-12	3.1E-13	5.E-03	3.E-04	0.01
	Pesticides																
	Aldrin	1.4E+00	ug/kg	1.7E+01	1.7E+01	5.4E-11	5.0E-12	9.E-10	8.E-11	1.E-09	3.0E-05	3.0E-05	1.5E-10	1.4E-11	5.E-06	5.E-07	0.00001
	Dieldrin	6.3E-01	ug/kg	1.6E+01	1.6E+01	2.4E-11	2.2E-12	4.E-10	4.E-11	4.E-10	5.0E-05	5.0E-05	6.7E-11	6.1E-12	1.E-06	1.E-07	0.000001
	Total DDT	9.9E+00	ug/kg	3.4E-01	3.4E-01	1.1E-10	3.5E-11	4.E-11	1.E-11	5.E-11	5.0E-04	5.0E-04	3.2E-10	9.7E-11	6.E-07	2.E-07	0.000001
Exposure Point Total										7.E-07							0.04
RM 9 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	5.5E-08	1.7E-08	8.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.5E-07	4.7E-08	5.E-04	2.E-04	0.001
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	2.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.0E-10	0.E+00	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	6.9E-10	4.9E-11	5.E-10	4.E-11	5.E-10	--	--	1.9E-09	1.4E-10	--	--	--
	Benzo(a)pyrene	1.7E+01	ug/kg	7.3E+00	7.3E+00	8.6E-10	6.1E-11	6.E-09	4.E-10	7.E-09	--	--	2.4E-09	1.7E-10	--	--	--
	Benzo(b)fluoranthene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.2E-09	8.3E-11	9.E-10	6.E-11	9.E-10	--	--	3.3E-09	2.3E-10	--	--	--
	Benzo(k)fluoranthene	1.1E+01	ug/kg	7.3E-02	7.3E-02	5.2E-10	3.7E-11	4.E-11	3.E-12	4.E-11	--	--	1.5E-09	1.0E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	1.4E-10	1.0E-11	1.E-09	7.E-11	1.E-09	--	--	4.0E-10	2.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	7.1E-10	5.0E-11	5.E-10	4.E-11	6.E-10	--	--	2.0E-09	1.4E-10	--	--	--
	Naphthalene	8.9E+00	ug/kg	--	--	4.4E-10	3.1E-11	--	--	--	2.0E-02	2.0E-02	1.2E-09	8.7E-11	6.E-08	4.E-09	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.0E+03	ug/kg	1.4E-02	1.4E-02	7.5E-08	6.9E-09	1.E-09	1.E-10	1.E-09	2.0E-02	2.0E-02	2.1E-07	1.9E-08	1.E-05	1.E-06	0.00001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	5.4E-09	3.5E-10	1.E-08	7.E-10	1.E-08	2.0E-05	2.0E-05	1.5E-08	9.8E-10	8.E-04	5.E-05	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	2.5E-15	7.5E-16	3.E-10	1.E-10	4.E-10	1.0E-09	1.0E-09	6.9E-15	2.1E-15	7.E-06	2.E-06	0.00001
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	3.4E-14	2.2E-15	4.E-09	3.E-10	5.E-09	1.0E-09	1.0E-09	9.4E-14	6.2E-15	9.E-05	6.E-06	0.0001
	Pesticides																
	Dieldrin	2.6E-01	ug/kg	1.6E+01	1.6E+01	9.9E-12	9.1E-13	2.E-10	1.E-11	2.E-10	5.0E-05	5.0E-05	2.8E-11	2.6E-12	6.E-07	5.E-08	0.000001
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.2E-11	6.8E-12	8.E-12	2.E-12	1.E-11	5.0E-04	5.0E-04	6.2E-11	1.9E-11	1.E-07	4.E-08	0.0000002
Exposure Point Total										1.E-07							0.002
RM 9.5 West	**Metals**																
	Arsenic	4.5E+00	mg/kg	1.5E+00	1.5E+00	5.2E-08	1.6E-08	8.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.4E-07	4.4E-08	5.E-04	1.E-04	0.001
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.3E-10	0.E+00	7.E-06	0.00001
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	3.8E-10	3.5E-11	--	--	--	3.0E-04	3.0E-04	1.1E-09	9.8E-11	4.E-06	3.E-07	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.3E-08	8.9E-10	9.E-09	7.E-10	1.E-08	--	--	3.5E-08	2.5E-09	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	1.8E-08	1.3E-09	1.E-07	9.E-09	1.E-07	--	--	5.0E-08	3.5E-09	--	--	--
	Benzo(b)fluoranthene	5.3E+02	ug/kg	7.3E-01	7.3E-01	2.6E-08	1.8E-09	2.E-08	1.E-09	2.E-08	--	--	7.3E-08	5.2E-09	--	--	--
	Benzo(k)fluoranthene	2.4E+02	ug/kg	7.3E-02	7.3E-02	1.2E-08	8.3E-10	9.E-10	6.E-11	9.E-10	--	--	3.3E-08	2.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	6.4E-09	4.5E-10	5.E-08	3.E-09	5.E-08	--	--	1.8E-08	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.0E-09	1.E-08	8.E-10	1.E-08	--	--	4.1E-08	2.9E-09	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.1E-08	7.8E-10	--	--	--	2.0E-02	2.0E-02	3.1E-08	2.2E-09	2.E-06	1.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.4E+03	ug/kg	1.4E-02	1.4E-02	9.0E-08	8.2E-09	1.E-09	1.E-10	1.E-09	2.0E-02	2.0E-02	2.5E-07	2.3E-08	1.E-05	1.E-06	0.00001
	Phenols																
	Pentachlorophenol	9.8E+01	ug/kg	4.0E-01	4.0E-01	9.3E-09	3.4E-10	4.E-09	1.E-10	4.E-09	5.0E-03	5.0E-03	2.6E-08	9.6E-10	5.E-06	2.E-07	0.00001
	Polychlorinated Biphenyls																
	Total Aroclors	3.0E+02	ug/kg	2.0E+00	2.0E+00	1.6E-08	1.1E-09	3.E-08	2.E-09	3.E-08	2.0E-05	2.0E-05	4.5E-08	2.9E-09	2.E-03	1.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.9E-13	5.8E-14	2.E-08	8.E-09	3.E-08	1.0E-09	1.0E-09	5.3E-13	1.6E-13	5.E-04	2.E-04	0.001
	Total PCB TEQ	4.8E+00	pg/g	1.3E+05	1.3E+05	2.5E-13	1.7E-14	3.E-08	2.E-09	4.E-08	1.0E-09	1.0E-09	7.1E-13	4.7E-14	7.E-04	5.E-05	0.001
	Pesticides																
	Aldrin	2.8E+00	ug/kg	1.7E+01	1.7E+01	1.1E-10	9.7E-12	2.E-09	2.E-10	2.E-09	3.0E-05	3.0E-05	3.0E-10	2.7E-11	1.E-05	9.E-07	0.00001
	Dieldrin	4.9E+00	ug/kg	1.6E+01	1.6E+01	1.8E-10	1.7E-11	3.E-09	3.E-10	3.E-09	5.0E-05	5.0E-05	5.2E-10	4.7E-11	1.E-05	9.E-07	0.00001
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	5.2E-11	1.6E-11	2.E-11	5.E-12	2.E-11	5.0E-04	5.0E-04	1.4E-10	4.4E-11	3.E-07	9.E-08	0.0000004
Exposure Point Total										4.E-07							0.005
RM 9.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	4.2E-08	1.3E-08	6.E-08	2.E-08	8.E-08	3.0E-04	3.0E-04	1.2E-07	3.6E-08	4.E-04	1.E-04	0.0005
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	4.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	3.6E+00	ug/kg	--	--	1.4E-10	1.3E-11	--	--	--	3.0E-04	3.0E-04	3.8E-10	3.5E-11	1.E-06	1.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+01	ug/kg	7.3E-01	7.3E-01	1.5E-09	1.1E-10	1.E-09	8.E-11	1.E-09	--	--	4.2E-09	2.9E-10	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	1.7E-09	1.2E-10	1.E-08	9.E-10	1.E-08	--	--	4.8E-09	3.4E-10	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.0E-09	1.4E-10	1.E-09	1.E-10	2.E-09	--	--	5.5E-09	3.9E-10	--	--	--
	Benzo(k)fluoranthene	2.4E+01	ug/kg	7.3E-02	7.3E-02	1.2E-09	8.4E-11	9.E-11	6.E-12	9.E-11	--	--	3.3E-09	2.3E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	4.5E-10	3.2E-11	3.E-09	2.E-10	4.E-09	--	--	1.3E-09	9.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.4E-09	9.5E-11	1.E-09	7.E-11	1.E-09	--	--	3.8E-09	2.7E-10	--	--	--
	Naphthalene	4.8E+00	ug/kg	--	--	2.4E-10	1.7E-11	--	--	--	2.0E-02	2.0E-02	6.7E-10	4.7E-11	3.E-08	2.E-09	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	9.8E-09	9.0E-10	1.E-10	1.E-11	2.E-10	2.0E-02	2.0E-02	2.8E-08	2.5E-09	1.E-06	1.E-07	0.000002
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	3.2E-10	1.2E-11	1.E-10	5.E-12	1.E-10	5.0E-03	5.0E-03	9.1E-10	3.3E-11	2.E-07	7.E-09	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	3.0E-09	2.0E-10	6.E-09	4.E-10	6.E-09	2.0E-05	2.0E-05	8.4E-09	5.5E-10	4.E-04	3.E-05	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.3E-14	4.0E-15	2.E-09	5.E-10	2.E-09	1.0E-09	1.0E-09	3.7E-14	1.1E-14	4.E-05	1.E-05	0.00005
	Total PCB TEQ	3.3E-01	pg/g	1.3E+05	1.3E+05	1.7E-14	1.1E-15	2.E-09	1.E-10	2.E-09	1.0E-09	1.0E-09	4.9E-14	3.2E-15	5.E-05	3.E-06	0.0001
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	1.8E-11	1.6E-12	3.E-10	3.E-11	3.E-10	3.0E-05	3.0E-05	5.0E-11	4.6E-12	2.E-06	2.E-07	0.000002
	Dieldrin	4.3E-02	ug/kg	1.6E+01	1.6E+01	1.6E-12	1.5E-13	3.E-11	2.E-12	3.E-11	5.0E-05	5.0E-05	4.6E-12	4.2E-13	9.E-08	8.E-09	0.0000001
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	1.8E-11	5.4E-12	6.E-12	2.E-12	8.E-12	5.0E-04	5.0E-04	5.0E-11	1.5E-11	1.E-07	3.E-08	0.0000001
Exposure Point Total										1.E-07							0.001
RM 10 West	**Metals**																
	Arsenic	2.9E+01	mg/kg	1.5E+00	1.5E+00	3.3E-07	1.0E-07	5.E-07	2.E-07	6.E-07	3.0E-04	3.0E-04	9.2E-07	2.8E-07	3.E-03	9.E-04	0.004
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	3.4E+00	ug/kg	--	--	1.3E-10	1.2E-11	--	--	--	3.0E-04	3.0E-04	3.6E-10	3.3E-11	1.E-06	1.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	1.6E-08	1.1E-09	1.E-08	8.E-10	1.E-08	--	--	4.5E-08	3.1E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	1.7E-08	1.2E-09	1.E-07	9.E-09	1.E-07	--	--	4.7E-08	3.3E-09	--	--	--
	Benzo(b)fluoranthene	4.3E+02	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.5E-09	2.E-08	1.E-09	2.E-08	--	--	6.0E-08	4.2E-09	--	--	--
	Benzo(k)fluoranthene	1.8E+02	ug/kg	7.3E-02	7.3E-02	9.1E-09	6.4E-10	7.E-10	5.E-11	7.E-10	--	--	2.6E-08	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	3.7E-09	2.6E-10	3.E-08	2.E-09	3.E-08	--	--	1.0E-08	7.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-08	1.1E-09	1.E-08	8.E-10	1.E-08	--	--	4.2E-08	3.0E-09	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	2.9E-09	2.0E-10	--	--	--	2.0E-02	2.0E-02	8.1E-09	5.7E-10	4.E-07	3.E-08	0.0000004

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	6.9E-09	6.4E-10	1.E-10	9.E-12	1.E-10	2.0E-02	2.0E-02	1.9E-08	1.8E-09	1.E-06	9.E-08	0.000001
	Phenols																
	Pentachlorophenol	7.5E+00	ug/kg	4.0E-01	4.0E-01	7.1E-10	2.6E-11	3.E-10	1.E-11	3.E-10	5.0E-03	5.0E-03	2.0E-09	7.3E-11	4.E-07	1.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+02	ug/kg	2.0E+00	2.0E+00	2.4E-08	1.5E-09	5.E-08	3.E-09	5.E-08	2.0E-05	2.0E-05	6.6E-08	4.3E-09	3.E-03	2.E-04	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	1.3E+05	1.3E+05	1.1E-13	3.5E-14	1.E-08	4.E-09	2.E-08	1.0E-09	1.0E-09	3.2E-13	9.7E-14	3.E-04	1.E-04	0.0004
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	1.6E-13	1.0E-14	2.E-08	1.E-09	2.E-08	1.0E-09	1.0E-09	4.4E-13	2.9E-14	4.E-04	3.E-05	0.0005
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	1.9E-11	1.8E-12	3.E-10	3.E-11	4.E-10	3.0E-05	3.0E-05	5.4E-11	4.9E-12	2.E-06	2.E-07	0.000002
	Total DDT	6.7E+00	ug/kg	3.4E-01	3.4E-01	7.6E-11	2.3E-11	3.E-11	8.E-12	3.E-11	5.0E-04	5.0E-04	2.1E-10	6.5E-11	4.E-07	1.E-07	0.000001
Exposure Point Total										9.E-07							0.01
RM 10 East	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	4.0E-08	1.2E-08	6.E-08	2.E-08	8.E-08	3.0E-04	3.0E-04	1.1E-07	3.4E-08	4.E-04	1.E-04	0.0005
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	3.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.8E-10	0.E+00	9.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.7E+02	ug/kg	7.3E-01	7.3E-01	1.4E-08	9.6E-10	1.E-08	7.E-10	1.E-08	--	--	3.8E-08	2.7E-09	--	--	--
	Benzo(a)pyrene	3.5E+02	ug/kg	7.3E+00	7.3E+00	1.7E-08	1.2E-09	1.E-07	9.E-09	1.E-07	--	--	4.9E-08	3.4E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.4E-09	1.E-08	1.E-09	2.E-08	--	--	5.6E-08	3.9E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	5.1E-09	3.6E-10	4.E-10	3.E-11	4.E-10	--	--	1.4E-08	1.0E-09	--	--	--
	Dibenzo(a,h)anthracene	5.2E+01	ug/kg	7.3E+00	7.3E+00	2.6E-09	1.8E-10	2.E-08	1.E-09	2.E-08	--	--	7.2E-09	5.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.4E-08	9.7E-10	1.E-08	7.E-10	1.E-08	--	--	3.8E-08	2.7E-09	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.1E-09	7.8E-11	--	--	--	2.0E-02	2.0E-02	3.1E-09	2.2E-10	2.E-07	1.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	7.3E-09	6.7E-10	1.E-10	9.E-12	1.E-10	2.0E-02	2.0E-02	2.0E-08	1.9E-09	1.E-06	9.E-08	0.000001
	Phenols																
	Pentachlorophenol	3.3E+00	ug/kg	4.0E-01	4.0E-01	3.1E-10	1.2E-11	1.E-10	5.E-12	1.E-10	5.0E-03	5.0E-03	8.8E-10	3.2E-11	2.E-07	6.E-09	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.8E+01	ug/kg	2.0E+00	2.0E+00	2.6E-09	1.7E-10	5.E-09	3.E-10	5.E-09	2.0E-05	2.0E-05	7.2E-09	4.7E-10	4.E-04	2.E-05	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	6.2E-15	1.9E-15	8.E-10	2.E-10	1.E-09	1.0E-09	1.0E-09	1.7E-14	5.3E-15	2.E-05	5.E-06	0.00002
	Total PCB TEQ	8.0E-01	pg/g	1.3E+05	1.3E+05	4.3E-14	2.8E-15	6.E-09	4.E-10	6.E-09	1.0E-09	1.0E-09	1.2E-13	7.9E-15	1.E-04	8.E-06	0.0001
	Pesticides																
	Aldrin	8.3E-02	ug/kg	1.7E+01	1.7E+01	3.2E-12	2.9E-13	5.E-11	5.E-12	6.E-11	3.0E-05	3.0E-05	8.8E-12	8.1E-13	3.E-07	3.E-08	0.0000003
	Dieldrin	9.4E-02	ug/kg	1.6E+01	1.6E+01	3.6E-12	3.3E-13	6.E-11	5.E-12	6.E-11	5.0E-05	5.0E-05	1.0E-11	9.2E-13	2.E-07	2.E-08	0.0000002
	Total DDT	7.7E-01	ug/kg	3.4E-01	3.4E-01	8.8E-12	2.7E-12	3.E-12	9.E-13	4.E-12	5.0E-04	5.0E-04	2.5E-11	7.6E-12	5.E-08	2.E-08	0.0000001
Exposure Point Total										3.E-07							0.001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 10.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	5.3E-08	1.6E-08	8.E-08	2.E-08	1.E-07	3.0E-04	3.0E-04	1.5E-07	4.6E-08	5.E-04	2.E-04	0.0007
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	2.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.5E-10	0.E+00	8.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E+01	ug/kg	7.3E-01	7.3E-01	3.0E-09	2.1E-10	2.E-09	2.E-10	2.E-09	--	--	8.4E-09	5.9E-10	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.7E-10	2.E-08	1.E-09	2.E-08	--	--	6.6E-09	4.7E-10	--	--	--
	Benzo(b)fluoranthene	6.8E+01	ug/kg	7.3E-01	7.3E-01	3.4E-09	2.4E-10	2.E-09	2.E-10	3.E-09	--	--	9.4E-09	6.6E-10	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	1.0E-09	7.1E-11	7.E-11	5.E-12	8.E-11	--	--	2.8E-09	2.0E-10	--	--	--
	Dibenzo(a,h)anthracene	7.9E+00	ug/kg	7.3E+00	7.3E+00	3.9E-10	2.8E-11	3.E-09	2.E-10	3.E-09	--	--	1.1E-09	7.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	1.9E-09	1.3E-10	1.E-09	1.E-10	1.E-09	--	--	5.2E-09	3.7E-10	--	--	--
	Naphthalene	2.6E+02	ug/kg	--	--	1.3E-08	9.1E-10	--	--	--	2.0E-02	2.0E-02	3.6E-08	2.5E-09	2.E-06	1.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.5E+02	ug/kg	1.4E-02	1.4E-02	9.3E-09	8.6E-10	1.E-10	1.E-11	1.E-10	2.0E-02	2.0E-02	2.6E-08	2.4E-09	1.E-06	1.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.8E+01	ug/kg	4.0E-01	4.0E-01	3.6E-09	1.3E-10	1.E-09	5.E-11	1.E-09	5.0E-03	5.0E-03	1.0E-08	3.7E-10	2.E-06	7.E-08	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.1E-09	1.4E-10	4.E-09	3.E-10	4.E-09	2.0E-05	2.0E-05	5.8E-09	3.8E-10	3.E-04	2.E-05	0.0003
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	3.7E-14	2.4E-15	5.E-09	3.E-10	5.E-09	1.0E-09	1.0E-09	1.0E-13	6.7E-15	1.E-04	7.E-06	0.0001
	Pesticides																
	Aldrin	9.3E-01	ug/kg	1.7E+01	1.7E+01	3.5E-11	3.2E-12	6.E-10	6.E-11	7.E-10	3.0E-05	3.0E-05	9.9E-11	9.1E-12	3.E-06	3.E-07	0.000004
	Total DDT	2.7E+00	ug/kg	3.4E-01	3.4E-01	3.0E-11	9.3E-12	1.E-11	3.E-12	1.E-11	5.0E-04	5.0E-04	8.5E-11	2.6E-11	2.E-07	5.E-08	0.0000002
Exposure Point Total										1.E-07							0.001
RM 10.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	3.8E-08	1.2E-08	6.E-08	2.E-08	7.E-08	3.0E-04	3.0E-04	1.1E-07	3.3E-08	4.E-04	1.E-04	0.0005
	Mercury	7.4E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.2E-10	0.E+00	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+02	ug/kg	7.3E-01	7.3E-01	5.0E-09	3.5E-10	4.E-09	3.E-10	4.E-09	--	--	1.4E-08	9.9E-10	--	--	--
	Benzo(a)pyrene	7.1E+01	ug/kg	7.3E+00	7.3E+00	3.5E-09	2.5E-10	3.E-08	2.E-09	3.E-08	--	--	9.8E-09	6.9E-10	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	5.5E-09	3.9E-10	4.E-09	3.E-10	4.E-09	--	--	1.5E-08	1.1E-09	--	--	--
	Benzo(k)fluoranthene	7.2E+01	ug/kg	7.3E-02	7.3E-02	3.5E-09	2.5E-10	3.E-10	2.E-11	3.E-10	--	--	9.9E-09	7.0E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	4.6E-10	3.2E-11	3.E-09	2.E-10	4.E-09	--	--	1.3E-09	9.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	2.3E-09	1.6E-10	2.E-09	1.E-10	2.E-09	--	--	6.5E-09	4.6E-10	--	--	--
	Naphthalene	5.2E+00	ug/kg	--	--	2.6E-10	1.8E-11	--	--	--	2.0E-02	2.0E-02	7.2E-10	5.1E-11	4.E-08	3.E-09	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	4.2E-09	3.8E-10	6.E-11	5.E-12	6.E-11	2.0E-02	2.0E-02	1.2E-08	1.1E-09	6.E-07	5.E-08	0.000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	1.0E-09	3.8E-11	4.E-10	2.E-11	4.E-10	5.0E-03	5.0E-03	2.9E-09	1.1E-10	6.E-07	2.E-08	0.000001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	8.3E-09	5.4E-10	2.E-08	1.E-09	2.E-08	2.0E-05	2.0E-05	2.3E-08	1.5E-09	1.E-03	8.E-05	0.001
	Dioxin/Furan																
	Total PCB TEQ	3.9E-01	pg/g	1.3E+05	1.3E+05	2.1E-14	1.4E-15	3.E-09	2.E-10	3.E-09	1.0E-09	1.0E-09	5.8E-14	3.8E-15	6.E-05	4.E-06	0.0001
	Pesticides																
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.4E-10	4.2E-11	5.E-11	1.E-11	6.E-11	5.0E-04	5.0E-04	3.9E-10	1.2E-10	8.E-07	2.E-07	0.000001
Exposure Point Total										1.E-07							0.002
RM 11 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	4.2E-08	1.3E-08	6.E-08	2.E-08	8.E-08	3.0E-04	3.0E-04	1.2E-07	3.6E-08	4.E-04	1.E-04	0.0005
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.7E-10	0.E+00	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+02	ug/kg	7.3E-01	7.3E-01	9.8E-09	6.9E-10	7.E-09	5.E-10	8.E-09	--	--	2.8E-08	1.9E-09	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.1E-08	7.6E-10	8.E-08	6.E-09	8.E-08	--	--	3.0E-08	2.1E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	5.0E-09	3.5E-10	4.E-09	3.E-10	4.E-09	--	--	1.4E-08	9.9E-10	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	5.2E-09	3.7E-10	4.E-10	3.E-11	4.E-10	--	--	1.5E-08	1.0E-09	--	--	--
	Dibenzo(a,h)anthracene	2.7E+01	ug/kg	7.3E+00	7.3E+00	1.3E-09	9.4E-11	1.E-08	7.E-10	1.E-08	--	--	3.7E-09	2.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	5.8E-09	4.1E-10	4.E-09	3.E-10	5.E-09	--	--	1.6E-08	1.1E-09	--	--	--
	Naphthalene	3.2E+02	ug/kg	--	--	1.6E-08	1.1E-09	--	--	--	2.0E-02	2.0E-02	4.4E-08	3.1E-09	2.E-06	2.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.0E+03	ug/kg	1.4E-02	1.4E-02	3.9E-08	3.6E-09	5.E-10	5.E-11	6.E-10	2.0E-02	2.0E-02	1.1E-07	1.0E-08	5.E-06	5.E-07	0.00001
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	2.9E-10	1.1E-11	1.E-10	4.E-12	1.E-10	5.0E-03	5.0E-03	8.3E-10	3.0E-11	2.E-07	6.E-09	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	1.8E-09	1.2E-10	4.E-09	2.E-10	4.E-09	2.0E-05	2.0E-05	5.2E-09	3.4E-10	3.E-04	2.E-05	0.0003
	Pesticides																
	Dieldrin	2.5E+00	ug/kg	1.6E+01	1.6E+01	9.5E-11	8.7E-12	2.E-09	1.E-10	2.E-09	5.0E-05	5.0E-05	2.7E-10	2.4E-11	5.E-06	5.E-07	0.00001
	Total DDT	2.1E+00	ug/kg	3.4E-01	3.4E-01	2.4E-11	7.3E-12	8.E-12	2.E-12	1.E-11	5.0E-04	5.0E-04	6.7E-11	2.0E-11	1.E-07	4.E-08	0.0000002
Exposure Point Total										2.E-07							0.001
RM 11 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	3.7E-08	1.1E-08	6.E-08	2.E-08	7.E-08	3.0E-04	3.0E-04	1.0E-07	3.1E-08	3.E-04	1.E-04	0.0004
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	5.8E+00	ug/kg	--	--	2.2E-10	2.0E-11	--	--	--	3.0E-04	3.0E-04	6.2E-10	5.7E-11	2.E-06	2.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+02	ug/kg	7.3E-01	7.3E-01	7.9E-09	5.6E-10	6.E-09	4.E-10	6.E-09	--	--	2.2E-08	1.6E-09	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	5.9E-09	4.2E-10	4.E-08	3.E-09	5.E-08	--	--	1.7E-08	1.2E-09	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	1.2E-08	8.7E-10	9.E-09	6.E-10	1.E-08	--	--	3.4E-08	2.4E-09	--	--	--
	Benzo(k)fluoranthene	9.4E+01	ug/kg	7.3E-02	7.3E-02	4.7E-09	3.3E-10	3.E-10	2.E-11	4.E-10	--	--	1.3E-08	9.2E-10	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	9.9E-10	7.0E-11	7.E-09	5.E-10	8.E-09	--	--	2.8E-09	2.0E-10	--	--	--

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	5.3E+01	ug/kg	7.3E-01	7.3E-01	2.6E-09	1.9E-10	2.E-09	1.E-10	2.E-09	--	--	7.4E-09	5.2E-10	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	1.5E-09	1.0E-10	--	--	--	2.0E-02	2.0E-02	4.2E-09	2.9E-10	2.E-07	1.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	5.3E-09	4.9E-10	7.E-11	7.E-12	8.E-11	2.0E-02	2.0E-02	1.5E-08	1.4E-09	7.E-07	7.E-08	0.000001
	Phenols																
	Pentachlorophenol	8.7E+00	ug/kg	4.0E-01	4.0E-01	8.3E-10	3.0E-11	3.E-10	1.E-11	3.E-10	5.0E-03	5.0E-03	2.3E-09	8.5E-11	5.E-07	2.E-08	0.0000005
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+03	ug/kg	2.0E+00	2.0E+00	2.0E-07	1.3E-08	4.E-07	3.E-08	4.E-07	2.0E-05	2.0E-05	5.7E-07	3.8E-08	3.E-02	2.E-03	0.03
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	3.4E-14	1.1E-14	4.E-09	1.E-09	6.E-09	1.0E-09	1.0E-09	9.6E-14	2.9E-14	1.E-04	3.E-05	0.0001
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	1.7E-12	1.1E-13	2.E-07	1.E-08	2.E-07	1.0E-09	1.0E-09	4.6E-12	3.0E-13	5.E-03	3.E-04	0.005
	Pesticides																
	Total DDT	3.8E+02	ug/kg	3.4E-01	3.4E-01	4.4E-09	1.3E-09	1.E-09	5.E-10	2.E-09	5.0E-04	5.0E-04	1.2E-08	3.7E-09	2.E-05	7.E-06	0.00003
Exposure Point Total										8.E-07							0.04
RM 11.5 West	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	4.0E-08	1.2E-08	6.E-08	2.E-08	8.E-08	3.0E-04	3.0E-04	1.1E-07	3.4E-08	4.E-04	1.E-04	0.0005
	Mercury	3.1E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.0E-10	0.E+00	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+01	ug/kg	7.3E-01	7.3E-01	7.9E-10	5.6E-11	6.E-10	4.E-11	6.E-10	--	--	2.2E-09	1.6E-10	--	--	--
	Benzo(a)pyrene	1.8E+01	ug/kg	7.3E+00	7.3E+00	8.9E-10	6.3E-11	7.E-09	5.E-10	7.E-09	--	--	2.5E-09	1.8E-10	--	--	--
	Benzo(b)fluoranthene	1.7E+01	ug/kg	7.3E-01	7.3E-01	8.4E-10	5.9E-11	6.E-10	4.E-11	7.E-10	--	--	2.4E-09	1.7E-10	--	--	--
	Benzo(k)fluoranthene	1.4E+01	ug/kg	7.3E-02	7.3E-02	6.9E-10	4.9E-11	5.E-11	4.E-12	5.E-11	--	--	1.9E-09	1.4E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	1.4E-10	1.0E-11	1.E-09	7.E-11	1.E-09	--	--	4.0E-10	2.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	6.9E-10	4.9E-11	5.E-10	4.E-11	5.E-10	--	--	1.9E-09	1.4E-10	--	--	--
	Naphthalene	6.4E+00	ug/kg	--	--	3.2E-10	2.2E-11	--	--	--	2.0E-02	2.0E-02	8.9E-10	6.3E-11	4.E-08	3.E-09	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.2E+02	ug/kg	1.4E-02	1.4E-02	2.0E-08	1.8E-09	3.E-10	3.E-11	3.E-10	2.0E-02	2.0E-02	5.5E-08	5.1E-09	3.E-06	3.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.4E+01	ug/kg	2.0E+00	2.0E+00	1.3E-09	8.3E-11	3.E-09	2.E-10	3.E-09	2.0E-05	2.0E-05	3.6E-09	2.3E-10	2.E-04	1.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	2.0E-15	6.2E-16	3.E-10	8.E-11	3.E-10	1.0E-09	1.0E-09	5.6E-15	1.7E-15	6.E-06	2.E-06	0.00001
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	1.6E-14	1.0E-15	2.E-09	1.E-10	2.E-09	1.0E-09	1.0E-09	4.4E-14	2.9E-15	4.E-05	3.E-06	0.00005
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	3.4E-12	3.1E-13	5.E-11	5.E-12	6.E-11	5.0E-05	5.0E-05	9.6E-12	8.8E-13	2.E-07	2.E-08	0.0000002
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	2.2E-11	6.7E-12	7.E-12	2.E-12	1.E-11	5.0E-04	5.0E-04	6.2E-11	1.9E-11	1.E-07	4.E-08	0.0000002
Exposure Point Total										9.E-08							0.001
RM 12 West	**Metals**																
	Arsenic	3.9E+00	mg/kg	1.5E+00	1.5E+00	4.4E-08	1.3E-08	7.E-08	2.E-08	9.E-08	3.0E-04	3.0E-04	1.2E-07	3.8E-08	4.E-04	1.E-04	0.0005
	Mercury	7.4E-01	mg/kg	--	--	0.0E+00	2.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.2E-09	0.E+00	7.E-05	0.0001

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+03	ug/kg	7.3E-01	7.3E-01	5.5E-08	3.9E-09	4.E-08	3.E-09	4.E-08	--	--	1.5E-07	1.1E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	8.9E-08	6.3E-09	7.E-07	5.E-08	7.E-07	--	--	2.5E-07	1.8E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	7.0E-08	5.0E-09	5.E-08	4.E-09	6.E-08	--	--	2.0E-07	1.4E-08	--	--	--
	Benzo(k)fluoranthene	5.9E+02	ug/kg	7.3E-02	7.3E-02	2.9E-08	2.1E-09	2.E-09	2.E-10	2.E-09	--	--	8.2E-08	5.8E-09	--	--	--
	Dibenzo(a,h)anthracene	2.1E+02	ug/kg	7.3E+00	7.3E+00	1.0E-08	7.3E-10	8.E-08	5.E-09	8.E-08	--	--	2.9E-08	2.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	7.3E-08	5.1E-09	5.E-08	4.E-09	6.E-08	--	--	2.0E-07	1.4E-08	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	7.3E-09	5.2E-10	--	--	--	2.0E-02	2.0E-02	2.0E-08	1.4E-09	1.E-06	7.E-08	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	7.2E-09	6.6E-10	1.E-10	9.E-12	1.E-10	2.0E-02	2.0E-02	2.0E-08	1.9E-09	1.E-06	9.E-08	0.000001
	Phenols																
	Pentachlorophenol	2.0E+01	ug/kg	4.0E-01	4.0E-01	1.9E-09	7.0E-11	8.E-10	3.E-11	8.E-10	5.0E-03	5.0E-03	5.3E-09	2.0E-10	1.E-06	4.E-08	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	6.4E-09	4.2E-10	1.E-08	8.E-10	1.E-08	2.0E-05	2.0E-05	1.8E-08	1.2E-09	9.E-04	6.E-05	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	1.9E-15	5.8E-16	2.E-10	8.E-11	3.E-10	1.0E-09	1.0E-09	5.3E-15	1.6E-15	5.E-06	2.E-06	0.00001
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	2.4E-14	1.6E-15	3.E-09	2.E-10	3.E-09	1.0E-09	1.0E-09	6.8E-14	4.4E-15	7.E-05	4.E-06	0.0001
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	2.7E-11	2.4E-12	5.E-10	4.E-11	5.E-10	3.0E-05	3.0E-05	7.5E-11	6.8E-12	2.E-06	2.E-07	0.000003
	Total DDT	9.5E+00	ug/kg	3.4E-01	3.4E-01	1.1E-10	3.3E-11	4.E-11	1.E-11	5.E-11	5.0E-04	5.0E-04	3.0E-10	9.3E-11	6.E-07	2.E-07	0.000001
Exposure Point Total										1.E-06							0.002
RM 12 East	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	3.0E-08	9.2E-09	5.E-08	1.E-08	6.E-08	3.0E-04	3.0E-04	8.4E-08	2.6E-08	3.E-04	9.E-05	0.0004
	Mercury	6.5E-02	mg/kg	--	--	0.0E+00	2.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.4E-10	0.E+00	6.E-06	0.00001
	Butyltins																
	Tributyltin ion	4.8E+00	ug/kg	--	--	1.8E-10	1.7E-11	--	--	--	3.0E-04	3.0E-04	5.1E-10	4.7E-11	2.E-06	2.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	8.9E-10	6.3E-11	7.E-10	5.E-11	7.E-10	--	--	2.5E-09	1.8E-10	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	9.4E-10	6.6E-11	7.E-09	5.E-10	7.E-09	--	--	2.6E-09	1.9E-10	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.3E-09	9.4E-11	1.E-09	7.E-11	1.E-09	--	--	3.7E-09	2.6E-10	--	--	--
	Benzo(k)fluoranthene	8.4E+00	ug/kg	7.3E-02	7.3E-02	4.2E-10	2.9E-11	3.E-11	2.E-12	3.E-11	--	--	1.2E-09	8.2E-11	--	--	--
	Dibenzo(a,h)anthracene	4.5E+00	ug/kg	7.3E+00	7.3E+00	2.2E-10	1.6E-11	2.E-09	1.E-10	2.E-09	--	--	6.2E-10	4.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+01	ug/kg	7.3E-01	7.3E-01	8.4E-10	5.9E-11	6.E-10	4.E-11	7.E-10	--	--	2.4E-09	1.7E-10	--	--	--
	Naphthalene	4.2E+01	ug/kg	--	--	2.1E-09	1.5E-10	--	--	--	2.0E-02	2.0E-02	5.8E-09	4.1E-10	3.E-07	2.E-08	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+04	ug/kg	1.4E-02	1.4E-02	6.9E-07	6.3E-08	1.E-08	9.E-10	1.E-08	2.0E-02	2.0E-02	1.9E-06	1.8E-07	1.E-04	9.E-06	0.0001
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	3.0E-10	1.1E-11	1.E-10	4.E-12	1.E-10	5.0E-03	5.0E-03	8.5E-10	3.1E-11	2.E-07	6.E-09	0.0000002

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	9.6E-09	6.3E-10	2.E-08	1.E-09	2.E-08	2.0E-05	2.0E-05	2.7E-08	1.8E-09	1.E-03	9.E-05	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	2.0E-14	6.1E-15	3.E-09	8.E-10	3.E-09	1.0E-09	1.0E-09	5.6E-14	1.7E-14	6.E-05	2.E-05	0.0001
	Total PCB TEQ	4.6E+00	pg/g	1.3E+05	1.3E+05	2.4E-13	1.6E-14	3.E-08	2.E-09	3.E-08	1.0E-09	1.0E-09	6.8E-13	4.5E-14	7.E-04	4.E-05	0.001
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	1.1E-10	3.3E-11	4.E-11	1.E-11	5.E-11	5.0E-04	5.0E-04	3.0E-10	9.2E-11	6.E-07	2.E-07	0.000001
Exposure Point Total										1.E-07							0.003
Study Area-wide[c]	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	5.8E-08	1.8E-08	9.E-08	3.E-08	1.E-07	3.0E-04	3.0E-04	1.6E-07	4.9E-08	5.E-04	2.E-04	0.001
	Mercury	3.0E-01	mg/kg	--	--	0.0E+00	1.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.9E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	9.0E-08	8.3E-09	--	--	--	3.0E-04	3.0E-04	2.5E-07	2.3E-08	8.E-04	8.E-05	0.001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+03	ug/kg	7.3E-01	7.3E-01	1.5E-07	1.1E-08	1.E-07	8.E-09	1.E-07	--	--	4.3E-07	3.0E-08	--	--	--
	Benzo(a)pyrene	3.7E+03	ug/kg	7.3E+00	7.3E+00	1.9E-07	1.3E-08	1.E-06	1.E-07	1.E-06	--	--	5.2E-07	3.7E-08	--	--	--
	Benzo(b)fluoranthene	2.9E+03	ug/kg	7.3E-01	7.3E-01	1.4E-07	1.0E-08	1.E-07	7.E-09	1.E-07	--	--	4.1E-07	2.9E-08	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	9.9E-08	7.0E-09	7.E-09	5.E-10	8.E-09	--	--	2.8E-07	2.0E-08	--	--	--
	Dibenzo(a,h)anthracene	3.8E+02	ug/kg	7.3E+00	7.3E+00	1.9E-08	1.3E-09	1.E-07	1.E-08	1.E-07	--	--	5.3E-08	3.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.3E-07	9.1E-09	9.E-08	7.E-09	1.E-07	--	--	3.6E-07	2.6E-08	--	--	--
	Naphthalene	1.5E+03	ug/kg	--	--	7.2E-08	5.1E-09	--	--	--	2.0E-02	2.0E-02	2.0E-07	1.4E-08	1.E-05	7.E-07	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.9E+03	ug/kg	1.4E-02	1.4E-02	1.1E-07	1.0E-08	2.E-09	1.E-10	2.E-09	2.0E-02	2.0E-02	3.1E-07	2.8E-08	2.E-05	1.E-06	0.00002
	Phenols																
	Pentachlorophenol	5.6E+01	ug/kg	4.0E-01	4.0E-01	5.3E-09	2.0E-10	2.E-09	8.E-11	2.E-09	5.0E-03	5.0E-03	1.5E-08	5.5E-10	3.E-06	1.E-07	0.000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	1.9E-08	1.3E-09	4.E-08	3.E-09	4.E-08	2.0E-05	2.0E-05	5.3E-08	3.5E-09	3.E-03	2.E-04	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	1.3E+05	1.3E+05	7.5E-12	2.3E-12	1.E-06	3.E-07	1.E-06	1.0E-09	1.0E-09	2.1E-11	6.4E-12	2.E-02	6.E-03	0.03
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	9.0E-13	5.9E-14	1.E-07	8.E-09	1.E-07	1.0E-09	1.0E-09	2.5E-12	1.6E-13	3.E-03	2.E-04	0.003
	Pesticides																
	Aldrin	5.8E+00	ug/kg	1.7E+01	1.7E+01	2.2E-10	2.0E-11	4.E-09	3.E-10	4.E-09	3.0E-05	3.0E-05	6.2E-10	5.7E-11	2.E-05	2.E-06	0.00002
	Dieldrin	2.8E+00	ug/kg	1.6E+01	1.6E+01	1.1E-10	9.8E-12	2.E-09	2.E-10	2.E-09	5.0E-05	5.0E-05	3.0E-10	2.7E-11	6.E-06	5.E-07	0.00001
	Total DDT	3.7E+02	ug/kg	3.4E-01	3.4E-01	4.3E-09	1.3E-09	1.E-09	4.E-10	2.E-09	5.0E-04	5.0E-04	1.2E-08	3.7E-09	2.E-05	7.E-06	0.00003

TABLE 5-29.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	9.6E-07	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.7E-06	0.E+00	4.E-03	0.004
Exposure Point Total										4.E-06							0.1

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.1E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.3E-08	8.2E-09	4.E-05	3.E-05	0.0001
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	1.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-10	0.E+00	1.E-06	0.000001
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	1.1E-12	2.1E-13	--	--	--	3.0E-04	3.0E-04	8.4E-12	1.6E-12	3.E-08	5.E-09	0.00000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+01	ug/kg	7.3E-01	7.3E-01	8.3E-11	1.3E-11	6.E-11	9.E-12	7.E-11	--	--	6.5E-10	9.8E-11	--	--	--
	Benzo(a)pyrene	7.4E+01	ug/kg	7.3E+00	7.3E+00	1.2E-10	1.9E-11	9.E-10	1.E-10	1.E-09	--	--	9.6E-10	1.5E-10	--	--	--
	Benzo(b)fluoranthene	7.4E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.9E-11	9.E-11	1.E-11	1.E-10	--	--	9.5E-10	1.4E-10	--	--	--
	Benzo(k)fluoranthene	3.0E+01	ug/kg	7.3E-02	7.3E-02	5.0E-11	7.6E-12	4.E-12	6.E-13	4.E-12	--	--	3.9E-10	5.9E-11	--	--	--
	Dibenzo(a,h)anthracene	9.4E+00	ug/kg	7.3E+00	7.3E+00	1.6E-11	2.4E-12	1.E-10	2.E-11	1.E-10	--	--	1.2E-10	1.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.8E+01	ug/kg	7.3E-01	7.3E-01	9.6E-11	1.5E-11	7.E-11	1.E-11	8.E-11	--	--	7.5E-10	1.1E-10	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	2.2E-11	3.3E-12	--	--	--	2.0E-02	2.0E-02	1.7E-10	2.6E-11	9.E-09	1.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+01	ug/kg	1.4E-02	1.4E-02	2.4E-11	4.7E-12	3.E-13	7.E-14	4.E-13	2.0E-02	2.0E-02	1.8E-10	3.6E-11	9.E-09	2.E-09	0.00000001
	Phenols																
	Pentachlorophenol	7.2E-01	ug/kg	4.0E-01	4.0E-01	2.3E-12	1.8E-13	9.E-13	7.E-14	1.E-12	5.0E-03	5.0E-03	1.8E-11	1.4E-12	4.E-09	3.E-10	0.000000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	2.0E-11	2.9E-12	4.E-11	6.E-12	5.E-11	2.0E-05	2.0E-05	1.6E-10	2.2E-11	8.E-06	1.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	1.3E+05	1.3E+05	2.9E-16	1.9E-16	4.E-11	2.E-11	6.E-11	1.0E-09	1.0E-09	2.3E-15	1.5E-15	2.E-06	1.E-06	0.000004
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	5.7E-16	8.0E-17	7.E-11	1.E-11	8.E-11	1.0E-09	1.0E-09	4.4E-15	6.2E-16	4.E-06	6.E-07	0.00001
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	2.2E-13	4.3E-14	4.E-12	7.E-13	4.E-12	3.0E-05	3.0E-05	1.7E-12	3.3E-13	6.E-08	1.E-08	0.0000001
	Total DDT	2.5E+00	ug/kg	3.4E-01	3.4E-01	9.5E-13	6.3E-13	3.E-13	2.E-13	5.E-13	5.0E-04	5.0E-04	7.4E-12	4.9E-12	1.E-08	1.E-08	0.00000002
Exposure Point Total[b]										6.E-09							0.0001
RM 1 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	8.0E-09	4.E-05	3.E-05	0.0001
	Mercury	1.4E+00	mg/kg	--	--	0.0E+00	3.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.8E-09	0.E+00	3.E-05	0.00003
	Butyltins																
	Tributyltin ion	1.1E+00	ug/kg	--	--	1.4E-12	2.8E-13	--	--	--	3.0E-04	3.0E-04	1.1E-11	2.2E-12	4.E-08	7.E-09	0.00000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	5.2E-11	7.9E-12	4.E-11	6.E-12	4.E-11	--	--	4.1E-10	6.2E-11	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	7.7E-11	1.2E-11	6.E-10	9.E-11	6.E-10	--	--	6.0E-10	9.1E-11	--	--	--
	Benzo(b)fluoranthene	4.2E+01	ug/kg	7.3E-01	7.3E-01	7.0E-11	1.1E-11	5.E-11	8.E-12	6.E-11	--	--	5.4E-10	8.2E-11	--	--	--
	Benzo(k)fluoranthene	2.7E+01	ug/kg	7.3E-02	7.3E-02	4.4E-11	6.7E-12	3.E-12	5.E-13	4.E-12	--	--	3.4E-10	5.2E-11	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	9.1E-12	1.4E-12	7.E-11	1.E-11	8.E-11	--	--	7.1E-11	1.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+01	ug/kg	7.3E-01	7.3E-01	5.5E-11	8.3E-12	4.E-11	6.E-12	5.E-11	--	--	4.3E-10	6.4E-11	--	--	--
	Naphthalene	8.3E+00	ug/kg	--	--	1.4E-11	2.1E-12	--	--	--	2.0E-02	2.0E-02	1.1E-10	1.6E-11	5.E-09	8.E-10	0.00000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	5.1E-11	1.0E-11	7.E-13	1.E-13	9.E-13	2.0E-02	2.0E-02	4.0E-10	7.8E-11	2.E-08	4.E-09	0.00000002
	Phenols																
	Pentachlorophenol	7.6E-01	ug/kg	4.0E-01	4.0E-01	2.4E-12	1.9E-13	1.E-12	8.E-14	1.E-12	5.0E-03	5.0E-03	1.9E-11	1.5E-12	4.E-09	3.E-10	0.000000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	1.8E-10	2.6E-11	4.E-10	5.E-11	4.E-10	2.0E-05	2.0E-05	1.4E-09	2.0E-10	7.E-05	1.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	1.8E-16	1.2E-16	2.E-11	2.E-11	4.E-11	1.0E-09	1.0E-09	1.4E-15	9.2E-16	1.E-06	9.E-07	0.000002
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	4.8E-16	6.7E-17	6.E-11	9.E-12	7.E-11	1.0E-09	1.0E-09	3.7E-15	5.2E-16	4.E-06	5.E-07	0.000004
	Pesticides																
	Total DDT	1.8E+00	ug/kg	3.4E-01	3.4E-01	6.9E-13	4.5E-13	2.E-13	2.E-13	4.E-13	5.0E-04	5.0E-04	5.3E-12	3.5E-12	1.E-08	7.E-09	0.00000002
Exposure Point Total										5.E-09							0.0002
RM 1.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	1.4E-09	9.1E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	1.1E-08	7.1E-09	4.E-05	2.E-05	0.0001
	Mercury	5.1E-02	mg/kg	--	--	0.0E+00	1.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.9E-11	0.E+00	1.E-06	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.9E+01	ug/kg	7.3E-01	7.3E-01	3.1E-11	4.7E-12	2.E-11	3.E-12	3.E-11	--	--	2.4E-10	3.6E-11	--	--	--
	Benzo(a)pyrene	2.7E+01	ug/kg	7.3E+00	7.3E+00	4.5E-11	6.8E-12	3.E-10	5.E-11	4.E-10	--	--	3.5E-10	5.3E-11	--	--	--
	Benzo(b)fluoranthene	2.3E+01	ug/kg	7.3E-01	7.3E-01	3.8E-11	5.8E-12	3.E-11	4.E-12	3.E-11	--	--	3.0E-10	4.5E-11	--	--	--
	Benzo(k)fluoranthene	1.9E+01	ug/kg	7.3E-02	7.3E-02	3.2E-11	4.8E-12	2.E-12	4.E-13	3.E-12	--	--	2.5E-10	3.7E-11	--	--	--
	Dibenzo(a,h)anthracene	3.3E+00	ug/kg	7.3E+00	7.3E+00	5.4E-12	8.2E-13	4.E-11	6.E-12	5.E-11	--	--	4.2E-11	6.4E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+01	ug/kg	7.3E-01	7.3E-01	3.5E-11	5.3E-12	3.E-11	4.E-12	3.E-11	--	--	2.7E-10	4.1E-11	--	--	--
	Naphthalene	5.3E+00	ug/kg	--	--	8.9E-12	1.3E-12	--	--	--	2.0E-02	2.0E-02	6.9E-11	1.0E-11	3.E-09	5.E-10	0.000000004
	Phenols																
	Pentachlorophenol	8.1E-01	ug/kg	4.0E-01	4.0E-01	2.6E-12	2.0E-13	1.E-12	8.E-14	1.E-12	5.0E-03	5.0E-03	2.0E-11	1.6E-12	4.E-09	3.E-10	0.000000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	2.1E-11	2.9E-12	4.E-11	6.E-12	5.E-11	2.0E-05	2.0E-05	1.6E-10	2.3E-11	8.E-06	1.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	1.3E+05	1.3E+05	3.3E-17	2.1E-17	4.E-12	3.E-12	7.E-12	1.0E-09	1.0E-09	2.5E-16	1.7E-16	3.E-07	2.E-07	0.0000004
	Pesticides																
	Total DDT	7.9E-01	ug/kg	3.4E-01	3.4E-01	3.0E-13	2.0E-13	1.E-13	7.E-14	2.E-13	5.0E-04	5.0E-04	2.4E-12	1.6E-12	5.E-09	3.E-09	0.00000001
Exposure Point Total										4.E-09							0.0001
RM 1.5 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	1.7E-09	1.1E-09	3.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.3E-08	8.5E-09	4.E-05	3.E-05	0.00007
	Mercury	6.4E-02	mg/kg	--	--	0.0E+00	1.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-10	0.E+00	1.E-06	0.000001
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	4.7E-13	9.3E-14	--	--	--	3.0E-04	3.0E-04	3.7E-12	7.2E-13	1.E-08	2.E-09	0.00000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	4.1E-10	6.3E-11	3.E-10	5.E-11	3.E-10	--	--	3.2E-09	4.9E-10	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	6.1E-10	9.2E-11	4.E-09	7.E-10	5.E-09	--	--	4.7E-09	7.2E-10	--	--	--
	Benzo(b)fluoranthene	2.2E+02	ug/kg	7.3E-01	7.3E-01	3.7E-10	5.5E-11	3.E-10	4.E-11	3.E-10	--	--	2.8E-09	4.3E-10	--	--	--
	Benzo(k)fluoranthene	2.2E+02	ug/kg	7.3E-02	7.3E-02	3.6E-10	5.4E-11	3.E-11	4.E-12	3.E-11	--	--	2.8E-09	4.2E-10	--	--	--
	Dibenzo(a,h)anthracene	3.7E+01	ug/kg	7.3E+00	7.3E+00	6.1E-11	9.3E-12	4.E-10	7.E-11	5.E-10	--	--	4.8E-10	7.2E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	4.4E-10	6.6E-11	3.E-10	5.E-11	4.E-10	--	--	3.4E-09	5.1E-10	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	1.6E-10	2.5E-11	--	--	--	2.0E-02	2.0E-02	1.3E-09	1.9E-10	6.E-08	1.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	9.1E-11	1.8E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	7.1E-10	1.4E-10	4.E-08	7.E-09	0.00000004
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	5.2E-12	4.1E-13	2.E-12	2.E-13	2.E-12	5.0E-03	5.0E-03	4.1E-11	3.2E-12	8.E-09	6.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	3.9E-11	5.4E-12	8.E-11	1.E-11	9.E-11	2.0E-05	2.0E-05	3.0E-10	4.2E-11	2.E-05	2.E-06	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	1.3E+05	1.3E+05	2.2E-16	1.4E-16	3.E-11	2.E-11	5.E-11	1.0E-09	1.0E-09	1.7E-15	1.1E-15	2.E-06	1.E-06	0.000003
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	1.9E-16	2.7E-17	2.E-11	3.E-12	3.E-11	1.0E-09	1.0E-09	1.5E-15	2.1E-16	1.E-06	2.E-07	0.000002
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	8.8E-14	1.7E-14	1.E-12	3.E-13	2.E-12	5.0E-05	5.0E-05	6.9E-13	1.4E-13	1.E-08	3.E-09	0.00000002
	Total DDT	6.8E+00	ug/kg	3.4E-01	3.4E-01	2.6E-12	1.7E-12	9.E-13	6.E-13	1.E-12	5.0E-04	5.0E-04	2.0E-11	1.3E-11	4.E-08	3.E-08	0.0000001
Exposure Point Total										1.E-08							0.0001
RM 2 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	1.3E-09	8.6E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	1.0E-08	6.7E-09	3.E-05	2.E-05	0.0001
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	1.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-10	0.E+00	1.E-06	0.000001
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	2.7E-12	5.3E-13	--	--	--	3.0E-04	3.0E-04	2.1E-11	4.1E-12	7.E-08	1.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+01	ug/kg	7.3E-01	7.3E-01	5.1E-11	7.7E-12	4.E-11	6.E-12	4.E-11	--	--	4.0E-10	6.0E-11	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	9.2E-11	1.4E-11	7.E-10	1.E-10	8.E-10	--	--	7.1E-10	1.1E-10	--	--	--
	Benzo(b)fluoranthene	5.6E+01	ug/kg	7.3E-01	7.3E-01	9.3E-11	1.4E-11	7.E-11	1.E-11	8.E-11	--	--	7.2E-10	1.1E-10	--	--	--
	Benzo(k)fluoranthene	1.8E+01	ug/kg	7.3E-02	7.3E-02	3.0E-11	4.5E-12	2.E-12	3.E-13	2.E-12	--	--	2.3E-10	3.5E-11	--	--	--
	Dibenzo(a,h)anthracene	6.1E+00	ug/kg	7.3E+00	7.3E+00	1.0E-11	1.5E-12	7.E-11	1.E-11	8.E-11	--	--	7.8E-11	1.2E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+01	ug/kg	7.3E-01	7.3E-01	7.6E-11	1.2E-11	6.E-11	8.E-12	6.E-11	--	--	5.9E-10	9.0E-11	--	--	--
	Naphthalene	7.2E+00	ug/kg	--	--	1.2E-11	1.8E-12	--	--	--	2.0E-02	2.0E-02	9.3E-11	1.4E-11	5.E-09	7.E-10	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+01	ug/kg	1.4E-02	1.4E-02	4.2E-11	8.3E-12	6.E-13	1.E-13	7.E-13	2.0E-02	2.0E-02	3.3E-10	6.5E-11	2.E-08	3.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+01	ug/kg	2.0E+00	2.0E+00	2.3E-11	3.3E-12	5.E-11	7.E-12	5.E-11	2.0E-05	2.0E-05	1.8E-10	2.5E-11	9.E-06	1.E-06	0.00001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	1.3E+05	1.3E+05	3.1E-16	2.1E-16	4.E-11	3.E-11	7.E-11	1.0E-09	1.0E-09	2.4E-15	1.6E-15	2.E-06	2.E-06	0.000004
	Total PCB TEQ	2.5E-01	pg/g	1.3E+05	1.3E+05	4.5E-16	6.3E-17	6.E-11	8.E-12	7.E-11	1.0E-09	1.0E-09	3.5E-15	4.9E-16	3.E-06	5.E-07	0.000004
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	1.2E-13	2.3E-14	2.E-12	4.E-13	2.E-12	3.0E-05	3.0E-05	9.0E-13	1.8E-13	3.E-08	6.E-09	0.00000004
	Dieldrin	1.1E-01	ug/kg	1.6E+01	1.6E+01	1.5E-13	2.9E-14	2.E-12	5.E-13	3.E-12	5.0E-05	5.0E-05	1.1E-12	2.2E-13	2.E-08	4.E-09	0.00000003
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	5.3E-13	3.5E-13	2.E-13	1.E-13	3.E-13	5.0E-04	5.0E-04	4.1E-12	2.7E-12	8.E-09	5.E-09	0.00000001
Exposure Point Total										5.E-09							0.0001
RM 2 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	8.0E-09	4.E-05	3.E-05	0.0001
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	2.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-10	0.E+00	2.E-06	0.000002
	Butyltins																
	Tributyltin ion	2.7E+00	ug/kg	--	--	3.4E-12	6.7E-13	--	--	--	3.0E-04	3.0E-04	2.6E-11	5.2E-12	9.E-08	2.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+01	ug/kg	7.3E-01	7.3E-01	9.6E-11	1.5E-11	7.E-11	1.E-11	8.E-11	--	--	7.5E-10	1.1E-10	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.4E-10	2.2E-11	1.E-09	2.E-10	1.E-09	--	--	1.1E-09	1.7E-10	--	--	--
	Benzo(b)fluoranthene	9.4E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	2.4E-11	1.E-10	2.E-11	1.E-10	--	--	1.2E-09	1.8E-10	--	--	--
	Benzo(k)fluoranthene	4.1E+01	ug/kg	7.3E-02	7.3E-02	6.9E-11	1.0E-11	5.E-12	8.E-13	6.E-12	--	--	5.3E-10	8.1E-11	--	--	--
	Dibenzo(a,h)anthracene	1.3E+01	ug/kg	7.3E+00	7.3E+00	2.1E-11	3.2E-12	2.E-10	2.E-11	2.E-10	--	--	1.7E-10	2.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	7.5E+01	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.9E-11	9.E-11	1.E-11	1.E-10	--	--	9.7E-10	1.5E-10	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	2.4E-11	3.6E-12	--	--	--	2.0E-02	2.0E-02	1.9E-10	2.8E-11	9.E-09	1.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.9E+01	ug/kg	1.4E-02	1.4E-02	1.3E-10	2.5E-11	2.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	9.8E-10	1.9E-10	5.E-08	1.E-08	0.0000001
	Phenols																
	Pentachlorophenol	5.3E-01	ug/kg	4.0E-01	4.0E-01	1.7E-12	1.3E-13	7.E-13	5.E-14	7.E-13	5.0E-03	5.0E-03	1.3E-11	1.0E-12	3.E-09	2.E-10	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+02	ug/kg	2.0E+00	2.0E+00	7.7E-10	1.1E-10	2.E-09	2.E-10	2.E-09	2.0E-05	2.0E-05	6.0E-09	8.5E-10	3.E-04	4.E-05	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	4.7E-16	3.1E-16	6.E-11	4.E-11	1.E-10	1.0E-09	1.0E-09	3.7E-15	2.4E-15	4.E-06	2.E-06	0.00001
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	2.4E-14	3.4E-15	3.E-09	4.E-10	4.E-09	1.0E-09	1.0E-09	1.9E-13	2.6E-14	2.E-04	3.E-05	0.0002
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	6.0E-13	1.2E-13	1.E-11	2.E-12	1.E-11	3.0E-05	3.0E-05	4.6E-12	9.1E-13	2.E-07	3.E-08	0.0000002
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	7.6E-13	1.5E-13	1.E-11	2.E-12	1.E-11	5.0E-05	5.0E-05	5.9E-12	1.2E-12	1.E-07	2.E-08	0.0000001
	Total DDT	2.6E+00	ug/kg	3.4E-01	3.4E-01	9.9E-13	6.5E-13	3.E-13	2.E-13	6.E-13	5.0E-04	5.0E-04	7.7E-12	5.1E-12	2.E-08	1.E-08	0.00000003
Exposure Point Total										1.E-08							0.0006
RM 2.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.5E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	7.9E-09	4.E-05	3.E-05	0.0001
	Mercury	5.5E-02	mg/kg	--	--	0.0E+00	1.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-10	0.E+00	1.E-06	0.000001
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	2.9E-12	5.8E-13	--	--	--	3.0E-04	3.0E-04	2.3E-11	4.5E-12	8.E-08	2.E-08	0.0000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	3.4E-10	5.2E-11	2.E-10	4.E-11	3.E-10	--	--	2.7E-09	4.0E-10	--	--	--
	Benzo(a)pyrene	3.7E+02	ug/kg	7.3E+00	7.3E+00	6.1E-10	9.3E-11	4.E-09	7.E-10	5.E-09	--	--	4.8E-09	7.2E-10	--	--	--
	Benzo(b)fluoranthene	2.8E+02	ug/kg	7.3E-01	7.3E-01	4.6E-10	6.9E-11	3.E-10	5.E-11	4.E-10	--	--	3.6E-09	5.4E-10	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	2.1E-10	3.1E-11	2.E-11	2.E-12	2.E-11	--	--	1.6E-09	2.4E-10	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	6.8E-11	1.0E-11	5.E-10	8.E-11	6.E-10	--	--	5.3E-10	8.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.1E+02	ug/kg	7.3E-01	7.3E-01	5.1E-10	7.8E-11	4.E-10	6.E-11	4.E-10	--	--	4.0E-09	6.1E-10	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	6.8E-11	1.0E-11	--	--	--	2.0E-02	2.0E-02	5.3E-10	7.9E-11	3.E-08	4.E-09	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.5E+01	ug/kg	1.4E-02	1.4E-02	2.0E-11	3.9E-12	3.E-13	5.E-14	3.E-13	2.0E-02	2.0E-02	1.5E-10	3.0E-11	8.E-09	2.E-09	0.00000001
	Phenols																
	Pentachlorophenol	4.5E-01	ug/kg	4.0E-01	4.0E-01	1.4E-12	1.1E-13	6.E-13	4.E-14	6.E-13	5.0E-03	5.0E-03	1.1E-11	8.7E-13	2.E-09	2.E-10	0.000000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	1.9E-11	2.7E-12	4.E-11	5.E-12	4.E-11	2.0E-05	2.0E-05	1.5E-10	2.1E-11	7.E-06	1.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	1.0E-16	6.7E-17	1.E-11	9.E-12	2.E-11	1.0E-09	1.0E-09	8.0E-16	5.2E-16	8.E-07	5.E-07	0.000001
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	3.7E-16	5.2E-17	5.E-11	7.E-12	5.E-11	1.0E-09	1.0E-09	2.9E-15	4.0E-16	3.E-06	4.E-07	0.000003
	Pesticides																
	Aldrin	9.3E-02	ug/kg	1.7E+01	1.7E+01	1.2E-13	2.3E-14	2.E-12	4.E-13	2.E-12	3.0E-05	3.0E-05	9.3E-13	1.8E-13	3.E-08	6.E-09	0.00000004
	Dieldrin	1.4E-01	ug/kg	1.6E+01	1.6E+01	1.7E-13	3.4E-14	3.E-12	6.E-13	3.E-12	5.0E-05	5.0E-05	1.4E-12	2.7E-13	3.E-08	5.E-09	0.00000003
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	5.6E-13	3.6E-13	2.E-13	1.E-13	3.E-13	5.0E-04	5.0E-04	4.3E-12	2.8E-12	9.E-09	6.E-09	0.00000001
Exposure Point Total										1.E-08							0.0001
RM 2.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.1E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.3E-08	8.3E-09	4.E-05	3.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-10	0.E+00	1.E-06	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+02	ug/kg	7.3E-01	7.3E-01	9.7E-10	1.5E-10	7.E-10	1.E-10	8.E-10	--	--	7.5E-09	1.1E-09	--	--	--
	Benzo(a)pyrene	4.8E+02	ug/kg	7.3E+00	7.3E+00	8.0E-10	1.2E-10	6.E-09	9.E-10	7.E-09	--	--	6.2E-09	9.4E-10	--	--	--
	Benzo(b)fluoranthene	4.4E+02	ug/kg	7.3E-01	7.3E-01	7.3E-10	1.1E-10	5.E-10	8.E-11	6.E-10	--	--	5.7E-09	8.6E-10	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	2.3E-10	3.5E-11	2.E-11	3.E-12	2.E-11	--	--	1.8E-09	2.7E-10	--	--	--
	Dibenzo(a,h)anthracene	4.9E+01	ug/kg	7.3E+00	7.3E+00	8.1E-11	1.2E-11	6.E-10	9.E-11	7.E-10	--	--	6.3E-10	9.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	4.7E-10	7.2E-11	3.E-10	5.E-11	4.E-10	--	--	3.7E-09	5.6E-10	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	8.5E-11	1.3E-11	--	--	--	2.0E-02	2.0E-02	6.6E-10	9.9E-11	3.E-08	5.E-09	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.8E+01	ug/kg	1.4E-02	1.4E-02	1.0E-10	2.0E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	7.8E-10	1.5E-10	4.E-08	8.E-09	0.00000005
	Phenols																
	Pentachlorophenol	4.3E+00	ug/kg	4.0E-01	4.0E-01	1.4E-11	1.1E-12	5.E-12	4.E-13	6.E-12	5.0E-03	5.0E-03	1.1E-10	8.3E-12	2.E-08	2.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	1.0E-10	1.4E-11	2.E-10	3.E-11	2.E-10	2.0E-05	2.0E-05	7.8E-10	1.1E-10	4.E-05	5.E-06	0.00004

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	2.5E-16	1.7E-16	3.E-11	2.E-11	5.E-11	1.0E-09	1.0E-09	2.0E-15	1.3E-15	2.E-06	1.E-06	0.000003
	Total PCB TEQ	1.3E+00	pg/g	1.3E+05	1.3E+05	2.4E-15	3.4E-16	3.E-10	4.E-11	4.E-10	1.0E-09	1.0E-09	1.9E-14	2.6E-15	2.E-05	3.E-06	0.00002
	Pesticides																
	Aldrin	5.1E-01	ug/kg	1.7E+01	1.7E+01	6.5E-13	1.3E-13	1.E-11	2.E-12	1.E-11	3.0E-05	3.0E-05	5.0E-12	9.9E-13	2.E-07	3.E-08	0.0000002
	Dieldrin	1.7E-01	ug/kg	1.6E+01	1.6E+01	2.1E-13	4.2E-14	3.E-12	7.E-13	4.E-12	5.0E-05	5.0E-05	1.6E-12	3.2E-13	3.E-08	6.E-09	0.00000004
	Total DDT	2.4E+00	ug/kg	3.4E-01	3.4E-01	9.1E-13	6.0E-13	3.E-13	2.E-13	5.E-13	5.0E-04	5.0E-04	7.1E-12	4.7E-12	1.E-08	9.E-09	0.00000002
Exposure Point Total										1.E-08							0.0001
RM 2.5 MC	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.1E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.3E-08	8.3E-09	4.E-05	3.E-05	0.0001
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	2.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-10	0.E+00	2.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	3.5E-10	5.3E-11	3.E-10	4.E-11	3.E-10	--	--	2.7E-09	4.2E-10	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	5.7E-10	8.6E-11	4.E-09	6.E-10	5.E-09	--	--	4.4E-09	6.7E-10	--	--	--
	Benzo(b)fluoranthene	3.1E+02	ug/kg	7.3E-01	7.3E-01	5.2E-10	7.9E-11	4.E-10	6.E-11	4.E-10	--	--	4.0E-09	6.1E-10	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	1.7E-10	2.5E-11	1.E-11	2.E-12	1.E-11	--	--	1.3E-09	2.0E-10	--	--	--
	Dibenzo(a,h)anthracene	3.4E+01	ug/kg	7.3E+00	7.3E+00	5.6E-11	8.4E-12	4.E-10	6.E-11	5.E-10	--	--	4.3E-10	6.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+02	ug/kg	7.3E-01	7.3E-01	4.3E-10	6.6E-11	3.E-10	5.E-11	4.E-10	--	--	3.4E-09	5.1E-10	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	9.8E-11	1.5E-11	--	--	--	2.0E-02	2.0E-02	7.6E-10	1.1E-10	4.E-08	6.E-09	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	7.4E-11	1.5E-11	1.E-12	2.E-13	1.E-12	2.0E-02	2.0E-02	5.7E-10	1.1E-10	3.E-08	6.E-09	0.00000003
	Phenols																
	Pentachlorophenol	5.5E-01	ug/kg	4.0E-01	4.0E-01	1.8E-12	1.4E-13	7.E-13	6.E-14	8.E-13	5.0E-03	5.0E-03	1.4E-11	1.1E-12	3.E-09	2.E-10	0.000000003
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	4.5E-11	6.4E-12	9.E-11	1.E-11	1.E-10	2.0E-05	2.0E-05	3.5E-10	5.0E-11	2.E-05	2.E-06	0.00002
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	2.6E-13	5.1E-14	4.E-12	9.E-13	5.E-12	3.0E-05	3.0E-05	2.0E-12	4.0E-13	7.E-08	1.E-08	0.0000001
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	3.9E-13	7.7E-14	6.E-12	1.E-12	8.E-12	5.0E-05	5.0E-05	3.1E-12	6.0E-13	6.E-08	1.E-08	0.0000001
	Total DDT	3.7E+00	ug/kg	3.4E-01	3.4E-01	1.4E-12	9.4E-13	5.E-13	3.E-13	8.E-13	5.0E-04	5.0E-04	1.1E-11	7.3E-12	2.E-08	1.E-08	0.00000004
Exposure Point Total										1.E-08							0.0001
RM 3 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.4E-09	9.2E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	1.1E-08	7.2E-09	4.E-05	2.E-05	0.0001
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	2.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-10	0.E+00	2.E-06	0.000002
	Vanadium	8.6E+01	mg/kg	--	--	0.0E+00	2.2E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.7E-07	0.E+00	2.E-03	0.002
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	1.3E-11	2.6E-12	--	--	--	3.0E-04	3.0E-04	1.0E-10	2.0E-11	3.E-07	7.E-08	0.0000004

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	4.8E-10	7.3E-11	4.E-10	5.E-11	4.E-10	--	--	3.8E-09	5.7E-10	--	--	--
	Benzo(a)pyrene	4.6E+02	ug/kg	7.3E+00	7.3E+00	7.7E-10	1.2E-10	6.E-09	8.E-10	6.E-09	--	--	6.0E-09	9.0E-10	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	6.6E-10	9.9E-11	5.E-10	7.E-11	6.E-10	--	--	5.1E-09	7.7E-10	--	--	--
	Benzo(k)fluoranthene	2.3E+02	ug/kg	7.3E-02	7.3E-02	3.8E-10	5.8E-11	3.E-11	4.E-12	3.E-11	--	--	3.0E-09	4.5E-10	--	--	--
	Dibenzo(a,h)anthracene	5.3E+01	ug/kg	7.3E+00	7.3E+00	8.8E-11	1.3E-11	6.E-10	1.E-10	7.E-10	--	--	6.8E-10	1.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	5.4E-10	8.2E-11	4.E-10	6.E-11	5.E-10	--	--	4.2E-09	6.4E-10	--	--	--
	Naphthalene	9.8E+01	ug/kg	--	--	1.6E-10	2.5E-11	--	--	--	2.0E-02	2.0E-02	1.3E-09	1.9E-10	6.E-08	1.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.0E+01	ug/kg	1.4E-02	1.4E-02	5.1E-11	1.0E-11	7.E-13	1.E-13	9.E-13	2.0E-02	2.0E-02	4.0E-10	7.9E-11	2.E-08	4.E-09	0.00000002
	Phenols																
	Pentachlorophenol	1.6E+01	ug/kg	4.0E-01	4.0E-01	5.2E-11	4.1E-12	2.E-11	2.E-12	2.E-11	5.0E-03	5.0E-03	4.1E-10	3.2E-11	8.E-08	6.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+01	ug/kg	2.0E+00	2.0E+00	2.0E-11	2.8E-12	4.E-11	6.E-12	5.E-11	2.0E-05	2.0E-05	1.6E-10	2.2E-11	8.E-06	1.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	1.3E+05	2.3E-16	1.5E-16	3.E-11	2.E-11	5.E-11	1.0E-09	1.0E-09	1.8E-15	1.2E-15	2.E-06	1.E-06	0.000003
	Total PCB TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	7.4E-16	1.0E-16	1.E-10	1.E-11	1.E-10	1.0E-09	1.0E-09	5.7E-15	8.0E-16	6.E-06	8.E-07	0.00001
	Pesticides																
	Aldrin	3.5E-01	ug/kg	1.7E+01	1.7E+01	4.5E-13	8.9E-14	8.E-12	2.E-12	9.E-12	3.0E-05	3.0E-05	3.5E-12	6.9E-13	1.E-07	2.E-08	0.0000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	2.5E-13	4.9E-14	4.E-12	8.E-13	5.E-12	5.0E-05	5.0E-05	1.9E-12	3.8E-13	4.E-08	8.E-09	0.00000005
	Total DDT	2.8E+01	ug/kg	3.4E-01	3.4E-01	1.1E-11	7.1E-12	4.E-12	2.E-12	6.E-12	5.0E-04	5.0E-04	8.4E-11	5.5E-11	2.E-07	1.E-07	0.0000003
Exposure Point Total										1.E-08							0.002
RM 3 East	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	8.1E-09	4.E-05	3.E-05	0.0001
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	1.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-10	0.E+00	1.E-06	0.000001
	Vanadium	8.8E+01	mg/kg	--	--	0.0E+00	2.2E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.7E-07	0.E+00	2.E-03	0.002
	Butyltins																
	Tributyltin ion	8.3E+00	ug/kg	--	--	1.1E-11	2.1E-12	--	--	--	3.0E-04	3.0E-04	8.2E-11	1.6E-11	3.E-07	5.E-08	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.7E+01	ug/kg	7.3E-01	7.3E-01	1.3E-10	1.9E-11	9.E-11	1.E-11	1.E-10	--	--	1.0E-09	1.5E-10	--	--	--
	Benzo(a)pyrene	8.4E+01	ug/kg	7.3E+00	7.3E+00	1.4E-10	2.1E-11	1.E-09	2.E-10	1.E-09	--	--	1.1E-09	1.6E-10	--	--	--
	Benzo(b)fluoranthene	9.9E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	2.5E-11	1.E-10	2.E-11	1.E-10	--	--	1.3E-09	1.9E-10	--	--	--
	Benzo(k)fluoranthene	6.0E+01	ug/kg	7.3E-02	7.3E-02	1.0E-10	1.5E-11	7.E-12	1.E-12	8.E-12	--	--	7.8E-10	1.2E-10	--	--	--
	Dibenzo(a,h)anthracene	1.4E+01	ug/kg	7.3E+00	7.3E+00	2.3E-11	3.5E-12	2.E-10	3.E-11	2.E-10	--	--	1.8E-10	2.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	1.7E-11	8.E-11	1.E-11	9.E-11	--	--	8.7E-10	1.3E-10	--	--	--
	Naphthalene	1.3E+01	ug/kg	--	--	2.1E-11	3.2E-12	--	--	--	2.0E-02	2.0E-02	1.6E-10	2.5E-11	8.E-09	1.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.5E+01	ug/kg	1.4E-02	1.4E-02	8.3E-11	1.6E-11	1.E-12	2.E-13	1.E-12	2.0E-02	2.0E-02	6.4E-10	1.3E-10	3.E-08	6.E-09	0.00000004

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	1.9E+00	ug/kg	4.0E-01	4.0E-01	6.2E-12	4.9E-13	2.E-12	2.E-13	3.E-12	5.0E-03	5.0E-03	4.8E-11	3.8E-12	1.E-08	8.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+01	ug/kg	2.0E+00	2.0E+00	3.4E-11	4.8E-12	7.E-11	1.E-11	8.E-11	2.0E-05	2.0E-05	2.6E-10	3.7E-11	1.E-05	2.E-06	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	1.3E+05	1.3E+05	1.1E-15	7.2E-16	1.E-10	9.E-11	2.E-10	1.0E-09	1.0E-09	8.5E-15	5.6E-15	9.E-06	6.E-06	0.00001
	Total PCB TEQ	7.7E-02	pg/g	1.3E+05	1.3E+05	1.4E-16	1.9E-17	2.E-11	3.E-12	2.E-11	1.0E-09	1.0E-09	1.1E-15	1.5E-16	1.E-06	1.E-07	0.0000012
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	3.7E-13	7.2E-14	6.E-12	1.E-12	7.E-12	3.0E-05	3.0E-05	2.8E-12	5.6E-13	9.E-08	2.E-08	0.0000001
	Dieldrin	5.7E-02	ug/kg	1.6E+01	1.6E+01	7.3E-14	1.4E-14	1.E-12	2.E-13	1.E-12	5.0E-05	5.0E-05	5.7E-13	1.1E-13	1.E-08	2.E-09	0.00000001
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	6.1E-13	4.0E-13	2.E-13	1.E-13	3.E-13	5.0E-04	5.0E-04	4.7E-12	3.1E-12	9.E-09	6.E-09	0.00000002
Exposure Point Total										6.E-09							0.003
RM 3.5 West	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	2.2E-09	1.5E-09	3.E-09	2.E-09	6.E-09	3.0E-04	3.0E-04	1.7E-08	1.1E-08	6.E-05	4.E-05	0.0001
	Mercury	7.1E-02	mg/kg	--	--	0.0E+00	1.8E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-10	0.E+00	1.E-06	0.000001
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	1.0E-10	2.0E-11	--	--	--	3.0E-04	3.0E-04	8.1E-10	1.6E-10	3.E-06	5.E-07	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	4.3E-10	6.5E-11	3.E-10	5.E-11	4.E-10	--	--	3.4E-09	5.1E-10	--	--	--
	Benzo(a)pyrene	3.9E+02	ug/kg	7.3E+00	7.3E+00	6.5E-10	9.9E-11	5.E-09	7.E-10	5.E-09	--	--	5.1E-09	7.7E-10	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	5.8E-10	8.8E-11	4.E-10	6.E-11	5.E-10	--	--	4.5E-09	6.8E-10	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	2.4E-10	3.6E-11	2.E-11	3.E-12	2.E-11	--	--	1.9E-09	2.8E-10	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	7.2E-11	1.1E-11	5.E-10	8.E-11	6.E-10	--	--	5.6E-10	8.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	5.3E-10	8.1E-11	4.E-10	6.E-11	4.E-10	--	--	4.2E-09	6.3E-10	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	2.2E-10	3.3E-11	--	--	--	2.0E-02	2.0E-02	1.7E-09	2.6E-10	9.E-08	1.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	5.9E-11	1.2E-11	8.E-13	2.E-13	1.E-12	2.0E-02	2.0E-02	4.6E-10	9.1E-11	2.E-08	5.E-09	0.00000003
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	7.9E-12	6.2E-13	3.E-12	2.E-13	3.E-12	5.0E-03	5.0E-03	6.1E-11	4.8E-12	1.E-08	1.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	4.1E-11	5.7E-12	8.E-11	1.E-11	9.E-11	2.0E-05	2.0E-05	3.2E-10	4.4E-11	2.E-05	2.E-06	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	1.3E+05	1.3E+05	3.5E-16	2.3E-16	5.E-11	3.E-11	8.E-11	1.0E-09	1.0E-09	2.7E-15	1.8E-15	3.E-06	2.E-06	0.000004
	Total PCB TEQ	5.1E-01	pg/g	1.3E+05	1.3E+05	9.2E-16	1.3E-16	1.E-10	2.E-11	1.E-10	1.0E-09	1.0E-09	7.1E-15	1.0E-15	7.E-06	1.E-06	0.00001
	Pesticides																
	Aldrin	2.7E-01	ug/kg	1.7E+01	1.7E+01	3.4E-13	6.7E-14	6.E-12	1.E-12	7.E-12	3.0E-05	3.0E-05	2.6E-12	5.2E-13	9.E-08	2.E-08	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.6E-13	3.2E-14	3.E-12	5.E-13	3.E-12	5.0E-05	5.0E-05	1.2E-12	2.5E-13	2.E-08	5.E-09	0.00000003
	Total DDT	5.8E+00	ug/kg	3.4E-01	3.4E-01	2.2E-12	1.5E-12	8.E-13	5.E-13	1.E-12	5.0E-04	5.0E-04	1.7E-11	1.1E-11	3.E-08	2.E-08	0.0000001
Exposure Point Total										1.E-08							0.003

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.4E-09	9.3E-10	2.E-09	1.E-09	4.E-09	3.0E-04	3.0E-04	1.1E-08	7.2E-09	4.E-05	2.E-05	0.0001
	Mercury	7.9E-02	mg/kg	--	--	0.0E+00	2.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-10	0.E+00	2.E-06	0.000002
	Vanadium	9.9E+01	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.8E+03	ug/kg	--	--	2.3E-09	4.5E-10	--	--	--	3.0E-04	3.0E-04	1.8E-08	3.5E-09	6.E-05	1.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E+02	ug/kg	7.3E-01	7.3E-01	4.8E-10	7.3E-11	4.E-10	5.E-11	4.E-10	--	--	3.8E-09	5.7E-10	--	--	--
	Benzo(a)pyrene	2.5E+02	ug/kg	7.3E+00	7.3E+00	4.1E-10	6.2E-11	3.E-09	5.E-10	3.E-09	--	--	3.2E-09	4.8E-10	--	--	--
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	5.8E-10	8.8E-11	4.E-10	6.E-11	5.E-10	--	--	4.5E-09	6.9E-10	--	--	--
	Benzo(k)fluoranthene	1.7E+02	ug/kg	7.3E-02	7.3E-02	2.8E-10	4.3E-11	2.E-11	3.E-12	2.E-11	--	--	2.2E-09	3.3E-10	--	--	--
	Dibenzo(a,h)anthracene	4.1E+01	ug/kg	7.3E+00	7.3E+00	6.8E-11	1.0E-11	5.E-10	8.E-11	6.E-10	--	--	5.3E-10	8.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+02	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.7E-11	2.E-10	3.E-11	2.E-10	--	--	1.9E-09	2.9E-10	--	--	--
	Naphthalene	1.4E+01	ug/kg	--	--	2.3E-11	3.5E-12	--	--	--	2.0E-02	2.0E-02	1.8E-10	2.7E-11	9.E-09	1.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	1.7E-09	3.3E-10	2.E-11	5.E-12	3.E-11	2.0E-02	2.0E-02	1.3E-08	2.6E-09	7.E-07	1.E-07	0.000001
	Phenols																
	Pentachlorophenol	2.0E+00	ug/kg	4.0E-01	4.0E-01	6.5E-12	5.1E-13	3.E-12	2.E-13	3.E-12	5.0E-03	5.0E-03	5.0E-11	4.0E-12	1.E-08	8.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+02	ug/kg	2.0E+00	2.0E+00	6.7E-10	9.4E-11	1.E-09	2.E-10	2.E-09	2.0E-05	2.0E-05	5.2E-09	7.3E-10	3.E-04	4.E-05	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	1.3E-15	8.4E-16	2.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	9.9E-15	6.5E-15	1.E-05	7.E-06	0.00002
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	3.1E-14	4.4E-15	4.E-09	6.E-10	5.E-09	1.0E-09	1.0E-09	2.4E-13	3.4E-14	2.E-04	3.E-05	0.0003
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	4.8E-13	9.4E-14	8.E-12	2.E-12	1.E-11	3.0E-05	3.0E-05	3.7E-12	7.3E-13	1.E-07	2.E-08	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.6E-13	3.2E-14	3.E-12	5.E-13	3.E-12	5.0E-05	5.0E-05	1.2E-12	2.5E-13	2.E-08	5.E-09	0.00000003
	Total DDT	6.2E+00	ug/kg	3.4E-01	3.4E-01	2.4E-12	1.6E-12	8.E-13	5.E-13	1.E-12	5.0E-04	5.0E-04	1.8E-11	1.2E-11	4.E-08	2.E-08	0.0000001
Exposure Point Total										2.E-08							0.003
RM 4 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	1.3E-09	8.5E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	1.0E-08	6.6E-09	3.E-05	2.E-05	0.00006
	Mercury	8.2E-02	mg/kg	--	--	0.0E+00	2.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	6.1E+00	ug/kg	--	--	7.8E-12	1.5E-12	--	--	--	3.0E-04	3.0E-04	6.1E-11	1.2E-11	2.E-07	4.E-08	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+02	ug/kg	7.3E-01	7.3E-01	4.2E-10	6.4E-11	3.E-10	5.E-11	4.E-10	--	--	3.3E-09	5.0E-10	--	--	--
	Benzo(a)pyrene	4.0E+02	ug/kg	7.3E+00	7.3E+00	6.6E-10	1.0E-10	5.E-09	7.E-10	6.E-09	--	--	5.1E-09	7.8E-10	--	--	--
	Benzo(b)fluoranthene	3.6E+02	ug/kg	7.3E-01	7.3E-01	5.9E-10	9.0E-11	4.E-10	7.E-11	5.E-10	--	--	4.6E-09	7.0E-10	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	2.2E-10	3.3E-11	2.E-11	2.E-12	2.E-11	--	--	1.7E-09	2.6E-10	--	--	--

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	4.4E+01	ug/kg	7.3E+00	7.3E+00	7.3E-11	1.1E-11	5.E-10	8.E-11	6.E-10	--	--	5.7E-10	8.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	5.2E-10	7.9E-11	4.E-10	6.E-11	4.E-10	--	--	4.1E-09	6.2E-10	--	--	--
	Naphthalene	7.7E+01	ug/kg	--	--	1.3E-10	1.9E-11	--	--	--	2.0E-02	2.0E-02	1.0E-09	1.5E-10	5.E-08	8.E-09	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.2E+01	ug/kg	1.4E-02	1.4E-02	5.3E-11	1.0E-11	7.E-13	1.E-13	9.E-13	2.0E-02	2.0E-02	4.1E-10	8.2E-11	2.E-08	4.E-09	0.00000002
	Phenols																
	Pentachlorophenol	4.5E+00	ug/kg	4.0E-01	4.0E-01	1.4E-11	1.1E-12	6.E-12	5.E-13	6.E-12	5.0E-03	5.0E-03	1.1E-10	8.8E-12	2.E-08	2.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	3.8E-11	5.4E-12	8.E-11	1.E-11	9.E-11	2.0E-05	2.0E-05	3.0E-10	4.2E-11	1.E-05	2.E-06	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	6.2E-16	4.1E-16	8.E-11	5.E-11	1.E-10	1.0E-09	1.0E-09	4.8E-15	3.2E-15	5.E-06	3.E-06	0.00001
	Total PCB TEQ	4.7E-01	pg/g	1.3E+05	1.3E+05	8.4E-16	1.2E-16	1.E-10	2.E-11	1.E-10	1.0E-09	1.0E-09	6.6E-15	9.2E-16	7.E-06	9.E-07	0.00001
	Pesticides																
	Aldrin	3.9E-01	ug/kg	1.7E+01	1.7E+01	5.0E-13	9.8E-14	8.E-12	2.E-12	1.E-11	3.0E-05	3.0E-05	3.9E-12	7.6E-13	1.E-07	3.E-08	0.0000002
	Dieldrin	7.1E-02	ug/kg	1.6E+01	1.6E+01	9.1E-14	1.8E-14	1.E-12	3.E-13	2.E-12	5.0E-05	5.0E-05	7.1E-13	1.4E-13	1.E-08	3.E-09	0.00000002
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	7.3E-12	4.8E-12	2.E-12	2.E-12	4.E-12	5.0E-04	5.0E-04	5.7E-11	3.7E-11	1.E-07	7.E-08	0.0000002
Exposure Point Total										1.E-08							0.003
RM 4 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.1E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.3E-08	8.3E-09	4.E-05	3.E-05	0.0001
	Mercury	6.6E-02	mg/kg	--	--	0.0E+00	1.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-10	0.E+00	1.E-06	0.000001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	3.3E-11	6.6E-12	--	--	--	3.0E-04	3.0E-04	2.6E-10	5.1E-11	9.E-07	2.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.3E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.6E-10	8.E-10	1.E-10	9.E-10	--	--	8.2E-09	1.2E-09	--	--	--
	Benzo(a)pyrene	8.8E+02	ug/kg	7.3E+00	7.3E+00	1.5E-09	2.2E-10	1.E-08	2.E-09	1.E-08	--	--	1.1E-08	1.7E-09	--	--	--
	Benzo(b)fluoranthene	9.0E+02	ug/kg	7.3E-01	7.3E-01	1.5E-09	2.3E-10	1.E-09	2.E-10	1.E-09	--	--	1.2E-08	1.8E-09	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	1.2E-09	1.8E-10	9.E-11	1.E-11	1.E-10	--	--	9.2E-09	1.4E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.3E-10	3.6E-11	2.E-09	3.E-10	2.E-09	--	--	1.8E-09	2.8E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.4E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.6E-10	8.E-10	1.E-10	9.E-10	--	--	8.3E-09	1.3E-09	--	--	--
	Naphthalene	3.9E+01	ug/kg	--	--	6.4E-11	9.7E-12	--	--	--	2.0E-02	2.0E-02	5.0E-10	7.5E-11	2.E-08	4.E-09	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+02	ug/kg	1.4E-02	1.4E-02	1.2E-09	2.3E-10	2.E-11	3.E-12	2.E-11	2.0E-02	2.0E-02	9.1E-09	1.8E-09	5.E-07	9.E-08	0.000001
	Phenols																
	Pentachlorophenol	4.5E+02	ug/kg	4.0E-01	4.0E-01	1.4E-09	1.1E-10	6.E-10	5.E-11	6.E-10	5.0E-03	5.0E-03	1.1E-08	8.8E-10	2.E-06	2.E-07	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	2.7E-10	3.8E-11	5.E-10	8.E-11	6.E-10	2.0E-05	2.0E-05	2.1E-09	3.0E-10	1.E-04	1.E-05	0.0001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	1.6E-15	1.0E-15	2.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	1.2E-14	8.1E-15	1.E-05	8.E-06	0.00002
	Total PCB TEQ	1.9E+00	pg/g	1.3E+05	1.3E+05	3.4E-15	4.8E-16	4.E-10	6.E-11	5.E-10	1.0E-09	1.0E-09	2.7E-14	3.7E-15	3.E-05	4.E-06	0.00003
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	6.1E-13	1.2E-13	1.E-11	2.E-12	1.E-11	3.0E-05	3.0E-05	4.7E-12	9.3E-13	2.E-07	3.E-08	0.0000002
	Dieldrin	8.9E-02	ug/kg	1.6E+01	1.6E+01	1.1E-13	2.2E-14	2.E-12	4.E-13	2.E-12	5.0E-05	5.0E-05	8.8E-13	1.7E-13	2.E-08	3.E-09	0.00000002
	Total DDT	5.4E+00	ug/kg	3.4E-01	3.4E-01	2.1E-12	1.4E-12	7.E-13	5.E-13	1.E-12	5.0E-04	5.0E-04	1.6E-11	1.1E-11	3.E-08	2.E-08	0.0000001
Exposure Point Total										2.E-08							0.003
RM 4.5 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	1.4E-09	9.0E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	1.1E-08	7.0E-09	4.E-05	2.E-05	0.0001
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	2.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	7.5E+00	ug/kg	--	--	9.6E-12	1.9E-12	--	--	--	3.0E-04	3.0E-04	7.5E-11	1.5E-11	2.E-07	5.E-08	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	9.2E-10	1.4E-10	7.E-10	1.E-10	8.E-10	--	--	7.1E-09	1.1E-09	--	--	--
	Benzo(a)pyrene	7.6E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	1.9E-10	9.E-09	1.E-09	1.E-08	--	--	9.8E-09	1.5E-09	--	--	--
	Benzo(b)fluoranthene	6.6E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.7E-10	8.E-10	1.E-10	9.E-10	--	--	8.5E-09	1.3E-09	--	--	--
	Benzo(k)fluoranthene	2.9E+02	ug/kg	7.3E-02	7.3E-02	4.8E-10	7.3E-11	4.E-11	5.E-12	4.E-11	--	--	3.8E-09	5.7E-10	--	--	--
	Dibenzo(a,h)anthracene	8.5E+01	ug/kg	7.3E+00	7.3E+00	1.4E-10	2.1E-11	1.E-09	2.E-10	1.E-09	--	--	1.1E-09	1.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	9.9E-10	1.5E-10	7.E-10	1.E-10	8.E-10	--	--	7.7E-09	1.2E-09	--	--	--
	Naphthalene	1.6E+02	ug/kg	--	--	2.7E-10	4.1E-11	--	--	--	2.0E-02	2.0E-02	2.1E-09	3.2E-10	1.E-07	2.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.0E+01	ug/kg	1.4E-02	1.4E-02	6.3E-11	1.2E-11	9.E-13	2.E-13	1.E-12	2.0E-02	2.0E-02	4.9E-10	9.7E-11	2.E-08	5.E-09	0.00000003
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	5.5E-12	4.3E-13	2.E-12	2.E-13	2.E-12	5.0E-03	5.0E-03	4.3E-11	3.3E-12	9.E-09	7.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	4.4E-11	6.2E-12	9.E-11	1.E-11	1.E-10	2.0E-05	2.0E-05	3.4E-10	4.8E-11	2.E-05	2.E-06	0.00002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	1.0E-15	6.6E-16	1.E-10	9.E-11	2.E-10	1.0E-09	1.0E-09	7.8E-15	5.1E-15	8.E-06	5.E-06	0.00001
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	2.5E-15	3.5E-16	3.E-10	5.E-11	4.E-10	1.0E-09	1.0E-09	2.0E-14	2.8E-15	2.E-05	3.E-06	0.00002
	Pesticides																
	Aldrin	1.7E-01	ug/kg	1.7E+01	1.7E+01	2.1E-13	4.2E-14	4.E-12	7.E-13	4.E-12	3.0E-05	3.0E-05	1.7E-12	3.3E-13	6.E-08	1.E-08	0.0000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.7E-13	3.4E-14	3.E-12	5.E-13	3.E-12	5.0E-05	5.0E-05	1.3E-12	2.6E-13	3.E-08	5.E-09	0.00000003
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	1.7E-12	1.1E-12	6.E-13	4.E-13	1.E-12	5.0E-04	5.0E-04	1.3E-11	8.9E-12	3.E-08	2.E-08	0.00000004
Exposure Point Total										2.E-08							0.003
RM 4.5 East	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.5E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	7.8E-09	4.E-05	3.E-05	0.0001
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	1.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-10	0.E+00	1.E-06	0.000001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	4.1E+01	ug/kg	--	--	5.2E-11	1.0E-11	--	--	--	3.0E-04	3.0E-04	4.0E-10	7.9E-11	1.E-06	3.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+03	ug/kg	7.3E-01	7.3E-01	5.5E-09	8.3E-10	4.E-09	6.E-10	5.E-09	--	--	4.3E-08	6.5E-09	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	7.1E-09	1.1E-09	5.E-08	8.E-09	6.E-08	--	--	5.6E-08	8.4E-09	--	--	--
	Benzo(b)fluoranthene	3.8E+03	ug/kg	7.3E-01	7.3E-01	6.2E-09	9.5E-10	5.E-09	7.E-10	5.E-09	--	--	4.9E-08	7.4E-09	--	--	--
	Benzo(k)fluoranthene	3.4E+03	ug/kg	7.3E-02	7.3E-02	5.6E-09	8.5E-10	4.E-10	6.E-11	5.E-10	--	--	4.4E-08	6.6E-09	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	1.2E-09	1.8E-10	9.E-09	1.E-09	1.E-08	--	--	9.2E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+03	ug/kg	7.3E-01	7.3E-01	5.0E-09	7.6E-10	4.E-09	6.E-10	4.E-09	--	--	3.9E-08	5.9E-09	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	2.4E-10	3.7E-11	--	--	--	2.0E-02	2.0E-02	1.9E-09	2.9E-10	9.E-08	1.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.3E+01	ug/kg	1.4E-02	1.4E-02	1.1E-10	2.1E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	8.3E-10	1.6E-10	4.E-08	8.E-09	0.00000005
	Phenols																
	Pentachlorophenol	1.8E+00	ug/kg	4.0E-01	4.0E-01	5.7E-12	4.5E-13	2.E-12	2.E-13	2.E-12	5.0E-03	5.0E-03	4.4E-11	3.5E-12	9.E-09	7.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	6.2E-11	8.7E-12	1.E-10	2.E-11	1.E-10	2.0E-05	2.0E-05	4.8E-10	6.8E-11	2.E-05	3.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	1.1E-16	6.9E-17	1.E-11	9.E-12	2.E-11	1.0E-09	1.0E-09	8.2E-16	5.4E-16	8.E-07	5.E-07	0.000001
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	5.8E-16	8.1E-17	7.E-11	1.E-11	9.E-11	1.0E-09	1.0E-09	4.5E-15	6.3E-16	4.E-06	6.E-07	0.00001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	1.4E-13	2.7E-14	2.E-12	5.E-13	3.E-12	3.0E-05	3.0E-05	1.1E-12	2.1E-13	4.E-08	7.E-09	0.00000004
	Dieldrin	5.8E-02	ug/kg	1.6E+01	1.6E+01	7.4E-14	1.5E-14	1.E-12	2.E-13	1.E-12	5.0E-05	5.0E-05	5.8E-13	1.1E-13	1.E-08	2.E-09	0.00000001
	Total DDT	4.9E+00	ug/kg	3.4E-01	3.4E-01	1.9E-12	1.2E-12	6.E-13	4.E-13	1.E-12	5.0E-04	5.0E-04	1.5E-11	9.5E-12	3.E-08	2.E-08	0.00000005
Exposure Point Total										9.E-08							0.003
RM 5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	8.2E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.7E-09	6.4E-09	3.E-05	2.E-05	0.0001
	Mercury	5.2E-02	mg/kg	--	--	0.0E+00	1.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-10	0.E+00	1.E-06	0.000001
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	2.3E-11	4.5E-12	--	--	--	3.0E-04	3.0E-04	1.8E-10	3.5E-11	6.E-07	1.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E+02	ug/kg	7.3E-01	7.3E-01	9.8E-10	1.5E-10	7.E-10	1.E-10	8.E-10	--	--	7.6E-09	1.2E-09	--	--	--
	Benzo(a)pyrene	7.9E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	2.0E-10	1.E-08	1.E-09	1.E-08	--	--	1.0E-08	1.6E-09	--	--	--
	Benzo(b)fluoranthene	5.7E+02	ug/kg	7.3E-01	7.3E-01	9.4E-10	1.4E-10	7.E-10	1.E-10	8.E-10	--	--	7.3E-09	1.1E-09	--	--	--
	Benzo(k)fluoranthene	4.1E+02	ug/kg	7.3E-02	7.3E-02	6.9E-10	1.0E-10	5.E-11	8.E-12	6.E-11	--	--	5.3E-09	8.1E-10	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	1.4E-10	2.1E-11	1.E-09	2.E-10	1.E-09	--	--	1.1E-09	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+02	ug/kg	7.3E-01	7.3E-01	9.7E-10	1.5E-10	7.E-10	1.E-10	8.E-10	--	--	7.6E-09	1.1E-09	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	2.3E-10	3.4E-11	--	--	--	2.0E-02	2.0E-02	1.8E-09	2.7E-10	9.E-08	1.E-08	0.0000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	9.1E-11	1.8E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	7.1E-10	1.4E-10	4.E-08	7.E-09	0.00000004
	Phenols																
	Pentachlorophenol	2.1E+01	ug/kg	4.0E-01	4.0E-01	6.7E-11	5.3E-12	3.E-11	2.E-12	3.E-11	5.0E-03	5.0E-03	5.2E-10	4.1E-11	1.E-07	8.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	3.0E-11	4.3E-12	6.E-11	9.E-12	7.E-11	2.0E-05	2.0E-05	2.4E-10	3.3E-11	1.E-05	2.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	1.3E+05	1.3E+05	1.3E-15	8.7E-16	2.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	1.0E-14	6.8E-15	1.E-05	7.E-06	0.00002
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	2.1E-15	2.9E-16	3.E-10	4.E-11	3.E-10	1.0E-09	1.0E-09	1.6E-14	2.3E-15	2.E-05	2.E-06	0.00002
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	5.6E-13	1.1E-13	1.E-11	2.E-12	1.E-11	3.0E-05	3.0E-05	4.4E-12	8.6E-13	1.E-07	3.E-08	0.0000002
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	1.9E-13	3.7E-14	3.E-12	6.E-13	4.E-12	5.0E-05	5.0E-05	1.5E-12	2.9E-13	3.E-08	6.E-09	0.00000004
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	4.4E-12	2.9E-12	2.E-12	1.E-12	2.E-12	5.0E-04	5.0E-04	3.4E-11	2.3E-11	7.E-08	5.E-08	0.0000001
Exposure Point Total										2.E-08							0.003
RM 5 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	8.1E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.7E-09	6.3E-09	3.E-05	2.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-10	0.E+00	1.E-06	0.000001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	5.7E+01	ug/kg	--	--	7.3E-11	1.4E-11	--	--	--	3.0E-04	3.0E-04	5.7E-10	1.1E-10	2.E-06	4.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	7.3E-01	3.6E-10	5.4E-11	3.E-10	4.E-11	3.E-10	--	--	2.8E-09	4.2E-10	--	--	--
	Benzo(a)pyrene	3.0E+02	ug/kg	7.3E+00	7.3E+00	5.0E-10	7.5E-11	4.E-09	5.E-10	4.E-09	--	--	3.9E-09	5.8E-10	--	--	--
	Benzo(b)fluoranthene	3.2E+02	ug/kg	7.3E-01	7.3E-01	5.3E-10	8.0E-11	4.E-10	6.E-11	4.E-10	--	--	4.1E-09	6.2E-10	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	2.5E-10	3.8E-11	2.E-11	3.E-12	2.E-11	--	--	2.0E-09	3.0E-10	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	7.1E-11	1.1E-11	5.E-10	8.E-11	6.E-10	--	--	5.5E-10	8.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+02	ug/kg	7.3E-01	7.3E-01	4.0E-10	6.1E-11	3.E-10	4.E-11	3.E-10	--	--	3.1E-09	4.7E-10	--	--	--
	Naphthalene	5.5E+01	ug/kg	--	--	9.1E-11	1.4E-11	--	--	--	2.0E-02	2.0E-02	7.0E-10	1.1E-10	4.E-08	5.E-09	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.5E+01	ug/kg	1.4E-02	1.4E-02	1.1E-10	2.1E-11	2.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	8.5E-10	1.7E-10	4.E-08	8.E-09	0.0000001
	Phenols																
	Pentachlorophenol	6.5E+00	ug/kg	4.0E-01	4.0E-01	2.1E-11	1.6E-12	8.E-12	7.E-13	9.E-12	5.0E-03	5.0E-03	1.6E-10	1.3E-11	3.E-08	3.E-09	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+01	ug/kg	2.0E+00	2.0E+00	3.5E-11	4.9E-12	7.E-11	1.E-11	8.E-11	2.0E-05	2.0E-05	2.7E-10	3.8E-11	1.E-05	2.E-06	0.00002
	Pesticides																
	Aldrin	1.9E-01	ug/kg	1.7E+01	1.7E+01	2.4E-13	4.8E-14	4.E-12	8.E-13	5.E-12	3.0E-05	3.0E-05	1.9E-12	3.7E-13	6.E-08	1.E-08	0.0000001
	Dieldrin	1.9E-01	ug/kg	1.6E+01	1.6E+01	2.4E-13	4.8E-14	4.E-12	8.E-13	5.E-12	5.0E-05	5.0E-05	1.9E-12	3.7E-13	4.E-08	7.E-09	0.00000005
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	5.3E-13	3.5E-13	2.E-13	1.E-13	3.E-13	5.0E-04	5.0E-04	4.1E-12	2.7E-12	8.E-09	5.E-09	0.00000001
Exposure Point Total										9.E-09							0.003

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 West	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.1E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.3E-08	8.3E-09	4.E-05	3.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-10	0.E+00	1.E-06	0.000001
	Vanadium	9.2E+01	mg/kg	--	--	0.0E+00	2.3E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.8E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	2.2E-11	4.4E-12	--	--	--	3.0E-04	3.0E-04	1.7E-10	3.4E-11	6.E-07	1.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	2.2E-09	3.3E-10	2.E-09	2.E-10	2.E-09	--	--	1.7E-08	2.6E-09	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	3.1E-09	4.7E-10	2.E-08	3.E-09	3.E-08	--	--	2.4E-08	3.7E-09	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	2.6E-09	3.9E-10	2.E-09	3.E-10	2.E-09	--	--	2.0E-08	3.0E-09	--	--	--
	Benzo(k)fluoranthene	7.5E+02	ug/kg	7.3E-02	7.3E-02	1.2E-09	1.9E-10	9.E-11	1.E-11	1.E-10	--	--	9.7E-09	1.5E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.8E-10	4.3E-11	2.E-09	3.E-10	2.E-09	--	--	2.2E-09	3.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	2.5E-09	3.7E-10	2.E-09	3.E-10	2.E-09	--	--	1.9E-08	2.9E-09	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	2.0E-10	3.0E-11	--	--	--	2.0E-02	2.0E-02	1.5E-09	2.3E-10	8.E-08	1.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.4E+01	ug/kg	1.4E-02	1.4E-02	9.5E-11	1.9E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	7.4E-10	1.5E-10	4.E-08	7.E-09	0.00000004
	Phenols																
	Pentachlorophenol	1.2E+01	ug/kg	4.0E-01	4.0E-01	3.9E-11	3.0E-12	2.E-11	1.E-12	2.E-11	5.0E-03	5.0E-03	3.0E-10	2.4E-11	6.E-08	5.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	5.8E-11	8.1E-12	1.E-10	2.E-11	1.E-10	2.0E-05	2.0E-05	4.5E-10	6.3E-11	2.E-05	3.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	5.6E-16	3.7E-16	7.E-11	5.E-11	1.E-10	1.0E-09	1.0E-09	4.4E-15	2.9E-15	4.E-06	3.E-06	0.00001
	Total PCB TEQ	5.8E-01	pg/g	1.3E+05	1.3E+05	1.0E-15	1.5E-16	1.E-10	2.E-11	2.E-10	1.0E-09	1.0E-09	8.1E-15	1.1E-15	8.E-06	1.E-06	0.00001
	Pesticides																
	Aldrin	4.2E-01	ug/kg	1.7E+01	1.7E+01	5.3E-13	1.1E-13	9.E-12	2.E-12	1.E-11	3.0E-05	3.0E-05	4.2E-12	8.2E-13	1.E-07	3.E-08	0.0000002
	Dieldrin	3.1E-01	ug/kg	1.6E+01	1.6E+01	4.0E-13	7.9E-14	6.E-12	1.E-12	8.E-12	5.0E-05	5.0E-05	3.1E-12	6.1E-13	6.E-08	1.E-08	0.0000001
	Total DDT	1.9E+01	ug/kg	3.4E-01	3.4E-01	7.4E-12	4.8E-12	3.E-12	2.E-12	4.E-12	5.0E-04	5.0E-04	5.7E-11	3.8E-11	1.E-07	8.E-08	0.0000002
Exposure Point Total										4.E-08							0.003
RM 5.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	2.2E-09	1.5E-09	3.E-09	2.E-09	5.E-09	3.0E-04	3.0E-04	1.7E-08	1.1E-08	6.E-05	4.E-05	0.0001
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	5.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.4E-10	0.E+00	4.E-06	0.000004
	Vanadium	8.5E+01	mg/kg	--	--	0.0E+00	2.1E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.7E-07	0.E+00	2.E-03	0.002
	Butyltins																
	Tributyltin ion	1.7E+02	ug/kg	--	--	2.2E-10	4.4E-11	--	--	--	3.0E-04	3.0E-04	1.7E-09	3.4E-10	6.E-06	1.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.6E+02	ug/kg	7.3E-01	7.3E-01	7.7E-10	1.2E-10	6.E-10	8.E-11	6.E-10	--	--	6.0E-09	9.0E-10	--	--	--
	Benzo(a)pyrene	5.6E+02	ug/kg	7.3E+00	7.3E+00	9.3E-10	1.4E-10	7.E-09	1.E-09	8.E-09	--	--	7.3E-09	1.1E-09	--	--	--
	Benzo(b)fluoranthene	6.8E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	1.7E-10	8.E-10	1.E-10	9.E-10	--	--	8.8E-09	1.3E-09	--	--	--
	Benzo(k)fluoranthene	2.6E+02	ug/kg	7.3E-02	7.3E-02	4.3E-10	6.6E-11	3.E-11	5.E-12	4.E-11	--	--	3.4E-09	5.1E-10	--	--	--
	Dibenzo(a,h)anthracene	8.8E+01	ug/kg	7.3E+00	7.3E+00	1.5E-10	2.2E-11	1.E-09	2.E-10	1.E-09	--	--	1.1E-09	1.7E-10	--	--	--

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Indeno(1,2,3-cd)pyrene	4.3E+02	ug/kg	7.3E-01	7.3E-01	7.1E-10	1.1E-10	5.E-10	8.E-11	6.E-10	--	--	5.5E-09	8.3E-10	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	2.2E-10	3.4E-11	--	--	--	2.0E-02	2.0E-02	1.7E-09	2.6E-10	9.E-08	1.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	3.3E-10	6.5E-11	5.E-12	9.E-13	6.E-12	2.0E-02	2.0E-02	2.6E-09	5.0E-10	1.E-07	3.E-08	0.0000002
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	4.3E-11	3.4E-12	2.E-11	1.E-12	2.E-11	5.0E-03	5.0E-03	3.4E-10	2.6E-11	7.E-08	5.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+02	ug/kg	2.0E+00	2.0E+00	1.9E-10	2.6E-11	4.E-10	5.E-11	4.E-10	2.0E-05	2.0E-05	1.5E-09	2.1E-10	7.E-05	1.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	1.3E+05	1.3E+05	1.7E-15	1.1E-15	2.E-10	1.E-10	4.E-10	1.0E-09	1.0E-09	1.3E-14	8.7E-15	1.E-05	9.E-06	0.00002
	Total PCB TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	3.7E-15	5.1E-16	5.E-10	7.E-11	5.E-10	1.0E-09	1.0E-09	2.8E-14	4.0E-15	3.E-05	4.E-06	0.00003
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	5.2E-13	1.0E-13	9.E-12	2.E-12	1.E-11	3.0E-05	3.0E-05	4.1E-12	8.0E-13	1.E-07	3.E-08	0.0000002
	Dieldrin	4.7E-01	ug/kg	1.6E+01	1.6E+01	6.0E-13	1.2E-13	1.E-11	2.E-12	1.E-11	5.0E-05	5.0E-05	4.7E-12	9.2E-13	9.E-08	2.E-08	0.0000001
	Total DDT	8.2E+00	ug/kg	3.4E-01	3.4E-01	3.2E-12	2.1E-12	1.E-12	7.E-13	2.E-12	5.0E-04	5.0E-04	2.5E-11	1.6E-11	5.E-08	3.E-08	0.0000001
Exposure Point Total										2.E-08							0.003
RM 6 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.4E-09	9.2E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	1.1E-08	7.2E-09	4.E-05	2.E-05	0.0001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	2.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.2E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	3.0E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.3E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.6E-11	3.2E-12	--	--	--	3.0E-04	3.0E-04	1.3E-10	2.5E-11	4.E-07	8.E-08	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E+04	ug/kg	7.3E-01	7.3E-01	4.2E-08	6.4E-09	3.E-08	5.E-09	4.E-08	--	--	3.3E-07	5.0E-08	--	--	--
	Benzo(a)pyrene	3.1E+04	ug/kg	7.3E+00	7.3E+00	5.2E-08	7.8E-09	4.E-07	6.E-08	4.E-07	--	--	4.0E-07	6.1E-08	--	--	--
	Benzo(b)fluoranthene	2.2E+04	ug/kg	7.3E-01	7.3E-01	3.7E-08	5.6E-09	3.E-08	4.E-09	3.E-08	--	--	2.9E-07	4.4E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+04	ug/kg	7.3E-02	7.3E-02	2.3E-08	3.5E-09	2.E-09	3.E-10	2.E-09	--	--	1.8E-07	2.7E-08	--	--	--
	Dibenzo(a,h)anthracene	2.9E+03	ug/kg	7.3E+00	7.3E+00	4.8E-09	7.3E-10	4.E-08	5.E-09	4.E-08	--	--	3.8E-08	5.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+04	ug/kg	7.3E-01	7.3E-01	3.5E-08	5.3E-09	3.E-08	4.E-09	3.E-08	--	--	2.7E-07	4.1E-08	--	--	--
	Naphthalene	1.1E+04	ug/kg	--	--	1.8E-08	2.7E-09	--	--	--	2.0E-02	2.0E-02	1.4E-07	2.1E-08	7.E-06	1.E-06	0.00001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.2E+02	ug/kg	1.4E-02	1.4E-02	2.8E-10	5.5E-11	4.E-12	8.E-13	5.E-12	2.0E-02	2.0E-02	2.2E-09	4.3E-10	1.E-07	2.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.2E+01	ug/kg	4.0E-01	4.0E-01	7.0E-11	5.5E-12	3.E-11	2.E-12	3.E-11	5.0E-03	5.0E-03	5.5E-10	4.3E-11	1.E-07	9.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.3E+01	ug/kg	2.0E+00	2.0E+00	7.6E-11	1.1E-11	2.E-10	2.E-11	2.E-10	2.0E-05	2.0E-05	5.9E-10	8.3E-11	3.E-05	4.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	5.9E-16	3.8E-16	8.E-11	5.E-11	1.E-10	1.0E-09	1.0E-09	4.6E-15	3.0E-15	5.E-06	3.E-06	0.00001
	Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.3E+05	2.6E-15	3.6E-16	3.E-10	5.E-11	4.E-10	1.0E-09	1.0E-09	2.0E-14	2.8E-15	2.E-05	3.E-06	0.00002

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	1.6E-12	3.1E-13	3.E-11	5.E-12	3.E-11	3.0E-05	3.0E-05	1.2E-11	2.4E-12	4.E-07	8.E-08	0.0000005
	Dieldrin	1.1E+00	ug/kg	1.6E+01	1.6E+01	1.4E-12	2.8E-13	2.E-11	5.E-12	3.E-11	5.0E-05	5.0E-05	1.1E-11	2.2E-12	2.E-07	4.E-08	0.0000003
	Total DDT	3.6E+01	ug/kg	3.4E-01	3.4E-01	1.4E-11	9.0E-12	5.E-12	3.E-12	8.E-12	5.0E-04	5.0E-04	1.1E-10	7.0E-11	2.E-07	1.E-07	0.0000004
Exposure Point Total										6.E-07							0.003
RM 6 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	1.4E-09	9.3E-10	2.E-09	1.E-09	4.E-09	3.0E-04	3.0E-04	1.1E-08	7.2E-09	4.E-05	2.E-05	0.0001
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	7.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.6E-10	0.E+00	6.E-06	0.00001
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	2.3E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.8E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.8E+02	ug/kg	--	--	2.3E-10	4.5E-11	--	--	--	3.0E-04	3.0E-04	1.8E-09	3.5E-10	6.E-06	1.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+02	ug/kg	7.3E-01	7.3E-01	8.8E-10	1.3E-10	6.E-10	1.E-10	7.E-10	--	--	6.8E-09	1.0E-09	--	--	--
	Benzo(a)pyrene	7.5E+02	ug/kg	7.3E+00	7.3E+00	1.2E-09	1.9E-10	9.E-09	1.E-09	1.E-08	--	--	9.7E-09	1.5E-09	--	--	--
	Benzo(b)fluoranthene	7.3E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.8E-10	9.E-10	1.E-10	1.E-09	--	--	9.4E-09	1.4E-09	--	--	--
	Benzo(k)fluoranthene	4.6E+02	ug/kg	7.3E-02	7.3E-02	7.7E-10	1.2E-10	6.E-11	8.E-12	6.E-11	--	--	6.0E-09	9.0E-10	--	--	--
	Dibenzo(a,h)anthracene	9.6E+01	ug/kg	7.3E+00	7.3E+00	1.6E-10	2.4E-11	1.E-09	2.E-10	1.E-09	--	--	1.2E-09	1.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.2E+02	ug/kg	7.3E-01	7.3E-01	7.0E-10	1.1E-10	5.E-10	8.E-11	6.E-10	--	--	5.4E-09	8.2E-10	--	--	--
	Naphthalene	2.5E+02	ug/kg	--	--	4.1E-10	6.2E-11	--	--	--	2.0E-02	2.0E-02	3.2E-09	4.9E-10	2.E-07	2.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	1.0E-10	2.1E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	8.1E-10	1.6E-10	4.E-08	8.E-09	0.00000005
	Phenols																
	Pentachlorophenol	7.7E+00	ug/kg	4.0E-01	4.0E-01	2.5E-11	1.9E-12	1.E-11	8.E-13	1.E-11	5.0E-03	5.0E-03	1.9E-10	1.5E-11	4.E-08	3.E-09	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	1.4E-10	1.9E-11	3.E-10	4.E-11	3.E-10	2.0E-05	2.0E-05	1.1E-09	1.5E-10	5.E-05	7.E-06	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	1.3E+05	1.3E+05	1.2E-15	8.0E-16	2.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	9.5E-15	6.2E-15	9.E-06	6.E-06	0.00002
	Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E+05	2.2E-15	3.1E-16	3.E-10	4.E-11	3.E-10	1.0E-09	1.0E-09	1.7E-14	2.4E-15	2.E-05	2.E-06	0.00002
	Pesticides																
	Aldrin	4.1E-01	ug/kg	1.7E+01	1.7E+01	5.2E-13	1.0E-13	9.E-12	2.E-12	1.E-11	3.0E-05	3.0E-05	4.1E-12	8.0E-13	1.E-07	3.E-08	0.0000002
	Dieldrin	4.4E-02	ug/kg	1.6E+01	1.6E+01	5.7E-14	1.1E-14	9.E-13	2.E-13	1.E-12	5.0E-05	5.0E-05	4.4E-13	8.7E-14	9.E-09	2.E-09	0.00000001
	Total DDT	2.9E+00	ug/kg	3.4E-01	3.4E-01	1.1E-12	7.4E-13	4.E-13	3.E-13	6.E-13	5.0E-04	5.0E-04	8.7E-12	5.7E-12	2.E-08	1.E-08	0.00000003
Exposure Point Total										2.E-08							0.003
RM 6.5 West	**Metals**																
	Arsenic	7.4E+00	mg/kg	1.5E+00	1.5E+00	2.8E-09	1.9E-09	4.E-09	3.E-09	7.E-09	3.0E-04	3.0E-04	2.2E-08	1.5E-08	7.E-05	5.E-05	0.0001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	2.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.1E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	3.1E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.4E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	2.6E+01	ug/kg	--	--	3.4E-11	6.6E-12	--	--	--	3.0E-04	3.0E-04	2.6E-10	5.1E-11	9.E-07	2.E-07	0.000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.4E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	1.9E-10	9.E-10	1.E-10	1.E-09	--	--	9.6E-09	1.5E-09	--	--	--
	Benzo(a)pyrene	9.1E+02	ug/kg	7.3E+00	7.3E+00	1.5E-09	2.3E-10	1.E-08	2.E-09	1.E-08	--	--	1.2E-08	1.8E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+03	ug/kg	7.3E-01	7.3E-01	1.7E-09	2.6E-10	1.E-09	2.E-10	1.E-09	--	--	1.3E-08	2.0E-09	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	6.7E-10	1.0E-10	5.E-11	7.E-12	6.E-11	--	--	5.2E-09	7.9E-10	--	--	--
	Dibenzo(a,h)anthracene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.8E-10	4.2E-11	2.E-09	3.E-10	2.E-09	--	--	2.2E-09	3.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	6.2E+02	ug/kg	7.3E-01	7.3E-01	1.0E-09	1.6E-10	8.E-10	1.E-10	9.E-10	--	--	8.0E-09	1.2E-09	--	--	--
	Naphthalene	1.1E+02	ug/kg	--	--	1.8E-10	2.7E-11	--	--	--	2.0E-02	2.0E-02	1.4E-09	2.1E-10	7.E-08	1.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+01	ug/kg	1.4E-02	1.4E-02	1.0E-10	2.0E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	8.1E-10	1.6E-10	4.E-08	8.E-09	0.00000005
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	5.1E-12	4.0E-13	2.E-12	2.E-13	2.E-12	5.0E-03	5.0E-03	4.0E-11	3.1E-12	8.E-09	6.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	6.4E+01	ug/kg	2.0E+00	2.0E+00	1.1E-10	1.6E-11	2.E-10	3.E-11	3.E-10	2.0E-05	2.0E-05	8.8E-10	1.2E-10	4.E-05	6.E-06	0.00005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	1.3E+05	1.3E+05	8.0E-15	5.2E-15	1.E-09	7.E-10	2.E-09	1.0E-09	1.0E-09	6.2E-14	4.1E-14	6.E-05	4.E-05	0.0001
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	3.2E-15	4.5E-16	4.E-10	6.E-11	5.E-10	1.0E-09	1.0E-09	2.5E-14	3.5E-15	3.E-05	4.E-06	0.00003
	Pesticides																
	Aldrin	1.7E+00	ug/kg	1.7E+01	1.7E+01	2.2E-12	4.4E-13	4.E-11	7.E-12	5.E-11	3.0E-05	3.0E-05	1.7E-11	3.4E-12	6.E-07	1.E-07	0.000001
	Dieldrin	5.4E-01	ug/kg	1.6E+01	1.6E+01	6.9E-13	1.4E-13	1.E-11	2.E-12	1.E-11	5.0E-05	5.0E-05	5.4E-12	1.1E-12	1.E-07	2.E-08	0.0000001
	Total DDT	9.2E+01	ug/kg	3.4E-01	3.4E-01	3.5E-11	2.3E-11	1.E-11	8.E-12	2.E-11	5.0E-04	5.0E-04	2.7E-10	1.8E-10	5.E-07	4.E-07	0.000001
Exposure Point Total										3.E-08							0.004
RM 6.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	8.2E-09	4.E-05	3.E-05	0.0001
	Mercury	2.2E+00	mg/kg	--	--	0.0E+00	5.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.2E-09	0.E+00	4.E-05	0.00004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	5.5E-11	1.1E-11	--	--	--	3.0E-04	3.0E-04	4.3E-10	8.4E-11	1.E-06	3.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.8E-10	2.7E-11	1.E-10	2.E-11	2.E-10	--	--	1.4E-09	2.1E-10	--	--	--
	Benzo(a)pyrene	8.6E+01	ug/kg	7.3E+00	7.3E+00	1.4E-10	2.2E-11	1.E-09	2.E-10	1.E-09	--	--	1.1E-09	1.7E-10	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.8E-11	1.E-10	2.E-11	2.E-10	--	--	1.5E-09	2.2E-10	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	1.0E-10	1.5E-11	7.E-12	1.E-12	9.E-12	--	--	7.9E-10	1.2E-10	--	--	--
	Dibenzo(a,h)anthracene	1.5E+01	ug/kg	7.3E+00	7.3E+00	2.5E-11	3.7E-12	2.E-10	3.E-11	2.E-10	--	--	1.9E-10	2.9E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.9E+01	ug/kg	7.3E-01	7.3E-01	9.7E-11	1.5E-11	7.E-11	1.E-11	8.E-11	--	--	7.6E-10	1.1E-10	--	--	--
	Naphthalene	6.5E+01	ug/kg	--	--	1.1E-10	1.6E-11	--	--	--	2.0E-02	2.0E-02	8.4E-10	1.3E-10	4.E-08	6.E-09	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	1.2E-10	2.3E-11	2.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	9.3E-10	1.8E-10	5.E-08	9.E-09	0.0000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	1.3E-11	9.8E-13	5.E-12	4.E-13	5.E-12	5.0E-03	5.0E-03	9.7E-11	7.7E-12	2.E-08	2.E-09	0.00000
	Polychlorinated Biphenyls																
	Total Aroclors	2.0E+02	ug/kg	2.0E+00	2.0E+00	3.6E-10	5.1E-11	7.E-10	1.E-10	8.E-10	2.0E-05	2.0E-05	2.8E-09	4.0E-10	1.E-04	2.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	1.3E+05	1.3E+05	7.7E-15	5.0E-15	1.E-09	7.E-10	2.E-09	1.0E-09	1.0E-09	6.0E-14	3.9E-14	6.E-05	4.E-05	0.0001
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	5.4E-15	7.6E-16	7.E-10	1.E-10	8.E-10	1.0E-09	1.0E-09	4.2E-14	5.9E-15	4.E-05	6.E-06	0.00005
	Pesticides																
	Aldrin	7.6E-02	ug/kg	1.7E+01	1.7E+01	9.7E-14	1.9E-14	2.E-12	3.E-13	2.E-12	3.0E-05	3.0E-05	7.6E-13	1.5E-13	3.E-08	5.E-09	0.00000003
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	1.9E-13	3.8E-14	3.E-12	6.E-13	4.E-12	5.0E-05	5.0E-05	1.5E-12	2.9E-13	3.E-08	6.E-09	0.00000004
	Total DDT	1.5E+01	ug/kg	3.4E-01	3.4E-01	5.8E-12	3.8E-12	2.E-12	1.E-12	3.E-12	5.0E-04	5.0E-04	4.5E-11	2.9E-11	9.E-08	6.E-08	0.0000001
Exposure Point Total										9.E-09							0.003
RM 7 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	8.1E-09	4.E-05	3.E-05	0.0001
	Mercury	8.1E-02	mg/kg	--	--	0.0E+00	2.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.6E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	6.0E+00	ug/kg	--	--	7.6E-12	1.5E-12	--	--	--	3.0E-04	3.0E-04	5.9E-11	1.2E-11	2.E-07	4.E-08	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.6E+02	ug/kg	7.3E-01	7.3E-01	9.4E-10	1.4E-10	7.E-10	1.E-10	8.E-10	--	--	7.3E-09	1.1E-09	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	7.7E-10	1.2E-10	6.E-09	9.E-10	7.E-09	--	--	6.0E-09	9.1E-10	--	--	--
	Benzo(b)fluoranthene	1.1E+03	ug/kg	7.3E-01	7.3E-01	1.8E-09	2.7E-10	1.E-09	2.E-10	1.E-09	--	--	1.4E-08	2.1E-09	--	--	--
	Benzo(k)fluoranthene	3.9E+02	ug/kg	7.3E-02	7.3E-02	6.5E-10	9.8E-11	5.E-11	7.E-12	5.E-11	--	--	5.0E-09	7.6E-10	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	2.1E-10	3.2E-11	2.E-09	2.E-10	2.E-09	--	--	1.7E-09	2.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	6.1E-10	9.2E-11	4.E-10	7.E-11	5.E-10	--	--	4.8E-09	7.2E-10	--	--	--
	Naphthalene	8.8E+00	ug/kg	--	--	1.5E-11	2.2E-12	--	--	--	2.0E-02	2.0E-02	1.1E-10	1.7E-11	6.E-09	9.E-10	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.1E+02	ug/kg	1.4E-02	1.4E-02	2.7E-10	5.2E-11	4.E-12	7.E-13	4.E-12	2.0E-02	2.0E-02	2.1E-09	4.1E-10	1.E-07	2.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	8.7E-11	6.9E-12	3.E-11	3.E-12	4.E-11	5.0E-03	5.0E-03	6.8E-10	5.4E-11	1.E-07	1.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.1E+01	ug/kg	2.0E+00	2.0E+00	1.3E-10	1.8E-11	3.E-10	4.E-11	3.E-10	2.0E-05	2.0E-05	9.9E-10	1.4E-10	5.E-05	7.E-06	0.00006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	1.3E+05	1.3E+05	6.4E-13	4.2E-13	8.E-08	5.E-08	1.E-07	1.0E-09	1.0E-09	4.9E-12	3.2E-12	5.E-03	3.E-03	0.01
	Total PCB TEQ	7.7E+00	pg/g	1.3E+05	1.3E+05	1.4E-14	1.9E-15	2.E-09	3.E-10	2.E-09	1.0E-09	1.0E-09	1.1E-13	1.5E-14	1.E-04	1.E-05	0.0001
	Pesticides																
	Aldrin	2.7E+01	ug/kg	1.7E+01	1.7E+01	3.4E-11	6.7E-12	6.E-10	1.E-10	7.E-10	3.0E-05	3.0E-05	2.7E-10	5.2E-11	9.E-06	2.E-06	0.00001
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	1.6E-12	3.2E-13	3.E-11	5.E-12	3.E-11	5.0E-05	5.0E-05	1.3E-11	2.5E-12	3.E-07	5.E-08	0.0000003
	Total DDT	2.3E+03	ug/kg	3.4E-01	3.4E-01	9.0E-10	5.9E-10	3.E-10	2.E-10	5.E-10	5.0E-04	5.0E-04	7.0E-09	4.6E-09	1.E-05	9.E-06	0.00002

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	1.2E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	9.6E-08	0.E+00	1.E-04	0.0001
Exposure Point Total										2.E-07							0.01
RM 7 East	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	3.9E-09	2.5E-09	6.E-09	4.E-09	1.E-08	3.0E-04	3.0E-04	3.0E-08	2.0E-08	1.E-04	7.E-05	0.0002
	Mercury	5.8E-02	mg/kg	--	--	0.0E+00	1.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-10	0.E+00	1.E-06	0.000001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	2.6E+02	ug/kg	--	--	3.4E-10	6.7E-11	--	--	--	3.0E-04	3.0E-04	2.6E-09	5.2E-10	9.E-06	2.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	3.1E-11	1.E-10	2.E-11	2.E-10	--	--	1.6E-09	2.4E-10	--	--	--
	Benzo(a)pyrene	1.6E+02	ug/kg	7.3E+00	7.3E+00	2.6E-10	4.0E-11	2.E-09	3.E-10	2.E-09	--	--	2.0E-09	3.1E-10	--	--	--
	Benzo(b)fluoranthene	2.1E+02	ug/kg	7.3E-01	7.3E-01	3.5E-10	5.3E-11	3.E-10	4.E-11	3.E-10	--	--	2.7E-09	4.1E-10	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	1.9E-10	2.9E-11	1.E-11	2.E-12	2.E-11	--	--	1.5E-09	2.2E-10	--	--	--
	Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	7.3E+00	7.1E-11	1.1E-11	5.E-10	8.E-11	6.E-10	--	--	5.5E-10	8.3E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.8E-10	2.7E-11	1.E-10	2.E-11	1.E-10	--	--	1.4E-09	2.1E-10	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	3.6E-11	5.5E-12	--	--	--	2.0E-02	2.0E-02	2.8E-10	4.3E-11	1.E-08	2.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+02	ug/kg	1.4E-02	1.4E-02	3.9E-10	7.6E-11	5.E-12	1.E-12	6.E-12	2.0E-02	2.0E-02	3.0E-09	5.9E-10	2.E-07	3.E-08	0.0000002
	Phenols																
	Pentachlorophenol	7.7E+01	ug/kg	4.0E-01	4.0E-01	2.5E-10	1.9E-11	1.E-10	8.E-12	1.E-10	5.0E-03	5.0E-03	1.9E-09	1.5E-10	4.E-07	3.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.2E+01	ug/kg	2.0E+00	2.0E+00	7.5E-11	1.1E-11	2.E-10	2.E-11	2.E-10	2.0E-05	2.0E-05	5.8E-10	8.2E-11	3.E-05	4.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	6.4E-15	4.2E-15	8.E-10	5.E-10	1.E-09	1.0E-09	1.0E-09	5.0E-14	3.3E-14	5.E-05	3.E-05	0.0001
	Total PCB TEQ	5.5E-01	pg/g	1.3E+05	1.3E+05	9.9E-16	1.4E-16	1.E-10	2.E-11	1.E-10	1.0E-09	1.0E-09	7.7E-15	1.1E-15	8.E-06	1.E-06	0.00001
	Pesticides																
	Aldrin	1.3E-01	ug/kg	1.7E+01	1.7E+01	1.7E-13	3.3E-14	3.E-12	6.E-13	3.E-12	3.0E-05	3.0E-05	1.3E-12	2.6E-13	4.E-08	9.E-09	0.0000001
	Dieldrin	8.2E-02	ug/kg	1.6E+01	1.6E+01	1.0E-13	2.1E-14	2.E-12	3.E-13	2.E-12	5.0E-05	5.0E-05	8.1E-13	1.6E-13	2.E-08	3.E-09	0.00000002
	Total DDT	3.6E+00	ug/kg	3.4E-01	3.4E-01	1.4E-12	8.9E-13	5.E-13	3.E-13	8.E-13	5.0E-04	5.0E-04	1.1E-11	7.0E-12	2.E-08	1.E-08	0.00000004
Exposure Point Total										1.E-08							0.003
RM 7.5 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	8.1E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.6E-09	6.3E-09	3.E-05	2.E-05	0.0001
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	1.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-10	0.E+00	2.E-06	0.000002
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	2.4E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.9E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	5.4E+00	ug/kg	--	--	6.9E-12	1.4E-12	--	--	--	3.0E-04	3.0E-04	5.4E-11	1.1E-11	2.E-07	4.E-08	0.0000002

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	2.5E-10	3.7E-11	2.E-10	3.E-11	2.E-10	--	--	1.9E-09	2.9E-10	--	--	--
	Benzo(a)pyrene	1.3E+02	ug/kg	7.3E+00	7.3E+00	2.1E-10	3.2E-11	2.E-09	2.E-10	2.E-09	--	--	1.7E-09	2.5E-10	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	2.8E-10	4.3E-11	2.E-10	3.E-11	2.E-10	--	--	2.2E-09	3.3E-10	--	--	--
	Benzo(k)fluoranthene	6.1E+01	ug/kg	7.3E-02	7.3E-02	1.0E-10	1.5E-11	7.E-12	1.E-12	8.E-12	--	--	7.8E-10	1.2E-10	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	3.3E-11	5.0E-12	2.E-10	4.E-11	3.E-10	--	--	2.6E-10	3.9E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	8.4E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.1E-11	1.E-10	2.E-11	1.E-10	--	--	1.1E-09	1.6E-10	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	4.2E-11	6.3E-12	--	--	--	2.0E-02	2.0E-02	3.2E-10	4.9E-11	2.E-08	2.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	1.8E-10	3.6E-11	3.E-12	5.E-13	3.E-12	2.0E-02	2.0E-02	1.4E-09	2.8E-10	7.E-08	1.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	4.9E-12	3.9E-13	2.E-12	2.E-13	2.E-12	5.0E-03	5.0E-03	3.8E-11	3.0E-12	8.E-09	6.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	8.6E+01	ug/kg	2.0E+00	2.0E+00	1.5E-10	2.2E-11	3.E-10	4.E-11	4.E-10	2.0E-05	2.0E-05	1.2E-09	1.7E-10	6.E-05	8.E-06	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	3.6E-16	2.3E-16	5.E-11	3.E-11	8.E-11	1.0E-09	1.0E-09	2.8E-15	1.8E-15	3.E-06	2.E-06	0.000005
	Total PCB TEQ	6.6E-01	pg/g	1.3E+05	1.3E+05	1.2E-15	1.7E-16	2.E-10	2.E-11	2.E-10	1.0E-09	1.0E-09	9.3E-15	1.3E-15	9.E-06	1.E-06	0.00001
	Pesticides																
	Aldrin	1.8E-01	ug/kg	1.7E+01	1.7E+01	2.4E-13	4.6E-14	4.E-12	8.E-13	5.E-12	3.0E-05	3.0E-05	1.8E-12	3.6E-13	6.E-08	1.E-08	0.0000001
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	2.3E-13	4.5E-14	4.E-12	7.E-13	4.E-12	5.0E-05	5.0E-05	1.8E-12	3.5E-13	4.E-08	7.E-09	0.00000004
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	8.0E-12	5.3E-12	3.E-12	2.E-12	5.E-12	5.0E-04	5.0E-04	6.3E-11	4.1E-11	1.E-07	8.E-08	0.0000002
Exposure Point Total										6.E-09							0.003
RM 7.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	1.3E-09	8.3E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.8E-09	6.4E-09	3.E-05	2.E-05	0.0001
	Mercury	7.6E-02	mg/kg	--	--	0.0E+00	1.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.5E-10	0.E+00	1.E-06	0.000001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.6E+02	ug/kg	--	--	2.1E-10	4.1E-11	--	--	--	3.0E-04	3.0E-04	1.6E-09	3.2E-10	5.E-06	1.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+01	ug/kg	7.3E-01	7.3E-01	4.2E-11	6.4E-12	3.E-11	5.E-12	4.E-11	--	--	3.3E-10	5.0E-11	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	4.3E-11	6.5E-12	3.E-10	5.E-11	4.E-10	--	--	3.3E-10	5.0E-11	--	--	--
	Benzo(b)fluoranthene	3.2E+01	ug/kg	7.3E-01	7.3E-01	5.4E-11	8.1E-12	4.E-11	6.E-12	5.E-11	--	--	4.2E-10	6.3E-11	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	3.3E-11	5.0E-12	2.E-12	4.E-13	3.E-12	--	--	2.6E-10	3.9E-11	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	1.5E-11	2.3E-12	1.E-10	2.E-11	1.E-10	--	--	1.2E-10	1.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.8E+01	ug/kg	7.3E-01	7.3E-01	3.0E-11	4.5E-12	2.E-11	3.E-12	2.E-11	--	--	2.3E-10	3.5E-11	--	--	--
	Naphthalene	6.1E+00	ug/kg	--	--	1.0E-11	1.5E-12	--	--	--	2.0E-02	2.0E-02	7.9E-11	1.2E-11	4.E-09	6.E-10	0.000000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.1E+02	ug/kg	1.4E-02	1.4E-02	7.8E-10	1.5E-10	1.E-11	2.E-12	1.E-11	2.E-02	2.E-02	6.1E-09	1.2E-09	3.E-07	6.E-08	0.0000004

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	5.7E-11	8.0E-12	1.E-10	2.E-11	1.E-10	2.0E-05	2.0E-05	4.4E-10	6.2E-11	2.E-05	3.E-06	0.00003
	Pesticides																
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	1.9E-13	3.7E-14	3.E-12	6.E-13	4.E-12	5.0E-05	5.0E-05	1.5E-12	2.9E-13	3.E-08	6.E-09	0.00000003
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	4.1E-13	2.7E-13	1.E-13	9.E-14	2.E-13	5.0E-04	5.0E-04	3.2E-12	2.1E-12	6.E-09	4.E-09	0.00000001
Exposure Point Total										4.E-09							0.003
RM 8 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	8.1E-09	4.E-05	3.E-05	0.0001
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	4.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.2E-10	0.E+00	3.E-06	0.000003
	Vanadium	9.5E+01	mg/kg	--	--	0.0E+00	2.4E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.8E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.7E-11	3.3E-12	--	--	--	3.0E-04	3.0E-04	1.3E-10	2.6E-11	4.E-07	9.E-08	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	2.9E-10	4.5E-11	2.E-10	3.E-11	2.E-10	--	--	2.3E-09	3.5E-10	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.8E-10	4.2E-11	2.E-09	3.E-10	2.E-09	--	--	2.2E-09	3.3E-10	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	3.8E-10	5.8E-11	3.E-10	4.E-11	3.E-10	--	--	3.0E-09	4.5E-10	--	--	--
	Benzo(k)fluoranthene	5.0E+01	ug/kg	7.3E-02	7.3E-02	8.4E-11	1.3E-11	6.E-12	9.E-13	7.E-12	--	--	6.5E-10	9.9E-11	--	--	--
	Dibenzo(a,h)anthracene	3.1E+01	ug/kg	7.3E+00	7.3E+00	5.1E-11	7.8E-12	4.E-10	6.E-11	4.E-10	--	--	4.0E-10	6.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.8E-11	1.E-10	2.E-11	2.E-10	--	--	1.5E-09	2.2E-10	--	--	--
	Naphthalene	5.1E+01	ug/kg	--	--	8.5E-11	1.3E-11	--	--	--	2.0E-02	2.0E-02	6.6E-10	1.0E-10	3.E-08	5.E-09	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.0E+02	ug/kg	1.4E-02	1.4E-02	7.7E-10	1.5E-10	1.E-11	2.E-12	1.E-11	2.0E-02	2.0E-02	6.0E-09	1.2E-09	3.E-07	6.E-08	0.0000004
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	1.0E-11	7.8E-13	4.E-12	3.E-13	4.E-12	5.0E-03	5.0E-03	7.8E-11	6.1E-12	2.E-08	1.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	2.1E-10	3.0E-11	4.E-10	6.E-11	5.E-10	2.0E-05	2.0E-05	1.7E-09	2.3E-10	8.E-05	1.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	1.0E-16	6.6E-17	1.E-11	9.E-12	2.E-11	1.0E-09	1.0E-09	7.8E-16	5.1E-16	8.E-07	5.E-07	0.000001
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	6.4E-15	8.9E-16	8.E-10	1.E-10	9.E-10	1.0E-09	1.0E-09	4.9E-14	6.9E-15	5.E-05	7.E-06	0.0001
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	5.1E-14	1.0E-14	9.E-13	2.E-13	1.E-12	3.0E-05	3.0E-05	4.0E-13	7.9E-14	1.E-08	3.E-09	0.00000002
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	2.5E-12	5.0E-13	4.E-11	8.E-12	5.E-11	5.0E-05	5.0E-05	2.0E-11	3.9E-12	4.E-07	8.E-08	0.0000005
	Total DDT	6.5E+00	ug/kg	3.4E-01	3.4E-01	2.5E-12	1.6E-12	8.E-13	6.E-13	1.E-12	5.0E-04	5.0E-04	1.9E-11	1.3E-11	4.E-08	3.E-08	0.0000001
Exposure Point Total										9.E-09							0.003
RM 8 East	**Metals**																
	Arsenic	6.2E+00	mg/kg	1.5E+00	1.5E+00	2.4E-09	1.5E-09	4.E-09	2.E-09	6.E-09	3.0E-04	3.0E-04	1.8E-08	1.2E-08	6.E-05	4.E-05	0.0001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	3.0E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	3.0E-09	6.0E-10	--	--	--	3.0E-04	3.0E-04	2.4E-08	4.7E-09	8.E-05	2.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.7E+02	ug/kg	7.3E-01	7.3E-01	2.8E-10	4.2E-11	2.E-10	3.E-11	2.E-10	--	--	2.2E-09	3.3E-10	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.9E-10	4.4E-11	2.E-09	3.E-10	2.E-09	--	--	2.3E-09	3.4E-10	--	--	--
	Benzo(b)fluoranthene	2.0E+02	ug/kg	7.3E-01	7.3E-01	3.3E-10	5.0E-11	2.E-10	4.E-11	3.E-10	--	--	2.5E-09	3.9E-10	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	2.1E-10	3.2E-11	2.E-11	2.E-12	2.E-11	--	--	1.7E-09	2.5E-10	--	--	--
	Dibenzo(a,h)anthracene	2.6E+01	ug/kg	7.3E+00	7.3E+00	4.3E-11	6.5E-12	3.E-10	5.E-11	4.E-10	--	--	3.3E-10	5.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.0E-10	3.1E-11	1.E-10	2.E-11	2.E-10	--	--	1.6E-09	2.4E-10	--	--	--
	Naphthalene	1.6E+01	ug/kg	--	--	2.7E-11	4.1E-12	--	--	--	2.0E-02	2.0E-02	2.1E-10	3.2E-11	1.E-08	2.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.7E+02	ug/kg	1.4E-02	1.4E-02	9.9E-10	1.9E-10	1.E-11	3.E-12	2.E-11	2.0E-02	2.0E-02	7.7E-09	1.5E-09	4.E-07	8.E-08	0.0000005
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	4.2E-11	3.3E-12	2.E-11	1.E-12	2.E-11	5.0E-03	5.0E-03	3.3E-10	2.6E-11	7.E-08	5.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+02	ug/kg	2.0E+00	2.0E+00	3.1E-10	4.3E-11	6.E-10	9.E-11	7.E-10	2.0E-05	2.0E-05	2.4E-09	3.4E-10	1.E-04	2.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	1.3E+05	1.3E+05	3.6E-16	2.3E-16	5.E-11	3.E-11	8.E-11	1.0E-09	1.0E-09	2.8E-15	1.8E-15	3.E-06	2.E-06	0.000005
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	1.0E-14	1.5E-15	1.E-09	2.E-10	2.E-09	1.0E-09	1.0E-09	8.1E-14	1.1E-14	8.E-05	1.E-05	0.0001
	Pesticides																
	Aldrin	1.1E-01	ug/kg	1.7E+01	1.7E+01	1.5E-13	2.9E-14	2.E-12	5.E-13	3.E-12	3.0E-05	3.0E-05	1.1E-12	2.2E-13	4.E-08	7.E-09	0.00000005
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	1.0E-12	2.0E-13	2.E-11	3.E-12	2.E-11	5.0E-05	5.0E-05	7.8E-12	1.5E-12	2.E-07	3.E-08	0.0000002
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	4.1E-12	2.7E-12	1.E-12	9.E-13	2.E-12	5.0E-04	5.0E-04	3.2E-11	2.1E-11	6.E-08	4.E-08	0.0000001
Exposure Point Total										1.E-08							0.003
RM 8 SIL	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	2.1E-09	1.4E-09	3.E-09	2.E-09	5.E-09	3.0E-04	3.0E-04	1.6E-08	1.1E-08	5.E-05	4.E-05	0.0001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	2.9E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	2.2E+03	ug/kg	--	--	2.8E-09	5.6E-10	--	--	--	3.0E-04	3.0E-04	2.2E-08	4.4E-09	7.E-05	1.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.4E+02	ug/kg	7.3E-01	7.3E-01	4.0E-10	6.0E-11	3.E-10	4.E-11	3.E-10	--	--	3.1E-09	4.7E-10	--	--	--
	Benzo(a)pyrene	2.0E+02	ug/kg	7.3E+00	7.3E+00	3.3E-10	4.9E-11	2.E-09	4.E-10	3.E-09	--	--	2.5E-09	3.8E-10	--	--	--
	Benzo(b)fluoranthene	3.8E+02	ug/kg	7.3E-01	7.3E-01	6.3E-10	9.5E-11	5.E-10	7.E-11	5.E-10	--	--	4.9E-09	7.4E-10	--	--	--
	Benzo(k)fluoranthene	2.1E+02	ug/kg	7.3E-02	7.3E-02	3.4E-10	5.2E-11	3.E-11	4.E-12	3.E-11	--	--	2.7E-09	4.0E-10	--	--	--
	Dibenzo(a,h)anthracene	3.6E+01	ug/kg	7.3E+00	7.3E+00	5.9E-11	8.9E-12	4.E-10	7.E-11	5.E-10	--	--	4.6E-10	6.9E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	3.1E-11	2.E-10	2.E-11	2.E-10	--	--	1.6E-09	2.4E-10	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	4.2E-11	6.4E-12	--	--	--	2.0E-02	2.0E-02	3.3E-10	4.9E-11	2.E-08	2.E-09	0.00000002

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.1E+03	ug/kg	1.4E-02	1.4E-02	1.0E-08	2.0E-09	1.E-10	3.E-11	2.E-10	2.0E-02	2.0E-02	8.1E-08	1.6E-08	4.E-06	8.E-07	0.000005
	Phenols																
	Pentachlorophenol	3.9E+01	ug/kg	4.0E-01	4.0E-01	1.3E-10	9.9E-12	5.E-11	4.E-12	5.E-11	5.0E-03	5.0E-03	9.8E-10	7.7E-11	2.E-07	2.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+02	ug/kg	2.0E+00	2.0E+00	5.0E-10	7.1E-11	1.E-09	1.E-10	1.E-09	2.0E-05	2.0E-05	3.9E-09	5.5E-10	2.E-04	3.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	1.3E+05	1.3E+05	2.4E-15	1.6E-15	3.E-10	2.E-10	5.E-10	1.0E-09	1.0E-09	1.9E-14	1.2E-14	2.E-05	1.E-05	0.00003
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	2.2E-14	3.0E-15	3.E-09	4.E-10	3.E-09	1.0E-09	1.0E-09	1.7E-13	2.4E-14	2.E-04	2.E-05	0.0002
	Pesticides																
	Aldrin	6.2E-01	ug/kg	1.7E+01	1.7E+01	7.9E-13	1.6E-13	1.E-11	3.E-12	2.E-11	3.0E-05	3.0E-05	6.1E-12	1.2E-12	2.E-07	4.E-08	0.0000002
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	1.8E-12	3.5E-13	3.E-11	6.E-12	3.E-11	5.0E-05	5.0E-05	1.4E-11	2.7E-12	3.E-07	5.E-08	0.0000003
	Total DDT	5.2E+00	ug/kg	3.4E-01	3.4E-01	2.0E-12	1.3E-12	7.E-13	4.E-13	1.E-12	5.0E-04	5.0E-04	1.6E-11	1.0E-11	3.E-08	2.E-08	0.0000001
Exposure Point Total										1.E-08							0.004
RM 8.5 West	**Metals**																
	Arsenic	6.7E+00	mg/kg	1.5E+00	1.5E+00	2.6E-09	1.7E-09	4.E-09	3.E-09	6.E-09	3.0E-04	3.0E-04	2.0E-08	1.3E-08	7.E-05	4.E-05	0.0001
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	5.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-10	0.E+00	4.E-06	0.000004
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	1.3E+01	ug/kg	--	--	1.6E-11	3.2E-12	--	--	--	3.0E-04	3.0E-04	1.3E-10	2.5E-11	4.E-07	8.E-08	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	2.4E-11	1.E-10	2.E-11	1.E-10	--	--	1.2E-09	1.8E-10	--	--	--
	Benzo(a)pyrene	9.1E+01	ug/kg	7.3E+00	7.3E+00	1.5E-10	2.3E-11	1.E-09	2.E-10	1.E-09	--	--	1.2E-09	1.8E-10	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	2.2E-10	3.3E-11	2.E-10	2.E-11	2.E-10	--	--	1.7E-09	2.6E-10	--	--	--
	Benzo(k)fluoranthene	5.5E+01	ug/kg	7.3E-02	7.3E-02	9.2E-11	1.4E-11	7.E-12	1.E-12	8.E-12	--	--	7.2E-10	1.1E-10	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	1.9E-11	2.9E-12	1.E-10	2.E-11	2.E-10	--	--	1.5E-10	2.2E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.2E+01	ug/kg	7.3E-01	7.3E-01	8.6E-11	1.3E-11	6.E-11	1.E-11	7.E-11	--	--	6.7E-10	1.0E-10	--	--	--
	Naphthalene	2.4E+01	ug/kg	--	--	4.1E-11	6.2E-12	--	--	--	2.0E-02	2.0E-02	3.2E-10	4.8E-11	2.E-08	2.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.3E+02	ug/kg	1.4E-02	1.4E-02	8.1E-10	1.6E-10	1.E-11	2.E-12	1.E-11	2.0E-02	2.0E-02	6.3E-09	1.2E-09	3.E-07	6.E-08	0.0000004
	Phenols																
	Pentachlorophenol	2.8E+00	ug/kg	4.0E-01	4.0E-01	8.8E-12	6.9E-13	4.E-12	3.E-13	4.E-12	5.0E-03	5.0E-03	6.9E-11	5.4E-12	1.E-08	1.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.4E+03	ug/kg	2.0E+00	2.0E+00	2.5E-09	3.5E-10	5.E-09	7.E-10	6.E-09	2.0E-05	2.0E-05	1.9E-08	2.7E-09	1.E-03	1.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	1.3E+05	1.3E+05	1.9E-15	1.3E-15	2.E-10	2.E-10	4.E-10	1.0E-09	1.0E-09	1.5E-14	9.8E-15	1.E-05	1.E-05	0.00002
	Total PCB TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	5.9E-14	8.3E-15	8.E-09	1.E-09	9.E-09	1.0E-09	1.0E-09	4.6E-13	6.4E-14	5.E-04	6.E-05	0.0005

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	1.1E+01	ug/kg	1.7E+01	1.7E+01	1.4E-11	2.7E-12	2.E-10	5.E-11	3.E-10	3.0E-05	3.0E-05	1.1E-10	2.1E-11	4.E-06	7.E-07	0.000004
	Dieldrin	1.5E+01	ug/kg	1.6E+01	1.6E+01	1.9E-11	3.7E-12	3.E-10	6.E-11	4.E-10	5.0E-05	5.0E-05	1.5E-10	2.9E-11	3.E-06	6.E-07	0.000004
	Total DDT	6.0E+00	ug/kg	3.4E-01	3.4E-01	2.3E-12	1.5E-12	8.E-13	5.E-13	1.E-12	5.0E-04	5.0E-04	1.8E-11	1.2E-11	4.E-08	2.E-08	0.0000001
Exposure Point Total										2.E-08							0.005
RM 8.5 East	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	1.8E-09	1.2E-09	3.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.4E-08	9.2E-09	5.E-05	3.E-05	0.0001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	3.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	2.3E+01	ug/kg	--	--	3.0E-11	5.9E-12	--	--	--	3.0E-04	3.0E-04	2.3E-10	4.6E-11	8.E-07	2.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.1E+01	ug/kg	7.3E-01	7.3E-01	6.9E-11	1.0E-11	5.E-11	8.E-12	6.E-11	--	--	5.4E-10	8.1E-11	--	--	--
	Benzo(a)pyrene	4.6E+01	ug/kg	7.3E+00	7.3E+00	7.7E-11	1.2E-11	6.E-10	8.E-11	6.E-10	--	--	6.0E-10	9.0E-11	--	--	--
	Benzo(b)fluoranthene	7.1E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	1.8E-11	9.E-11	1.E-11	1.E-10	--	--	9.1E-10	1.4E-10	--	--	--
	Benzo(k)fluoranthene	3.6E+01	ug/kg	7.3E-02	7.3E-02	5.9E-11	8.9E-12	4.E-12	7.E-13	5.E-12	--	--	4.6E-10	7.0E-11	--	--	--
	Dibenzo(a,h)anthracene	8.3E+00	ug/kg	7.3E+00	7.3E+00	1.4E-11	2.1E-12	1.E-10	2.E-11	1.E-10	--	--	1.1E-10	1.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+01	ug/kg	7.3E-01	7.3E-01	6.5E-11	9.9E-12	5.E-11	7.E-12	6.E-11	--	--	5.1E-10	7.7E-11	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	3.3E-11	4.9E-12	--	--	--	2.0E-02	2.0E-02	2.5E-10	3.8E-11	1.E-08	2.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.5E+02	ug/kg	1.4E-02	1.4E-02	5.8E-10	1.1E-10	8.E-12	2.E-12	1.E-11	2.0E-02	2.0E-02	4.5E-09	8.8E-10	2.E-07	4.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.6E+01	ug/kg	2.0E+00	2.0E+00	8.3E-11	1.2E-11	2.E-10	2.E-11	2.E-10	2.0E-05	2.0E-05	6.4E-10	9.0E-11	3.E-05	5.E-06	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	2.4E-16	1.6E-16	3.E-11	2.E-11	5.E-11	1.0E-09	1.0E-09	1.9E-15	1.2E-15	2.E-06	1.E-06	0.000003
	Total PCB TEQ	4.2E-01	pg/g	1.3E+05	1.3E+05	7.6E-16	1.1E-16	1.E-10	1.E-11	1.E-10	1.0E-09	1.0E-09	5.9E-15	8.3E-16	6.E-06	8.E-07	0.00001
	Pesticides																
	Aldrin	3.2E-02	ug/kg	1.7E+01	1.7E+01	4.1E-14	8.1E-15	7.E-13	1.E-13	8.E-13	3.0E-05	3.0E-05	3.2E-13	6.3E-14	1.E-08	2.E-09	0.00000001
	Dieldrin	1.3E-01	ug/kg	1.6E+01	1.6E+01	1.7E-13	3.4E-14	3.E-12	5.E-13	3.E-12	5.0E-05	5.0E-05	1.3E-12	2.6E-13	3.E-08	5.E-09	0.00000003
	Total DDT	1.5E+00	ug/kg	3.4E-01	3.4E-01	5.8E-13	3.8E-13	2.E-13	1.E-13	3.E-13	5.0E-04	5.0E-04	4.5E-12	2.9E-12	9.E-09	6.E-09	0.00000001
Exposure Point Total										6.E-09							0.003
RM 9 West	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	1.6E-09	1.0E-09	2.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	8.1E-09	4.E-05	3.E-05	0.0001
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	3.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.4E-10	0.E+00	2.E-06	0.000002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	2.7E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.1E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	9.9E+00	ug/kg	--	--	1.3E-11	2.5E-12	--	--	--	3.0E-04	3.0E-04	9.8E-11	1.9E-11	3.E-07	6.E-08	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	2.6E-10	3.9E-11	2.E-10	3.E-11	2.E-10	--	--	2.0E-09	3.0E-10	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	1.7E-10	2.6E-11	1.E-09	2.E-10	1.E-09	--	--	1.3E-09	2.0E-10	--	--	--

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	2.7E-10	4.0E-11	2.E-10	3.E-11	2.E-10	--	--	2.1E-09	3.1E-10	--	--	--
	Benzo(k)fluoranthene	6.2E+01	ug/kg	7.3E-02	7.3E-02	1.0E-10	1.5E-11	7.E-12	1.E-12	9.E-12	--	--	8.0E-10	1.2E-10	--	--	--
	Dibenzo(a,h)anthracene	1.8E+01	ug/kg	7.3E+00	7.3E+00	2.9E-11	4.4E-12	2.E-10	3.E-11	2.E-10	--	--	2.3E-10	3.5E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	1.7E-11	8.E-11	1.E-11	9.E-11	--	--	8.6E-10	1.3E-10	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	2.8E-11	4.2E-12	--	--	--	2.0E-02	2.0E-02	2.2E-10	3.3E-11	1.E-08	2.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	2.2E-10	4.4E-11	3.E-12	6.E-13	4.E-12	2.0E-02	2.0E-02	1.7E-09	3.4E-10	9.E-08	2.E-08	0.0000001
	Phenols																
	Pentachlorophenol	4.7E+00	ug/kg	4.0E-01	4.0E-01	1.5E-11	1.2E-12	6.E-12	5.E-13	6.E-12	5.0E-03	5.0E-03	1.2E-10	9.1E-12	2.E-08	2.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+02	ug/kg	2.0E+00	2.0E+00	8.1E-10	1.1E-10	2.E-09	2.E-10	2.E-09	2.0E-05	2.0E-05	6.3E-09	8.9E-10	3.E-04	4.E-05	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	1.5E-15	9.9E-16	2.E-10	1.E-10	3.E-10	1.0E-09	1.0E-09	1.2E-14	7.7E-15	1.E-05	8.E-06	0.00002
	Total PCB TEQ	1.6E+01	pg/g	1.3E+05	1.3E+05	2.8E-14	3.9E-15	4.E-09	5.E-10	4.E-09	1.0E-09	1.0E-09	2.2E-13	3.1E-14	2.E-04	3.E-05	0.0002
	Pesticides																
	Aldrin	2.2E-01	ug/kg	1.7E+01	1.7E+01	2.9E-13	5.6E-14	5.E-12	1.E-12	6.E-12	3.0E-05	3.0E-05	2.2E-12	4.4E-13	7.E-08	1.E-08	0.0000001
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	2.6E-13	5.1E-14	4.E-12	8.E-13	5.E-12	5.0E-05	5.0E-05	2.0E-12	4.0E-13	4.E-08	8.E-09	0.00000005
	Total DDT	4.4E+00	ug/kg	3.4E-01	3.4E-01	1.7E-12	1.1E-12	6.E-13	4.E-13	9.E-13	5.0E-04	5.0E-04	1.3E-11	8.6E-12	3.E-08	2.E-08	0.00000004
Exposure Point Total										1.E-08							0.004
RM 9 East	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.5E-09	9.6E-10	2.E-09	1.E-09	4.E-09	3.0E-04	3.0E-04	1.1E-08	7.4E-09	4.E-05	2.E-05	0.0001
	Mercury	5.0E-02	mg/kg	--	--	0.0E+00	1.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-11	0.E+00	1.E-06	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+01	ug/kg	7.3E-01	7.3E-01	1.7E-11	2.6E-12	1.E-11	2.E-12	1.E-11	--	--	1.3E-10	2.0E-11	--	--	--
	Benzo(a)pyrene	1.3E+01	ug/kg	7.3E+00	7.3E+00	2.1E-11	3.2E-12	2.E-10	2.E-11	2.E-10	--	--	1.6E-10	2.5E-11	--	--	--
	Benzo(b)fluoranthene	1.8E+01	ug/kg	7.3E-01	7.3E-01	3.0E-11	4.6E-12	2.E-11	3.E-12	3.E-11	--	--	2.3E-10	3.5E-11	--	--	--
	Benzo(k)fluoranthene	8.3E+00	ug/kg	7.3E-02	7.3E-02	1.4E-11	2.1E-12	1.E-12	2.E-13	1.E-12	--	--	1.1E-10	1.6E-11	--	--	--
	Dibenzo(a,h)anthracene	2.1E+00	ug/kg	7.3E+00	7.3E+00	3.6E-12	5.4E-13	3.E-11	4.E-12	3.E-11	--	--	2.8E-11	4.2E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+01	ug/kg	7.3E-01	7.3E-01	1.8E-11	2.7E-12	1.E-11	2.E-12	1.E-11	--	--	1.4E-10	2.1E-11	--	--	--
	Naphthalene	2.7E+00	ug/kg	--	--	4.5E-12	6.8E-13	--	--	--	2.0E-02	2.0E-02	3.5E-11	5.3E-12	2.E-09	3.E-10	0.000000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.6E+02	ug/kg	1.4E-02	1.4E-02	4.6E-10	9.0E-11	6.E-12	1.E-12	8.E-12	2.0E-02	2.0E-02	3.6E-09	7.0E-10	2.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	9.3E-11	1.3E-11	2.E-10	3.E-11	2.E-10	2.0E-05	2.0E-05	7.3E-10	1.0E-10	4.E-05	5.E-06	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	8.3E-17	5.4E-17	1.E-11	7.E-12	2.E-11	1.0E-09	1.0E-09	6.4E-16	4.2E-16	6.E-07	4.E-07	0.000001
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	1.1E-15	1.6E-16	1.E-10	2.E-11	2.E-10	1.0E-09	1.0E-09	8.8E-15	1.2E-15	9.E-06	1.E-06	0.00001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Dieldrin	8.8E-02	ug/kg	1.6E+01	1.6E+01	1.1E-13	2.2E-14	2.E-12	4.E-13	2.E-12	5.0E-05	5.0E-05	8.7E-13	1.7E-13	2.E-08	3.E-09	0.00000002
	Total DDT	1.4E+00	ug/kg	3.4E-01	3.4E-01	5.5E-13	3.6E-13	2.E-13	1.E-13	3.E-13	5.0E-04	5.0E-04	4.3E-12	2.8E-12	9.E-09	6.E-09	0.00000001
Exposure Point Total										4.E-09							0.0001
RM 9.5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	1.4E-09	9.5E-10	2.E-09	1.E-09	4.E-09	3.0E-04	3.0E-04	1.1E-08	7.4E-09	4.E-05	2.E-05	0.0001
	Mercury	6.2E-02	mg/kg	--	--	0.0E+00	1.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-10	0.E+00	1.E-06	0.000001
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	1.3E-11	2.5E-12	--	--	--	3.0E-04	3.0E-04	9.9E-11	2.0E-11	3.E-07	7.E-08	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.0E-10	3.0E-11	1.E-10	2.E-11	2.E-10	--	--	1.6E-09	2.4E-10	--	--	--
	Benzo(a)pyrene	1.7E+02	ug/kg	7.3E+00	7.3E+00	2.8E-10	4.2E-11	2.E-09	3.E-10	2.E-09	--	--	2.1E-09	3.2E-10	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	3.8E-10	5.8E-11	3.E-10	4.E-11	3.E-10	--	--	3.0E-09	4.5E-10	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	1.7E-10	2.6E-11	1.E-11	2.E-12	1.E-11	--	--	1.3E-09	2.0E-10	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	5.3E-11	8.0E-12	4.E-10	6.E-11	4.E-10	--	--	4.1E-10	6.2E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.3E-10	3.5E-11	2.E-10	3.E-11	2.E-10	--	--	1.8E-09	2.7E-10	--	--	--
	Naphthalene	4.1E+01	ug/kg	--	--	6.8E-11	1.0E-11	--	--	--	2.0E-02	2.0E-02	5.3E-10	8.0E-11	3.E-08	4.E-09	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.6E+02	ug/kg	1.4E-02	1.4E-02	1.1E-09	2.2E-10	2.E-11	3.E-12	2.E-11	2.0E-02	2.0E-02	8.5E-09	1.7E-09	4.E-07	8.E-08	0.000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	3.6E-11	2.8E-12	1.E-11	1.E-12	2.E-11	5.0E-03	5.0E-03	2.8E-10	2.2E-11	6.E-08	4.E-09	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+02	ug/kg	2.0E+00	2.0E+00	3.8E-10	5.3E-11	8.E-10	1.E-10	9.E-10	2.0E-05	2.0E-05	2.9E-09	4.1E-10	1.E-04	2.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	1.3E+05	1.3E+05	3.3E-15	2.2E-15	4.E-10	3.E-10	7.E-10	1.0E-09	1.0E-09	2.6E-14	1.7E-14	3.E-05	2.E-05	0.00004
	Total PCB TEQ	3.6E+00	pg/g	1.3E+05	1.3E+05	6.5E-15	9.2E-16	8.E-10	1.E-10	1.E-09	1.0E-09	1.0E-09	5.1E-14	7.1E-15	5.E-05	7.E-06	0.0001
	Pesticides																
	Aldrin	5.8E-01	ug/kg	1.7E+01	1.7E+01	7.5E-13	1.5E-13	1.E-11	3.E-12	2.E-11	3.0E-05	3.0E-05	5.8E-12	1.1E-12	2.E-07	4.E-08	0.0000002
	Dieldrin	6.1E-01	ug/kg	1.6E+01	1.6E+01	7.8E-13	1.5E-13	1.E-11	2.E-12	1.E-11	5.0E-05	5.0E-05	6.0E-12	1.2E-12	1.E-07	2.E-08	0.0000001
	Total DDT	3.1E+00	ug/kg	3.4E-01	3.4E-01	1.2E-12	7.7E-13	4.E-13	3.E-13	7.E-13	5.0E-04	5.0E-04	9.1E-12	6.0E-12	2.E-08	1.E-08	0.00000003
Exposure Point Total										1.E-08							0.0003
RM 9.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	1.3E-09	8.3E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.8E-09	6.4E-09	3.E-05	2.E-05	0.0001
	Mercury	6.3E-02	mg/kg	--	--	0.0E+00	1.6E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-10	0.E+00	1.E-06	0.000001
	Butyltins																
	Tributyltin ion	2.6E+00	ug/kg	--	--	3.3E-12	6.4E-13	--	--	--	3.0E-04	3.0E-04	2.5E-11	5.0E-12	8.E-08	2.E-08	0.0000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+01	ug/kg	7.3E-01	7.3E-01	3.6E-11	5.5E-12	3.E-11	4.E-12	3.E-11	--	--	2.8E-10	4.3E-11	--	--	--
	Benzo(a)pyrene	2.5E+01	ug/kg	7.3E+00	7.3E+00	4.1E-11	6.2E-12	3.E-10	5.E-11	3.E-10	--	--	3.2E-10	4.8E-11	--	--	--
	Benzo(b)fluoranthene	2.9E+01	ug/kg	7.3E-01	7.3E-01	4.9E-11	7.4E-12	4.E-11	5.E-12	4.E-11	--	--	3.8E-10	5.7E-11	--	--	--
	Benzo(k)fluoranthene	1.7E+01	ug/kg	7.3E-02	7.3E-02	2.8E-11	4.3E-12	2.E-12	3.E-13	2.E-12	--	--	2.2E-10	3.3E-11	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	7.3E-12	1.1E-12	5.E-11	8.E-12	6.E-11	--	--	5.6E-11	8.5E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+01	ug/kg	7.3E-01	7.3E-01	3.3E-11	5.0E-12	2.E-11	4.E-12	3.E-11	--	--	2.6E-10	3.9E-11	--	--	--
	Naphthalene	3.4E+00	ug/kg	--	--	5.6E-12	8.5E-13	--	--	--	2.0E-02	2.0E-02	4.4E-11	6.6E-12	2.E-09	3.E-10	0.000000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.6E+02	ug/kg	1.4E-02	1.4E-02	2.1E-10	4.1E-11	3.E-12	6.E-13	4.E-12	2.0E-02	2.0E-02	1.6E-09	3.2E-10	8.E-08	2.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.1E+00	ug/kg	4.0E-01	4.0E-01	3.6E-12	2.8E-13	1.E-12	1.E-13	2.E-12	5.0E-03	5.0E-03	2.8E-11	2.2E-12	6.E-09	4.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+01	ug/kg	2.0E+00	2.0E+00	7.2E-11	1.0E-11	1.E-10	2.E-11	2.E-10	2.0E-05	2.0E-05	5.6E-10	7.9E-11	3.E-05	4.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	1.3E+05	1.3E+05	3.4E-16	2.2E-16	4.E-11	3.E-11	7.E-11	1.0E-09	1.0E-09	2.6E-15	1.7E-15	3.E-06	2.E-06	0.000004
	Total PCB TEQ	2.6E-01	pg/g	1.3E+05	1.3E+05	4.7E-16	6.5E-17	6.E-11	9.E-12	7.E-11	1.0E-09	1.0E-09	3.6E-15	5.1E-16	4.E-06	5.E-07	0.000004
	Pesticides																
	Aldrin	9.1E-02	ug/kg	1.7E+01	1.7E+01	1.2E-13	2.3E-14	2.E-12	4.E-13	2.E-12	3.0E-05	3.0E-05	9.1E-13	1.8E-13	3.E-08	6.E-09	0.00000004
	Dieldrin	3.0E-02	ug/kg	1.6E+01	1.6E+01	3.8E-14	7.4E-15	6.E-13	1.E-13	7.E-13	5.0E-05	5.0E-05	2.9E-13	5.8E-14	6.E-09	1.E-09	0.00000001
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	4.4E-13	2.9E-13	1.E-13	1.E-13	2.E-13	5.0E-04	5.0E-04	3.4E-12	2.2E-12	7.E-09	4.E-09	0.00000001
Exposure Point Total										4.E-09							0.0001
RM 10 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	3.9E-09	2.6E-09	6.E-09	4.E-09	1.E-08	3.0E-04	3.0E-04	3.0E-08	2.0E-08	1.E-04	7.E-05	0.0002
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	2.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-10	0.E+00	2.E-06	0.000002
	Butyltins																
	Tributyltin ion	2.4E+00	ug/kg	--	--	3.1E-12	6.1E-13	--	--	--	3.0E-04	3.0E-04	2.4E-11	4.8E-12	8.E-08	2.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.3E-10	3.5E-11	2.E-10	3.E-11	2.E-10	--	--	1.8E-09	2.8E-10	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	2.5E-10	3.8E-11	2.E-09	3.E-10	2.E-09	--	--	1.9E-09	2.9E-10	--	--	--
	Benzo(b)fluoranthene	1.9E+02	ug/kg	7.3E-01	7.3E-01	3.1E-10	4.7E-11	2.E-10	3.E-11	3.E-10	--	--	2.4E-09	3.7E-10	--	--	--
	Benzo(k)fluoranthene	7.9E+01	ug/kg	7.3E-02	7.3E-02	1.3E-10	2.0E-11	1.E-11	1.E-12	1.E-11	--	--	1.0E-09	1.5E-10	--	--	--
	Dibenzo(a,h)anthracene	3.5E+01	ug/kg	7.3E+00	7.3E+00	5.9E-11	8.9E-12	4.E-10	7.E-11	5.E-10	--	--	4.6E-10	6.9E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+02	ug/kg	7.3E-01	7.3E-01	2.3E-10	3.5E-11	2.E-10	3.E-11	2.E-10	--	--	1.8E-09	2.7E-10	--	--	--
	Naphthalene	2.0E+01	ug/kg	--	--	3.3E-11	4.9E-12	--	--	--	2.0E-02	2.0E-02	2.5E-10	3.8E-11	1.E-08	2.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	1.5E-10	3.0E-11	2.E-12	4.E-13	3.E-12	2.0E-02	2.0E-02	1.2E-09	2.4E-10	6.E-08	1.E-08	0.0000001
	Phenols																
	Pentachlorophenol	3.0E+00	ug/kg	4.0E-01	4.0E-01	9.6E-12	7.5E-13	4.E-12	3.E-13	4.E-12	5.0E-03	5.0E-03	7.4E-11	5.8E-12	1.E-08	1.E-09	0.00000002

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	3.3E-10	4.6E-11	7.E-10	9.E-11	7.E-10	2.0E-05	2.0E-05	2.5E-09	3.6E-10	1.E-04	2.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	1.3E+05	1.3E+05	2.0E-15	1.3E-15	3.E-10	2.E-10	4.E-10	1.0E-09	1.0E-09	1.5E-14	1.0E-14	2.E-05	1.E-05	0.00003
	Total PCB TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	3.3E-15	4.6E-16	4.E-10	6.E-11	5.E-10	1.0E-09	1.0E-09	2.5E-14	3.6E-15	3.E-05	4.E-06	0.00003
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	1.9E-13	3.7E-14	3.E-12	6.E-13	4.E-12	3.0E-05	3.0E-05	1.5E-12	2.9E-13	5.E-08	1.E-08	0.0000001
	Total DDT	4.7E+00	ug/kg	3.4E-01	3.4E-01	1.8E-12	1.2E-12	6.E-13	4.E-13	1.E-12	5.0E-04	5.0E-04	1.4E-11	9.2E-12	3.E-08	2.E-08	0.00000005
Exposure Point Total										1.E-08							0.0004
RM 10 East	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	7.7E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.1E-09	6.0E-09	3.E-05	2.E-05	0.0001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	1.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-10	0.E+00	1.E-06	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+02	ug/kg	7.3E-01	7.3E-01	1.9E-10	2.9E-11	1.E-10	2.E-11	2.E-10	--	--	1.5E-09	2.3E-10	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	2.4E-10	3.6E-11	2.E-09	3.E-10	2.E-09	--	--	1.9E-09	2.8E-10	--	--	--
	Benzo(b)fluoranthene	1.7E+02	ug/kg	7.3E-01	7.3E-01	2.9E-10	4.4E-11	2.E-10	3.E-11	2.E-10	--	--	2.2E-09	3.4E-10	--	--	--
	Benzo(k)fluoranthene	6.3E+01	ug/kg	7.3E-02	7.3E-02	1.0E-10	1.6E-11	8.E-12	1.E-12	9.E-12	--	--	8.1E-10	1.2E-10	--	--	--
	Dibenzo(a,h)anthracene	2.3E+01	ug/kg	7.3E+00	7.3E+00	3.9E-11	5.9E-12	3.E-10	4.E-11	3.E-10	--	--	3.0E-10	4.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	2.0E-10	3.0E-11	1.E-10	2.E-11	2.E-10	--	--	1.5E-09	2.3E-10	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	2.1E-11	3.1E-12	--	--	--	2.0E-02	2.0E-02	1.6E-10	2.4E-11	8.E-09	1.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	1.6E-10	3.2E-11	2.E-12	5.E-13	3.E-12	2.0E-02	2.0E-02	1.3E-09	2.5E-10	6.E-08	1.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.6E+00	ug/kg	4.0E-01	4.0E-01	8.4E-12	6.6E-13	3.E-12	3.E-13	4.E-12	5.0E-03	5.0E-03	6.5E-11	5.1E-12	1.E-08	1.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.4E+01	ug/kg	2.0E+00	2.0E+00	6.1E-11	8.6E-12	1.E-10	2.E-11	1.E-10	2.0E-05	2.0E-05	4.8E-10	6.7E-11	2.E-05	3.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	2.1E-16	1.4E-16	3.E-11	2.E-11	4.E-11	1.0E-09	1.0E-09	1.6E-15	1.1E-15	2.E-06	1.E-06	0.000003
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	1.2E-15	1.7E-16	2.E-10	2.E-11	2.E-10	1.0E-09	1.0E-09	9.6E-15	1.3E-15	1.E-05	1.E-06	0.00001
	Pesticides																
	Aldrin	4.0E-02	ug/kg	1.7E+01	1.7E+01	5.1E-14	1.0E-14	9.E-13	2.E-13	1.E-12	3.0E-05	3.0E-05	4.0E-13	7.9E-14	1.E-08	3.E-09	0.00000002
	Dieldrin	4.7E-02	ug/kg	1.6E+01	1.6E+01	6.0E-14	1.2E-14	1.E-12	2.E-13	1.E-12	5.0E-05	5.0E-05	4.7E-13	9.2E-14	9.E-09	2.E-09	0.00000001
	Total DDT	5.3E-01	ug/kg	3.4E-01	3.4E-01	2.0E-13	1.3E-13	7.E-14	5.E-14	1.E-13	5.0E-04	5.0E-04	1.6E-12	1.0E-12	3.E-09	2.E-09	0.00000001
Exposure Point Total										6.E-09							0.0001
RM 10.5 West	**Metals**																
	Arsenic	4.0E+00	mg/kg	1.5E+00	1.5E+00	1.5E-09	1.0E-09	2.E-09	1.E-09	4.E-09	3.0E-04	3.0E-04	1.2E-08	7.8E-09	4.E-05	3.E-05	0.0001
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	1.7E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-10	0.E+00	1.E-06	0.000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.8E+01	ug/kg	7.3E-01	7.3E-01	4.6E-11	6.9E-12	3.E-11	5.E-12	4.E-11	--	--	3.6E-10	5.4E-11	--	--	--
	Benzo(a)pyrene	2.6E+01	ug/kg	7.3E+00	7.3E+00	4.4E-11	6.6E-12	3.E-10	5.E-11	4.E-10	--	--	3.4E-10	5.2E-11	--	--	--
	Benzo(b)fluoranthene	3.5E+01	ug/kg	7.3E-01	7.3E-01	5.9E-11	8.9E-12	4.E-11	7.E-12	5.E-11	--	--	4.6E-10	6.9E-11	--	--	--
	Benzo(k)fluoranthene	1.3E+01	ug/kg	7.3E-02	7.3E-02	2.1E-11	3.2E-12	2.E-12	2.E-13	2.E-12	--	--	1.7E-10	2.5E-11	--	--	--
	Dibenzo(a,h)anthracene	4.4E+00	ug/kg	7.3E+00	7.3E+00	7.3E-12	1.1E-12	5.E-11	8.E-12	6.E-11	--	--	5.7E-11	8.6E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	2.2E+01	ug/kg	7.3E-01	7.3E-01	3.6E-11	5.4E-12	3.E-11	4.E-12	3.E-11	--	--	2.8E-10	4.2E-11	--	--	--
	Naphthalene	2.7E+01	ug/kg	--	--	4.5E-11	6.8E-12	--	--	--	2.0E-02	2.0E-02	3.5E-10	5.3E-11	2.E-08	3.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	1.7E-10	3.4E-11	2.E-12	5.E-13	3.E-12	2.0E-02	2.0E-02	1.4E-09	2.7E-10	7.E-08	1.E-08	0.0000001
	Phenols																
	Pentachlorophenol	8.6E+00	ug/kg	4.0E-01	4.0E-01	2.7E-11	2.2E-12	1.E-11	9.E-13	1.E-11	5.0E-03	5.0E-03	2.1E-10	1.7E-11	4.E-08	3.E-09	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	3.2E+01	ug/kg	2.0E+00	2.0E+00	5.7E-11	8.0E-12	1.E-10	2.E-11	1.E-10	2.0E-05	2.0E-05	4.4E-10	6.2E-11	2.E-05	3.E-06	0.00003
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	1.2E-15	1.7E-16	2.E-10	2.E-11	2.E-10	1.0E-09	1.0E-09	9.6E-15	1.3E-15	1.E-05	1.E-06	0.00001
	Pesticides																
	Aldrin	2.0E-01	ug/kg	1.7E+01	1.7E+01	2.6E-13	5.1E-14	4.E-12	9.E-13	5.E-12	3.0E-05	3.0E-05	2.0E-12	3.9E-13	7.E-08	1.E-08	0.0000001
	Total DDT	1.7E+00	ug/kg	3.4E-01	3.4E-01	6.4E-13	4.2E-13	2.E-13	1.E-13	4.E-13	5.0E-04	5.0E-04	5.0E-12	3.3E-12	1.E-08	7.E-09	0.00000002
Exposure Point Total										5.E-09							0.0001
RM 10.5 East	**Metals**																
	Arsenic	3.1E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	7.8E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.2E-09	6.0E-09	3.E-05	2.E-05	0.0001
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	1.5E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-10	0.E+00	1.E-06	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.9E+01	ug/kg	7.3E-01	7.3E-01	6.4E-11	9.7E-12	5.E-11	7.E-12	5.E-11	--	--	5.0E-10	7.6E-11	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	5.6E-11	8.5E-12	4.E-10	6.E-11	5.E-10	--	--	4.4E-10	6.6E-11	--	--	--
	Benzo(b)fluoranthene	5.0E+01	ug/kg	7.3E-01	7.3E-01	8.3E-11	1.3E-11	6.E-11	9.E-12	7.E-11	--	--	6.5E-10	9.8E-11	--	--	--
	Benzo(k)fluoranthene	2.5E+01	ug/kg	7.3E-02	7.3E-02	4.2E-11	6.3E-12	3.E-12	5.E-13	4.E-12	--	--	3.3E-10	4.9E-11	--	--	--
	Dibenzo(a,h)anthracene	5.5E+00	ug/kg	7.3E+00	7.3E+00	9.1E-12	1.4E-12	7.E-11	1.E-11	8.E-11	--	--	7.1E-11	1.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	4.6E-11	6.9E-12	3.E-11	5.E-12	4.E-11	--	--	3.6E-10	5.4E-11	--	--	--
	Naphthalene	3.5E+00	ug/kg	--	--	5.9E-12	8.9E-13	--	--	--	2.0E-02	2.0E-02	4.6E-11	6.9E-12	2.E-09	3.E-10	0.000000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.6E+01	ug/kg	1.4E-02	1.4E-02	5.9E-11	1.2E-11	8.E-13	2.E-13	1.E-12	2.0E-02	2.0E-02	4.6E-10	9.0E-11	2.E-08	4.E-09	0.00000003
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	1.0E-11	8.0E-13	4.E-12	3.E-13	4.E-12	5.0E-03	5.0E-03	7.9E-11	6.2E-12	2.E-08	1.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.2E+01	ug/kg	2.0E+00	2.0E+00	9.2E-11	1.3E-11	2.E-10	3.E-11	2.E-10	2.0E-05	2.0E-05	7.2E-10	1.0E-10	4.E-05	5.E-06	0.00004

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	6.4E-16	8.9E-17	8.E-11	1.E-11	9.E-11	1.0E-09	1.0E-09	4.9E-15	6.9E-16	5.E-06	7.E-07	0.00001
	Pesticides																
	Total DDT	2.8E+00	ug/kg	3.4E-01	3.4E-01	1.1E-12	7.0E-13	4.E-13	2.E-13	6.E-13	5.0E-04	5.0E-04	8.3E-12	5.5E-12	2.E-08	1.E-08	0.00000003
Exposure Point Total										4.E-09							0.0001
RM 11 West	**Metals**																
	Arsenic	3.4E+00	mg/kg	1.5E+00	1.5E+00	1.3E-09	8.6E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	1.0E-08	6.7E-09	3.E-05	2.E-05	0.0001
	Mercury	5.6E-02	mg/kg	--	--	0.0E+00	1.4E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-10	0.E+00	1.E-06	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E+01	ug/kg	7.3E-01	7.3E-01	1.0E-10	1.6E-11	8.E-11	1.E-11	9.E-11	--	--	8.1E-10	1.2E-10	--	--	--
	Benzo(a)pyrene	6.6E+01	ug/kg	7.3E+00	7.3E+00	1.1E-10	1.7E-11	8.E-10	1.E-10	9.E-10	--	--	8.6E-10	1.3E-10	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	6.6E-11	1.0E-11	5.E-11	7.E-12	6.E-11	--	--	5.2E-10	7.8E-11	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	6.1E-11	9.3E-12	4.E-12	7.E-13	5.E-12	--	--	4.8E-10	7.2E-11	--	--	--
	Dibenzo(a,h)anthracene	8.8E+00	ug/kg	7.3E+00	7.3E+00	1.5E-11	2.2E-12	1.E-10	2.E-11	1.E-10	--	--	1.1E-10	1.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+01	ug/kg	7.3E-01	7.3E-01	6.7E-11	1.0E-11	5.E-11	7.E-12	6.E-11	--	--	5.2E-10	7.9E-11	--	--	--
	Naphthalene	5.4E+01	ug/kg	--	--	9.0E-11	1.4E-11	--	--	--	2.0E-02	2.0E-02	7.0E-10	1.1E-10	3.E-08	5.E-09	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+02	ug/kg	1.4E-02	1.4E-02	4.8E-10	9.4E-11	7.E-12	1.E-12	8.E-12	2.0E-02	2.0E-02	3.7E-09	7.3E-10	2.E-07	4.E-08	0.0000002
	Phenols																
	Pentachlorophenol	9.8E-01	ug/kg	4.0E-01	4.0E-01	3.1E-12	2.5E-13	1.E-12	1.E-13	1.E-12	5.0E-03	5.0E-03	2.4E-11	1.9E-12	5.E-09	4.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.8E+01	ug/kg	2.0E+00	2.0E+00	5.0E-11	7.0E-12	1.E-10	1.E-11	1.E-10	2.0E-05	2.0E-05	3.9E-10	5.4E-11	2.E-05	3.E-06	0.00002
	Pesticides																
	Dieldrin	5.7E-01	ug/kg	1.6E+01	1.6E+01	7.2E-13	1.4E-13	1.E-11	2.E-12	1.E-11	5.0E-05	5.0E-05	5.6E-12	1.1E-12	1.E-07	2.E-08	0.0000001
	Total DDT	1.3E+00	ug/kg	3.4E-01	3.4E-01	5.0E-13	3.3E-13	2.E-13	1.E-13	3.E-13	5.0E-04	5.0E-04	3.9E-12	2.6E-12	8.E-09	5.E-09	0.00000001
Exposure Point Total										5.E-09							0.0001
RM 11 East	**Metals**																
	Arsenic	2.7E+00	mg/kg	1.5E+00	1.5E+00	1.0E-09	6.8E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	8.1E-09	5.3E-09	3.E-05	2.E-05	0.00004
	Mercury	7.0E-02	mg/kg	--	--	0.0E+00	1.8E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-10	0.E+00	1.E-06	0.000001
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	5.1E-12	1.0E-12	--	--	--	3.0E-04	3.0E-04	4.0E-11	7.8E-12	1.E-07	3.E-08	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	8.3E+01	ug/kg	7.3E-01	7.3E-01	1.4E-10	2.1E-11	1.E-10	2.E-11	1.E-10	--	--	1.1E-09	1.6E-10	--	--	--
	Benzo(a)pyrene	5.5E+01	ug/kg	7.3E+00	7.3E+00	9.2E-11	1.4E-11	7.E-10	1.E-10	8.E-10	--	--	7.2E-10	1.1E-10	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	2.1E-10	3.2E-11	2.E-10	2.E-11	2.E-10	--	--	1.7E-09	2.5E-10	--	--	--
	Benzo(k)fluoranthene	3.7E+01	ug/kg	7.3E-02	7.3E-02	6.1E-11	9.2E-12	4.E-12	7.E-13	5.E-12	--	--	4.8E-10	7.2E-11	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	2.0E-11	3.0E-12	1.E-10	2.E-11	2.E-10	--	--	1.6E-10	2.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+01	ug/kg	7.3E-01	7.3E-01	6.3E-11	9.6E-12	5.E-11	7.E-12	5.E-11	--	--	4.9E-10	7.5E-11	--	--	--
	Naphthalene	1.2E+01	ug/kg	--	--	2.0E-11	3.0E-12	--	--	--	2.0E-02	2.0E-02	1.5E-10	2.3E-11	8.E-09	1.E-09	0.00000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.4E+01	ug/kg	1.4E-02	1.4E-02	1.2E-10	2.4E-11	2.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	9.3E-10	1.8E-10	5.E-08	9.E-09	0.0000001
	Phenols																
	Pentachlorophenol	2.7E+00	ug/kg	4.0E-01	4.0E-01	8.5E-12	6.7E-13	3.E-12	3.E-13	4.E-12	5.0E-03	5.0E-03	6.6E-11	5.2E-12	1.E-08	1.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.1E+03	ug/kg	2.0E+00	2.0E+00	2.0E-09	2.8E-10	4.E-09	6.E-10	5.E-09	2.0E-05	2.0E-05	1.6E-08	2.2E-09	8.E-04	1.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	1.3E+05	1.3E+05	7.8E-16	5.1E-16	1.E-10	7.E-11	2.E-10	1.0E-09	1.0E-09	6.1E-15	4.0E-15	6.E-06	4.E-06	0.00001
	Total PCB TEQ	1.2E+01	pg/g	1.3E+05	1.3E+05	2.2E-14	3.1E-15	3.E-09	4.E-10	3.E-09	1.0E-09	1.0E-09	1.7E-13	2.4E-14	2.E-04	2.E-05	0.0002
	Pesticides																
	Total DDT	9.9E+01	ug/kg	3.4E-01	3.4E-01	3.8E-11	2.5E-11	1.E-11	8.E-12	2.E-11	5.0E-04	5.0E-04	3.0E-10	1.9E-10	6.E-07	4.E-07	0.000001
Exposure Point Total										1.E-08							0.001
RM 11.5 West	**Metals**																
	Arsenic	3.0E+00	mg/kg	1.5E+00	1.5E+00	1.1E-09	7.5E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	8.9E-09	5.8E-09	3.E-05	2.E-05	0.00005
	Mercury	3.0E-02	mg/kg	--	--	0.0E+00	7.6E-12	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-11	0.E+00	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.5E+00	ug/kg	7.3E-01	7.3E-01	1.6E-11	2.4E-12	1.E-11	2.E-12	1.E-11	--	--	1.2E-10	1.9E-11	--	--	--
	Benzo(a)pyrene	1.1E+01	ug/kg	7.3E+00	7.3E+00	1.7E-11	2.6E-12	1.E-10	2.E-11	1.E-10	--	--	1.4E-10	2.1E-11	--	--	--
	Benzo(b)fluoranthene	9.7E+00	ug/kg	7.3E-01	7.3E-01	1.6E-11	2.4E-12	1.E-11	2.E-12	1.E-11	--	--	1.3E-10	1.9E-11	--	--	--
	Benzo(k)fluoranthene	6.4E+00	ug/kg	7.3E-02	7.3E-02	1.1E-11	1.6E-12	8.E-13	1.E-13	9.E-13	--	--	8.3E-11	1.3E-11	--	--	--
	Dibenzo(a,h)anthracene	1.2E+00	ug/kg	7.3E+00	7.3E+00	1.9E-12	2.9E-13	1.E-11	2.E-12	2.E-11	--	--	1.5E-11	2.3E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	7.4E+00	ug/kg	7.3E-01	7.3E-01	1.2E-11	1.9E-12	9.E-12	1.E-12	1.E-11	--	--	9.6E-11	1.4E-11	--	--	--
	Naphthalene	3.3E+00	ug/kg	--	--	5.5E-12	8.4E-13	--	--	--	2.0E-02	2.0E-02	4.3E-11	6.5E-12	2.E-09	3.E-10	0.000000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	2.3E-10	4.6E-11	3.E-12	6.E-13	4.E-12	2.0E-02	2.0E-02	1.8E-09	3.5E-10	9.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+01	ug/kg	2.0E+00	2.0E+00	2.2E-11	3.1E-12	4.E-11	6.E-12	5.E-11	2.0E-05	2.0E-05	1.7E-10	2.4E-11	9.E-06	1.E-06	0.00001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	6.8E-17	4.4E-17	9.E-12	6.E-12	1.E-11	1.0E-09	1.0E-09	5.3E-16	3.5E-16	5.E-07	3.E-07	0.000001
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	5.3E-16	7.4E-17	7.E-11	1.E-11	8.E-11	1.0E-09	1.0E-09	4.1E-15	5.8E-16	4.E-06	6.E-07	0.000005
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	1.2E-13	2.3E-14	2.E-12	4.E-13	2.E-12	5.0E-05	5.0E-05	9.0E-13	1.8E-13	2.E-08	4.E-09	0.00000002
	Total DDT	9.8E-01	ug/kg	3.4E-01	3.4E-01	3.7E-13	2.5E-13	1.E-13	8.E-14	2.E-13	5.0E-04	5.0E-04	2.9E-12	1.9E-12	6.E-09	4.E-09	0.00000001
Exposure Point Total										3.E-09							0.0001
RM 12 West	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	1.2E-09	7.9E-10	2.E-09	1.E-09	3.E-09	3.0E-04	3.0E-04	9.4E-09	6.2E-09	3.E-05	2.E-05	0.0001
	Mercury	2.9E-01	mg/kg	--	--	0.0E+00	7.3E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.7E-10	0.E+00	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	4.3E-10	6.5E-11	3.E-10	5.E-11	4.E-10	--	--	3.3E-09	5.1E-10	--	--	--
	Benzo(a)pyrene	4.1E+02	ug/kg	7.3E+00	7.3E+00	6.8E-10	1.0E-10	5.E-09	8.E-10	6.E-09	--	--	5.3E-09	8.0E-10	--	--	--

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	3.5E+02	ug/kg	7.3E-01	7.3E-01	5.8E-10	8.8E-11	4.E-10	6.E-11	5.E-10	--	--	4.5E-09	6.9E-10	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	2.0E-10	3.0E-11	1.E-11	2.E-12	2.E-11	--	--	1.5E-09	2.3E-10	--	--	--
	Dibenzo(a,h)anthracene	3.2E+01	ug/kg	7.3E+00	7.3E+00	5.4E-11	8.2E-12	4.E-10	6.E-11	5.E-10	--	--	4.2E-10	6.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.4E+02	ug/kg	7.3E-01	7.3E-01	5.6E-10	8.4E-11	4.E-10	6.E-11	5.E-10	--	--	4.3E-09	6.6E-10	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	7.5E-11	1.1E-11	--	--	--	2.0E-02	2.0E-02	5.8E-10	8.8E-11	3.E-08	4.E-09	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.0E+01	ug/kg	1.4E-02	1.4E-02	1.0E-10	2.0E-11	1.E-12	3.E-13	2.E-12	2.0E-02	2.0E-02	7.9E-10	1.6E-10	4.E-08	8.E-09	0.00000005
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	1.1E-11	8.5E-13	4.E-12	3.E-13	5.E-12	5.0E-03	5.0E-03	8.4E-11	6.6E-12	2.E-08	1.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	1.3E-10	1.8E-11	3.E-10	4.E-11	3.E-10	2.0E-05	2.0E-05	9.8E-10	1.4E-10	5.E-05	7.E-06	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	6.4E-17	4.2E-17	8.E-12	5.E-12	1.E-11	1.0E-09	1.0E-09	5.0E-16	3.3E-16	5.E-07	3.E-07	0.000001
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	8.1E-16	1.1E-16	1.E-10	1.E-11	1.E-10	1.0E-09	1.0E-09	6.3E-15	8.9E-16	6.E-06	9.E-07	0.00001
	Pesticides																
	Aldrin	3.2E-01	ug/kg	1.7E+01	1.7E+01	4.1E-13	8.1E-14	7.E-12	1.E-12	8.E-12	3.0E-05	3.0E-05	3.2E-12	6.3E-13	1.E-07	2.E-08	0.0000001
	Total DDT	5.9E+00	ug/kg	3.4E-01	3.4E-01	2.3E-12	1.5E-12	8.E-13	5.E-13	1.E-12	5.0E-04	5.0E-04	1.8E-11	1.2E-11	4.E-08	2.E-08	0.0000001
Exposure Point Total										1.E-08							0.0001
RM 12 East	**Metals**																
	Arsenic	2.3E+00	mg/kg	1.5E+00	1.5E+00	8.7E-10	5.7E-10	1.E-09	9.E-10	2.E-09	3.0E-04	3.0E-04	6.8E-09	4.4E-09	2.E-05	1.E-05	0.00004
	Mercury	4.5E-02	mg/kg	--	--	0.0E+00	1.1E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.7E-11	0.E+00	9.E-07	0.000001
	Butyltins																
	Tributyltin ion	4.0E+00	ug/kg	--	--	5.1E-12	9.9E-13	--	--	--	3.0E-04	3.0E-04	3.9E-11	7.7E-12	1.E-07	3.E-08	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	3.0E-11	4.5E-12	2.E-11	3.E-12	3.E-11	--	--	2.3E-10	3.5E-11	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	3.1E-11	4.7E-12	2.E-10	3.E-11	3.E-10	--	--	2.4E-10	3.6E-11	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	4.4E-11	6.7E-12	3.E-11	5.E-12	4.E-11	--	--	3.4E-10	5.2E-11	--	--	--
	Benzo(k)fluoranthene	7.8E+00	ug/kg	7.3E-02	7.3E-02	1.3E-11	1.9E-12	9.E-13	1.E-13	1.E-12	--	--	1.0E-10	1.5E-11	--	--	--
	Dibenzo(a,h)anthracene	4.0E+00	ug/kg	7.3E+00	7.3E+00	6.6E-12	9.9E-13	5.E-11	7.E-12	6.E-11	--	--	5.1E-11	7.7E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.6E+01	ug/kg	7.3E-01	7.3E-01	2.7E-11	4.0E-12	2.E-11	3.E-12	2.E-11	--	--	2.1E-10	3.1E-11	--	--	--
	Naphthalene	2.6E+01	ug/kg	--	--	4.3E-11	6.5E-12	--	--	--	2.0E-02	2.0E-02	3.3E-10	5.0E-11	2.E-08	3.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+03	ug/kg	1.4E-02	1.4E-02	1.2E-08	2.3E-09	2.E-10	3.E-11	2.E-10	2.0E-02	2.0E-02	9.1E-08	1.8E-08	5.E-06	9.E-07	0.00001
	Phenols																
	Pentachlorophenol	1.7E+00	ug/kg	4.0E-01	4.0E-01	5.3E-12	4.2E-13	2.E-12	2.E-13	2.E-12	5.0E-03	5.0E-03	4.1E-11	3.2E-12	8.E-09	6.E-10	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.6E+02	ug/kg	2.0E+00	2.0E+00	2.8E-10	4.0E-11	6.E-10	8.E-11	6.E-10	2.0E-05	2.0E-05	2.2E-09	3.1E-10	1.E-04	2.E-05	0.0001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	6.7E-16	4.4E-16	9.E-11	6.E-11	1.E-10	1.0E-09	1.0E-09	5.2E-15	3.4E-15	5.E-06	3.E-06	0.00001
	Total PCB TEQ	3.9E+00	pg/g	1.3E+05	1.3E+05	6.9E-15	9.8E-16	9.E-10	1.E-10	1.E-09	1.0E-09	1.0E-09	5.4E-14	7.6E-15	5.E-05	8.E-06	0.0001
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	3.6E-12	2.4E-12	1.E-12	8.E-13	2.E-12	5.0E-04	5.0E-04	2.8E-11	1.8E-11	6.E-08	4.E-08	0.0000001
Exposure Point Total										5.E-09							0.0002
Study Area-wide[c]	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	1.8E-09	1.2E-09	3.E-09	2.E-09	4.E-09	3.0E-04	3.0E-04	1.4E-08	9.2E-09	5.E-05	3.E-05	0.0001
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	4.2E-11	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.3E-10	0.E+00	3.E-06	0.000003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	2.6E-08	--	--	--	1.8E-06	7.0E-05	0.0E+00	2.0E-07	0.E+00	3.E-03	0.003
	Butyltins																
	Tributyltin ion	6.1E+02	ug/kg	--	--	7.8E-10	1.5E-10	--	--	--	3.0E-04	3.0E-04	6.0E-09	1.2E-09	2.E-05	4.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+03	ug/kg	7.3E-01	7.3E-01	2.4E-09	3.6E-10	2.E-09	3.E-10	2.E-09	--	--	1.8E-08	2.8E-09	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	2.9E-09	4.4E-10	2.E-08	3.E-09	2.E-08	--	--	2.3E-08	3.4E-09	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	2.4E-09	3.6E-10	2.E-09	3.E-10	2.E-09	--	--	1.8E-08	2.8E-09	--	--	--
	Benzo(k)fluoranthene	9.3E+02	ug/kg	7.3E-02	7.3E-02	1.6E-09	2.3E-10	1.E-10	2.E-11	1.E-10	--	--	1.2E-08	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	3.2E-10	4.8E-11	2.E-09	4.E-10	3.E-09	--	--	2.5E-09	3.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+03	ug/kg	7.3E-01	7.3E-01	2.0E-09	3.1E-10	1.E-09	2.E-10	2.E-09	--	--	1.6E-08	2.4E-09	--	--	--
	Naphthalene	5.0E+02	ug/kg	--	--	8.4E-10	1.3E-10	--	--	--	2.0E-02	2.0E-02	6.5E-09	9.9E-10	3.E-07	5.E-08	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.6E+02	ug/kg	1.4E-02	1.4E-02	1.2E-09	2.4E-10	2.E-11	3.E-12	2.E-11	2.0E-02	2.0E-02	9.6E-09	1.9E-09	5.E-07	9.E-08	0.000001
	Phenols																
	Pentachlorophenol	3.2E+01	ug/kg	4.0E-01	4.0E-01	1.0E-10	8.1E-12	4.E-11	3.E-12	4.E-11	5.0E-03	5.0E-03	8.0E-10	6.3E-11	2.E-07	1.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.9E+02	ug/kg	2.0E+00	2.0E+00	3.4E-10	4.7E-11	7.E-10	9.E-11	8.E-10	2.0E-05	2.0E-05	2.6E-09	3.7E-10	1.E-04	2.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	1.3E+05	1.3E+05	3.9E-14	2.5E-14	5.E-09	3.E-09	8.E-09	1.0E-09	1.0E-09	3.0E-13	2.0E-13	3.E-04	2.E-04	0.0005
	Total PCB TEQ	6.6E+00	pg/g	1.3E+05	1.3E+05	1.2E-14	1.7E-15	2.E-09	2.E-10	2.E-09	1.0E-09	1.0E-09	9.1E-14	1.3E-14	9.E-05	1.E-05	0.0001
	Pesticides																
	Aldrin	2.4E+00	ug/kg	1.7E+01	1.7E+01	3.1E-12	6.2E-13	5.E-11	1.E-11	6.E-11	3.0E-05	3.0E-05	2.4E-11	4.8E-12	8.E-07	2.E-07	0.000001
	Dieldrin	2.1E+00	ug/kg	1.6E+01	1.6E+01	2.7E-12	5.4E-13	4.E-11	9.E-12	5.E-11	5.0E-05	5.0E-05	2.1E-11	4.2E-12	4.E-07	8.E-08	0.000001
	Total DDT	1.4E+02	ug/kg	3.4E-01	3.4E-01	5.3E-11	3.5E-11	2.E-11	1.E-11	3.E-11	5.0E-04	5.0E-04	4.1E-10	2.7E-10	8.E-07	5.E-07	0.000001

TABLE 5-30.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	4.9E+04	ug/kg	--	--	0.0E+00	1.2E-08	--	--	--	7.0E-04	7.0E-04	0.0E+00	9.6E-08	0.E+00	1.E-04	0.0001
Exposure Point Total										5.E-08							0.004

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative risk sums calculated using PCB Aroclor data.
c Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 1 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	8.3E-09	1.8E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.3E-08	5.2E-08	8.E-05	2.E-04	0.0003
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.4E-10	0.E+00	7.E-06	0.00001
	Butyltins																
	Tributyltin ion	8.4E-01	ug/kg	--	--	4.4E-12	2.9E-12	--	--	--	3.0E-04	3.0E-04	1.2E-11	8.2E-12	4.E-08	3.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	7.3E-01	1.0E-09	5.2E-10	7.E-10	4.E-10	1.E-09	--	--	2.9E-09	1.5E-09	--	--	--
	Benzo(a)pyrene	2.4E+02	ug/kg	7.3E+00	7.3E+00	1.6E-09	8.4E-10	1.E-08	6.E-09	2.E-08	--	--	4.6E-09	2.3E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	8.0E-10	1.E-09	6.E-10	2.E-09	--	--	4.4E-09	2.3E-09	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	5.3E-10	2.7E-10	4.E-11	2.E-11	6.E-11	--	--	1.5E-09	7.5E-10	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.7E-10	8.6E-11	1.E-09	6.E-10	2.E-09	--	--	4.7E-10	2.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.0E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	7.0E-10	1.E-09	5.E-10	2.E-09	--	--	3.8E-09	2.0E-09	--	--	--
	Naphthalene	2.9E+01	ug/kg	--	--	2.0E-10	1.0E-10	--	--	--	2.0E-02	2.0E-02	5.5E-10	2.8E-10	3.E-08	1.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+01	ug/kg	1.4E-02	1.4E-02	2.3E-10	1.5E-10	3.E-12	2.E-12	5.E-12	2.0E-02	2.0E-02	6.5E-10	4.3E-10	3.E-08	2.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.6E-11	4.2E-12	6.E-12	2.E-12	8.E-12	5.0E-03	5.0E-03	4.4E-11	1.2E-11	9.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+01	ug/kg	2.0E+00	2.0E+00	1.3E-10	5.9E-11	3.E-10	1.E-10	4.E-10	2.0E-05	2.0E-05	3.5E-10	1.7E-10	2.E-05	8.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	1.3E+05	1.3E+05	4.2E-15	9.3E-15	5.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.2E-14	2.6E-14	1.E-05	3.E-05	0.00004
	Total PCB TEQ	3.2E-01	pg/g	1.3E+05	1.3E+05	2.3E-15	1.1E-15	3.E-10	1.E-10	4.E-10	1.0E-09	1.0E-09	6.5E-15	3.1E-15	7.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	3.7E-01	ug/kg	1.7E+01	1.7E+01	1.9E-12	1.3E-12	3.E-11	2.E-11	6.E-11	3.0E-05	3.0E-05	5.5E-12	3.6E-12	2.E-07	1.E-07	0.0000003
	Total DDT	4.6E+00	ug/kg	3.4E-01	3.4E-01	7.2E-12	1.6E-11	2.E-12	5.E-12	8.E-12	5.0E-04	5.0E-04	2.0E-11	4.5E-11	4.E-08	9.E-08	0.0000001
Exposure Point Total[b]										7.E-08							0.0003
RM 1 East	**Metals**																
	Arsenic	5.7E+00	mg/kg	1.5E+00	1.5E+00	9.0E-09	2.0E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.5E-08	5.6E-08	8.E-05	2.E-04	0.0003
	Mercury	7.1E+00	mg/kg	--	--	0.0E+00	2.5E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.0E-08	0.E+00	7.E-04	0.001
	Butyltins																
	Tributyltin ion	1.2E+00	ug/kg	--	--	6.3E-12	4.2E-12	--	--	--	3.0E-04	3.0E-04	1.8E-11	1.2E-11	6.E-08	4.E-08	0.0000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.3E+01	ug/kg	7.3E-01	7.3E-01	3.6E-10	1.8E-10	3.E-10	1.E-10	4.E-10	--	--	1.0E-09	5.2E-10	--	--	--
	Benzo(a)pyrene	8.1E+01	ug/kg	7.3E+00	7.3E+00	5.5E-10	2.8E-10	4.E-09	2.E-09	6.E-09	--	--	1.6E-09	7.9E-10	--	--	--
	Benzo(b)fluoranthene	6.9E+01	ug/kg	7.3E-01	7.3E-01	4.7E-10	2.4E-10	3.E-10	2.E-10	5.E-10	--	--	1.3E-09	6.8E-10	--	--	--
	Benzo(k)fluoranthene	4.8E+01	ug/kg	7.3E-02	7.3E-02	3.3E-10	1.7E-10	2.E-11	1.E-11	4.E-11	--	--	9.1E-10	4.7E-10	--	--	--
	Dibenzo(a,h)anthracene	9.1E+00	ug/kg	7.3E+00	7.3E+00	6.2E-11	3.2E-11	5.E-10	2.E-10	7.E-10	--	--	1.7E-10	8.9E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	5.6E+01	ug/kg	7.3E-01	7.3E-01	3.9E-10	2.0E-10	3.E-10	1.E-10	4.E-10	--	--	1.1E-09	5.5E-10	--	--	--
	Naphthalene	2.3E+01	ug/kg	--	--	1.6E-10	8.0E-11	--	--	--	2.0E-02	2.0E-02	4.4E-10	2.3E-10	2.E-08	1.E-08	0.00000003

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	3.7E-10	2.5E-10	5.E-12	3.E-12	9.E-12	2.0E-02	2.0E-02	1.0E-09	6.9E-10	5.E-08	3.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	3.3E-11	8.7E-12	1.E-11	3.E-12	2.E-11	5.0E-03	5.0E-03	9.2E-11	2.4E-11	2.E-08	5.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+02	ug/kg	2.0E+00	2.0E+00	3.7E-09	1.8E-09	7.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	1.0E-08	5.0E-09	5.E-04	2.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.3E+05	1.3E+05	1.2E-15	2.6E-15	2.E-10	3.E-10	5.E-10	1.0E-09	1.0E-09	3.3E-15	7.3E-15	3.E-06	7.E-06	0.00001
	Total PCB TEQ	2.7E-01	pg/g	1.3E+05	1.3E+05	2.0E-15	9.5E-16	3.E-10	1.E-10	4.E-10	1.0E-09	1.0E-09	5.6E-15	2.7E-15	6.E-06	3.E-06	0.00001
	Pesticides																
	Total DDT	4.0E+00	ug/kg	3.4E-01	3.4E-01	6.3E-12	1.4E-11	2.E-12	5.E-12	7.E-12	5.0E-04	5.0E-04	1.8E-11	3.9E-11	4.E-08	8.E-08	0.0000001
Exposure Point Total										6.E-08							0.002
RM 1.5 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	6.9E-09	1.5E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	1.9E-08	4.3E-08	6.E-05	1.E-04	0.0002
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.7E-10	0.E+00	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+01	ug/kg	7.3E-01	7.3E-01	2.3E-10	1.2E-10	2.E-10	8.E-11	2.E-10	--	--	6.3E-10	3.2E-10	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	3.3E-10	1.7E-10	2.E-09	1.E-09	4.E-09	--	--	9.2E-10	4.7E-10	--	--	--
	Benzo(b)fluoranthene	4.1E+01	ug/kg	7.3E-01	7.3E-01	2.8E-10	1.4E-10	2.E-10	1.E-10	3.E-10	--	--	7.9E-10	4.0E-10	--	--	--
	Benzo(k)fluoranthene	3.4E+01	ug/kg	7.3E-02	7.3E-02	2.3E-10	1.2E-10	2.E-11	9.E-12	3.E-11	--	--	6.5E-10	3.3E-10	--	--	--
	Dibenzo(a,h)anthracene	5.9E+00	ug/kg	7.3E+00	7.3E+00	4.0E-11	2.1E-11	3.E-10	2.E-10	4.E-10	--	--	1.1E-10	5.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	2.5E-10	1.3E-10	2.E-10	9.E-11	3.E-10	--	--	7.1E-10	3.6E-10	--	--	--
	Naphthalene	9.6E+00	ug/kg	--	--	6.6E-11	3.4E-11	--	--	--	2.0E-02	2.0E-02	1.8E-10	9.4E-11	9.E-09	5.E-09	0.00000001
	Phenols																
	Pentachlorophenol	1.5E+00	ug/kg	4.0E-01	4.0E-01	2.0E-11	5.2E-12	8.E-12	2.E-12	1.E-11	5.0E-03	5.0E-03	5.5E-11	1.5E-11	1.E-08	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.2E+01	ug/kg	2.0E+00	2.0E+00	1.6E-10	7.6E-11	3.E-10	2.E-10	5.E-10	2.0E-05	2.0E-05	4.5E-10	2.1E-10	2.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	1.3E+05	1.3E+05	1.5E-16	3.3E-16	2.E-11	4.E-11	6.E-11	1.0E-09	1.0E-09	4.2E-16	9.2E-16	4.E-07	9.E-07	0.000001
	Pesticides																
	Total DDT	1.1E+00	ug/kg	3.4E-01	3.4E-01	1.7E-12	3.8E-12	6.E-13	1.E-12	2.E-12	5.0E-04	5.0E-04	4.8E-12	1.1E-11	1.E-08	2.E-08	0.00000003
Exposure Point Total										4.E-08							0.0002
RM 1.5 East	**Metals**																
	Arsenic	5.4E+00	mg/kg	1.5E+00	1.5E+00	8.5E-09	1.9E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.4E-08	5.3E-08	8.E-05	2.E-04	0.0003
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	3.7E-01	ug/kg	--	--	1.9E-12	1.3E-12	--	--	--	3.0E-04	3.0E-04	5.5E-12	3.6E-12	2.E-08	1.E-08	0.00000003

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.4E+02	ug/kg	7.3E-01	7.3E-01	6.4E-09	3.3E-09	5.E-09	2.E-09	7.E-09	--	--	1.8E-08	9.2E-09	--	--	--
	Benzo(a)pyrene	1.4E+03	ug/kg	7.3E+00	7.3E+00	9.6E-09	4.9E-09	7.E-08	4.E-08	1.E-07	--	--	2.7E-08	1.4E-08	--	--	--
	Benzo(b)fluoranthene	8.2E+02	ug/kg	7.3E-01	7.3E-01	5.6E-09	2.9E-09	4.E-09	2.E-09	6.E-09	--	--	1.6E-08	8.0E-09	--	--	--
	Benzo(k)fluoranthene	8.2E+02	ug/kg	7.3E-02	7.3E-02	5.6E-09	2.9E-09	4.E-10	2.E-10	6.E-10	--	--	1.6E-08	8.0E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	9.6E-10	4.9E-10	7.E-09	4.E-09	1.E-08	--	--	2.7E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+03	ug/kg	7.3E-01	7.3E-01	6.8E-09	3.5E-09	5.E-09	3.E-09	8.E-09	--	--	1.9E-08	9.8E-09	--	--	--
	Naphthalene	3.7E+02	ug/kg	--	--	2.5E-09	1.3E-09	--	--	--	2.0E-02	2.0E-02	7.1E-09	3.6E-09	4.E-07	2.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+02	ug/kg	1.4E-02	1.4E-02	8.9E-10	5.9E-10	1.E-11	8.E-12	2.E-11	2.0E-02	2.0E-02	2.5E-09	1.7E-09	1.E-07	8.E-08	0.0000002
	Phenols																
	Pentachlorophenol	4.1E+00	ug/kg	4.0E-01	4.0E-01	5.4E-11	1.4E-11	2.E-11	6.E-12	3.E-11	5.0E-03	5.0E-03	1.5E-10	4.0E-11	3.E-08	8.E-09	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.1E+01	ug/kg	2.0E+00	2.0E+00	3.0E-10	1.4E-10	6.E-10	3.E-10	9.E-10	2.0E-05	2.0E-05	8.4E-10	4.0E-10	4.E-05	2.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	1.3E+05	1.3E+05	2.9E-15	6.3E-15	4.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	8.0E-15	1.8E-14	8.E-06	2.E-05	0.00003
	Total PCB TEQ	1.1E-01	pg/g	1.3E+05	1.3E+05	7.8E-16	3.7E-16	1.E-10	5.E-11	1.E-10	1.0E-09	1.0E-09	2.2E-15	1.0E-15	2.E-06	1.E-06	0.000003
	Pesticides																
	Dieldrin	6.9E-02	ug/kg	1.6E+01	1.6E+01	3.6E-13	2.4E-13	6.E-12	4.E-12	1.E-11	5.0E-05	5.0E-05	1.0E-12	6.8E-13	2.E-08	1.E-08	0.00000003
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	3.4E-11	7.6E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	9.6E-11	2.1E-10	2.E-07	4.E-07	0.000001
Exposure Point Total										2.E-07							0.0004
RM 2 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	6.1E-09	1.3E-08	9.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.7E-08	3.8E-08	6.E-05	1.E-04	0.0002
	Mercury	7.8E-02	mg/kg	--	--	0.0E+00	2.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.6E-10	0.E+00	8.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.1E+00	ug/kg	--	--	1.1E-11	7.3E-12	--	--	--	3.0E-04	3.0E-04	3.1E-11	2.1E-11	1.E-07	7.E-08	0.0000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+01	ug/kg	7.3E-01	7.3E-01	3.7E-10	1.9E-10	3.E-10	1.E-10	4.E-10	--	--	1.0E-09	5.3E-10	--	--	--
	Benzo(a)pyrene	9.8E+01	ug/kg	7.3E+00	7.3E+00	6.7E-10	3.4E-10	5.E-09	3.E-09	7.E-09	--	--	1.9E-09	9.6E-10	--	--	--
	Benzo(b)fluoranthene	9.8E+01	ug/kg	7.3E-01	7.3E-01	6.7E-10	3.4E-10	5.E-10	2.E-10	7.E-10	--	--	1.9E-09	9.6E-10	--	--	--
	Benzo(k)fluoranthene	3.2E+01	ug/kg	7.3E-02	7.3E-02	2.2E-10	1.1E-10	2.E-11	8.E-12	2.E-11	--	--	6.1E-10	3.1E-10	--	--	--
	Dibenzo(a,h)anthracene	1.0E+01	ug/kg	7.3E+00	7.3E+00	7.1E-11	3.6E-11	5.E-10	3.E-10	8.E-10	--	--	2.0E-10	1.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.1E+01	ug/kg	7.3E-01	7.3E-01	5.6E-10	2.8E-10	4.E-10	2.E-10	6.E-10	--	--	1.6E-09	7.9E-10	--	--	--
	Naphthalene	1.0E+01	ug/kg	--	--	6.8E-11	3.5E-11	--	--	--	2.0E-02	2.0E-02	1.9E-10	9.8E-11	1.E-08	5.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.8E+01	ug/kg	1.4E-02	1.4E-02	2.5E-10	1.7E-10	4.E-12	2.E-12	6.E-12	2.0E-02	2.0E-02	7.1E-10	4.7E-10	4.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	1.3E-10	6.4E-11	3.E-10	1.E-10	4.E-10	2.0E-05	2.0E-05	3.8E-10	1.8E-10	2.E-05	9.E-06	0.00003

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	1.3E+05	1.3E+05	3.4E-15	7.6E-15	4.E-10	1.E-09	1.E-09	1.0E-09	1.0E-09	9.6E-15	2.1E-14	1.E-05	2.E-05	0.00003
	Total PCB TEQ	3.5E-01	pg/g	1.3E+05	1.3E+05	2.6E-15	1.2E-15	3.E-10	2.E-10	5.E-10	1.0E-09	1.0E-09	7.3E-15	3.5E-15	7.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.9E-12	1.3E-12	3.E-11	2.E-11	5.E-11	3.0E-05	3.0E-05	5.3E-12	3.5E-12	2.E-07	1.E-07	0.0000003
	Dieldrin	2.7E-01	ug/kg	1.6E+01	1.6E+01	1.4E-12	9.4E-13	2.E-11	2.E-11	4.E-11	5.0E-05	5.0E-05	4.0E-12	2.6E-12	8.E-08	5.E-08	0.0000001
	Total DDT	3.2E+00	ug/kg	3.4E-01	3.4E-01	5.0E-12	1.1E-11	2.E-12	4.E-12	5.E-12	5.0E-04	5.0E-04	1.4E-11	3.1E-11	3.E-08	6.E-08	0.0000001
Exposure Point Total										4.E-08							0.0003
RM 2 East	**Metals**																
	Arsenic	4.3E+00	mg/kg	1.5E+00	1.5E+00	6.8E-09	1.5E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	1.9E-08	4.2E-08	6.E-05	1.E-04	0.0002
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.9E-10	0.E+00	9.E-06	0.00001
	Butyltins																
	Tributyltin ion	3.7E+00	ug/kg	--	--	1.9E-11	1.3E-11	--	--	--	3.0E-04	3.0E-04	5.5E-11	3.6E-11	2.E-07	1.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	6.6E-10	3.4E-10	5.E-10	2.E-10	7.E-10	--	--	1.9E-09	9.5E-10	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	8.2E-10	4.2E-10	6.E-09	3.E-09	9.E-09	--	--	2.3E-09	1.2E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	7.3E-01	9.0E-10	4.6E-10	7.E-10	3.E-10	1.E-09	--	--	2.5E-09	1.3E-09	--	--	--
	Benzo(k)fluoranthene	7.7E+01	ug/kg	7.3E-02	7.3E-02	5.3E-10	2.7E-10	4.E-11	2.E-11	6.E-11	--	--	1.5E-09	7.6E-10	--	--	--
	Dibenzo(a,h)anthracene	2.4E+01	ug/kg	7.3E+00	7.3E+00	1.6E-10	8.2E-11	1.E-09	6.E-10	2.E-09	--	--	4.5E-10	2.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+02	ug/kg	7.3E-01	7.3E-01	7.3E-10	3.7E-10	5.E-10	3.E-10	8.E-10	--	--	2.0E-09	1.0E-09	--	--	--
	Naphthalene	2.1E+01	ug/kg	--	--	1.4E-10	7.3E-11	--	--	--	2.0E-02	2.0E-02	4.0E-10	2.1E-10	2.E-08	1.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	6.3E-10	4.2E-10	9.E-12	6.E-12	1.E-11	2.0E-02	2.0E-02	1.8E-09	1.2E-09	9.E-08	6.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.2E+00	ug/kg	4.0E-01	4.0E-01	2.9E-11	7.7E-12	1.E-11	3.E-12	1.E-11	5.0E-03	5.0E-03	8.1E-11	2.2E-11	2.E-08	4.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+03	ug/kg	2.0E+00	2.0E+00	1.1E-08	5.3E-09	2.E-08	1.E-08	3.E-08	2.0E-05	2.0E-05	3.2E-08	1.5E-08	2.E-03	7.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	1.3E+05	1.3E+05	6.3E-15	1.4E-14	8.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	1.8E-14	3.9E-14	2.E-05	4.E-05	0.0001
	Total PCB TEQ	8.5E+01	pg/g	1.3E+05	1.3E+05	6.2E-13	3.0E-13	8.E-08	4.E-08	1.E-07	1.0E-09	1.0E-09	1.7E-12	8.3E-13	2.E-03	8.E-04	0.003
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	3.7E-12	2.4E-12	6.E-11	4.E-11	1.E-10	3.0E-05	3.0E-05	1.0E-11	6.8E-12	3.E-07	2.E-07	0.000001
	Dieldrin	1.2E+00	ug/kg	1.6E+01	1.6E+01	6.6E-12	4.4E-12	1.E-10	7.E-11	2.E-10	5.0E-05	5.0E-05	1.8E-11	1.2E-11	4.E-07	2.E-07	0.000001
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	6.6E-12	1.5E-11	2.E-12	5.E-12	7.E-12	5.0E-04	5.0E-04	1.9E-11	4.1E-11	4.E-08	8.E-08	0.0000001
Exposure Point Total										2.E-07							0.01
RM 2.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	7.4E-09	1.6E-08	1.E-08	2.E-08	4.E-08	3.0E-04	3.0E-04	2.1E-08	4.6E-08	7.E-05	2.E-04	0.0002
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.9E-10	0.E+00	9.E-06	0.00001
	Butyltins																
	Tributyltin ion	2.3E+00	ug/kg	--	--	1.2E-11	8.0E-12	--	--	--	3.0E-04	3.0E-04	3.4E-11	2.3E-11	1.E-07	8.E-08	0.0000002

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	1.1E-09	2.E-09	8.E-10	2.E-09	--	--	5.9E-09	3.0E-09	--	--	--
	Benzo(a)pyrene	5.5E+02	ug/kg	7.3E+00	7.3E+00	3.7E-09	1.9E-09	3.E-08	1.E-08	4.E-08	--	--	1.0E-08	5.3E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.4E-09	2.E-09	1.E-09	3.E-09	--	--	7.6E-09	3.9E-09	--	--	--
	Benzo(k)fluoranthene	2.5E+02	ug/kg	7.3E-02	7.3E-02	1.7E-09	8.9E-10	1.E-10	6.E-11	2.E-10	--	--	4.9E-09	2.5E-09	--	--	--
	Dibenzo(a,h)anthracene	6.4E+01	ug/kg	7.3E+00	7.3E+00	4.4E-10	2.2E-10	3.E-09	2.E-09	5.E-09	--	--	1.2E-09	6.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+02	ug/kg	7.3E-01	7.3E-01	3.2E-09	1.6E-09	2.E-09	1.E-09	4.E-09	--	--	9.0E-09	4.6E-09	--	--	--
	Naphthalene	7.6E+01	ug/kg	--	--	5.2E-10	2.7E-10	--	--	--	2.0E-02	2.0E-02	1.5E-09	7.4E-10	7.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.3E+01	ug/kg	1.4E-02	1.4E-02	2.3E-10	1.5E-10	3.E-12	2.E-12	5.E-12	2.0E-02	2.0E-02	6.3E-10	4.2E-10	3.E-08	2.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.2E+00	ug/kg	4.0E-01	4.0E-01	1.6E-11	4.2E-12	6.E-12	2.E-12	8.E-12	5.0E-03	5.0E-03	4.4E-11	1.2E-11	9.E-09	2.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.1E+01	ug/kg	2.0E+00	2.0E+00	1.6E-10	7.5E-11	3.E-10	1.E-10	5.E-10	2.0E-05	2.0E-05	4.4E-10	2.1E-10	2.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	1.3E+05	1.3E+05	6.5E-16	1.4E-15	8.E-11	2.E-10	3.E-10	1.0E-09	1.0E-09	1.8E-15	4.0E-15	2.E-06	4.E-06	0.00001
	Total PCB TEQ	2.1E-01	pg/g	1.3E+05	1.3E+05	1.5E-15	7.2E-16	2.E-10	9.E-11	3.E-10	1.0E-09	1.0E-09	4.3E-15	2.0E-15	4.E-06	2.E-06	0.00001
	Pesticides																
	Aldrin	2.6E-01	ug/kg	1.7E+01	1.7E+01	1.4E-12	9.0E-13	2.E-11	2.E-11	4.E-11	3.0E-05	3.0E-05	3.8E-12	2.5E-12	1.E-07	8.E-08	0.0000002
	Dieldrin	2.2E-01	ug/kg	1.6E+01	1.6E+01	1.2E-12	7.7E-13	2.E-11	1.E-11	3.E-11	5.0E-05	5.0E-05	3.2E-12	2.2E-12	6.E-08	4.E-08	0.0000001
	Total DDT	3.4E+00	ug/kg	3.4E-01	3.4E-01	5.4E-12	1.2E-11	2.E-12	4.E-12	6.E-12	5.0E-04	5.0E-04	1.5E-11	3.3E-11	3.E-08	7.E-08	0.0000001
Exposure Point Total										9.E-08							0.0003
RM 2.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	7.6E-09	1.7E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.1E-08	4.7E-08	7.E-05	2.E-04	0.0002
	Mercury	9.1E-02	mg/kg	--	--	0.0E+00	3.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.9E-10	0.E+00	9.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.8E+03	ug/kg	7.3E-01	7.3E-01	4.0E-08	2.0E-08	3.E-08	1.E-08	4.E-08	--	--	1.1E-07	5.7E-08	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	3.1E-08	1.6E-08	2.E-07	1.E-07	3.E-07	--	--	8.7E-08	4.4E-08	--	--	--
	Benzo(b)fluoranthene	3.9E+03	ug/kg	7.3E-01	7.3E-01	2.7E-08	1.4E-08	2.E-08	1.E-08	3.E-08	--	--	7.5E-08	3.8E-08	--	--	--
	Benzo(k)fluoranthene	1.2E+03	ug/kg	7.3E-02	7.3E-02	8.4E-09	4.3E-09	6.E-10	3.E-10	9.E-10	--	--	2.3E-08	1.2E-08	--	--	--
	Dibenzo(a,h)anthracene	4.5E+02	ug/kg	7.3E+00	7.3E+00	3.1E-09	1.6E-09	2.E-08	1.E-08	3.E-08	--	--	8.6E-09	4.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.8E-08	9.0E-09	1.E-08	7.E-09	2.E-08	--	--	4.9E-08	2.5E-08	--	--	--
	Naphthalene	2.8E+02	ug/kg	--	--	1.9E-09	9.7E-10	--	--	--	2.0E-02	2.0E-02	5.3E-09	2.7E-09	3.E-07	1.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	5.6E-10	3.7E-10	8.E-12	5.E-12	1.E-11	2.0E-02	2.0E-02	1.6E-09	1.0E-09	8.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	5.7E+01	ug/kg	4.0E-01	4.0E-01	7.5E-10	2.0E-10	3.E-10	8.E-11	4.E-10	5.0E-03	5.0E-03	2.1E-09	5.6E-10	4.E-07	1.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.7E+01	ug/kg	2.0E+00	2.0E+00	5.7E-10	2.7E-10	1.E-09	5.E-10	2.E-09	2.0E-05	2.0E-05	1.6E-09	7.6E-10	8.E-05	4.E-05	0.0001

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.7E-15	3.7E-15	2.E-10	5.E-10	7.E-10	1.0E-09	1.0E-09	4.7E-15	1.0E-14	5.E-06	1.E-05	0.00002
	Total PCB TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	2.4E-14	1.2E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	6.8E-14	3.2E-14	7.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	7.5E-01	ug/kg	1.7E+01	1.7E+01	4.0E-12	2.6E-12	7.E-11	4.E-11	1.E-10	3.0E-05	3.0E-05	1.1E-11	7.4E-12	4.E-07	2.E-07	0.000001
	Dieldrin	3.3E-01	ug/kg	1.6E+01	1.6E+01	1.7E-12	1.1E-12	3.E-11	2.E-11	5.E-11	5.0E-05	5.0E-05	4.8E-12	3.2E-12	1.E-07	6.E-08	0.0000002
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.8E-11	3.9E-11	6.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	4.9E-11	1.1E-10	1.E-07	2.E-07	0.0000003
Exposure Point Total										5.E-07							0.0005
RM 2.5 MC	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	7.5E-09	1.7E-08	1.E-08	2.E-08	4.E-08	3.0E-04	3.0E-04	2.1E-08	4.7E-08	7.E-05	2.E-04	0.0002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	1.1E-09	2.E-09	8.E-10	2.E-09	--	--	5.9E-09	3.0E-09	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	3.3E-09	1.7E-09	2.E-08	1.E-08	4.E-08	--	--	9.4E-09	4.8E-09	--	--	--
	Benzo(b)fluoranthene	4.5E+02	ug/kg	7.3E-01	7.3E-01	3.1E-09	1.6E-09	2.E-09	1.E-09	3.E-09	--	--	8.6E-09	4.4E-09	--	--	--
	Benzo(k)fluoranthene	1.4E+02	ug/kg	7.3E-02	7.3E-02	9.8E-10	5.0E-10	7.E-11	4.E-11	1.E-10	--	--	2.8E-09	1.4E-09	--	--	--
	Dibenzo(a,h)anthracene	4.7E+01	ug/kg	7.3E+00	7.3E+00	3.2E-10	1.6E-10	2.E-09	1.E-09	4.E-09	--	--	9.0E-10	4.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.8E+02	ug/kg	7.3E-01	7.3E-01	2.6E-09	1.3E-09	2.E-09	1.E-09	3.E-09	--	--	7.2E-09	3.7E-09	--	--	--
	Naphthalene	9.9E+01	ug/kg	--	--	6.8E-10	3.5E-10	--	--	--	2.0E-02	2.0E-02	1.9E-09	9.7E-10	1.E-07	5.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1.4E-02	1.4E-02	4.9E-10	3.3E-10	7.E-12	5.E-12	1.E-11	2.0E-02	2.0E-02	1.4E-09	9.1E-10	7.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.6E+00	ug/kg	4.0E-01	4.0E-01	2.1E-11	5.6E-12	8.E-12	2.E-12	1.E-11	5.0E-03	5.0E-03	5.9E-11	1.6E-11	1.E-08	3.E-09	0.00000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.8E-10	1.4E-10	6.E-10	3.E-10	8.E-10	2.0E-05	2.0E-05	8.0E-10	3.8E-10	4.E-05	2.E-05	0.0001
	Pesticides																
	Aldrin	6.5E-01	ug/kg	1.7E+01	1.7E+01	3.4E-12	2.3E-12	6.E-11	4.E-11	1.E-10	3.0E-05	3.0E-05	9.6E-12	6.4E-12	3.E-07	2.E-07	0.000001
	Dieldrin	9.7E-01	ug/kg	1.6E+01	1.6E+01	5.1E-12	3.4E-12	8.E-11	5.E-11	1.E-10	5.0E-05	5.0E-05	1.4E-11	9.5E-12	3.E-07	2.E-07	0.0000005
	Total DDT	1.1E+01	ug/kg	3.4E-01	3.4E-01	1.7E-11	3.8E-11	6.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	4.8E-11	1.1E-10	1.E-07	2.E-07	0.0000003
Exposure Point Total										9.E-08							0.0003
RM 3 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	6.4E-09	1.4E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	1.8E-08	4.0E-08	6.E-05	1.E-04	0.0002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.0E-09	0.E+00	1.E-05	0.0000
	Vanadium	9.3E+01	mg/kg	--	--	0.0E+00	3.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.1E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	1.8E+01	ug/kg	--	--	9.5E-11	6.3E-11	--	--	--	3.0E-04	3.0E-04	2.7E-10	1.8E-10	9.E-07	6.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.7E+02	ug/kg	7.3E-01	7.3E-01	3.2E-09	1.6E-09	2.E-09	1.E-09	4.E-09	--	--	8.9E-09	4.6E-09	--	--	--
	Benzo(a)pyrene	7.1E+02	ug/kg	7.3E+00	7.3E+00	4.8E-09	2.5E-09	4.E-08	2.E-08	5.E-08	--	--	1.4E-08	6.9E-09	--	--	--

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	6.0E+02	ug/kg	7.3E-01	7.3E-01	4.1E-09	2.1E-09	3.E-09	2.E-09	5.E-09	--	--	1.2E-08	5.9E-09	--	--	--
	Benzo(k)fluoranthene	4.0E+02	ug/kg	7.3E-02	7.3E-02	2.7E-09	1.4E-09	2.E-10	1.E-10	3.E-10	--	--	7.6E-09	3.9E-09	--	--	--
	Dibenzo(a,h)anthracene	8.2E+01	ug/kg	7.3E+00	7.3E+00	5.6E-10	2.9E-10	4.E-09	2.E-09	6.E-09	--	--	1.6E-09	8.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	3.3E-09	1.7E-09	2.E-09	1.E-09	4.E-09	--	--	9.1E-09	4.7E-09	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.5E-09	7.8E-10	--	--	--	2.0E-02	2.0E-02	4.3E-09	2.2E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.8E+01	ug/kg	1.4E-02	1.4E-02	3.0E-10	2.0E-10	4.E-12	3.E-12	7.E-12	2.0E-02	2.0E-02	8.5E-10	5.6E-10	4.E-08	3.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.1E+02	ug/kg	4.0E-01	4.0E-01	1.4E-09	3.8E-10	6.E-10	2.E-10	7.E-10	5.0E-03	5.0E-03	4.1E-09	1.1E-09	8.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+01	ug/kg	2.0E+00	2.0E+00	1.3E-10	6.2E-11	3.E-10	1.E-10	4.E-10	2.0E-05	2.0E-05	3.6E-10	1.7E-10	2.E-05	9.E-06	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	2.6E-15	5.8E-15	3.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	7.3E-15	1.6E-14	7.E-06	2.E-05	0.00002
	Total PCB TEQ	4.4E-01	pg/g	1.3E+05	1.3E+05	3.3E-15	1.5E-15	4.E-10	2.E-10	6.E-10	1.0E-09	1.0E-09	9.1E-15	4.3E-15	9.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	5.2E-01	ug/kg	1.7E+01	1.7E+01	2.7E-12	1.8E-12	5.E-11	3.E-11	8.E-11	3.0E-05	3.0E-05	7.7E-12	5.1E-12	3.E-07	2.E-07	0.0000004
	Dieldrin	1.3E+00	ug/kg	1.6E+01	1.6E+01	6.9E-12	4.6E-12	1.E-10	7.E-11	2.E-10	5.0E-05	5.0E-05	1.9E-11	1.3E-11	4.E-07	3.E-07	0.000001
	Total DDT	2.1E+02	ug/kg	3.4E-01	3.4E-01	3.3E-10	7.4E-10	1.E-10	3.E-10	4.E-10	5.0E-04	5.0E-04	9.4E-10	2.1E-09	2.E-06	4.E-06	0.00001
Exposure Point Total										1.E-07							0.01
RM 3 East	**Metals**																
	Arsenic	5.5E+00	mg/kg	1.5E+00	1.5E+00	8.6E-09	1.9E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.4E-08	5.3E-08	8.E-05	2.E-04	0.0003
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.3E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	1.6E+01	ug/kg	--	--	8.4E-11	5.6E-11	--	--	--	3.0E-04	3.0E-04	2.4E-10	1.6E-10	8.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+02	ug/kg	7.3E-01	7.3E-01	9.9E-10	5.1E-10	7.E-10	4.E-10	1.E-09	--	--	2.8E-09	1.4E-09	--	--	--
	Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	7.3E+00	9.2E-10	4.7E-10	7.E-09	3.E-09	1.E-08	--	--	2.6E-09	1.3E-09	--	--	--
	Benzo(b)fluoranthene	1.6E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	5.5E-10	8.E-10	4.E-10	1.E-09	--	--	3.0E-09	1.5E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	7.6E-10	3.9E-10	6.E-11	3.E-11	8.E-11	--	--	2.1E-09	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	1.2E-10	5.9E-11	8.E-10	4.E-10	1.E-09	--	--	3.2E-10	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+01	ug/kg	7.3E-01	7.3E-01	5.7E-10	2.9E-10	4.E-10	2.E-10	6.E-10	--	--	1.6E-09	8.1E-10	--	--	--
	Naphthalene	1.7E+01	ug/kg	--	--	1.2E-10	5.9E-11	--	--	--	2.0E-02	2.0E-02	3.2E-10	1.6E-10	2.E-08	8.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.8E+01	ug/kg	1.4E-02	1.4E-02	4.6E-10	3.1E-10	6.E-12	4.E-12	1.E-11	2.0E-02	2.0E-02	1.3E-09	8.6E-10	6.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	4.6E+00	ug/kg	4.0E-01	4.0E-01	6.1E-11	1.6E-11	2.E-11	6.E-12	3.E-11	5.0E-03	5.0E-03	1.7E-10	4.5E-11	3.E-08	9.E-09	0.00000004

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+01	ug/kg	2.0E+00	2.0E+00	1.7E-10	8.0E-11	3.E-10	2.E-10	5.E-10	2.0E-05	2.0E-05	4.7E-10	2.2E-10	2.E-05	1.E-05	0.00003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	8.5E-15	1.9E-14	1.E-09	2.E-09	4.E-09	1.0E-09	1.0E-09	2.4E-14	5.3E-14	2.E-05	5.E-05	0.0001
	Total PCB TEQ	1.0E-01	pg/g	1.3E+05	1.3E+05	7.5E-16	3.5E-16	1.E-10	5.E-11	1.E-10	1.0E-09	1.0E-09	2.1E-15	9.9E-16	2.E-06	1.E-06	0.000003
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	2.1E-12	1.4E-12	4.E-11	2.E-11	6.E-11	3.0E-05	3.0E-05	5.9E-12	3.9E-12	2.E-07	1.E-07	0.0000003
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	1.0E-12	6.8E-13	2.E-11	1.E-11	3.E-11	5.0E-05	5.0E-05	2.9E-12	1.9E-12	6.E-08	4.E-08	0.0000001
	Total DDT	3.8E+00	ug/kg	3.4E-01	3.4E-01	6.0E-12	1.3E-11	2.E-12	5.E-12	7.E-12	5.0E-04	5.0E-04	1.7E-11	3.7E-11	3.E-08	7.E-08	0.0000001
Exposure Point Total										6.E-08							0.02
RM 3.5 West	**Metals**																
	Arsenic	1.0E+01	mg/kg	1.5E+00	1.5E+00	1.7E-08	3.7E-08	2.E-08	5.E-08	8.E-08	3.0E-04	3.0E-04	4.6E-08	1.0E-07	2.E-04	3.E-04	0.0005
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	4.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.5E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.7E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	8.1E+01	ug/kg	--	--	4.3E-10	2.8E-10	--	--	--	3.0E-04	3.0E-04	1.2E-09	7.9E-10	4.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+03	ug/kg	7.3E-01	7.3E-01	1.2E-08	6.2E-09	9.E-09	5.E-09	1.E-08	--	--	3.4E-08	1.7E-08	--	--	--
	Benzo(a)pyrene	2.6E+03	ug/kg	7.3E+00	7.3E+00	1.7E-08	8.9E-09	1.E-07	7.E-08	2.E-07	--	--	4.9E-08	2.5E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-08	7.9E-09	1.E-08	6.E-09	2.E-08	--	--	4.3E-08	2.2E-08	--	--	--
	Benzo(k)fluoranthene	8.0E+02	ug/kg	7.3E-02	7.3E-02	5.5E-09	2.8E-09	4.E-10	2.E-10	6.E-10	--	--	1.5E-08	7.8E-09	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	5.1E-10	2.6E-10	4.E-09	2.E-09	6.E-09	--	--	1.4E-09	7.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+03	ug/kg	7.3E-01	7.3E-01	1.4E-08	7.2E-09	1.E-08	5.E-09	2.E-08	--	--	3.9E-08	2.0E-08	--	--	--
	Naphthalene	5.2E+02	ug/kg	--	--	3.6E-09	1.8E-09	--	--	--	2.0E-02	2.0E-02	1.0E-08	5.1E-09	5.E-07	3.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	8.2E+01	ug/kg	1.4E-02	1.4E-02	4.3E-10	2.9E-10	6.E-12	4.E-12	1.E-11	2.0E-02	2.0E-02	1.2E-09	8.1E-10	6.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	1.9E-10	5.1E-11	8.E-11	2.E-11	1.E-10	5.0E-03	5.0E-03	5.4E-10	1.4E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.7E+01	ug/kg	2.0E+00	2.0E+00	2.0E-10	9.3E-11	4.E-10	2.E-10	6.E-10	2.0E-05	2.0E-05	5.5E-10	2.6E-10	3.E-05	1.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	1.3E+05	1.3E+05	2.5E-15	5.6E-15	3.E-10	7.E-10	1.E-09	1.0E-09	1.0E-09	7.1E-15	1.6E-14	7.E-06	2.E-05	0.00002
	Total PCB TEQ	7.7E-01	pg/g	1.3E+05	1.3E+05	5.7E-15	2.7E-15	7.E-10	4.E-10	1.E-09	1.0E-09	1.0E-09	1.6E-14	7.6E-15	2.E-05	8.E-06	0.00002
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	2.6E-12	1.7E-12	4.E-11	3.E-11	7.E-11	3.0E-05	3.0E-05	7.2E-12	4.8E-12	2.E-07	2.E-07	0.0000004
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	9.6E-13	6.4E-13	2.E-11	1.E-11	3.E-11	5.0E-05	5.0E-05	2.7E-12	1.8E-12	5.E-08	4.E-08	0.0000001
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	3.3E-11	7.3E-11	1.E-11	2.E-11	4.E-11	5.0E-04	5.0E-04	9.2E-11	2.0E-10	2.E-07	4.E-07	0.000001
Exposure Point Total										3.E-07							0.01

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 3.5 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	7.6E-09	1.7E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.1E-08	4.7E-08	7.E-05	2.E-04	0.0002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.9E+04	ug/kg	--	--	1.0E-07	6.7E-08	--	--	--	3.0E-04	3.0E-04	2.8E-07	1.9E-07	9.E-04	6.E-04	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E+03	ug/kg	7.3E-01	7.3E-01	8.5E-09	4.4E-09	6.E-09	3.E-09	9.E-09	--	--	2.4E-08	1.2E-08	--	--	--
	Benzo(a)pyrene	8.7E+02	ug/kg	7.3E+00	7.3E+00	6.0E-09	3.1E-09	4.E-08	2.E-08	7.E-08	--	--	1.7E-08	8.6E-09	--	--	--
	Benzo(b)fluoranthene	1.3E+03	ug/kg	7.3E-01	7.3E-01	9.0E-09	4.6E-09	7.E-09	3.E-09	1.E-08	--	--	2.5E-08	1.3E-08	--	--	--
	Benzo(k)fluoranthene	7.1E+02	ug/kg	7.3E-02	7.3E-02	4.8E-09	2.5E-09	4.E-10	2.E-10	5.E-10	--	--	1.4E-08	6.9E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	8.9E-10	4.6E-10	7.E-09	3.E-09	1.E-08	--	--	2.5E-09	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+02	ug/kg	7.3E-01	7.3E-01	2.3E-09	1.2E-09	2.E-09	8.E-10	2.E-09	--	--	6.3E-09	3.2E-09	--	--	--
	Naphthalene	1.8E+01	ug/kg	--	--	1.2E-10	6.3E-11	--	--	--	2.0E-02	2.0E-02	3.5E-10	1.8E-10	2.E-08	9.E-09	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	6.9E+03	ug/kg	1.4E-02	1.4E-02	3.6E-08	2.4E-08	5.E-10	3.E-10	8.E-10	2.0E-02	2.0E-02	1.0E-07	6.8E-08	5.E-06	3.E-06	0.00001
	Phenols																
	Pentachlorophenol	2.5E+00	ug/kg	4.0E-01	4.0E-01	3.3E-11	8.7E-12	1.E-11	3.E-12	2.E-11	5.0E-03	5.0E-03	9.2E-11	2.4E-11	2.E-08	5.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.7E+03	ug/kg	2.0E+00	2.0E+00	1.2E-08	5.8E-09	2.E-08	1.E-08	4.E-08	2.0E-05	2.0E-05	3.4E-08	1.6E-08	2.E-03	8.E-04	0.003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	1.3E+05	1.3E+05	1.8E-14	3.9E-14	2.E-09	5.E-09	7.E-09	1.0E-09	1.0E-09	4.9E-14	1.1E-13	5.E-05	1.E-04	0.0002
	Total PCB TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	8.4E-13	4.0E-13	1.E-07	5.E-08	2.E-07	1.0E-09	1.0E-09	2.4E-12	1.1E-12	2.E-03	1.E-03	0.003
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	2.6E-12	1.7E-12	4.E-11	3.E-11	7.E-11	3.0E-05	3.0E-05	7.3E-12	4.9E-12	2.E-07	2.E-07	0.0000004
	Dieldrin	1.5E-01	ug/kg	1.6E+01	1.6E+01	7.8E-13	5.2E-13	1.E-11	8.E-12	2.E-11	5.0E-05	5.0E-05	2.2E-12	1.4E-12	4.E-08	3.E-08	0.0000001
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	4.3E-11	9.5E-11	1.E-11	3.E-11	5.E-11	5.0E-04	5.0E-04	1.2E-10	2.7E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										3.E-07							0.02
RM 4 West	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	6.9E-09	1.5E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	1.9E-08	4.3E-08	6.E-05	1.E-04	0.0002
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	8.2E+00	ug/kg	--	--	4.3E-11	2.9E-11	--	--	--	3.0E-04	3.0E-04	1.2E-10	8.0E-11	4.E-07	3.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.0E+02	ug/kg	7.3E-01	7.3E-01	6.2E-09	3.1E-09	4.E-09	2.E-09	7.E-09	--	--	1.7E-08	8.8E-09	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	4.0E-09	2.0E-09	3.E-08	1.E-08	4.E-08	--	--	1.1E-08	5.7E-09	--	--	--
	Benzo(b)fluoranthene	5.2E+02	ug/kg	7.3E-01	7.3E-01	3.5E-09	1.8E-09	3.E-09	1.E-09	4.E-09	--	--	9.9E-09	5.1E-09	--	--	--
	Benzo(k)fluoranthene	3.2E+02	ug/kg	7.3E-02	7.3E-02	2.2E-09	1.1E-09	2.E-10	8.E-11	2.E-10	--	--	6.1E-09	3.1E-09	--	--	--

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	8.9E+01	ug/kg	7.3E+00	7.3E+00	6.1E-10	3.1E-10	4.E-09	2.E-09	7.E-09	--	--	1.7E-09	8.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.6E+02	ug/kg	7.3E-01	7.3E-01	3.2E-09	1.6E-09	2.E-09	1.E-09	3.E-09	--	--	8.9E-09	4.5E-09	--	--	--
	Naphthalene	1.9E+02	ug/kg	--	--	1.3E-09	6.7E-10	--	--	--	2.0E-02	2.0E-02	3.7E-09	1.9E-09	2.E-07	9.E-08	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.1E+01	ug/kg	1.4E-02	1.4E-02	3.8E-10	2.5E-10	5.E-12	3.E-12	9.E-12	2.0E-02	2.0E-02	1.1E-09	7.0E-10	5.E-08	3.E-08	0.0000001
	Phenols																
	Pentachlorophenol	6.7E+00	ug/kg	4.0E-01	4.0E-01	8.8E-11	2.3E-11	4.E-11	9.E-12	4.E-11	5.0E-03	5.0E-03	2.5E-10	6.5E-11	5.E-08	1.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.6E+01	ug/kg	2.0E+00	2.0E+00	2.0E-10	9.3E-11	4.E-10	2.E-10	6.E-10	2.0E-05	2.0E-05	5.5E-10	2.6E-10	3.E-05	1.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	1.3E+05	5.1E-15	1.1E-14	7.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.4E-14	3.2E-14	1.E-05	3.E-05	0.00005
	Total PCB TEQ	6.5E-01	pg/g	1.3E+05	1.3E+05	4.8E-15	2.3E-15	6.E-10	3.E-10	9.E-10	1.0E-09	1.0E-09	1.3E-14	6.4E-15	1.E-05	6.E-06	0.00002
	Pesticides																
	Aldrin	4.9E-01	ug/kg	1.7E+01	1.7E+01	2.6E-12	1.7E-12	4.E-11	3.E-11	7.E-11	3.0E-05	3.0E-05	7.2E-12	4.8E-12	2.E-07	2.E-07	0.0000004
	Dieldrin	2.8E-01	ug/kg	1.6E+01	1.6E+01	1.5E-12	9.8E-13	2.E-11	2.E-11	4.E-11	5.0E-05	5.0E-05	4.1E-12	2.7E-12	8.E-08	5.E-08	0.0000001
	Total DDT	5.6E+01	ug/kg	3.4E-01	3.4E-01	8.8E-11	1.9E-10	3.E-11	7.E-11	1.E-10	5.0E-04	5.0E-04	2.5E-10	5.4E-10	5.E-07	1.E-06	0.000002
Exposure Point Total										1.E-07							0.02
RM 4 East	**Metals**																
	Arsenic	5.6E+00	mg/kg	1.5E+00	1.5E+00	8.9E-09	2.0E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.5E-08	5.5E-08	8.E-05	2.E-04	0.0003
	Mercury	9.6E-02	mg/kg	--	--	0.0E+00	3.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.4E-10	0.E+00	9.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	3.6E+01	ug/kg	--	--	1.9E-10	1.3E-10	--	--	--	3.0E-04	3.0E-04	5.4E-10	3.6E-10	2.E-06	1.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	5.4E-09	8.E-09	4.E-09	1.E-08	--	--	3.0E-08	1.5E-08	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.5E-08	7.8E-09	1.E-07	6.E-08	2.E-07	--	--	4.3E-08	2.2E-08	--	--	--
	Benzo(b)fluoranthene	2.3E+03	ug/kg	7.3E-01	7.3E-01	1.6E-08	8.0E-09	1.E-08	6.E-09	2.E-08	--	--	4.4E-08	2.2E-08	--	--	--
	Benzo(k)fluoranthene	1.8E+03	ug/kg	7.3E-02	7.3E-02	1.3E-08	6.4E-09	9.E-10	5.E-10	1.E-09	--	--	3.5E-08	1.8E-08	--	--	--
	Dibenzo(a,h)anthracene	3.7E+02	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.3E-09	2.E-08	9.E-09	3.E-08	--	--	7.0E-09	3.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	5.9E-09	8.E-09	4.E-09	1.E-08	--	--	3.2E-08	1.6E-08	--	--	--
	Naphthalene	7.4E+01	ug/kg	--	--	5.1E-10	2.6E-10	--	--	--	2.0E-02	2.0E-02	1.4E-09	7.2E-10	7.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+03	ug/kg	1.4E-02	1.4E-02	1.7E-08	1.1E-08	2.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	4.8E-08	3.2E-08	2.E-06	2.E-06	0.000004
	Phenols																
	Pentachlorophenol	4.3E+03	ug/kg	4.0E-01	4.0E-01	5.7E-08	1.5E-08	2.E-08	6.E-09	3.E-08	5.0E-03	5.0E-03	1.6E-07	4.2E-08	3.E-05	8.E-06	0.00004
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	2.7E-09	1.3E-09	5.E-09	3.E-09	8.E-09	2.0E-05	2.0E-05	7.4E-09	3.5E-09	4.E-04	2.E-04	0.0005

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	1.3E+05	1.3E+05	1.1E-14	2.4E-14	1.E-09	3.E-09	5.E-09	1.0E-09	1.0E-09	3.1E-14	6.8E-14	3.E-05	7.E-05	0.0001
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	2.5E-14	1.2E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	6.9E-14	3.3E-14	7.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	7.9E-01	ug/kg	1.7E+01	1.7E+01	4.1E-12	2.7E-12	7.E-11	5.E-11	1.E-10	3.0E-05	3.0E-05	1.2E-11	7.7E-12	4.E-07	3.E-07	0.000001
	Dieldrin	1.6E-01	ug/kg	1.6E+01	1.6E+01	8.2E-13	5.5E-13	1.E-11	9.E-12	2.E-11	5.0E-05	5.0E-05	2.3E-12	1.5E-12	5.E-08	3.E-08	0.0000001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.9E-11	4.1E-11	6.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	5.2E-11	1.2E-10	1.E-07	2.E-07	0.0000003
Exposure Point Total										3.E-07							0.02
RM 4.5 West	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	7.7E-09	1.7E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.2E-08	4.8E-08	7.E-05	2.E-04	0.0002
	Mercury	1.7E-01	mg/kg	--	--	0.0E+00	6.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.7E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.4E+01	ug/kg	--	--	7.4E-11	4.9E-11	--	--	--	3.0E-04	3.0E-04	2.1E-10	1.4E-10	7.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	5.4E-09	8.E-09	4.E-09	1.E-08	--	--	3.0E-08	1.5E-08	--	--	--
	Benzo(a)pyrene	2.2E+03	ug/kg	7.3E+00	7.3E+00	1.5E-08	7.5E-09	1.E-07	6.E-08	2.E-07	--	--	4.1E-08	2.1E-08	--	--	--
	Benzo(b)fluoranthene	1.5E+03	ug/kg	7.3E-01	7.3E-01	1.0E-08	5.2E-09	7.E-09	4.E-09	1.E-08	--	--	2.9E-08	1.5E-08	--	--	--
	Benzo(k)fluoranthene	6.2E+02	ug/kg	7.3E-02	7.3E-02	4.3E-09	2.2E-09	3.E-10	2.E-10	5.E-10	--	--	1.2E-08	6.1E-09	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.6E-09	8.1E-10	1.E-08	6.E-09	2.E-08	--	--	4.4E-09	2.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+03	ug/kg	7.3E-01	7.3E-01	1.1E-08	5.8E-09	8.E-09	4.E-09	1.E-08	--	--	3.2E-08	1.6E-08	--	--	--
	Naphthalene	3.9E+02	ug/kg	--	--	2.7E-09	1.4E-09	--	--	--	2.0E-02	2.0E-02	7.5E-09	3.8E-09	4.E-07	2.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	7.0E+01	ug/kg	1.4E-02	1.4E-02	3.7E-10	2.4E-10	5.E-12	3.E-12	9.E-12	2.0E-02	2.0E-02	1.0E-09	6.8E-10	5.E-08	3.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.3E+00	ug/kg	4.0E-01	4.0E-01	3.0E-11	7.9E-12	1.E-11	3.E-12	2.E-11	5.0E-03	5.0E-03	8.3E-11	2.2E-11	2.E-08	4.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+01	ug/kg	2.0E+00	2.0E+00	2.8E-10	1.3E-10	6.E-10	3.E-10	8.E-10	2.0E-05	2.0E-05	7.9E-10	3.8E-10	4.E-05	2.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	1.3E+05	1.3E+05	1.1E-14	2.4E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	3.0E-14	6.7E-14	3.E-05	7.E-05	0.0001
	Total PCB TEQ	2.5E+00	pg/g	1.3E+05	1.3E+05	1.8E-14	8.7E-15	2.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	5.1E-14	2.4E-14	5.E-05	2.E-05	0.0001
	Pesticides																
	Aldrin	1.2E+00	ug/kg	1.7E+01	1.7E+01	6.3E-12	4.2E-12	1.E-10	7.E-11	2.E-10	3.0E-05	3.0E-05	1.8E-11	1.2E-11	6.E-07	4.E-07	0.000001
	Dieldrin	1.8E-01	ug/kg	1.6E+01	1.6E+01	9.7E-13	6.4E-13	2.E-11	1.E-11	3.E-11	5.0E-05	5.0E-05	2.7E-12	1.8E-12	5.E-08	4.E-08	0.0000001
	Total DDT	2.7E+01	ug/kg	3.4E-01	3.4E-01	4.3E-11	9.6E-11	1.E-11	3.E-11	5.E-11	5.0E-04	5.0E-04	1.2E-10	2.7E-10	2.E-07	5.E-07	0.000001
Exposure Point Total										3.E-07							0.02
RM 4.5 East	**Metals**																
	Arsenic	4.9E+00	mg/kg	1.5E+00	1.5E+00	7.8E-09	1.7E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.2E-08	4.8E-08	7.E-05	2.E-04	0.0002
	Mercury	7.3E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.1E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	7.2E+01	ug/kg	--	--	3.8E-10	2.5E-10	--	--	--	3.0E-04	3.0E-04	1.1E-09	7.0E-10	4.E-06	2.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+04	ug/kg	7.3E-01	7.3E-01	1.4E-07	6.9E-08	1.E-07	5.E-08	1.E-07	--	--	3.8E-07	1.9E-07	--	--	--
	Benzo(a)pyrene	8.7E+03	ug/kg	7.3E+00	7.3E+00	5.9E-08	3.0E-08	4.E-07	2.E-07	7.E-07	--	--	1.7E-07	8.5E-08	--	--	--
	Benzo(b)fluoranthene	7.5E+03	ug/kg	7.3E-01	7.3E-01	5.1E-08	2.6E-08	4.E-08	2.E-08	6.E-08	--	--	1.4E-07	7.4E-08	--	--	--
	Benzo(k)fluoranthene	6.9E+03	ug/kg	7.3E-02	7.3E-02	4.7E-08	2.4E-08	3.E-09	2.E-09	5.E-09	--	--	1.3E-07	6.8E-08	--	--	--
	Dibenzo(a,h)anthracene	1.4E+03	ug/kg	7.3E+00	7.3E+00	9.8E-09	5.0E-09	7.E-08	4.E-08	1.E-07	--	--	2.7E-08	1.4E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E+03	ug/kg	7.3E-01	7.3E-01	4.2E-08	2.1E-08	3.E-08	2.E-08	5.E-08	--	--	1.2E-07	5.9E-08	--	--	--
	Naphthalene	4.4E+02	ug/kg	--	--	3.0E-09	1.5E-09	--	--	--	2.0E-02	2.0E-02	8.4E-09	4.3E-09	4.E-07	2.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	6.5E-10	4.3E-10	9.E-12	6.E-12	2.E-11	2.0E-02	2.0E-02	1.8E-09	1.2E-09	9.E-08	6.E-08	0.0000002
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	4.2E-11	1.1E-11	2.E-11	4.E-12	2.E-11	5.0E-03	5.0E-03	1.2E-10	3.1E-11	2.E-08	6.E-09	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+01	ug/kg	2.0E+00	2.0E+00	3.2E-10	1.5E-10	6.E-10	3.E-10	1.E-09	2.0E-05	2.0E-05	9.1E-10	4.3E-10	5.E-05	2.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	1.3E+05	1.3E+05	4.4E-16	9.6E-16	6.E-11	1.E-10	2.E-10	1.0E-09	1.0E-09	1.2E-15	2.7E-15	1.E-06	3.E-06	0.000004
	Total PCB TEQ	3.4E-01	pg/g	1.3E+05	1.3E+05	2.5E-15	1.2E-15	3.E-10	2.E-10	5.E-10	1.0E-09	1.0E-09	7.0E-15	3.3E-15	7.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	1.5E-01	ug/kg	1.7E+01	1.7E+01	8.0E-13	5.3E-13	1.E-11	9.E-12	2.E-11	3.0E-05	3.0E-05	2.2E-12	1.5E-12	7.E-08	5.E-08	0.0000001
	Dieldrin	8.4E-02	ug/kg	1.6E+01	1.6E+01	4.4E-13	2.9E-13	7.E-12	5.E-12	1.E-11	5.0E-05	5.0E-05	1.2E-12	8.2E-13	2.E-08	2.E-08	0.00000004
	Total DDT	8.7E+00	ug/kg	3.4E-01	3.4E-01	1.4E-11	3.0E-11	5.E-12	1.E-11	1.E-11	5.0E-04	5.0E-04	3.8E-11	8.5E-11	8.E-08	2.E-07	0.0000002
Exposure Point Total										1.E-06							0.02
RM 5 West	**Metals**																
	Arsenic	3.8E+00	mg/kg	1.5E+00	1.5E+00	6.0E-09	1.3E-08	9.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.7E-08	3.7E-08	6.E-05	1.E-04	0.0002
	Mercury	6.0E-02	mg/kg	--	--	0.0E+00	2.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	5.9E-10	0.E+00	6.E-06	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.1E+01	ug/kg	--	--	1.1E-10	7.3E-11	--	--	--	3.0E-04	3.0E-04	3.1E-10	2.1E-10	1.E-06	7.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E+03	ug/kg	7.3E-01	7.3E-01	2.3E-08	1.2E-08	2.E-08	9.E-09	3.E-08	--	--	6.6E-08	3.4E-08	--	--	--
	Benzo(a)pyrene	4.5E+03	ug/kg	7.3E+00	7.3E+00	3.1E-08	1.6E-08	2.E-07	1.E-07	3.E-07	--	--	8.6E-08	4.4E-08	--	--	--
	Benzo(b)fluoranthene	3.0E+03	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.0E-08	1.E-08	8.E-09	2.E-08	--	--	5.7E-08	2.9E-08	--	--	--
	Benzo(k)fluoranthene	5.7E+02	ug/kg	7.3E-02	7.3E-02	3.9E-09	2.0E-09	3.E-10	1.E-10	4.E-10	--	--	1.1E-08	5.6E-09	--	--	--
	Dibenzo(a,h)anthracene	2.3E+02	ug/kg	7.3E+00	7.3E+00	1.6E-09	8.0E-10	1.E-08	6.E-09	2.E-08	--	--	4.4E-09	2.2E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E+03	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.1E-08	2.E-08	8.E-09	2.E-08	--	--	6.3E-08	3.2E-08	--	--	--
	Naphthalene	4.2E+02	ug/kg	--	--	2.9E-09	1.5E-09	--	--	--	2.0E-02	2.0E-02	8.1E-09	4.1E-09	4.E-07	2.E-07	0.000001

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.1E+01	ug/kg	1.4E-02	1.4E-02	4.8E-10	3.2E-10	7.E-12	4.E-12	1.E-11	2.0E-02	2.0E-02	1.3E-09	8.9E-10	7.E-08	4.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	2.4E-10	6.4E-11	1.E-10	3.E-11	1.E-10	5.0E-03	5.0E-03	6.7E-10	1.8E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.9E-10	8.8E-11	4.E-10	2.E-10	5.E-10	2.0E-05	2.0E-05	5.2E-10	2.5E-10	3.E-05	1.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	1.3E+05	1.3E+05	8.6E-15	1.9E-14	1.E-09	2.E-09	4.E-09	1.0E-09	1.0E-09	2.4E-14	5.3E-14	2.E-05	5.E-05	0.0001
	Total PCB TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	1.5E-14	7.3E-15	2.E-09	9.E-10	3.E-09	1.0E-09	1.0E-09	4.3E-14	2.0E-14	4.E-05	2.E-05	0.0001
	Pesticides																
	Aldrin	1.9E+00	ug/kg	1.7E+01	1.7E+01	1.0E-11	6.6E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	2.8E-11	1.9E-11	9.E-07	6.E-07	0.000002
	Dieldrin	7.8E-01	ug/kg	1.6E+01	1.6E+01	4.1E-12	2.7E-12	7.E-11	4.E-11	1.E-10	5.0E-05	5.0E-05	1.1E-11	7.6E-12	2.E-07	2.E-07	0.0000004
	Total DDT	8.2E+01	ug/kg	3.4E-01	3.4E-01	1.3E-10	2.9E-10	4.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	3.6E-10	8.0E-10	7.E-07	2.E-06	0.000002
Exposure Point Total										5.E-07							0.01
RM 5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	5.8E-09	1.3E-08	9.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.6E-08	3.6E-08	5.E-05	1.E-04	0.0002
	Mercury	8.6E-02	mg/kg	--	--	0.0E+00	3.0E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.4E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.2E+02	ug/kg	--	--	6.3E-10	4.2E-10	--	--	--	3.0E-04	3.0E-04	1.8E-09	1.2E-09	6.E-06	4.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.3E+02	ug/kg	7.3E-01	7.3E-01	2.3E-09	1.2E-09	2.E-09	8.E-10	2.E-09	--	--	6.3E-09	3.2E-09	--	--	--
	Benzo(a)pyrene	4.7E+02	ug/kg	7.3E+00	7.3E+00	3.2E-09	1.7E-09	2.E-08	1.E-08	4.E-08	--	--	9.1E-09	4.6E-09	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	4.6E-09	2.3E-09	3.E-09	2.E-09	5.E-09	--	--	1.3E-08	6.5E-09	--	--	--
	Benzo(k)fluoranthene	3.0E+02	ug/kg	7.3E-02	7.3E-02	2.1E-09	1.1E-09	2.E-10	8.E-11	2.E-10	--	--	5.8E-09	3.0E-09	--	--	--
	Dibenzo(a,h)anthracene	9.1E+01	ug/kg	7.3E+00	7.3E+00	6.2E-10	3.2E-10	5.E-09	2.E-09	7.E-09	--	--	1.7E-09	8.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	4.8E+02	ug/kg	7.3E-01	7.3E-01	3.3E-09	1.7E-09	2.E-09	1.E-09	4.E-09	--	--	9.3E-09	4.7E-09	--	--	--
	Naphthalene	1.3E+02	ug/kg	--	--	9.2E-10	4.7E-10	--	--	--	2.0E-02	2.0E-02	2.6E-09	1.3E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1.4E-02	1.4E-02	6.9E-10	4.6E-10	1.E-11	6.E-12	2.E-11	2.0E-02	2.0E-02	1.9E-09	1.3E-09	1.E-07	6.E-08	0.0000002
	Phenols																
	Pentachlorophenol	1.3E+01	ug/kg	4.0E-01	4.0E-01	1.8E-10	4.7E-11	7.E-11	2.E-11	9.E-11	5.0E-03	5.0E-03	5.0E-10	1.3E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+01	ug/kg	2.0E+00	2.0E+00	1.9E-10	8.9E-11	4.E-10	2.E-10	6.E-10	2.0E-05	2.0E-05	5.2E-10	2.5E-10	3.E-05	1.E-05	0.00004
	Pesticides																
	Aldrin	8.0E-01	ug/kg	1.7E+01	1.7E+01	4.2E-12	2.8E-12	7.E-11	5.E-11	1.E-10	3.0E-05	3.0E-05	1.2E-11	7.8E-12	4.E-07	3.E-07	0.000001
	Dieldrin	7.9E-01	ug/kg	1.6E+01	1.6E+01	4.2E-12	2.8E-12	7.E-11	4.E-11	1.E-10	5.0E-05	5.0E-05	1.2E-11	7.7E-12	2.E-07	2.E-07	0.0000004
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	3.0E-12	6.5E-12	1.E-12	2.E-12	3.E-12	5.0E-04	5.0E-04	8.3E-12	1.8E-11	2.E-08	4.E-08	0.0000001
Exposure Point Total										8.E-08							0.02

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
RM 5.5 West	**Metals**																
	Arsenic	6.1E+00	mg/kg	1.5E+00	1.5E+00	9.6E-09	2.1E-08	1.E-08	3.E-08	5.E-08	3.0E-04	3.0E-04	2.7E-08	6.0E-08	9.E-05	2.E-04	0.0003
	Mercury	8.0E-02	mg/kg	--	--	0.0E+00	2.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.9E-10	0.E+00	8.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	4.3E+01	ug/kg	--	--	2.3E-10	1.5E-10	--	--	--	3.0E-04	3.0E-04	6.4E-10	4.2E-10	2.E-06	1.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+03	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.1E-08	2.E-08	8.E-09	2.E-08	--	--	5.8E-08	3.0E-08	--	--	--
	Benzo(a)pyrene	4.3E+03	ug/kg	7.3E+00	7.3E+00	3.0E-08	1.5E-08	2.E-07	1.E-07	3.E-07	--	--	8.3E-08	4.2E-08	--	--	--
	Benzo(b)fluoranthene	3.1E+03	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.1E-08	2.E-08	8.E-09	2.E-08	--	--	5.9E-08	3.0E-08	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	1.4E-08	7.1E-09	1.E-09	5.E-10	2.E-09	--	--	3.9E-08	2.0E-08	--	--	--
	Dibenzo(a,h)anthracene	3.5E+02	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.2E-09	2.E-08	9.E-09	3.E-08	--	--	6.7E-09	3.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.5E+03	ug/kg	7.3E-01	7.3E-01	2.4E-08	1.2E-08	2.E-08	9.E-09	3.E-08	--	--	6.7E-08	3.4E-08	--	--	--
	Naphthalene	3.3E+02	ug/kg	--	--	2.3E-09	1.2E-09	--	--	--	2.0E-02	2.0E-02	6.3E-09	3.2E-09	3.E-07	2.E-07	0.0000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+01	ug/kg	1.4E-02	1.4E-02	9.5E-11	6.3E-11	1.E-12	9.E-13	2.E-12	2.0E-02	2.0E-02	2.7E-10	1.8E-10	1.E-08	9.E-09	0.00000002
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	2.4E-10	6.3E-11	9.E-11	3.E-11	1.E-10	5.0E-03	5.0E-03	6.6E-10	1.8E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.1E+01	ug/kg	2.0E+00	2.0E+00	3.8E-10	1.8E-10	8.E-10	4.E-10	1.E-09	2.0E-05	2.0E-05	1.1E-09	5.0E-10	5.E-05	3.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	1.3E+05	1.3E+05	3.7E-15	8.2E-15	5.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.0E-14	2.3E-14	1.E-05	2.E-05	0.00003
	Total PCB TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	8.0E-15	3.8E-15	1.E-09	5.E-10	2.E-09	1.0E-09	1.0E-09	2.2E-14	1.1E-14	2.E-05	1.E-05	0.00003
	Pesticides																
	Aldrin	6.7E-01	ug/kg	1.7E+01	1.7E+01	3.5E-12	2.3E-12	6.E-11	4.E-11	1.E-10	3.0E-05	3.0E-05	9.9E-12	6.6E-12	3.E-07	2.E-07	0.000001
	Dieldrin	4.1E-01	ug/kg	1.6E+01	1.6E+01	2.1E-12	1.4E-12	3.E-11	2.E-11	6.E-11	5.0E-05	5.0E-05	6.0E-12	4.0E-12	1.E-07	8.E-08	0.0000002
	Total DDT	6.2E+01	ug/kg	3.4E-01	3.4E-01	9.7E-11	2.1E-10	3.E-11	7.E-11	1.E-10	5.0E-04	5.0E-04	2.7E-10	6.0E-10	5.E-07	1.E-06	0.000002
Exposure Point Total										5.E-07							0.02
RM 5.5 East	**Metals**																
	Arsenic	8.9E+00	mg/kg	1.5E+00	1.5E+00	1.4E-08	3.1E-08	2.E-08	5.E-08	7.E-08	3.0E-04	3.0E-04	3.9E-08	8.7E-08	1.E-04	3.E-04	0.0004
	Mercury	6.7E-01	mg/kg	--	--	0.0E+00	2.3E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.5E-09	0.E+00	7.E-05	0.0001
	Vanadium	9.1E+01	mg/kg	--	--	0.0E+00	3.2E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	8.9E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	3.2E+02	ug/kg	--	--	1.7E-09	1.1E-09	--	--	--	3.0E-04	3.0E-04	4.7E-09	3.1E-09	2.E-05	1.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.7E+02	ug/kg	7.3E-01	7.3E-01	3.9E-09	2.0E-09	3.E-09	1.E-09	4.E-09	--	--	1.1E-08	5.6E-09	--	--	--
	Benzo(a)pyrene	7.0E+02	ug/kg	7.3E+00	7.3E+00	4.8E-09	2.4E-09	3.E-08	2.E-08	5.E-08	--	--	1.3E-08	6.8E-09	--	--	--
	Benzo(b)fluoranthene	8.4E+02	ug/kg	7.3E-01	7.3E-01	5.7E-09	2.9E-09	4.E-09	2.E-09	6.E-09	--	--	1.6E-08	8.2E-09	--	--	--
	Benzo(k)fluoranthene	4.4E+02	ug/kg	7.3E-02	7.3E-02	3.0E-09	1.5E-09	2.E-10	1.E-10	3.E-10	--	--	8.5E-09	4.3E-09	--	--	--

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	9.6E-10	4.9E-10	7.E-09	4.E-09	1.E-08	--	--	2.7E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+02	ug/kg	7.3E-01	7.3E-01	3.6E-09	1.8E-09	3.E-09	1.E-09	4.E-09	--	--	1.0E-08	5.2E-09	--	--	--
	Naphthalene	3.5E+02	ug/kg	--	--	2.4E-09	1.2E-09	--	--	--	2.0E-02	2.0E-02	6.7E-09	3.4E-09	3.E-07	2.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.3E+02	ug/kg	1.4E-02	1.4E-02	1.7E-09	1.2E-09	2.E-11	2.E-11	4.E-11	2.0E-02	2.0E-02	4.9E-09	3.2E-09	2.E-07	2.E-07	0.0000004
	Phenols																
	Pentachlorophenol	1.8E+01	ug/kg	4.0E-01	4.0E-01	2.3E-10	6.1E-11	9.E-11	2.E-11	1.E-10	5.0E-03	5.0E-03	6.5E-10	1.7E-10	1.E-07	3.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	1.3E-09	6.3E-10	3.E-09	1.E-09	4.E-09	2.0E-05	2.0E-05	3.7E-09	1.8E-09	2.E-04	9.E-05	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	1.3E+05	1.3E+05	1.4E-14	3.1E-14	2.E-09	4.E-09	6.E-09	1.0E-09	1.0E-09	3.9E-14	8.7E-14	4.E-05	9.E-05	0.0001
	Total PCB TEQ	5.8E+00	pg/g	1.3E+05	1.3E+05	4.3E-14	2.0E-14	6.E-09	3.E-09	8.E-09	1.0E-09	1.0E-09	1.2E-13	5.7E-14	1.E-04	6.E-05	0.0002
	Pesticides																
	Aldrin	4.0E-01	ug/kg	1.7E+01	1.7E+01	2.1E-12	1.4E-12	4.E-11	2.E-11	6.E-11	3.0E-05	3.0E-05	5.9E-12	3.9E-12	2.E-07	1.E-07	0.0000003
	Dieldrin	6.0E-01	ug/kg	1.6E+01	1.6E+01	3.1E-12	2.1E-12	5.E-11	3.E-11	8.E-11	5.0E-05	5.0E-05	8.8E-12	5.9E-12	2.E-07	1.E-07	0.0000003
	Total DDT	2.0E+01	ug/kg	3.4E-01	3.4E-01	3.1E-11	6.9E-11	1.E-11	2.E-11	3.E-11	5.0E-04	5.0E-04	8.7E-11	1.9E-10	2.E-07	4.E-07	0.000001
Exposure Point Total										2.E-07							0.01
RM 6 West	**Metals**																
	Arsenic	4.1E+00	mg/kg	1.5E+00	1.5E+00	6.5E-09	1.4E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	1.8E-08	4.0E-08	6.E-05	1.E-04	0.0002
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.3E+02	mg/kg	--	--	0.0E+00	4.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.0E+01	ug/kg	--	--	1.0E-10	6.9E-11	--	--	--	3.0E-04	3.0E-04	2.9E-10	1.9E-10	1.E-06	6.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E+04	ug/kg	7.3E-01	7.3E-01	3.3E-07	1.7E-07	2.E-07	1.E-07	4.E-07	--	--	9.1E-07	4.7E-07	--	--	--
	Benzo(a)pyrene	5.8E+04	ug/kg	7.3E+00	7.3E+00	3.9E-07	2.0E-07	3.E-06	1.E-06	4.E-06	--	--	1.1E-06	5.6E-07	--	--	--
	Benzo(b)fluoranthene	4.3E+04	ug/kg	7.3E-01	7.3E-01	2.9E-07	1.5E-07	2.E-07	1.E-07	3.E-07	--	--	8.2E-07	4.2E-07	--	--	--
	Benzo(k)fluoranthene	2.7E+04	ug/kg	7.3E-02	7.3E-02	1.8E-07	9.4E-08	1.E-08	7.E-09	2.E-08	--	--	5.2E-07	2.6E-07	--	--	--
	Dibenzo(a,h)anthracene	5.4E+03	ug/kg	7.3E+00	7.3E+00	3.7E-08	1.9E-08	3.E-07	1.E-07	4.E-07	--	--	1.0E-07	5.2E-08	--	--	--
	Indeno(1,2,3-cd)pyrene	4.0E+04	ug/kg	7.3E-01	7.3E-01	2.7E-07	1.4E-07	2.E-07	1.E-07	3.E-07	--	--	7.7E-07	3.9E-07	--	--	--
	Naphthalene	4.4E+04	ug/kg	--	--	3.0E-07	1.6E-07	--	--	--	2.0E-02	2.0E-02	8.5E-07	4.3E-07	4.E-05	2.E-05	0.0001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.8E+02	ug/kg	1.4E-02	1.4E-02	2.0E-09	1.3E-09	3.E-11	2.E-11	5.E-11	2.0E-02	2.0E-02	5.5E-09	3.7E-09	3.E-07	2.E-07	0.0000005
	Phenols																
	Pentachlorophenol	3.5E+01	ug/kg	4.0E-01	4.0E-01	4.6E-10	1.2E-10	2.E-10	5.E-11	2.E-10	5.0E-03	5.0E-03	1.3E-09	3.4E-10	3.E-07	7.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	6.1E+01	ug/kg	2.0E+00	2.0E+00	4.5E-10	2.1E-10	9.E-10	4.E-10	1.E-09	2.0E-05	2.0E-05	1.3E-09	6.0E-10	6.E-05	3.E-05	0.0001

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.3E+05	2.4E-15	5.3E-15	3.E-10	7.E-10	1.E-09	1.0E-09	1.0E-09	6.7E-15	1.5E-14	7.E-06	1.E-05	0.00002
	Total PCB TEQ	2.8E+00	pg/g	1.3E+05	1.3E+05	2.1E-14	9.9E-15	3.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	5.8E-14	2.8E-14	6.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	2.3E+00	ug/kg	1.7E+01	1.7E+01	1.2E-11	8.2E-12	2.E-10	1.E-10	3.E-10	3.0E-05	3.0E-05	3.4E-11	2.3E-11	1.E-06	8.E-07	0.000002
	Dieldrin	1.8E+00	ug/kg	1.6E+01	1.6E+01	9.6E-12	6.4E-12	2.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	2.7E-11	1.8E-11	5.E-07	4.E-07	0.000001
	Total DDT	8.1E+01	ug/kg	3.4E-01	3.4E-01	1.3E-10	2.8E-10	4.E-11	1.E-10	1.E-10	5.0E-04	5.0E-04	3.6E-10	8.0E-10	7.E-07	2.E-06	0.000002
Exposure Point Total										6.E-06							0.02
RM 6 East	**Metals**																
	Arsenic	4.4E+00	mg/kg	1.5E+00	1.5E+00	6.9E-09	1.5E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	1.9E-08	4.3E-08	6.E-05	1.E-04	0.0002
	Mercury	4.0E-01	mg/kg	--	--	0.0E+00	1.4E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.9E-09	0.E+00	4.E-05	0.00004
	Vanadium	9.8E+01	mg/kg	--	--	0.0E+00	3.4E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	9.6E-07	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	3.5E+02	ug/kg	--	--	1.8E-09	1.2E-09	--	--	--	3.0E-04	3.0E-04	5.2E-09	3.4E-09	2.E-05	1.E-05	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.3E+03	ug/kg	7.3E-01	7.3E-01	9.2E-09	4.7E-09	7.E-09	3.E-09	1.E-08	--	--	2.6E-08	1.3E-08	--	--	--
	Benzo(a)pyrene	1.9E+03	ug/kg	7.3E+00	7.3E+00	1.3E-08	6.7E-09	1.E-07	5.E-08	1.E-07	--	--	3.7E-08	1.9E-08	--	--	--
	Benzo(b)fluoranthene	3.3E+03	ug/kg	7.3E-01	7.3E-01	2.2E-08	1.1E-08	2.E-08	8.E-09	2.E-08	--	--	6.2E-08	3.2E-08	--	--	--
	Benzo(k)fluoranthene	2.5E+03	ug/kg	7.3E-02	7.3E-02	1.7E-08	8.8E-09	1.E-09	6.E-10	2.E-09	--	--	4.8E-08	2.5E-08	--	--	--
	Dibenzo(a,h)anthracene	2.7E+02	ug/kg	7.3E+00	7.3E+00	1.8E-09	9.4E-10	1.E-08	7.E-09	2.E-08	--	--	5.2E-09	2.6E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E+03	ug/kg	7.3E-01	7.3E-01	7.7E-09	3.9E-09	6.E-09	3.E-09	9.E-09	--	--	2.2E-08	1.1E-08	--	--	--
	Naphthalene	8.4E+02	ug/kg	--	--	5.7E-09	2.9E-09	--	--	--	2.0E-02	2.0E-02	1.6E-08	8.2E-09	8.E-07	4.E-07	0.000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	7.4E-10	4.9E-10	1.E-11	7.E-12	2.E-11	2.0E-02	2.0E-02	2.1E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	5.8E-10	1.5E-10	2.E-10	6.E-11	3.E-10	5.0E-03	5.0E-03	1.6E-09	4.3E-10	3.E-07	9.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	1.3E-09	6.1E-10	3.E-09	1.E-09	4.E-09	2.0E-05	2.0E-05	3.6E-09	1.7E-09	2.E-04	9.E-05	0.0003
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	1.3E+05	1.3E+05	6.5E-15	1.4E-14	8.E-10	2.E-09	3.E-09	1.0E-09	1.0E-09	1.8E-14	4.0E-14	2.E-05	4.E-05	0.0001
	Total PCB TEQ	3.4E+00	pg/g	1.3E+05	1.3E+05	2.5E-14	1.2E-14	3.E-09	2.E-09	5.E-09	1.0E-09	1.0E-09	7.0E-14	3.3E-14	7.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	6.4E-01	ug/kg	1.7E+01	1.7E+01	3.4E-12	2.2E-12	6.E-11	4.E-11	9.E-11	3.0E-05	3.0E-05	9.4E-12	6.2E-12	3.E-07	2.E-07	0.000001
	Dieldrin	1.0E-01	ug/kg	1.6E+01	1.6E+01	5.3E-13	3.5E-13	8.E-12	6.E-12	1.E-11	5.0E-05	5.0E-05	1.5E-12	9.8E-13	3.E-08	2.E-08	0.00000005
	Total DDT	4.2E+00	ug/kg	3.4E-01	3.4E-01	6.7E-12	1.5E-11	2.E-12	5.E-12	7.E-12	5.0E-04	5.0E-04	1.9E-11	4.2E-11	4.E-08	8.E-08	0.0000001
Exposure Point Total										3.E-07							0.01
RM 6.5 West	**Metals**																
	Arsenic	1.4E+01	mg/kg	1.5E+00	1.5E+00	2.2E-08	4.9E-08	3.E-08	7.E-08	1.E-07	3.0E-04	3.0E-04	6.2E-08	1.4E-07	2.E-04	5.E-04	0.001
	Mercury	2.0E-01	mg/kg	--	--	0.0E+00	7.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.0E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.4E+02	mg/kg	--	--	0.0E+00	4.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.4E-06	0.E+00	2.E-02	0.02

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	4.6E+01	ug/kg	--	--	2.4E-10	1.6E-10	--	--	--	3.0E-04	3.0E-04	6.8E-10	4.5E-10	2.E-06	2.E-06	0.000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+03	ug/kg	7.3E-01	7.3E-01	6.9E-09	3.5E-09	5.E-09	3.E-09	8.E-09	--	--	1.9E-08	9.9E-09	--	--	--
	Benzo(a)pyrene	1.2E+03	ug/kg	7.3E+00	7.3E+00	8.4E-09	4.3E-09	6.E-08	3.E-08	9.E-08	--	--	2.3E-08	1.2E-08	--	--	--
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	9.5E-09	4.8E-09	7.E-09	4.E-09	1.E-08	--	--	2.7E-08	1.4E-08	--	--	--
	Benzo(k)fluoranthene	6.6E+02	ug/kg	7.3E-02	7.3E-02	4.5E-09	2.3E-09	3.E-10	2.E-10	5.E-10	--	--	1.3E-08	6.4E-09	--	--	--
	Dibenzo(a,h)anthracene	4.2E+02	ug/kg	7.3E+00	7.3E+00	2.9E-09	1.5E-09	2.E-08	1.E-08	3.E-08	--	--	8.1E-09	4.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	8.3E+02	ug/kg	7.3E-01	7.3E-01	5.7E-09	2.9E-09	4.E-09	2.E-09	6.E-09	--	--	1.6E-08	8.1E-09	--	--	--
	Naphthalene	1.4E+02	ug/kg	--	--	9.5E-10	4.9E-10	--	--	--	2.0E-02	2.0E-02	2.7E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	5.6E-10	3.7E-10	8.E-12	5.E-12	1.E-11	2.0E-02	2.0E-02	1.6E-09	1.0E-09	8.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	2.4E+00	ug/kg	4.0E-01	4.0E-01	3.2E-11	8.4E-12	1.E-11	3.E-12	2.E-11	5.0E-03	5.0E-03	8.8E-11	2.3E-11	2.E-08	5.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	9.1E+01	ug/kg	2.0E+00	2.0E+00	6.7E-10	3.2E-10	1.E-09	6.E-10	2.E-09	2.0E-05	2.0E-05	1.9E-09	8.9E-10	9.E-05	4.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	1.3E+05	1.3E+05	1.8E-13	4.0E-13	2.E-08	5.E-08	7.E-08	1.0E-09	1.0E-09	5.0E-13	1.1E-12	5.E-04	1.E-03	0.002
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	2.2E-14	1.0E-14	3.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	6.1E-14	2.9E-14	6.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	2.5E+00	ug/kg	1.7E+01	1.7E+01	1.3E-11	8.7E-12	2.E-10	1.E-10	4.E-10	3.0E-05	3.0E-05	3.7E-11	2.4E-11	1.E-06	8.E-07	0.000002
	Dieldrin	5.9E-01	ug/kg	1.6E+01	1.6E+01	3.1E-12	2.1E-12	5.E-11	3.E-11	8.E-11	5.0E-05	5.0E-05	8.7E-12	5.8E-12	2.E-07	1.E-07	0.0000003
	Total DDT	1.7E+02	ug/kg	3.4E-01	3.4E-01	2.7E-10	5.9E-10	9.E-11	2.E-10	3.E-10	5.0E-04	5.0E-04	7.4E-10	1.6E-09	1.E-06	3.E-06	0.000005
Exposure Point Total										3.E-07							0.02
RM 6.5 East	**Metals**																
	Arsenic	5.8E+00	mg/kg	1.5E+00	1.5E+00	9.2E-09	2.0E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.6E-08	5.7E-08	9.E-05	2.E-04	0.0003
	Mercury	1.4E+01	mg/kg	--	--	0.0E+00	5.1E-08	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-07	0.E+00	1.E-03	0.001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.1E+02	ug/kg	--	--	5.5E-10	3.7E-10	--	--	--	3.0E-04	3.0E-04	1.5E-09	1.0E-09	5.E-06	3.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	8.2E-10	1.E-09	6.E-10	2.E-09	--	--	4.5E-09	2.3E-09	--	--	--
	Benzo(a)pyrene	1.5E+02	ug/kg	7.3E+00	7.3E+00	1.0E-09	5.2E-10	7.E-09	4.E-09	1.E-08	--	--	2.8E-09	1.4E-09	--	--	--
	Benzo(b)fluoranthene	2.3E+02	ug/kg	7.3E-01	7.3E-01	1.6E-09	8.2E-10	1.E-09	6.E-10	2.E-09	--	--	4.5E-09	2.3E-09	--	--	--
	Benzo(k)fluoranthene	1.5E+02	ug/kg	7.3E-02	7.3E-02	1.0E-09	5.1E-10	7.E-11	4.E-11	1.E-10	--	--	2.8E-09	1.4E-09	--	--	--
	Dibenzo(a,h)anthracene	1.9E+01	ug/kg	7.3E+00	7.3E+00	1.3E-10	6.6E-11	9.E-10	5.E-10	1.E-09	--	--	3.6E-10	1.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.0E+02	ug/kg	7.3E-01	7.3E-01	7.0E-10	3.6E-10	5.E-10	3.E-10	8.E-10	--	--	2.0E-09	1.0E-09	--	--	--
	Naphthalene	1.2E+02	ug/kg	--	--	8.4E-10	4.3E-10	--	--	--	2.0E-02	2.0E-02	2.4E-09	1.2E-09	1.E-07	6.E-08	0.0000002

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.2E+02	ug/kg	1.4E-02	1.4E-02	6.5E-10	4.3E-10	9.E-12	6.E-12	2.E-11	2.0E-02	2.0E-02	1.8E-09	1.2E-09	9.E-08	6.E-08	0.0000002
	Phenols																
	Pentachlorophenol	4.9E+00	ug/kg	4.0E-01	4.0E-01	6.5E-11	1.7E-11	3.E-11	7.E-12	3.E-11	5.0E-03	5.0E-03	1.8E-10	4.8E-11	4.E-08	1.E-08	0.00000005
	Polychlorinated Biphenyls																
	Total Aroclors	1.3E+03	ug/kg	2.0E+00	2.0E+00	9.7E-09	4.6E-09	2.E-08	9.E-09	3.E-08	2.0E-05	2.0E-05	2.7E-08	1.3E-08	1.E-03	6.E-04	0.002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	1.3E+05	1.3E+05	1.4E-13	3.1E-13	2.E-08	4.E-08	6.E-08	1.0E-09	1.0E-09	3.9E-13	8.7E-13	4.E-04	9.E-04	0.001
	Total PCB TEQ	1.3E+01	pg/g	1.3E+05	1.3E+05	9.8E-14	4.7E-14	1.E-08	6.E-09	2.E-08	1.0E-09	1.0E-09	2.7E-13	1.3E-13	3.E-04	1.E-04	0.0004
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.5E-12	1.0E-12	3.E-11	2.E-11	4.E-11	3.0E-05	3.0E-05	4.3E-12	2.8E-12	1.E-07	9.E-08	0.0000002
	Dieldrin	2.0E-01	ug/kg	1.6E+01	1.6E+01	1.0E-12	6.8E-13	2.E-11	1.E-11	3.E-11	5.0E-05	5.0E-05	2.9E-12	1.9E-12	6.E-08	4.E-08	0.0000001
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	2.0E-10	4.5E-10	7.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	5.7E-10	1.3E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										2.E-07							0.02
RM 7 West	**Metals**																
	Arsenic	5.3E+00	mg/kg	1.5E+00	1.5E+00	8.3E-09	1.8E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.3E-08	5.2E-08	8.E-05	2.E-04	0.0003
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	6.4E+00	ug/kg	--	--	3.4E-11	2.2E-11	--	--	--	3.0E-04	3.0E-04	9.4E-11	6.3E-11	3.E-07	2.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E+03	ug/kg	7.3E-01	7.3E-01	1.5E-08	7.7E-09	1.E-08	6.E-09	2.E-08	--	--	4.2E-08	2.2E-08	--	--	--
	Benzo(a)pyrene	1.7E+03	ug/kg	7.3E+00	7.3E+00	1.2E-08	6.0E-09	9.E-08	4.E-08	1.E-07	--	--	3.3E-08	1.7E-08	--	--	--
	Benzo(b)fluoranthene	4.5E+03	ug/kg	7.3E-01	7.3E-01	3.1E-08	1.6E-08	2.E-08	1.E-08	3.E-08	--	--	8.6E-08	4.4E-08	--	--	--
	Benzo(k)fluoranthene	1.4E+03	ug/kg	7.3E-02	7.3E-02	9.8E-09	5.0E-09	7.E-10	4.E-10	1.E-09	--	--	2.7E-08	1.4E-08	--	--	--
	Dibenzo(a,h)anthracene	7.1E+02	ug/kg	7.3E+00	7.3E+00	4.9E-09	2.5E-09	4.E-08	2.E-08	5.E-08	--	--	1.4E-08	6.9E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+03	ug/kg	7.3E-01	7.3E-01	9.5E-09	4.9E-09	7.E-09	4.E-09	1.E-08	--	--	2.7E-08	1.4E-08	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	7.5E-11	3.8E-11	--	--	--	2.0E-02	2.0E-02	2.1E-10	1.1E-10	1.E-08	5.E-09	0.00000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.7E+02	ug/kg	1.4E-02	1.4E-02	1.4E-09	9.6E-10	2.E-11	1.E-11	3.E-11	2.0E-02	2.0E-02	4.0E-09	2.7E-09	2.E-07	1.E-07	0.0000003
	Phenols																
	Pentachlorophenol	4.4E+01	ug/kg	4.0E-01	4.0E-01	5.8E-10	1.5E-10	2.E-10	6.E-11	3.E-10	5.0E-03	5.0E-03	1.6E-09	4.3E-10	3.E-07	9.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	9.3E+01	ug/kg	2.0E+00	2.0E+00	6.8E-10	3.2E-10	1.E-09	6.E-10	2.E-09	2.0E-05	2.0E-05	1.9E-09	9.1E-10	1.E-04	5.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	1.3E+05	1.3E+05	2.2E-11	4.9E-11	3.E-06	6.E-06	9.E-06	1.0E-09	1.0E-09	6.2E-11	1.4E-10	6.E-02	1.E-01	0.2
	Total PCB TEQ	2.7E+01	pg/g	1.3E+05	1.3E+05	2.0E-13	9.3E-14	3.E-08	1.E-08	4.E-08	1.0E-09	1.0E-09	5.5E-13	2.6E-13	5.E-04	3.E-04	0.001

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	1.9E+02	ug/kg	1.7E+01	1.7E+01	1.0E-09	6.7E-10	2.E-08	1.E-08	3.E-08	3.0E-05	3.0E-05	2.8E-09	1.9E-09	9.E-05	6.E-05	0.0002
	Dieldrin	2.0E+00	ug/kg	1.6E+01	1.6E+01	1.1E-11	7.1E-12	2.E-10	1.E-10	3.E-10	5.0E-05	5.0E-05	3.0E-11	2.0E-11	6.E-07	4.E-07	0.000001
	Total DDT	6.3E+03	ug/kg	3.4E-01	3.4E-01	9.9E-09	2.2E-08	3.E-09	7.E-09	1.E-08	5.0E-04	5.0E-04	2.8E-08	6.2E-08	6.E-05	1.E-04	0.0002
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	9.6E-07	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.7E-06	0.E+00	4.E-03	0.004
Exposure Point Total										1.E-05							0.2
RM 7 East	**Metals**																
	Arsenic	1.5E+01	mg/kg	1.5E+00	1.5E+00	2.3E-08	5.2E-08	3.E-08	8.E-08	1.E-07	3.0E-04	3.0E-04	6.5E-08	1.4E-07	2.E-04	5.E-04	0.001
	Mercury	6.8E-02	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.6E-10	0.E+00	7.E-06	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.0E+03	ug/kg	--	--	5.5E-09	3.6E-09	--	--	--	3.0E-04	3.0E-04	1.5E-08	1.0E-08	5.E-05	3.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.2E+02	ug/kg	7.3E-01	7.3E-01	2.9E-09	1.5E-09	2.E-09	1.E-09	3.E-09	--	--	8.0E-09	4.1E-09	--	--	--
	Benzo(a)pyrene	5.8E+02	ug/kg	7.3E+00	7.3E+00	4.0E-09	2.0E-09	3.E-08	1.E-08	4.E-08	--	--	1.1E-08	5.7E-09	--	--	--
	Benzo(b)fluoranthene	6.7E+02	ug/kg	7.3E-01	7.3E-01	4.6E-09	2.3E-09	3.E-09	2.E-09	5.E-09	--	--	1.3E-08	6.5E-09	--	--	--
	Benzo(k)fluoranthene	6.5E+02	ug/kg	7.3E-02	7.3E-02	4.4E-09	2.3E-09	3.E-10	2.E-10	5.E-10	--	--	1.2E-08	6.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.9E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	6.5E-10	9.E-09	5.E-09	1.E-08	--	--	3.6E-09	1.8E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.9E+02	ug/kg	7.3E-01	7.3E-01	2.7E-09	1.4E-09	2.E-09	1.E-09	3.E-09	--	--	7.5E-09	3.8E-09	--	--	--
	Naphthalene	4.5E+01	ug/kg	--	--	3.1E-10	1.6E-10	--	--	--	2.0E-02	2.0E-02	8.6E-10	4.4E-10	4.E-08	2.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	6.9E-09	4.6E-09	1.E-10	6.E-11	2.E-10	2.0E-02	2.0E-02	1.9E-08	1.3E-08	1.E-06	6.E-07	0.000002
	Phenols																
	Pentachlorophenol	1.2E+02	ug/kg	4.0E-01	4.0E-01	1.5E-09	4.1E-10	6.E-10	2.E-10	8.E-10	5.0E-03	5.0E-03	4.3E-09	1.2E-09	9.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.0E+01	ug/kg	2.0E+00	2.0E+00	5.2E-10	2.5E-10	1.E-09	5.E-10	2.E-09	2.0E-05	2.0E-05	1.5E-09	6.9E-10	7.E-05	3.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	1.3E+05	1.3E+05	6.3E-14	1.4E-13	8.E-09	2.E-08	3.E-08	1.0E-09	1.0E-09	1.8E-13	3.9E-13	2.E-04	4.E-04	0.001
	Total PCB TEQ	7.4E-01	pg/g	1.3E+05	1.3E+05	5.5E-15	2.6E-15	7.E-10	3.E-10	1.E-09	1.0E-09	1.0E-09	1.5E-14	7.2E-15	2.E-05	7.E-06	0.00002
	Pesticides																
	Aldrin	4.6E-01	ug/kg	1.7E+01	1.7E+01	2.4E-12	1.6E-12	4.E-11	3.E-11	7.E-11	3.0E-05	3.0E-05	6.8E-12	4.5E-12	2.E-07	2.E-07	0.0000004
	Dieldrin	1.2E-01	ug/kg	1.6E+01	1.6E+01	6.1E-13	4.0E-13	1.E-11	6.E-12	2.E-11	5.0E-05	5.0E-05	1.7E-12	1.1E-12	3.E-08	2.E-08	0.0000001
	Total DDT	1.3E+01	ug/kg	3.4E-01	3.4E-01	2.0E-11	4.5E-11	7.E-12	2.E-11	2.E-11	5.0E-04	5.0E-04	5.7E-11	1.3E-10	1.E-07	3.E-07	0.0000004
Exposure Point Total										2.E-07							0.02
RM 7.5 West	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	5.8E-09	1.3E-08	9.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.6E-08	3.6E-08	5.E-05	1.E-04	0.0002
	Mercury	1.3E-01	mg/kg	--	--	0.0E+00	4.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.3E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01

[a] Cancer Risk Calculations and Noncancer Hazard Calculations

[b] Total Cancer Risk and Total Noncancer HQ

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	9.7E+00	ug/kg	--	--	5.1E-11	3.4E-11	--	--	--	3.0E-04	3.0E-04	1.4E-10	9.5E-11	5.E-07	3.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E+02	ug/kg	7.3E-01	7.3E-01	3.0E-09	1.5E-09	2.E-09	1.E-09	3.E-09	--	--	8.3E-09	4.2E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	2.3E-09	1.2E-09	2.E-08	9.E-09	3.E-08	--	--	6.6E-09	3.3E-09	--	--	--
	Benzo(b)fluoranthene	4.6E+02	ug/kg	7.3E-01	7.3E-01	3.2E-09	1.6E-09	2.E-09	1.E-09	3.E-09	--	--	8.9E-09	4.5E-09	--	--	--
	Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	7.3E-02	8.9E-10	4.5E-10	6.E-11	3.E-11	1.E-10	--	--	2.5E-09	1.3E-09	--	--	--
	Dibenzo(a,h)anthracene	5.0E+01	ug/kg	7.3E+00	7.3E+00	3.4E-10	1.7E-10	2.E-09	1.E-09	4.E-09	--	--	9.5E-10	4.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E+02	ug/kg	7.3E-01	7.3E-01	1.3E-09	6.6E-10	9.E-10	5.E-10	1.E-09	--	--	3.6E-09	1.9E-09	--	--	--
	Naphthalene	3.3E+01	ug/kg	--	--	2.3E-10	1.2E-10	--	--	--	2.0E-02	2.0E-02	6.3E-10	3.2E-10	3.E-08	2.E-08	0.00000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	9.7E-10	6.4E-10	1.E-11	9.E-12	2.E-11	2.0E-02	2.0E-02	2.7E-09	1.8E-09	1.E-07	9.E-08	0.0000002
	Phenols																
	Pentachlorophenol	2.1E+00	ug/kg	4.0E-01	4.0E-01	2.7E-11	7.2E-12	1.E-11	3.E-12	1.E-11	5.0E-03	5.0E-03	7.6E-11	2.0E-11	2.E-08	4.E-09	0.00000002
	Polychlorinated Biphenyls																
	Total Aroclors	2.5E+02	ug/kg	2.0E+00	2.0E+00	1.8E-09	8.7E-10	4.E-09	2.E-09	5.E-09	2.0E-05	2.0E-05	5.2E-09	2.4E-09	3.E-04	1.E-04	0.0004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	1.3E+05	1.3E+05	4.1E-15	9.1E-15	5.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.2E-14	2.6E-14	1.E-05	3.E-05	0.00004
	Total PCB TEQ	9.2E-01	pg/g	1.3E+05	1.3E+05	6.8E-15	3.2E-15	9.E-10	4.E-10	1.E-09	1.0E-09	1.0E-09	1.9E-14	9.0E-15	2.E-05	9.E-06	0.00003
	Pesticides																
	Aldrin	2.9E-01	ug/kg	1.7E+01	1.7E+01	1.5E-12	1.0E-12	3.E-11	2.E-11	4.E-11	3.0E-05	3.0E-05	4.2E-12	2.8E-12	1.E-07	9.E-08	0.0000002
	Dieldrin	7.7E-01	ug/kg	1.6E+01	1.6E+01	4.0E-12	2.7E-12	6.E-11	4.E-11	1.E-10	5.0E-05	5.0E-05	1.1E-11	7.5E-12	2.E-07	2.E-07	0.0000004
	Total DDT	1.3E+02	ug/kg	3.4E-01	3.4E-01	2.0E-10	4.5E-10	7.E-11	2.E-10	2.E-10	5.0E-04	5.0E-04	5.7E-10	1.3E-09	1.E-06	3.E-06	0.000004
Exposure Point Total										7.E-08							0.02
RM 7.5 East	**Metals**																
	Arsenic	4.2E+00	mg/kg	1.5E+00	1.5E+00	6.6E-09	1.5E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	1.9E-08	4.1E-08	6.E-05	1.E-04	0.0002
	Mercury	1.0E-01	mg/kg	--	--	0.0E+00	3.5E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	9.8E-10	0.E+00	1.E-05	0.00001
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.3E+02	ug/kg	--	--	1.2E-09	8.0E-10	--	--	--	3.0E-04	3.0E-04	3.4E-09	2.2E-09	1.E-05	7.E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.7E-10	1.4E-10	2.E-10	1.E-10	3.E-10	--	--	7.6E-10	3.9E-10	--	--	--
	Benzo(a)pyrene	3.5E+01	ug/kg	7.3E+00	7.3E+00	2.4E-10	1.2E-10	2.E-09	9.E-10	3.E-09	--	--	6.7E-10	3.4E-10	--	--	--
	Benzo(b)fluoranthene	4.4E+01	ug/kg	7.3E-01	7.3E-01	3.0E-10	1.5E-10	2.E-10	1.E-10	3.E-10	--	--	8.5E-10	4.3E-10	--	--	--
	Benzo(k)fluoranthene	3.1E+01	ug/kg	7.3E-02	7.3E-02	2.1E-10	1.1E-10	2.E-11	8.E-12	2.E-11	--	--	5.9E-10	3.0E-10	--	--	--
	Dibenzo(a,h)anthracene	1.1E+01	ug/kg	7.3E+00	7.3E+00	7.5E-11	3.8E-11	5.E-10	3.E-10	8.E-10	--	--	2.1E-10	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	8.3E-11	1.E-10	6.E-11	2.E-10	--	--	4.6E-10	2.3E-10	--	--	--
	Naphthalene	1.1E+01	ug/kg	--	--	7.5E-11	3.8E-11	--	--	--	2.0E-02	2.0E-02	2.1E-10	1.1E-10	1.E-08	5.E-09	0.00000002

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.7E+03	ug/kg	1.4E-02	1.4E-02	1.9E-08	1.3E-08	3.E-10	2.E-10	4.E-10	2.0E-02	2.0E-02	5.4E-08	3.6E-08	3.E-06	2.E-06	0.000004
	Polychlorinated Biphenyls																
	Total Aroclors	4.5E+01	ug/kg	2.0E+00	2.0E+00	3.3E-10	1.6E-10	7.E-10	3.E-10	1.E-09	2.0E-05	2.0E-05	9.3E-10	4.4E-10	5.E-05	2.E-05	0.0001
	Pesticides																
	Dieldrin	3.4E-01	ug/kg	1.6E+01	1.6E+01	1.8E-12	1.2E-12	3.E-11	2.E-11	5.E-11	5.0E-05	5.0E-05	5.0E-12	3.3E-12	1.E-07	7.E-08	0.0000002
	Total DDT	3.3E+00	ug/kg	3.4E-01	3.4E-01	5.3E-12	1.2E-11	2.E-12	4.E-12	6.E-12	5.0E-04	5.0E-04	1.5E-11	3.3E-11	3.E-08	7.E-08	0.0000001
Exposure Point Total										4.E-08							0.02
RM 8 West	**Metals**																
	Arsenic	8.0E+00	mg/kg	1.5E+00	1.5E+00	1.3E-08	2.8E-08	2.E-08	4.E-08	6.E-08	3.0E-04	3.0E-04	3.5E-08	7.8E-08	1.E-04	3.E-04	0.0004
	Mercury	3.3E-01	mg/kg	--	--	0.0E+00	1.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.2E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.5E+01	ug/kg	--	--	1.3E-10	8.6E-11	--	--	--	3.0E-04	3.0E-04	3.6E-10	2.4E-10	1.E-06	8.E-07	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E+02	ug/kg	7.3E-01	7.3E-01	3.8E-09	1.9E-09	3.E-09	1.E-09	4.E-09	--	--	1.1E-08	5.4E-09	--	--	--
	Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	7.3E+00	3.3E-09	1.7E-09	2.E-08	1.E-08	4.E-08	--	--	9.4E-09	4.8E-09	--	--	--
	Benzo(b)fluoranthene	6.9E+02	ug/kg	7.3E-01	7.3E-01	4.7E-09	2.4E-09	3.E-09	2.E-09	5.E-09	--	--	1.3E-08	6.7E-09	--	--	--
	Benzo(k)fluoranthene	1.2E+02	ug/kg	7.3E-02	7.3E-02	8.4E-10	4.3E-10	6.E-11	3.E-11	9.E-11	--	--	2.4E-09	1.2E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E+02	ug/kg	7.3E+00	7.3E+00	9.4E-10	4.8E-10	7.E-09	4.E-09	1.E-08	--	--	2.6E-09	1.4E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	1.1E-09	2.E-09	8.E-10	2.E-09	--	--	6.0E-09	3.1E-09	--	--	--
	Naphthalene	8.1E+01	ug/kg	--	--	5.5E-10	2.8E-10	--	--	--	2.0E-02	2.0E-02	1.5E-09	7.9E-10	8.E-08	4.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	3.0E+03	ug/kg	1.4E-02	1.4E-02	1.6E-08	1.1E-08	2.E-10	1.E-10	4.E-10	2.0E-02	2.0E-02	4.4E-08	2.9E-08	2.E-06	1.E-06	0.000004
	Phenols																
	Pentachlorophenol	1.5E+01	ug/kg	4.0E-01	4.0E-01	2.0E-10	5.3E-11	8.E-11	2.E-11	1.E-10	5.0E-03	5.0E-03	5.6E-10	1.5E-10	1.E-07	3.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.0E+02	ug/kg	2.0E+00	2.0E+00	3.0E-09	1.4E-09	6.E-09	3.E-09	9.E-09	2.0E-05	2.0E-05	8.3E-09	3.9E-09	4.E-04	2.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.3E+05	1.3E+05	6.7E-16	1.5E-15	9.E-11	2.E-10	3.E-10	1.0E-09	1.0E-09	1.9E-15	4.2E-15	2.E-06	4.E-06	0.00001
	Total PCB TEQ	6.1E+00	pg/g	1.3E+05	1.3E+05	4.5E-14	2.1E-14	6.E-09	3.E-09	9.E-09	1.0E-09	1.0E-09	1.2E-13	5.9E-14	1.E-04	6.E-05	0.0002
	Pesticides																
	Aldrin	1.2E-01	ug/kg	1.7E+01	1.7E+01	6.1E-13	4.0E-13	1.E-11	7.E-12	2.E-11	3.0E-05	3.0E-05	1.7E-12	1.1E-12	6.E-08	4.E-08	0.0000001
	Dieldrin	4.6E+00	ug/kg	1.6E+01	1.6E+01	2.4E-11	1.6E-11	4.E-10	3.E-10	6.E-10	5.0E-05	5.0E-05	6.7E-11	4.5E-11	1.E-06	9.E-07	0.000002
	Total DDT	2.1E+01	ug/kg	3.4E-01	3.4E-01	3.3E-11	7.4E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	9.4E-11	2.1E-10	2.E-07	4.E-07	0.000001
Exposure Point Total										1.E-07							0.02
RM 8 East	**Metals**																
	Arsenic	9.1E+00	mg/kg	1.5E+00	1.5E+00	1.4E-08	3.2E-08	2.E-08	5.E-08	7.E-08	3.0E-04	3.0E-04	4.0E-08	8.9E-08	1.E-04	3.E-04	0.0004
	Mercury	2.2E-01	mg/kg	--	--	0.0E+00	7.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.2E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Butyltins																
	Tributyltin ion	5.8E+03	ug/kg	--	--	3.0E-08	2.0E-08	--	--	--	3.0E-04	3.0E-04	8.5E-08	5.7E-08	3.E-04	2.E-04	0.0005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.0E+02	ug/kg	7.3E-01	7.3E-01	3.4E-09	1.7E-09	2.E-09	1.E-09	4.E-09	--	--	9.5E-09	4.9E-09	--	--	--
	Benzo(a)pyrene	5.3E+02	ug/kg	7.3E+00	7.3E+00	3.6E-09	1.8E-09	3.E-08	1.E-08	4.E-08	--	--	1.0E-08	5.2E-09	--	--	--
	Benzo(b)fluoranthene	5.5E+02	ug/kg	7.3E-01	7.3E-01	3.8E-09	1.9E-09	3.E-09	1.E-09	4.E-09	--	--	1.1E-08	5.4E-09	--	--	--
	Benzo(k)fluoranthene	3.7E+02	ug/kg	7.3E-02	7.3E-02	2.5E-09	1.3E-09	2.E-10	9.E-11	3.E-10	--	--	7.1E-09	3.6E-09	--	--	--
	Dibenzo(a,h)anthracene	4.0E+01	ug/kg	7.3E+00	7.3E+00	2.8E-10	1.4E-10	2.E-09	1.E-09	3.E-09	--	--	7.7E-10	3.9E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+02	ug/kg	7.3E-01	7.3E-01	2.5E-09	1.3E-09	2.E-09	9.E-10	3.E-09	--	--	7.0E-09	3.6E-09	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.5E-10	7.6E-11	--	--	--	2.0E-02	2.0E-02	4.2E-10	2.1E-10	2.E-08	1.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.3E+03	ug/kg	1.4E-02	1.4E-02	6.9E-09	4.6E-09	1.E-10	6.E-11	2.E-10	2.0E-02	2.0E-02	1.9E-08	1.3E-08	1.E-06	6.E-07	0.000002
	Phenols																
	Pentachlorophenol	2.7E+01	ug/kg	4.0E-01	4.0E-01	3.5E-10	9.4E-11	1.E-10	4.E-11	2.E-10	5.0E-03	5.0E-03	9.9E-10	2.6E-10	2.E-07	5.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	5.8E+02	ug/kg	2.0E+00	2.0E+00	4.3E-09	2.0E-09	9.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	1.2E-08	5.7E-09	6.E-04	3.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	1.3E+05	1.3E+05	3.3E-15	7.3E-15	4.E-10	9.E-10	1.E-09	1.0E-09	1.0E-09	9.2E-15	2.0E-14	9.E-06	2.E-05	0.00003
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.3E-13	6.1E-14	2.E-08	8.E-09	2.E-08	1.0E-09	1.0E-09	3.6E-13	1.7E-13	4.E-04	2.E-04	0.001
	Pesticides																
	Aldrin	4.4E-01	ug/kg	1.7E+01	1.7E+01	2.3E-12	1.6E-12	4.E-11	3.E-11	7.E-11	3.0E-05	3.0E-05	6.5E-12	4.3E-12	2.E-07	1.E-07	0.0000004
	Dieldrin	4.7E+00	ug/kg	1.6E+01	1.6E+01	2.4E-11	1.6E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	6.9E-11	4.6E-11	1.E-06	9.E-07	0.000002
	Total DDT	9.4E+01	ug/kg	3.4E-01	3.4E-01	1.5E-10	3.3E-10	5.E-11	1.E-10	2.E-10	5.0E-04	5.0E-04	4.1E-10	9.2E-10	8.E-07	2.E-06	0.000003
Exposure Point Total										2.E-07							0.02
RM 8 SIL	**Metals**																
	Arsenic	5.9E+00	mg/kg	1.5E+00	1.5E+00	9.4E-09	2.1E-08	1.E-08	3.E-08	5.E-08	3.0E-04	3.0E-04	2.6E-08	5.8E-08	9.E-05	2.E-04	0.0003
	Mercury	1.4E-01	mg/kg	--	--	0.0E+00	4.9E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.4E-09	0.E+00	1.E-05	0.00001
	Vanadium	1.2E+02	mg/kg	--	--	0.0E+00	4.3E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.2E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	2.1E+04	ug/kg	--	--	1.1E-07	7.4E-08	--	--	--	3.0E-04	3.0E-04	3.1E-07	2.1E-07	1.E-03	7.E-04	0.002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.4E+02	ug/kg	7.3E-01	7.3E-01	3.7E-09	1.9E-09	3.E-09	1.E-09	4.E-09	--	--	1.0E-08	5.2E-09	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.3E-09	2.E-08	9.E-09	3.E-08	--	--	6.9E-09	3.5E-09	--	--	--
	Benzo(b)fluoranthene	7.0E+02	ug/kg	7.3E-01	7.3E-01	4.8E-09	2.4E-09	3.E-09	2.E-09	5.E-09	--	--	1.3E-08	6.8E-09	--	--	--
	Benzo(k)fluoranthene	3.5E+02	ug/kg	7.3E-02	7.3E-02	2.4E-09	1.2E-09	2.E-10	9.E-11	3.E-10	--	--	6.6E-09	3.4E-09	--	--	--
	Dibenzo(a,h)anthracene	7.1E+01	ug/kg	7.3E+00	7.3E+00	4.9E-10	2.5E-10	4.E-09	2.E-09	5.E-09	--	--	1.4E-09	7.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.1E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	7.3E-10	1.E-09	5.E-10	2.E-09	--	--	4.0E-09	2.0E-09	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	2.1E-10	1.1E-10	--	--	--	2.0E-02	2.0E-02	5.8E-10	3.0E-10	3.E-08	1.E-08	0.00000004

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.1E+04	ug/kg	1.4E-02	1.4E-02	2.2E-07	1.4E-07	3.E-09	2.E-09	5.E-09	2.0E-02	2.0E-02	6.0E-07	4.0E-07	3.E-05	2.E-05	0.0001
	Phenols																
	Pentachlorophenol	3.3E+01	ug/kg	4.0E-01	4.0E-01	4.3E-10	1.1E-10	2.E-10	5.E-11	2.E-10	5.0E-03	5.0E-03	1.2E-09	3.2E-10	2.E-07	6.E-08	0.0000003
	Polychlorinated Biphenyls																
	Total Aroclors	5.3E+02	ug/kg	2.0E+00	2.0E+00	3.9E-09	1.8E-09	8.E-09	4.E-09	1.E-08	2.0E-05	2.0E-05	1.1E-08	5.2E-09	5.E-04	3.E-04	0.001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	1.3E+05	1.3E+05	5.2E-14	1.2E-13	7.E-09	2.E-08	2.E-08	1.0E-09	1.0E-09	1.5E-13	3.2E-13	1.E-04	3.E-04	0.0005
	Total PCB TEQ	8.8E+01	pg/g	1.3E+05	1.3E+05	6.5E-13	3.1E-13	8.E-08	4.E-08	1.E-07	1.0E-09	1.0E-09	1.8E-12	8.6E-13	2.E-03	9.E-04	0.003
	Pesticides																
	Aldrin	3.6E-01	ug/kg	1.7E+01	1.7E+01	1.9E-12	1.2E-12	3.E-11	2.E-11	5.E-11	3.0E-05	3.0E-05	5.2E-12	3.5E-12	2.E-07	1.E-07	0.0000003
	Dieldrin	1.4E+00	ug/kg	1.6E+01	1.6E+01	7.5E-12	5.0E-12	1.E-10	8.E-11	2.E-10	5.0E-05	5.0E-05	2.1E-11	1.4E-11	4.E-07	3.E-07	0.000001
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.9E-11	4.2E-11	6.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	5.3E-11	1.2E-10	1.E-07	2.E-07	0.0000003
Exposure Point Total										3.E-07							0.02
RM 8.5 West	**Metals**																
	Arsenic	1.2E+01	mg/kg	1.5E+00	1.5E+00	1.8E-08	4.1E-08	3.E-08	6.E-08	9.E-08	3.0E-04	3.0E-04	5.1E-08	1.1E-07	2.E-04	4.E-04	0.001
	Mercury	4.7E-01	mg/kg	--	--	0.0E+00	1.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	4.6E-09	0.E+00	5.E-05	0.00005
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.8E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	8.7E-11	5.8E-11	--	--	--	3.0E-04	3.0E-04	2.4E-10	1.6E-10	8.E-07	5.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	6.2E-10	9.E-10	5.E-10	1.E-09	--	--	3.4E-09	1.7E-09	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.5E-09	7.8E-10	1.E-08	6.E-09	2.E-08	--	--	4.3E-09	2.2E-09	--	--	--
	Benzo(b)fluoranthene	1.8E+02	ug/kg	7.3E-01	7.3E-01	1.2E-09	6.4E-10	9.E-10	5.E-10	1.E-09	--	--	3.5E-09	1.8E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	7.7E-10	3.9E-10	6.E-11	3.E-11	8.E-11	--	--	2.1E-09	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	1.7E+01	ug/kg	7.3E+00	7.3E+00	1.1E-10	5.8E-11	8.E-10	4.E-10	1.E-09	--	--	3.2E-10	1.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	7.6E+01	ug/kg	7.3E-01	7.3E-01	5.2E-10	2.6E-10	4.E-10	2.E-10	6.E-10	--	--	1.5E-09	7.4E-10	--	--	--
	Naphthalene	3.7E+01	ug/kg	--	--	2.5E-10	1.3E-10	--	--	--	2.0E-02	2.0E-02	7.0E-10	3.6E-10	4.E-08	2.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.7E+03	ug/kg	1.4E-02	1.4E-02	9.1E-09	6.1E-09	1.E-10	8.E-11	2.E-10	2.0E-02	2.0E-02	2.6E-08	1.7E-08	1.E-06	8.E-07	0.000002
	Phenols																
	Pentachlorophenol	3.9E+00	ug/kg	4.0E-01	4.0E-01	5.1E-11	1.4E-11	2.E-11	5.E-12	3.E-11	5.0E-03	5.0E-03	1.4E-10	3.8E-11	3.E-08	8.E-09	0.00000004
	Polychlorinated Biphenyls																
	Total Aroclors	8.5E+03	ug/kg	2.0E+00	2.0E+00	6.2E-08	3.0E-08	1.E-07	6.E-08	2.E-07	2.0E-05	2.0E-05	1.7E-07	8.3E-08	9.E-03	4.E-03	0.01
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	1.3E+05	1.3E+05	2.9E-14	6.4E-14	4.E-09	8.E-09	1.E-08	1.0E-09	1.0E-09	8.0E-14	1.8E-13	8.E-05	2.E-04	0.0003
	Total PCB TEQ	2.4E+02	pg/g	1.3E+05	1.3E+05	1.8E-12	8.4E-13	2.E-07	1.E-07	3.E-07	1.0E-09	1.0E-09	4.9E-12	2.3E-12	5.E-03	2.E-03	0.01

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Pesticides																
	Aldrin	3.2E+01	ug/kg	1.7E+01	1.7E+01	1.7E-10	1.1E-10	3.E-09	2.E-09	5.E-09	3.0E-05	3.0E-05	4.8E-10	3.2E-10	2.E-05	1.E-05	0.00003
	Dieldrin	3.9E+01	ug/kg	1.6E+01	1.6E+01	2.0E-10	1.3E-10	3.E-09	2.E-09	5.E-09	5.0E-05	5.0E-05	5.7E-10	3.8E-10	1.E-05	8.E-06	0.00002
	Total DDT	2.2E+01	ug/kg	3.4E-01	3.4E-01	3.5E-11	7.7E-11	1.E-11	3.E-11	4.E-11	5.0E-04	5.0E-04	9.8E-11	2.2E-10	2.E-07	4.E-07	0.000001
Exposure Point Total										7.E-07							0.04
RM 8.5 East	**Metals**																
	Arsenic	9.0E+00	mg/kg	1.5E+00	1.5E+00	1.4E-08	3.2E-08	2.E-08	5.E-08	7.E-08	3.0E-04	3.0E-04	4.0E-08	8.9E-08	1.E-04	3.E-04	0.0004
	Mercury	1.8E-01	mg/kg	--	--	0.0E+00	6.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.8E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.7E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	3.1E+01	ug/kg	--	--	1.6E-10	1.1E-10	--	--	--	3.0E-04	3.0E-04	4.5E-10	3.0E-10	1.E-06	1.E-06	0.000002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	9.7E+01	ug/kg	7.3E-01	7.3E-01	6.7E-10	3.4E-10	5.E-10	2.E-10	7.E-10	--	--	1.9E-09	9.5E-10	--	--	--
	Benzo(a)pyrene	1.0E+02	ug/kg	7.3E+00	7.3E+00	6.9E-10	3.5E-10	5.E-09	3.E-09	8.E-09	--	--	1.9E-09	9.9E-10	--	--	--
	Benzo(b)fluoranthene	1.4E+02	ug/kg	7.3E-01	7.3E-01	9.3E-10	4.7E-10	7.E-10	3.E-10	1.E-09	--	--	2.6E-09	1.3E-09	--	--	--
	Benzo(k)fluoranthene	9.8E+01	ug/kg	7.3E-02	7.3E-02	6.7E-10	3.4E-10	5.E-11	2.E-11	7.E-11	--	--	1.9E-09	9.6E-10	--	--	--
	Dibenzo(a,h)anthracene	1.2E+01	ug/kg	7.3E+00	7.3E+00	7.9E-11	4.0E-11	6.E-10	3.E-10	9.E-10	--	--	2.2E-10	1.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	8.0E+01	ug/kg	7.3E-01	7.3E-01	5.5E-10	2.8E-10	4.E-10	2.E-10	6.E-10	--	--	1.5E-09	7.9E-10	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	1.0E-09	5.2E-10	--	--	--	2.0E-02	2.0E-02	2.8E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	9.2E+02	ug/kg	1.4E-02	1.4E-02	4.9E-09	3.2E-09	7.E-11	5.E-11	1.E-10	2.0E-02	2.0E-02	1.4E-08	9.0E-09	7.E-07	5.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	7.2E+01	ug/kg	2.0E+00	2.0E+00	5.3E-10	2.5E-10	1.E-09	5.E-10	2.E-09	2.0E-05	2.0E-05	1.5E-09	7.1E-10	7.E-05	4.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	1.3E+05	1.3E+05	1.5E-15	3.3E-15	2.E-10	4.E-10	6.E-10	1.0E-09	1.0E-09	4.2E-15	9.2E-15	4.E-06	9.E-06	0.00001
	Total PCB TEQ	5.9E-01	pg/g	1.3E+05	1.3E+05	4.4E-15	2.1E-15	6.E-10	3.E-10	8.E-10	1.0E-09	1.0E-09	1.2E-14	5.8E-15	1.E-05	6.E-06	0.00002
	Pesticides																
	Aldrin	4.1E-02	ug/kg	1.7E+01	1.7E+01	2.2E-13	1.4E-13	4.E-12	2.E-12	6.E-12	3.0E-05	3.0E-05	6.1E-13	4.0E-13	2.E-08	1.E-08	0.00000003
	Dieldrin	4.4E-01	ug/kg	1.6E+01	1.6E+01	2.3E-12	1.5E-12	4.E-11	2.E-11	6.E-11	5.0E-05	5.0E-05	6.5E-12	4.3E-12	1.E-07	9.E-08	0.0000002
	Total DDT	2.3E+00	ug/kg	3.4E-01	3.4E-01	3.6E-12	8.0E-12	1.E-12	3.E-12	4.E-12	5.0E-04	5.0E-04	1.0E-11	2.2E-11	2.E-08	4.E-08	0.0000001
Exposure Point Total										8.E-08							0.02
RM 9 West	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	7.8E-09	1.7E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.2E-08	4.9E-08	7.E-05	2.E-04	0.0002
	Mercury	2.3E-01	mg/kg	--	--	0.0E+00	8.2E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.3E-09	0.E+00	2.E-05	0.00002
	Vanadium	1.1E+02	mg/kg	--	--	0.0E+00	3.9E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.1E-06	0.E+00	2.E-02	0.02
	Butyltins																
	Tributyltin ion	1.7E+01	ug/kg	--	--	8.8E-11	5.8E-11	--	--	--	3.0E-04	3.0E-04	2.5E-10	1.6E-10	8.E-07	5.E-07	0.000001

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	1.1E-09	2.E-09	8.E-10	2.E-09	--	--	6.1E-09	3.1E-09	--	--	--
	Benzo(a)pyrene	1.9E+02	ug/kg	7.3E+00	7.3E+00	1.3E-09	6.7E-10	1.E-08	5.E-09	1.E-08	--	--	3.7E-09	1.9E-09	--	--	--
	Benzo(b)fluoranthene	3.0E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	1.1E-09	2.E-09	8.E-10	2.E-09	--	--	5.8E-09	3.0E-09	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	7.8E-10	4.0E-10	6.E-11	3.E-11	9.E-11	--	--	2.2E-09	1.1E-09	--	--	--
	Dibenzo(a,h)anthracene	4.8E+01	ug/kg	7.3E+00	7.3E+00	3.3E-10	1.7E-10	2.E-09	1.E-09	4.E-09	--	--	9.1E-10	4.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	8.1E-10	4.2E-10	6.E-10	3.E-10	9.E-10	--	--	2.3E-09	1.2E-09	--	--	--
	Naphthalene	2.5E+01	ug/kg	--	--	1.7E-10	8.7E-11	--	--	--	2.0E-02	2.0E-02	4.8E-10	2.4E-10	2.E-08	1.E-08	0.00000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	4.4E+02	ug/kg	1.4E-02	1.4E-02	2.3E-09	1.6E-09	3.E-11	2.E-11	5.E-11	2.0E-02	2.0E-02	6.5E-09	4.3E-09	3.E-07	2.E-07	0.000001
	Phenols																
	Pentachlorophenol	4.5E+01	ug/kg	4.0E-01	4.0E-01	5.9E-10	1.6E-10	2.E-10	6.E-11	3.E-10	5.0E-03	5.0E-03	1.7E-09	4.4E-10	3.E-07	9.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	2.3E+03	ug/kg	2.0E+00	2.0E+00	1.7E-08	8.1E-09	3.E-08	2.E-08	5.E-08	2.0E-05	2.0E-05	4.8E-08	2.3E-08	2.E-03	1.E-03	0.004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	1.3E+05	1.3E+05	9.4E-15	2.1E-14	1.E-09	3.E-09	4.E-09	1.0E-09	1.0E-09	2.6E-14	5.8E-14	3.E-05	6.E-05	0.0001
	Total PCB TEQ	3.2E+01	pg/g	1.3E+05	1.3E+05	2.4E-13	1.1E-13	3.E-08	1.E-08	5.E-08	1.0E-09	1.0E-09	6.6E-13	3.1E-13	7.E-04	3.E-04	0.001
	Pesticides																
	Aldrin	1.4E+00	ug/kg	1.7E+01	1.7E+01	7.5E-12	5.0E-12	1.E-10	8.E-11	2.E-10	3.0E-05	3.0E-05	2.1E-11	1.4E-11	7.E-07	5.E-07	0.000001
	Dieldrin	6.3E-01	ug/kg	1.6E+01	1.6E+01	3.3E-12	2.2E-12	5.E-11	4.E-11	9.E-11	5.0E-05	5.0E-05	9.2E-12	6.1E-12	2.E-07	1.E-07	0.0000003
	Total DDT	9.9E+00	ug/kg	3.4E-01	3.4E-01	1.6E-11	3.5E-11	5.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	4.4E-11	9.7E-11	9.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-07							0.02
RM 9 East	**Metals**																
	Arsenic	4.8E+00	mg/kg	1.5E+00	1.5E+00	7.6E-09	1.7E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.1E-08	4.7E-08	7.E-05	2.E-04	0.0002
	Mercury	6.1E-02	mg/kg	--	--	0.0E+00	2.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.0E-10	0.E+00	6.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E+01	ug/kg	7.3E-01	7.3E-01	9.5E-11	4.9E-11	7.E-11	4.E-11	1.E-10	--	--	2.7E-10	1.4E-10	--	--	--
	Benzo(a)pyrene	1.7E+01	ug/kg	7.3E+00	7.3E+00	1.2E-10	6.1E-11	9.E-10	4.E-10	1.E-09	--	--	3.3E-10	1.7E-10	--	--	--
	Benzo(b)fluoranthene	2.4E+01	ug/kg	7.3E-01	7.3E-01	1.6E-10	8.3E-11	1.E-10	6.E-11	2.E-10	--	--	4.5E-10	2.3E-10	--	--	--
	Benzo(k)fluoranthene	1.1E+01	ug/kg	7.3E-02	7.3E-02	7.2E-11	3.7E-11	5.E-12	3.E-12	8.E-12	--	--	2.0E-10	1.0E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	2.0E-11	1.0E-11	1.E-10	7.E-11	2.E-10	--	--	5.6E-11	2.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	9.8E-11	5.0E-11	7.E-11	4.E-11	1.E-10	--	--	2.8E-10	1.4E-10	--	--	--
	Naphthalene	8.9E+00	ug/kg	--	--	6.1E-11	3.1E-11	--	--	--	2.0E-02	2.0E-02	1.7E-10	8.7E-11	9.E-09	4.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.0E+03	ug/kg	1.4E-02	1.4E-02	1.0E-08	6.9E-09	1.E-10	1.E-10	2.E-10	2.0E-02	2.0E-02	2.9E-08	1.9E-08	1.E-06	1.E-06	0.000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.0E+02	ug/kg	2.0E+00	2.0E+00	7.4E-10	3.5E-10	1.E-09	7.E-10	2.E-09	2.0E-05	2.0E-05	2.1E-09	9.8E-10	1.E-04	5.E-05	0.0002

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.3E+05	1.3E+05	3.4E-16	7.5E-16	4.E-11	1.E-10	1.E-10	1.0E-09	1.0E-09	9.5E-16	2.1E-15	1.E-06	2.E-06	0.000003
	Total PCB TEQ	6.3E-01	pg/g	1.3E+05	1.3E+05	4.6E-15	2.2E-15	6.E-10	3.E-10	9.E-10	1.0E-09	1.0E-09	1.3E-14	6.2E-15	1.E-05	6.E-06	0.00002
	Pesticides																
	Dieldrin	2.6E-01	ug/kg	1.6E+01	1.6E+01	1.4E-12	9.1E-13	2.E-11	1.E-11	4.E-11	5.0E-05	5.0E-05	3.8E-12	2.6E-12	8.E-08	5.E-08	0.0000001
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	3.1E-12	6.8E-12	1.E-12	2.E-12	3.E-12	5.0E-04	5.0E-04	8.6E-12	1.9E-11	2.E-08	4.E-08	0.0000001
Exposure Point Total										4.E-08							0.0004
RM 9.5 West	**Metals**																
	Arsenic	4.5E+00	mg/kg	1.5E+00	1.5E+00	7.1E-09	1.6E-08	1.E-08	2.E-08	3.E-08	3.0E-04	3.0E-04	2.0E-08	4.4E-08	7.E-05	1.E-04	0.0002
	Mercury	7.5E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.3E-10	0.E+00	7.E-06	0.00001
	Butyltins																
	Tributyltin ion	1.0E+01	ug/kg	--	--	5.3E-11	3.5E-11	--	--	--	3.0E-04	3.0E-04	1.5E-10	9.8E-11	5.E-07	3.E-07	0.000001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E+02	ug/kg	7.3E-01	7.3E-01	1.7E-09	8.9E-10	1.E-09	7.E-10	2.E-09	--	--	4.9E-09	2.5E-09	--	--	--
	Benzo(a)pyrene	3.6E+02	ug/kg	7.3E+00	7.3E+00	2.5E-09	1.3E-09	2.E-08	9.E-09	3.E-08	--	--	6.9E-09	3.5E-09	--	--	--
	Benzo(b)fluoranthene	5.3E+02	ug/kg	7.3E-01	7.3E-01	3.6E-09	1.8E-09	3.E-09	1.E-09	4.E-09	--	--	1.0E-08	5.2E-09	--	--	--
	Benzo(k)fluoranthene	2.4E+02	ug/kg	7.3E-02	7.3E-02	1.6E-09	8.3E-10	1.E-10	6.E-11	2.E-10	--	--	4.5E-09	2.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.3E+02	ug/kg	7.3E+00	7.3E+00	8.9E-10	4.5E-10	6.E-09	3.E-09	1.E-08	--	--	2.5E-09	1.3E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	2.0E-09	1.0E-09	1.E-09	8.E-10	2.E-09	--	--	5.7E-09	2.9E-09	--	--	--
	Naphthalene	2.2E+02	ug/kg	--	--	1.5E-09	7.8E-10	--	--	--	2.0E-02	2.0E-02	4.3E-09	2.2E-09	2.E-07	1.E-07	0.0000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.4E+03	ug/kg	1.4E-02	1.4E-02	1.2E-08	8.2E-09	2.E-10	1.E-10	3.E-10	2.0E-02	2.0E-02	3.5E-08	2.3E-08	2.E-06	1.E-06	0.000003
	Phenols																
	Pentachlorophenol	9.8E+01	ug/kg	4.0E-01	4.0E-01	1.3E-09	3.4E-10	5.E-10	1.E-10	7.E-10	5.0E-03	5.0E-03	3.6E-09	9.6E-10	7.E-07	2.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.0E+02	ug/kg	2.0E+00	2.0E+00	2.2E-09	1.1E-09	4.E-09	2.E-09	7.E-09	2.0E-05	2.0E-05	6.2E-09	2.9E-09	3.E-04	1.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	2.6E-14	5.8E-14	3.E-09	8.E-09	1.E-08	1.0E-09	1.0E-09	7.3E-14	1.6E-13	7.E-05	2.E-04	0.0002
	Total PCB TEQ	4.8E+00	pg/g	1.3E+05	1.3E+05	3.5E-14	1.7E-14	5.E-09	2.E-09	7.E-09	1.0E-09	1.0E-09	9.9E-14	4.7E-14	1.E-04	5.E-05	0.0001
	Pesticides																
	Aldrin	2.8E+00	ug/kg	1.7E+01	1.7E+01	1.5E-11	9.7E-12	2.E-10	2.E-10	4.E-10	3.0E-05	3.0E-05	4.1E-11	2.7E-11	1.E-06	9.E-07	0.000002
	Dieldrin	4.9E+00	ug/kg	1.6E+01	1.6E+01	2.6E-11	1.7E-11	4.E-10	3.E-10	7.E-10	5.0E-05	5.0E-05	7.1E-11	4.7E-11	1.E-06	9.E-07	0.000002
	Total DDT	4.5E+00	ug/kg	3.4E-01	3.4E-01	7.1E-12	1.6E-11	2.E-12	5.E-12	8.E-12	5.0E-04	5.0E-04	2.0E-11	4.4E-11	4.E-08	9.E-08	0.0000001
Exposure Point Total										1.E-07							0.001
RM 9.5 East	**Metals**																
	Arsenic	3.7E+00	mg/kg	1.5E+00	1.5E+00	5.8E-09	1.3E-08	9.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.6E-08	3.6E-08	5.E-05	1.E-04	0.0002
	Mercury	1.2E-01	mg/kg	--	--	0.0E+00	4.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.2E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	3.6E+00	ug/kg	--	--	1.9E-11	1.3E-11	--	--	--	3.0E-04	3.0E-04	5.3E-11	3.5E-11	2.E-07	1.E-07	0.0000003

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E+01	ug/kg	7.3E-01	7.3E-01	2.1E-10	1.1E-10	2.E-10	8.E-11	2.E-10	--	--	5.8E-10	2.9E-10	--	--	--
	Benzo(a)pyrene	3.4E+01	ug/kg	7.3E+00	7.3E+00	2.4E-10	1.2E-10	2.E-09	9.E-10	3.E-09	--	--	6.6E-10	3.4E-10	--	--	--
	Benzo(b)fluoranthene	4.0E+01	ug/kg	7.3E-01	7.3E-01	2.7E-10	1.4E-10	2.E-10	1.E-10	3.E-10	--	--	7.6E-10	3.9E-10	--	--	--
	Benzo(k)fluoranthene	2.4E+01	ug/kg	7.3E-02	7.3E-02	1.6E-10	8.4E-11	1.E-11	6.E-12	2.E-11	--	--	4.6E-10	2.3E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	6.3E-11	3.2E-11	5.E-10	2.E-10	7.E-10	--	--	1.8E-10	9.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.9E-10	9.5E-11	1.E-10	7.E-11	2.E-10	--	--	5.2E-10	2.7E-10	--	--	--
	Naphthalene	4.8E+00	ug/kg	--	--	3.3E-11	1.7E-11	--	--	--	2.0E-02	2.0E-02	9.2E-11	4.7E-11	5.E-09	2.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.6E+02	ug/kg	1.4E-02	1.4E-02	1.4E-09	9.0E-10	2.E-11	1.E-11	3.E-11	2.0E-02	2.0E-02	3.8E-09	2.5E-09	2.E-07	1.E-07	0.0000003
	Phenols																
	Pentachlorophenol	3.4E+00	ug/kg	4.0E-01	4.0E-01	4.5E-11	1.2E-11	2.E-11	5.E-12	2.E-11	5.0E-03	5.0E-03	1.3E-10	3.3E-11	3.E-08	7.E-09	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	5.6E+01	ug/kg	2.0E+00	2.0E+00	4.1E-10	2.0E-10	8.E-10	4.E-10	1.E-09	2.0E-05	2.0E-05	1.2E-09	5.5E-10	6.E-05	3.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	1.3E+05	1.3E+05	1.8E-15	4.0E-15	2.E-10	5.E-10	8.E-10	1.0E-09	1.0E-09	5.1E-15	1.1E-14	5.E-06	1.E-05	0.00002
	Total PCB TEQ	3.3E-01	pg/g	1.3E+05	1.3E+05	2.4E-15	1.1E-15	3.E-10	1.E-10	5.E-10	1.0E-09	1.0E-09	6.7E-15	3.2E-15	7.E-06	3.E-06	0.00001
	Pesticides																
	Aldrin	4.7E-01	ug/kg	1.7E+01	1.7E+01	2.5E-12	1.6E-12	4.E-11	3.E-11	7.E-11	3.0E-05	3.0E-05	6.9E-12	4.6E-12	2.E-07	2.E-07	0.0000004
	Dieldrin	4.3E-02	ug/kg	1.6E+01	1.6E+01	2.3E-13	1.5E-13	4.E-12	2.E-12	6.E-12	5.0E-05	5.0E-05	6.3E-13	4.2E-13	1.E-08	8.E-09	0.00000002
	Total DDT	1.6E+00	ug/kg	3.4E-01	3.4E-01	2.5E-12	5.4E-12	8.E-13	2.E-12	3.E-12	5.0E-04	5.0E-04	6.9E-12	1.5E-11	1.E-08	3.E-08	0.00000004
Exposure Point Total										3.E-08							0.0003
RM 10 West	**Metals**																
	Arsenic	2.9E+01	mg/kg	1.5E+00	1.5E+00	4.6E-08	1.0E-07	7.E-08	2.E-07	2.E-07	3.0E-04	3.0E-04	1.3E-07	2.8E-07	4.E-04	9.E-04	0.001
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	3.4E+00	ug/kg	--	--	1.8E-11	1.2E-11	--	--	--	3.0E-04	3.0E-04	5.0E-11	3.3E-11	2.E-07	1.E-07	0.0000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.2E+02	ug/kg	7.3E-01	7.3E-01	2.2E-09	1.1E-09	2.E-09	8.E-10	2.E-09	--	--	6.2E-09	3.1E-09	--	--	--
	Benzo(a)pyrene	3.4E+02	ug/kg	7.3E+00	7.3E+00	2.3E-09	1.2E-09	2.E-08	9.E-09	3.E-08	--	--	6.5E-09	3.3E-09	--	--	--
	Benzo(b)fluoranthene	4.3E+02	ug/kg	7.3E-01	7.3E-01	3.0E-09	1.5E-09	2.E-09	1.E-09	3.E-09	--	--	8.3E-09	4.2E-09	--	--	--
	Benzo(k)fluoranthene	1.8E+02	ug/kg	7.3E-02	7.3E-02	1.3E-09	6.4E-10	9.E-11	5.E-11	1.E-10	--	--	3.5E-09	1.8E-09	--	--	--
	Dibenzo(a,h)anthracene	7.5E+01	ug/kg	7.3E+00	7.3E+00	5.1E-10	2.6E-10	4.E-09	2.E-09	6.E-09	--	--	1.4E-09	7.3E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	3.0E+02	ug/kg	7.3E-01	7.3E-01	2.1E-09	1.1E-09	2.E-09	8.E-10	2.E-09	--	--	5.8E-09	3.0E-09	--	--	--
	Naphthalene	5.9E+01	ug/kg	--	--	4.0E-10	2.0E-10	--	--	--	2.0E-02	2.0E-02	1.1E-09	5.7E-10	6.E-08	3.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+02	ug/kg	1.4E-02	1.4E-02	9.6E-10	6.4E-10	1.E-11	9.E-12	2.E-11	2.0E-02	2.0E-02	2.7E-09	1.8E-09	1.E-07	9.E-08	0.0000002

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phenols																
	Pentachlorophenol	7.5E+00	ug/kg	4.0E-01	4.0E-01	9.9E-11	2.6E-11	4.E-11	1.E-11	5.E-11	5.0E-03	5.0E-03	2.8E-10	7.3E-11	6.E-08	1.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	4.4E+02	ug/kg	2.0E+00	2.0E+00	3.3E-09	1.5E-09	7.E-09	3.E-09	1.E-08	2.0E-05	2.0E-05	9.1E-09	4.3E-09	5.E-04	2.E-04	0.0007
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	1.3E+05	1.3E+05	1.6E-14	3.5E-14	2.E-09	4.E-09	7.E-09	1.0E-09	1.0E-09	4.4E-14	9.7E-14	4.E-05	1.E-04	0.0001
	Total PCB TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	2.2E-14	1.0E-14	3.E-09	1.E-09	4.E-09	1.0E-09	1.0E-09	6.1E-14	2.9E-14	6.E-05	3.E-05	0.0001
	Pesticides																
	Aldrin	5.0E-01	ug/kg	1.7E+01	1.7E+01	2.7E-12	1.8E-12	5.E-11	3.E-11	8.E-11	3.0E-05	3.0E-05	7.4E-12	4.9E-12	2.E-07	2.E-07	0.0000004
	Total DDT	6.7E+00	ug/kg	3.4E-01	3.4E-01	1.1E-11	2.3E-11	4.E-12	8.E-12	1.E-11	5.0E-04	5.0E-04	3.0E-11	6.5E-11	6.E-08	1.E-07	0.0000002
Exposure Point Total										3.E-07							0.002
RM 10 East	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	5.5E-09	1.2E-08	8.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.5E-08	3.4E-08	5.E-05	1.E-04	0.0002
	Mercury	9.0E-02	mg/kg	--	--	0.0E+00	3.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	8.8E-10	0.E+00	9.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.7E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	9.6E-10	1.E-09	7.E-10	2.E-09	--	--	5.2E-09	2.7E-09	--	--	--
	Benzo(a)pyrene	3.5E+02	ug/kg	7.3E+00	7.3E+00	2.4E-09	1.2E-09	2.E-08	9.E-09	3.E-08	--	--	6.7E-09	3.4E-09	--	--	--
	Benzo(b)fluoranthene	4.0E+02	ug/kg	7.3E-01	7.3E-01	2.8E-09	1.4E-09	2.E-09	1.E-09	3.E-09	--	--	7.7E-09	3.9E-09	--	--	--
	Benzo(k)fluoranthene	1.0E+02	ug/kg	7.3E-02	7.3E-02	7.0E-10	3.6E-10	5.E-11	3.E-11	8.E-11	--	--	2.0E-09	1.0E-09	--	--	--
	Dibenzo(a,h)anthracene	5.2E+01	ug/kg	7.3E+00	7.3E+00	3.6E-10	1.8E-10	3.E-09	1.E-09	4.E-09	--	--	1.0E-09	5.1E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E+02	ug/kg	7.3E-01	7.3E-01	1.9E-09	9.7E-10	1.E-09	7.E-10	2.E-09	--	--	5.3E-09	2.7E-09	--	--	--
	Naphthalene	2.2E+01	ug/kg	--	--	1.5E-10	7.8E-11	--	--	--	2.0E-02	2.0E-02	4.3E-10	2.2E-10	2.E-08	1.E-08	0.00000003
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	1.0E-09	6.7E-10	1.E-11	9.E-12	2.E-11	2.0E-02	2.0E-02	2.8E-09	1.9E-09	1.E-07	9.E-08	0.0000002
	Phenols																
	Pentachlorophenol	3.3E+00	ug/kg	4.0E-01	4.0E-01	4.3E-11	1.2E-11	2.E-11	5.E-12	2.E-11	5.0E-03	5.0E-03	1.2E-10	3.2E-11	2.E-08	6.E-09	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	4.8E+01	ug/kg	2.0E+00	2.0E+00	3.6E-10	1.7E-10	7.E-10	3.E-10	1.E-09	2.0E-05	2.0E-05	9.9E-10	4.7E-10	5.E-05	2.E-05	0.0001
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	1.3E+05	8.6E-16	1.9E-15	1.E-10	2.E-10	4.E-10	1.0E-09	1.0E-09	2.4E-15	5.3E-15	2.E-06	5.E-06	0.00001
	Total PCB TEQ	8.0E-01	pg/g	1.3E+05	1.3E+05	5.9E-15	2.8E-15	8.E-10	4.E-10	1.E-09	1.0E-09	1.0E-09	1.7E-14	7.9E-15	2.E-05	8.E-06	0.00002
	Pesticides																
	Aldrin	8.3E-02	ug/kg	1.7E+01	1.7E+01	4.4E-13	2.9E-13	7.E-12	5.E-12	1.E-11	3.0E-05	3.0E-05	1.2E-12	8.1E-13	4.E-08	3.E-08	0.0000001
	Dieldrin	9.4E-02	ug/kg	1.6E+01	1.6E+01	4.9E-13	3.3E-13	8.E-12	5.E-12	1.E-11	5.0E-05	5.0E-05	1.4E-12	9.2E-13	3.E-08	2.E-08	0.00000005
	Total DDT	7.7E-01	ug/kg	3.4E-01	3.4E-01	1.2E-12	2.7E-12	4.E-13	9.E-13	1.E-12	5.0E-04	5.0E-04	3.4E-12	7.6E-12	7.E-09	2.E-08	0.00000002
Exposure Point Total										7.E-08							0.0003
RM 10.5 West	**Metals**																
	Arsenic	4.7E+00	mg/kg	1.5E+00	1.5E+00	7.4E-09	1.6E-08	1.E-08	2.E-08	4.E-08	3.0E-04	3.0E-04	2.1E-08	4.6E-08	7.E-05	2.E-04	0.0002
	Mercury	7.7E-02	mg/kg	--	--	0.0E+00	2.7E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.5E-10	0.E+00	8.E-06	0.00001

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E+01	ug/kg	7.3E-01	7.3E-01	4.2E-10	2.1E-10	3.E-10	2.E-10	5.E-10	--	--	1.2E-09	5.9E-10	--	--	--
	Benzo(a)pyrene	4.8E+01	ug/kg	7.3E+00	7.3E+00	3.3E-10	1.7E-10	2.E-09	1.E-09	4.E-09	--	--	9.2E-10	4.7E-10	--	--	--
	Benzo(b)fluoranthene	6.8E+01	ug/kg	7.3E-01	7.3E-01	4.6E-10	2.4E-10	3.E-10	2.E-10	5.E-10	--	--	1.3E-09	6.6E-10	--	--	--
	Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	7.3E-02	1.4E-10	7.1E-11	1.E-11	5.E-12	2.E-11	--	--	3.9E-10	2.0E-10	--	--	--
	Dibenzo(a,h)anthracene	7.9E+00	ug/kg	7.3E+00	7.3E+00	5.4E-11	2.8E-11	4.E-10	2.E-10	6.E-10	--	--	1.5E-10	7.7E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.7E+01	ug/kg	7.3E-01	7.3E-01	2.6E-10	1.3E-10	2.E-10	1.E-10	3.E-10	--	--	7.2E-10	3.7E-10	--	--	--
	Naphthalene	2.6E+02	ug/kg	--	--	1.8E-09	9.1E-10	--	--	--	2.0E-02	2.0E-02	5.0E-09	2.5E-09	2.E-07	1.E-07	0.0000004
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.5E+02	ug/kg	1.4E-02	1.4E-02	1.3E-09	8.6E-10	2.E-11	1.E-11	3.E-11	2.0E-02	2.0E-02	3.6E-09	2.4E-09	2.E-07	1.E-07	0.0000003
	Phenols																
	Pentachlorophenol	3.8E+01	ug/kg	4.0E-01	4.0E-01	5.0E-10	1.3E-10	2.E-10	5.E-11	3.E-10	5.0E-03	5.0E-03	1.4E-09	3.7E-10	3.E-07	7.E-08	0.0000004
	Polychlorinated Biphenyls																
	Total Aroclors	3.9E+01	ug/kg	2.0E+00	2.0E+00	2.9E-10	1.4E-10	6.E-10	3.E-10	8.E-10	2.0E-05	2.0E-05	8.0E-10	3.8E-10	4.E-05	2.E-05	0.0001
	Dioxin/Furan																
	Total PCB TEQ	6.9E-01	pg/g	1.3E+05	1.3E+05	5.1E-15	2.4E-15	7.E-10	3.E-10	1.E-09	1.0E-09	1.0E-09	1.4E-14	6.7E-15	1.E-05	7.E-06	0.00002
	Pesticides																
	Aldrin	9.3E-01	ug/kg	1.7E+01	1.7E+01	4.9E-12	3.2E-12	8.E-11	6.E-11	1.E-10	3.0E-05	3.0E-05	1.4E-11	9.1E-12	5.E-07	3.E-07	0.000001
	Total DDT	2.7E+00	ug/kg	3.4E-01	3.4E-01	4.2E-12	9.3E-12	1.E-12	3.E-12	5.E-12	5.0E-04	5.0E-04	1.2E-11	2.6E-11	2.E-08	5.E-08	0.0000001
Exposure Point Total										4.E-08							0.0003
RM 10.5 East	**Metals**																
	Arsenic	3.3E+00	mg/kg	1.5E+00	1.5E+00	5.3E-09	1.2E-08	8.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.5E-08	3.3E-08	5.E-05	1.E-04	0.0002
	Mercury	7.4E-02	mg/kg	--	--	0.0E+00	2.6E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.2E-10	0.E+00	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.0E+02	ug/kg	7.3E-01	7.3E-01	6.9E-10	3.5E-10	5.E-10	3.E-10	8.E-10	--	--	1.9E-09	9.9E-10	--	--	--
	Benzo(a)pyrene	7.1E+01	ug/kg	7.3E+00	7.3E+00	4.8E-10	2.5E-10	4.E-09	2.E-09	5.E-09	--	--	1.4E-09	6.9E-10	--	--	--
	Benzo(b)fluoranthene	1.1E+02	ug/kg	7.3E-01	7.3E-01	7.6E-10	3.9E-10	6.E-10	3.E-10	8.E-10	--	--	2.1E-09	1.1E-09	--	--	--
	Benzo(k)fluoranthene	7.2E+01	ug/kg	7.3E-02	7.3E-02	4.9E-10	2.5E-10	4.E-11	2.E-11	5.E-11	--	--	1.4E-09	7.0E-10	--	--	--
	Dibenzo(a,h)anthracene	9.2E+00	ug/kg	7.3E+00	7.3E+00	6.3E-11	3.2E-11	5.E-10	2.E-10	7.E-10	--	--	1.8E-10	9.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.7E+01	ug/kg	7.3E-01	7.3E-01	3.2E-10	1.6E-10	2.E-10	1.E-10	4.E-10	--	--	8.9E-10	4.6E-10	--	--	--
	Naphthalene	5.2E+00	ug/kg	--	--	3.6E-11	1.8E-11	--	--	--	2.0E-02	2.0E-02	1.0E-10	5.1E-11	5.E-09	3.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.1E+02	ug/kg	1.4E-02	1.4E-02	5.8E-10	3.8E-10	8.E-12	5.E-12	1.E-11	2.0E-02	2.0E-02	1.6E-09	1.1E-09	8.E-08	5.E-08	0.0000001
	Phenols																
	Pentachlorophenol	1.1E+01	ug/kg	4.0E-01	4.0E-01	1.4E-10	3.8E-11	6.E-11	2.E-11	7.E-11	5.0E-03	5.0E-03	4.1E-10	1.1E-10	8.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	1.5E+02	ug/kg	2.0E+00	2.0E+00	1.1E-09	5.4E-10	2.E-09	1.E-09	3.E-09	2.0E-05	2.0E-05	3.2E-09	1.5E-09	2.E-04	8.E-05	0.0002

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total PCB TEQ	3.9E-01	pg/g	1.3E+05	1.3E+05	2.9E-15	1.4E-15	4.E-10	2.E-10	5.E-10	1.0E-09	1.0E-09	8.0E-15	3.8E-15	8.E-06	4.E-06	0.00001
	Pesticides																
	Total DDT	1.2E+01	ug/kg	3.4E-01	3.4E-01	1.9E-11	4.2E-11	6.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	5.3E-11	1.2E-10	1.E-07	2.E-07	0.0000003
Exposure Point Total										4.E-08							0.0004
RM 11 West	**Metals**																
	Arsenic	3.6E+00	mg/kg	1.5E+00	1.5E+00	5.7E-09	1.3E-08	9.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.6E-08	3.6E-08	5.E-05	1.E-04	0.0002
	Mercury	6.9E-02	mg/kg	--	--	0.0E+00	2.4E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.7E-10	0.E+00	7.E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E+02	ug/kg	7.3E-01	7.3E-01	1.4E-09	6.9E-10	1.E-09	5.E-10	2.E-09	--	--	3.8E-09	1.9E-09	--	--	--
	Benzo(a)pyrene	2.2E+02	ug/kg	7.3E+00	7.3E+00	1.5E-09	7.6E-10	1.E-08	6.E-09	2.E-08	--	--	4.2E-09	2.1E-09	--	--	--
	Benzo(b)fluoranthene	1.0E+02	ug/kg	7.3E-01	7.3E-01	6.9E-10	3.5E-10	5.E-10	3.E-10	8.E-10	--	--	1.9E-09	9.9E-10	--	--	--
	Benzo(k)fluoranthene	1.1E+02	ug/kg	7.3E-02	7.3E-02	7.2E-10	3.7E-10	5.E-11	3.E-11	8.E-11	--	--	2.0E-09	1.0E-09	--	--	--
	Dibenzo(a,h)anthracene	2.7E+01	ug/kg	7.3E+00	7.3E+00	1.8E-10	9.4E-11	1.E-09	7.E-10	2.E-09	--	--	5.1E-10	2.6E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E+02	ug/kg	7.3E-01	7.3E-01	8.0E-10	4.1E-10	6.E-10	3.E-10	9.E-10	--	--	2.2E-09	1.1E-09	--	--	--
	Naphthalene	3.2E+02	ug/kg	--	--	2.2E-09	1.1E-09	--	--	--	2.0E-02	2.0E-02	6.1E-09	3.1E-09	3.E-07	2.E-07	0.0000005
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.0E+03	ug/kg	1.4E-02	1.4E-02	5.4E-09	3.6E-09	8.E-11	5.E-11	1.E-10	2.0E-02	2.0E-02	1.5E-08	1.0E-08	8.E-07	5.E-07	0.000001
	Phenols																
	Pentachlorophenol	3.1E+00	ug/kg	4.0E-01	4.0E-01	4.1E-11	1.1E-11	2.E-11	4.E-12	2.E-11	5.0E-03	5.0E-03	1.1E-10	3.0E-11	2.E-08	6.E-09	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	3.5E+01	ug/kg	2.0E+00	2.0E+00	2.5E-10	1.2E-10	5.E-10	2.E-10	8.E-10	2.0E-05	2.0E-05	7.1E-10	3.4E-10	4.E-05	2.E-05	0.0001
	Pesticides																
	Dieldrin	2.5E+00	ug/kg	1.6E+01	1.6E+01	1.3E-11	8.7E-12	2.E-10	1.E-10	4.E-10	5.0E-05	5.0E-05	3.7E-11	2.4E-11	7.E-07	5.E-07	0.000001
	Total DDT	2.1E+00	ug/kg	3.4E-01	3.4E-01	3.3E-12	7.3E-12	1.E-12	2.E-12	4.E-12	5.0E-04	5.0E-04	9.2E-12	2.0E-11	2.E-08	4.E-08	0.0000001
Exposure Point Total										5.E-08							0.0002
RM 11 East	**Metals**																
	Arsenic	3.2E+00	mg/kg	1.5E+00	1.5E+00	5.1E-09	1.1E-08	8.E-09	2.E-08	2.E-08	3.0E-04	3.0E-04	1.4E-08	3.1E-08	5.E-05	1.E-04	0.0002
	Mercury	1.1E-01	mg/kg	--	--	0.0E+00	3.8E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	1.1E-09	0.E+00	1.E-05	0.00001
	Butyltins																
	Tributyltin ion	5.8E+00	ug/kg	--	--	3.1E-11	2.0E-11	--	--	--	3.0E-04	3.0E-04	8.5E-11	5.7E-11	3.E-07	2.E-07	0.0000005
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+02	ug/kg	7.3E-01	7.3E-01	1.1E-09	5.6E-10	8.E-10	4.E-10	1.E-09	--	--	3.0E-09	1.6E-09	--	--	--
	Benzo(a)pyrene	1.2E+02	ug/kg	7.3E+00	7.3E+00	8.2E-10	4.2E-10	6.E-09	3.E-09	9.E-09	--	--	2.3E-09	1.2E-09	--	--	--
	Benzo(b)fluoranthene	2.5E+02	ug/kg	7.3E-01	7.3E-01	1.7E-09	8.7E-10	1.E-09	6.E-10	2.E-09	--	--	4.8E-09	2.4E-09	--	--	--
	Benzo(k)fluoranthene	9.4E+01	ug/kg	7.3E-02	7.3E-02	6.4E-10	3.3E-10	5.E-11	2.E-11	7.E-11	--	--	1.8E-09	9.2E-10	--	--	--
	Dibenzo(a,h)anthracene	2.0E+01	ug/kg	7.3E+00	7.3E+00	1.4E-10	7.0E-11	1.E-09	5.E-10	2.E-09	--	--	3.8E-10	2.0E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.3E+01	ug/kg	7.3E-01	7.3E-01	3.6E-10	1.9E-10	3.E-10	1.E-10	4.E-10	--	--	1.0E-09	5.2E-10	--	--	--
	Naphthalene	3.0E+01	ug/kg	--	--	2.1E-10	1.0E-10	--	--	--	2.0E-02	2.0E-02	5.7E-10	2.9E-10	3.E-08	1.E-08	0.00000004

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.4E-02	7.4E-10	4.9E-10	1.E-11	7.E-12	2.E-11	2.0E-02	2.0E-02	2.1E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phenols																
	Pentachlorophenol	8.7E+00	ug/kg	4.0E-01	4.0E-01	1.1E-10	3.0E-11	5.E-11	1.E-11	6.E-11	5.0E-03	5.0E-03	3.2E-10	8.5E-11	6.E-08	2.E-08	0.0000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.8E+03	ug/kg	2.0E+00	2.0E+00	2.8E-08	1.3E-08	6.E-08	3.E-08	8.E-08	2.0E-05	2.0E-05	7.9E-08	3.8E-08	4.E-03	2.E-03	0.006
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	1.3E+05	1.3E+05	4.8E-15	1.1E-14	6.E-10	1.E-09	2.E-09	1.0E-09	1.0E-09	1.3E-14	2.9E-14	1.E-05	3.E-05	0.0000
	Total PCB TEQ	3.1E+01	pg/g	1.3E+05	1.3E+05	2.3E-13	1.1E-13	3.E-08	1.E-08	4.E-08	1.0E-09	1.0E-09	6.4E-13	3.0E-13	6.E-04	3.E-04	0.0009
	Pesticides																
	Total DDT	3.8E+02	ug/kg	3.4E-01	3.4E-01	6.0E-10	1.3E-09	2.E-10	5.E-10	7.E-10	5.0E-04	5.0E-04	1.7E-09	3.7E-09	3.E-06	7.E-06	0.00001
Exposure Point Total										2.E-07							0.007
RM 11.5 West	**Metals**																
	Arsenic	3.5E+00	mg/kg	1.5E+00	1.5E+00	5.5E-09	1.2E-08	8.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.6E-08	3.4E-08	5.E-05	1.E-04	0.0002
	Mercury	3.1E-02	mg/kg	--	--	0.0E+00	1.1E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	3.0E-10	0.E+00	3.E-06	0.000003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E+01	ug/kg	7.3E-01	7.3E-01	1.1E-10	5.6E-11	8.E-11	4.E-11	1.E-10	--	--	3.1E-10	1.6E-10	--	--	--
	Benzo(a)pyrene	1.8E+01	ug/kg	7.3E+00	7.3E+00	1.2E-10	6.3E-11	9.E-10	5.E-10	1.E-09	--	--	3.4E-10	1.8E-10	--	--	--
	Benzo(b)fluoranthene	1.7E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	5.9E-11	8.E-11	4.E-11	1.E-10	--	--	3.3E-10	1.7E-10	--	--	--
	Benzo(k)fluoranthene	1.4E+01	ug/kg	7.3E-02	7.3E-02	9.6E-11	4.9E-11	7.E-12	4.E-12	1.E-11	--	--	2.7E-10	1.4E-10	--	--	--
	Dibenzo(a,h)anthracene	2.9E+00	ug/kg	7.3E+00	7.3E+00	2.0E-11	1.0E-11	1.E-10	7.E-11	2.E-10	--	--	5.6E-11	2.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E+01	ug/kg	7.3E-01	7.3E-01	9.6E-11	4.9E-11	7.E-11	4.E-11	1.E-10	--	--	2.7E-10	1.4E-10	--	--	--
	Naphthalene	6.4E+00	ug/kg	--	--	4.4E-11	2.2E-11	--	--	--	2.0E-02	2.0E-02	1.2E-10	6.3E-11	6.E-09	3.E-09	0.00000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	5.2E+02	ug/kg	1.4E-02	1.4E-02	2.7E-09	1.8E-09	4.E-11	3.E-11	6.E-11	2.0E-02	2.0E-02	7.7E-09	5.1E-09	4.E-07	3.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	2.4E+01	ug/kg	2.0E+00	2.0E+00	1.8E-10	8.3E-11	4.E-10	2.E-10	5.E-10	2.0E-05	2.0E-05	4.9E-10	2.3E-10	2.E-05	1.E-05	0.00004
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	1.3E+05	1.3E+05	2.8E-16	6.2E-16	4.E-11	8.E-11	1.E-10	1.0E-09	1.0E-09	7.8E-16	1.7E-15	8.E-07	2.E-06	0.000003
	Total PCB TEQ	2.9E-01	pg/g	1.3E+05	1.3E+05	2.2E-15	1.0E-15	3.E-10	1.E-10	4.E-10	1.0E-09	1.0E-09	6.1E-15	2.9E-15	6.E-06	3.E-06	0.00001
	Pesticides																
	Dieldrin	9.0E-02	ug/kg	1.6E+01	1.6E+01	4.7E-13	3.1E-13	8.E-12	5.E-12	1.E-11	5.0E-05	5.0E-05	1.3E-12	8.8E-13	3.E-08	2.E-08	0.00000004
	Total DDT	1.9E+00	ug/kg	3.4E-01	3.4E-01	3.0E-12	6.7E-12	1.E-12	2.E-12	3.E-12	5.0E-04	5.0E-04	8.5E-12	1.9E-11	2.E-08	4.E-08	0.0000001
Exposure Point Total										3.E-08							0.0002
RM 12 West	**Metals**																
	Arsenic	3.9E+00	mg/kg	1.5E+00	1.5E+00	6.1E-09	1.3E-08	9.E-09	2.E-08	3.E-08	3.0E-04	3.0E-04	1.7E-08	3.8E-08	6.E-05	1.E-04	0.0002
	Mercury	7.4E-01	mg/kg	--	--	0.0E+00	2.6E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	7.2E-09	0.E+00	7.E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E+03	ug/kg	7.3E-01	7.3E-01	7.6E-09	3.9E-09	6.E-09	3.E-09	8.E-09	--	--	2.1E-08	1.1E-08	--	--	--
	Benzo(a)pyrene	1.8E+03	ug/kg	7.3E+00	7.3E+00	1.2E-08	6.3E-09	9.E-08	5.E-08	1.E-07	--	--	3.5E-08	1.8E-08	--	--	--

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Benzo(b)fluoranthene	1.4E+03	ug/kg	7.3E-01	7.3E-01	9.7E-09	5.0E-09	7.E-09	4.E-09	1.E-08	--	--	2.7E-08	1.4E-08	--	--	--
	Benzo(k)fluoranthene	5.9E+02	ug/kg	7.3E-02	7.3E-02	4.1E-09	2.1E-09	3.E-10	2.E-10	4.E-10	--	--	1.1E-08	5.8E-09	--	--	--
	Dibenzo(a,h)anthracene	2.1E+02	ug/kg	7.3E+00	7.3E+00	1.4E-09	7.3E-10	1.E-08	5.E-09	2.E-08	--	--	4.0E-09	2.1E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	1.5E+03	ug/kg	7.3E-01	7.3E-01	1.0E-08	5.1E-09	7.E-09	4.E-09	1.E-08	--	--	2.8E-08	1.4E-08	--	--	--
	Naphthalene	1.5E+02	ug/kg	--	--	1.0E-09	5.2E-10	--	--	--	2.0E-02	2.0E-02	2.8E-09	1.4E-09	1.E-07	7.E-08	0.0000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.9E+02	ug/kg	1.4E-02	1.4E-02	1.0E-09	6.6E-10	1.E-11	9.E-12	2.E-11	2.0E-02	2.0E-02	2.8E-09	1.9E-09	1.E-07	9.E-08	0.0000002
	Phenols																
	Pentachlorophenol	2.0E+01	ug/kg	4.0E-01	4.0E-01	2.6E-10	7.0E-11	1.E-10	3.E-11	1.E-10	5.0E-03	5.0E-03	7.4E-10	2.0E-10	1.E-07	4.E-08	0.0000002
	Polychlorinated Biphenyls																
	Total Aroclors	1.2E+02	ug/kg	2.0E+00	2.0E+00	8.9E-10	4.2E-10	2.E-09	8.E-10	3.E-09	2.0E-05	2.0E-05	2.5E-09	1.2E-09	1.E-04	6.E-05	0.0002
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	1.3E+05	1.3E+05	2.6E-16	5.8E-16	3.E-11	8.E-11	1.E-10	1.0E-09	1.0E-09	7.3E-16	1.6E-15	7.E-07	2.E-06	0.000002
	Total PCB TEQ	4.5E-01	pg/g	1.3E+05	1.3E+05	3.3E-15	1.6E-15	4.E-10	2.E-10	6.E-10	1.0E-09	1.0E-09	9.3E-15	4.4E-15	9.E-06	4.E-06	0.00001
	Pesticides																
	Aldrin	7.0E-01	ug/kg	1.7E+01	1.7E+01	3.7E-12	2.4E-12	6.E-11	4.E-11	1.E-10	3.0E-05	3.0E-05	1.0E-11	6.8E-12	3.E-07	2.E-07	0.000001
	Total DDT	9.5E+00	ug/kg	3.4E-01	3.4E-01	1.5E-11	3.3E-11	5.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	4.2E-11	9.3E-11	8.E-08	2.E-07	0.0000003
Exposure Point Total										2.E-07							0.0005
RM 12 East	**Metals**																
	Arsenic	2.6E+00	mg/kg	1.5E+00	1.5E+00	4.2E-09	9.2E-09	6.E-09	1.E-08	2.E-08	3.0E-04	3.0E-04	1.2E-08	2.6E-08	4.E-05	9.E-05	0.0001
	Mercury	6.5E-02	mg/kg	--	--	0.0E+00	2.3E-10	--	--	--	1.0E-04	1.0E-04	0.0E+00	6.4E-10	0.E+00	6.E-06	0.00001
	Butyltins																
	Tributyltin ion	4.8E+00	ug/kg	--	--	2.5E-11	1.7E-11	--	--	--	3.0E-04	3.0E-04	7.1E-11	4.7E-11	2.E-07	2.E-07	0.0000004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	6.3E-11	9.E-11	5.E-11	1.E-10	--	--	3.4E-10	1.8E-10	--	--	--
	Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	7.3E+00	1.3E-10	6.6E-11	9.E-10	5.E-10	1.E-09	--	--	3.6E-10	1.9E-10	--	--	--
	Benzo(b)fluoranthene	2.7E+01	ug/kg	7.3E-01	7.3E-01	1.8E-10	9.4E-11	1.E-10	7.E-11	2.E-10	--	--	5.2E-10	2.6E-10	--	--	--
	Benzo(k)fluoranthene	8.4E+00	ug/kg	7.3E-02	7.3E-02	5.7E-11	2.9E-11	4.E-12	2.E-12	6.E-12	--	--	1.6E-10	8.2E-11	--	--	--
	Dibenzo(a,h)anthracene	4.5E+00	ug/kg	7.3E+00	7.3E+00	3.1E-11	1.6E-11	2.E-10	1.E-10	3.E-10	--	--	8.6E-11	4.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E+01	ug/kg	7.3E-01	7.3E-01	1.2E-10	5.9E-11	8.E-11	4.E-11	1.E-10	--	--	3.3E-10	1.7E-10	--	--	--
	Naphthalene	4.2E+01	ug/kg	--	--	2.9E-10	1.5E-10	--	--	--	2.0E-02	2.0E-02	8.0E-10	4.1E-10	4.E-08	2.E-08	0.0000001
	Phthalates																
	Bis(2-ethylhexyl) phthalate	1.8E+04	ug/kg	1.4E-02	1.4E-02	9.5E-08	6.3E-08	1.E-09	9.E-10	2.E-09	2.0E-02	2.0E-02	2.7E-07	1.8E-07	1.E-05	9.E-06	0.00002
	Phenols																
	Pentachlorophenol	3.2E+00	ug/kg	4.0E-01	4.0E-01	4.2E-11	1.1E-11	2.E-11	4.E-12	2.E-11	5.0E-03	5.0E-03	1.2E-10	3.1E-11	2.E-08	6.E-09	0.00000003
	Polychlorinated Biphenyls																
	Total Aroclors	1.8E+02	ug/kg	2.0E+00	2.0E+00	1.3E-09	6.3E-10	3.E-09	1.E-09	4.E-09	2.0E-05	2.0E-05	3.7E-09	1.8E-09	2.E-04	9.E-05	0.0003

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	1.3E+05	1.3E+05	2.8E-15	6.1E-15	4.E-10	8.E-10	1.E-09	1.0E-09	1.0E-09	7.7E-15	1.7E-14	8.E-06	2.E-05	0.00002
	Total PCB TEQ	4.6E+00	pg/g	1.3E+05	1.3E+05	3.4E-14	1.6E-14	4.E-09	2.E-09	6.E-09	1.0E-09	1.0E-09	9.4E-14	4.5E-14	9.E-05	4.E-05	0.0001
	Pesticides																
	Total DDT	9.4E+00	ug/kg	3.4E-01	3.4E-01	1.5E-11	3.3E-11	5.E-12	1.E-11	2.E-11	5.0E-04	5.0E-04	4.2E-11	9.2E-11	8.E-08	2.E-07	0.0000003
Exposure Point Total										4.E-08							0.001
Study Area-wide[c]	**Metals**																
	Arsenic	5.0E+00	mg/kg	1.5E+00	1.5E+00	8.0E-09	1.8E-08	1.E-08	3.E-08	4.E-08	3.0E-04	3.0E-04	2.2E-08	4.9E-08	7.E-05	2.E-04	0.0002
	Mercury	3.0E-01	mg/kg	--	--	0.0E+00	1.1E-09	--	--	--	1.0E-04	1.0E-04	0.0E+00	2.9E-09	0.E+00	3.E-05	0.00003
	Vanadium	1.0E+02	mg/kg	--	--	0.0E+00	3.6E-07	--	--	--	1.8E-06	7.0E-05	0.0E+00	1.0E-06	0.E+00	1.E-02	0.01
	Butyltins																
	Tributyltin ion	2.4E+03	ug/kg	--	--	1.2E-08	8.3E-09	--	--	--	3.0E-04	3.0E-04	3.5E-08	2.3E-08	1.E-04	8.E-05	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E+03	ug/kg	7.3E-01	7.3E-01	2.1E-08	1.1E-08	2.E-08	8.E-09	2.E-08	--	--	5.9E-08	3.0E-08	--	--	--
	Benzo(a)pyrene	3.7E+03	ug/kg	7.3E+00	7.3E+00	2.6E-08	1.3E-08	2.E-07	1.E-07	3.E-07	--	--	7.2E-08	3.7E-08	--	--	--
	Benzo(b)fluoranthene	2.9E+03	ug/kg	7.3E-01	7.3E-01	2.0E-08	1.0E-08	1.E-08	7.E-09	2.E-08	--	--	5.6E-08	2.9E-08	--	--	--
	Benzo(k)fluoranthene	2.0E+03	ug/kg	7.3E-02	7.3E-02	1.4E-08	7.0E-09	1.E-09	5.E-10	2.E-09	--	--	3.8E-08	2.0E-08	--	--	--
	Dibenzo(a,h)anthracene	3.8E+02	ug/kg	7.3E+00	7.3E+00	2.6E-09	1.3E-09	2.E-08	1.E-08	3.E-08	--	--	7.3E-09	3.7E-09	--	--	--
	Indeno(1,2,3-cd)pyrene	2.6E+03	ug/kg	7.3E-01	7.3E-01	1.8E-08	9.1E-09	1.E-08	7.E-09	2.E-08	--	--	5.0E-08	2.6E-08	--	--	--
	Naphthalene	1.5E+03	ug/kg	--	--	1.0E-08	5.1E-09	--	--	--	2.0E-02	2.0E-02	2.8E-08	1.4E-08	1.E-06	7.E-07	0.000002
	Phthalates																
	Bis(2-ethylhexyl) phthalate	2.9E+03	ug/kg	1.4E-02	1.4E-02	1.5E-08	1.0E-08	2.E-10	1.E-10	4.E-10	2.0E-02	2.0E-02	4.2E-08	2.8E-08	2.E-06	1.E-06	0.000004
	Phenols																
	Pentachlorophenol	5.6E+01	ug/kg	4.0E-01	4.0E-01	7.4E-10	2.0E-10	3.E-10	8.E-11	4.E-10	5.0E-03	5.0E-03	2.1E-09	5.5E-10	4.E-07	1.E-07	0.000001
	Polychlorinated Biphenyls																
	Total Aroclors	3.6E+02	ug/kg	2.0E+00	2.0E+00	2.6E-09	1.3E-09	5.E-09	3.E-09	8.E-09	2.0E-05	2.0E-05	7.4E-09	3.5E-09	4.E-04	2.E-04	0.0005
	Dioxin/Furan																
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	1.3E+05	1.3E+05	1.0E-12	2.3E-12	1.E-07	3.E-07	4.E-07	1.0E-09	1.0E-09	2.9E-12	6.4E-12	3.E-03	6.E-03	0.009
	Total PCB TEQ	1.7E+01	pg/g	1.3E+05	1.3E+05	1.2E-13	5.9E-14	2.E-08	8.E-09	2.E-08	1.0E-09	1.0E-09	3.5E-13	1.6E-13	3.E-04	2.E-04	0.0005
	Pesticides																
	Aldrin	5.8E+00	ug/kg	1.7E+01	1.7E+01	3.1E-11	2.0E-11	5.E-10	3.E-10	9.E-10	3.0E-05	3.0E-05	8.5E-11	5.7E-11	3.E-06	2.E-06	0.000005
	Dieldrin	2.8E+00	ug/kg	1.6E+01	1.6E+01	1.5E-11	9.8E-12	2.E-10	2.E-10	4.E-10	5.0E-05	5.0E-05	4.1E-11	2.7E-11	8.E-07	5.E-07	0.000001
	Total DDT	3.7E+02	ug/kg	3.4E-01	3.4E-01	5.9E-10	1.3E-09	2.E-10	4.E-10	6.E-10	5.0E-04	5.0E-04	1.7E-09	3.7E-09	3.E-06	7.E-06	0.00001

TABLE 5-31.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Sediment
Exposure Medium: In-water Sediment
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk[b]	Noncancer Hazard Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ[b]
	Conventionals																
	Perchlorate	2.7E+05	ug/kg	--	--	0.0E+00	9.6E-07	--	--	--	7.0E-04	7.0E-04	0.0E+00	2.7E-06	0.E+00	4.E-03	0.004
Exposure Point Total										9.E-07							0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
c Cumulative risk sums calculated using PCB Aroclor data.
d Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
LADI = Lifetime Average Daily Intake.
mg/kg = Milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RfD = Reference dose.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-32.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	5.1E+02	ug/kg	25	0.0029	0.07
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	2	0.0001	0.0001
	Total PCB TEQ	2.7E-01	pg/g	2	0.00003	0.0001
	Total DDT	4.0E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.07
RM 1 West	Total Aroclors	1.7E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	2	0.0002	0.0005
	Total PCB TEQ	3.2E-01	pg/g	2	0.00004	0.0001
	Total DDT	4.6E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.003
RM 1.5 East	Total Aroclors	4.1E+01	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	1.1E-01	pg/g	2	0.00001	0.00002
	Total DDT	2.2E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.01
RM 1.5 West	Total Aroclors	2.2E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	2	0.00001	0.00002
	Total DDT	1.1E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.003
RM 2 East	Total Aroclors	1.5E+03	ug/kg	25	0.009	0.2
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	8.5E+01	pg/g	2	0.01	0.02
	Total DDT	4.2E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.2
RM 2 West	Total Aroclors	1.8E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	3.5E-01	pg/g	2	0.00004	0.0001
	Total DDT	3.2E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.003
RM 2.5 East	Total Aroclors	7.7E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.3E+00	pg/g	2	0.0004	0.001
	Total DDT	1.1E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.01
RM 2.5 MC	Total Aroclors	3.9E+01	ug/kg	25	0.0002	0.01
	Total DDT	1.1E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.01
RM 2.5 West	Total Aroclors	2.1E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	2	0.00004	0.0001
	Total PCB TEQ	2.1E-01	pg/g	2	0.00002	0.00005
	Total DDT	3.4E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.003
RM 3 East	Total Aroclors	2.3E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.0005	0.001
	Total PCB TEQ	1.0E-01	pg/g	2	0.00001	0.00002
	Total DDT	3.8E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.004
RM 3 West	Total Aroclors	1.8E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	4.4E-01	pg/g	2	0.0001	0.0001
	Total DDT	2.1E+02	ug/kg	2	0.00004	0.0001
Exposure Point Total						0.003
RM 3.5 East	Total Aroclors	1.7E+03	ug/kg	25	0.01	0.2
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	2	0.001	0.002
	Total PCB TEQ	1.1E+02	pg/g	2	0.01	0.03
	Total DDT	2.7E+01	ug/kg	2	0.000005	0.00001
Exposure Point Total						0.3
RM 3.5 West	Total Aroclors	2.7E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	7.7E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.1E+01	ug/kg	2	0.0000	0.00001
Exposure Point Total						0.004
RM 4 East	Total Aroclors	3.6E+02	ug/kg	25	0.002	0.05
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	2	0.0006	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.0004	0.001
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.05
RM 4 West	Total Aroclors	2.6E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	6.5E-01	pg/g	2	0.0001	0.0001
	Total DDT	5.6E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.005

TABLE 5-32.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	4.4E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00002	0.00005
	Total PCB TEQ	3.4E-01	pg/g	2	0.00004	0.0001
	Total DDT	8.7E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.01
RM 4.5 West	Total Aroclors	3.8E+01	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	2	0.0006	0.001
	Total PCB TEQ	2.5E+00	pg/g	2	0.0003	0.001
	Total DDT	2.7E+01	ug/kg	2	0.000005	0.00001
Exposure Point Total						0.01
RM 5 East	Total Aroclors	2.5E+01	ug/kg	25	0.0001	0.004
	Total DDT	1.9E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.004
RM 5 West	Total Aroclors	2.5E+01	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.0005	0.001
	Total PCB TEQ	2.1E+00	pg/g	2	0.0002	0.0005
	Total DDT	8.2E+01	ug/kg	2	0.00001	0.00003
Exposure Point Total						0.01
RM 5.5 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	2	0.0008	0.002
	Total PCB TEQ	5.8E+00	pg/g	2	0.0007	0.001
	Total DDT	2.0E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.03
RM 5.5 West	Total Aroclors	5.1E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	1.1E+00	pg/g	2	0.0001	0.0002
	Total DDT	6.2E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.01
RM 6 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.0004	0.001
	Total DDT	4.2E+00	ug/kg	2	0.0000	0.000001
Exposure Point Total						0.03
RM 6 West	Total Aroclors	6.1E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	2.8E+00	pg/g	2	0.0003	0.001
	Total DDT	8.1E+01	ug/kg	2	0.00001	0.00003
Exposure Point Total						0.01
RM 6.5 East	Total Aroclors	1.3E+03	ug/kg	25	0.008	0.2
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	2	0.008	0.02
	Total PCB TEQ	1.3E+01	pg/g	2	0.002	0.003
	Total DDT	1.3E+02	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.2
RM 6.5 West	Total Aroclors	9.1E+01	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	2	0.01	0.02
	Total PCB TEQ	3.0E+00	pg/g	2	0.0003	0.001
	Total DDT	1.7E+02	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.03
RM 7 East	Total Aroclors	7.0E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	2	0.003	0.01
	Total PCB TEQ	7.4E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.3E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.02
RM 7 West	Total Aroclors	9.3E+01	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	2	1	2
	Total PCB TEQ	2.7E+01	pg/g	2	0.003	0.01
	Total DDT	6.3E+03	ug/kg	2	0.001	0.002
Exposure Point Total						2
RM 7.5 East	Total Aroclors	4.5E+01	ug/kg	25	0.0003	0.01
	Total DDT	3.3E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 7.5 West	Total Aroclors	2.5E+02	ug/kg	25	0.001	0.04
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	9.2E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.3E+02	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.04
RM 8 East	Total Aroclors	5.8E+02	ug/kg	25	0.003	0.08
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	1.7E+01	pg/g	2	0.002	0.004
	Total DDT	9.4E+01	ug/kg	2	0.00002	0.00003
Exposure Point Total						0.09

TABLE 5-32.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	5.3E+02	ug/kg	25	0.003	0.08
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	2	0.003	0.01
	Total PCB TEQ	8.8E+01	pg/g	2	0.01	0.02
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.1
RM 8 West	Total Aroclors	4.0E+02	ug/kg	25	0.002	0.06
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	2	0.00004	0.00
	Total PCB TEQ	6.1E+00	pg/g	2	0.0007	0.00
	Total DDT	2.1E+01	ug/kg	2	0.000004	0.00
Exposure Point Total						0.06
RM 8.5 East	Total Aroclors	7.2E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	5.9E-01	pg/g	2	0.0001	0.0001
	Total DDT	2.3E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01
RM 8.5 West	Total Aroclors	8.5E+03	ug/kg	25	0.05	1
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	2	0.002	0.00
	Total PCB TEQ	2.4E+02	pg/g	2	0.03	0.05
	Total DDT	2.2E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						1
RM 9 East	Total Aroclors	1.0E+02	ug/kg	25	0.0006	0.01
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	6.3E-01	pg/g	2	0.0001	0.0001
	Total DDT	1.9E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 9 West	Total Aroclors	2.3E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	2	0.0005	0.001
	Total PCB TEQ	3.2E+01	pg/g	2	0.004	0.01
	Total DDT	9.9E+00	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.3
RM 9.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.3E-01	pg/g	2	0.00004	0.0001
	Total DDT	1.6E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 9.5 West	Total Aroclors	3.0E+02	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.001	0.003
	Total PCB TEQ	4.8E+00	pg/g	2	0.0005	0.001
	Total DDT	4.5E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.05
RM 10 East	Total Aroclors	4.8E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.00005	0.0001
	Total PCB TEQ	8.0E-01	pg/g	2	0.0001	0.0002
	Total DDT	7.7E-01	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.01
RM 10 West	Total Aroclors	4.4E+02	ug/kg	25	0.003	0.06
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	3.0E+00	pg/g	2	0.0003	0.001
	Total DDT	6.7E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.07
RM 10.5 East	Total Aroclors	1.5E+02	ug/kg	25	0.001	0.02
	Total PCB TEQ	3.9E-01	pg/g	2	0.00004	0.0001
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.02
RM 10.5 West	Total Aroclors	3.9E+01	ug/kg	25	0.0002	0.01
	Total PCB TEQ	6.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.7E+00	ug/kg	2	0.0000005	0.000001
Exposure Point Total						0.01
RM 11 East	Total Aroclors	3.8E+03	ug/kg	25	0.02	0.6
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	3.1E+01	pg/g	2	0.004	0.01
	Total DDT	3.8E+02	ug/kg	2	0.0001	0.0001
Exposure Point Total						0.6
RM 11 West	Total Aroclors	3.5E+01	ug/kg	25	0.0002	0.005
	Total DDT	2.1E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.005
RM 11.5 West	Total Aroclors	2.4E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.00002	0.00003
	Total PCB TEQ	2.9E-01	pg/g	2	0.00003	0.0001
	Total DDT	1.9E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.004

TABLE 5-32.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	4.6E+00	pg/g	2	0.0005	0.001
	Total DDT	9.4E+00	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.03
RM 12 West	Total Aroclors	1.2E+02	ug/kg	25	0.0007	0.02
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	4.5E-01	pg/g	2	0.0001	0.0001
	Total DDT	9.5E+00	ug/kg	2	0.000002	0.00000
Exposure Point Total						0.02
Study Area-wide[b]	Total Aroclors	3.6E+02	ug/kg	25	0.002	0.05
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	2	0.06	0.1
	Total PCB TEQ	1.7E+01	pg/g	2	0.002	0.004
	Total DDT	3.7E+02	ug/kg	2	0.0001	0.00013
Exposure Point Total						0.2

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-33.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	1.0E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	2.7E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.8E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.003
RM 1 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	2	0.00002	0.00003
	Total PCB TEQ	3.2E-01	pg/g	2	0.00001	0.00001
	Total DDT	2.5E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.0004
RM 1.5 East	Total Aroclors	2.2E+01	ug/kg	25	0.00003	0.0006
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	1.1E-01	pg/g	2	0.000002	0.000005
	Total DDT	6.8E+00	ug/kg	2	0.000000	0.000001
Exposure Point Total						0.001
RM 1.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	2	0.000002	0.000003
	Total DDT	7.9E-01	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.0003
RM 2 East	Total Aroclors	4.3E+02	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	1.3E+01	pg/g	2	0.0003	0.001
	Total DDT	2.6E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.01
RM 2 West	Total Aroclors	1.3E+01	ug/kg	25	0.00002	0.0004
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	2	0.00002	0.00003
	Total PCB TEQ	2.5E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0004
RM 2.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	1.3E+00	pg/g	2	0.00003	0.0001
	Total DDT	2.4E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 2.5 MC	Total Aroclors	2.5E+01	ug/kg	25	0.00003	0.001
	Total DDT	3.7E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.001
RM 2.5 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	2.1E-01	pg/g	2	0.000005	0.00001
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0003
RM 3 East	Total Aroclors	1.9E+01	ug/kg	25	0.00002	0.001
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	7.7E-02	pg/g	2	0.000002	0.000004
	Total DDT	1.6E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 3 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	4.1E-01	pg/g	2	0.00001	0.00002
	Total DDT	2.8E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.0004
RM 3.5 East	Total Aroclors	3.8E+02	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	1.7E+01	pg/g	2	0.0004	0.001
	Total DDT	6.2E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 3.5 West	Total Aroclors	2.3E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	5.1E-01	pg/g	2	0.00001	0.00002
	Total DDT	5.8E+00	ug/kg	2	0.0000002	0.0000005
Exposure Point Total						0.001
RM 4 East	Total Aroclors	1.5E+02	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.9E+00	pg/g	2	0.00004	0.0001
	Total DDT	5.4E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.005
RM 4 West	Total Aroclors	2.1E+01	ug/kg	25	0.00002	0.001
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	4.7E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.9E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.001

TABLE 5-33.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	3.5E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	3.2E-01	pg/g	2	0.00001	0.00001
	Total DDT	4.9E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.001
RM 4.5 West	Total Aroclors	2.5E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	1.4E+00	pg/g	2	0.00003	0.0001
	Total DDT	4.5E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.001
RM 5 East	Total Aroclors	2.0E+01	ug/kg	25	0.00002	0.001
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 5 West	Total Aroclors	1.7E+01	ug/kg	25	0.00002	0.0005
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	1.2E+00	pg/g	2	0.00003	0.0001
	Total DDT	1.2E+01	ug/kg	2	0.0000005	0.000001
Exposure Point Total						0.001
RM 5.5 East	Total Aroclors	1.1E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	2.0E+00	pg/g	2	0.00005	0.0001
	Total DDT	8.2E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.003
RM 5.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	5.8E-01	pg/g	2	0.00001	0.00003
	Total DDT	1.9E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.001
RM 6 East	Total Aroclors	7.7E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	1.2E+00	pg/g	2	0.00003	0.0001
	Total DDT	2.9E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 6 West	Total Aroclors	4.3E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.4E+00	pg/g	2	0.00003	0.0001
	Total DDT	3.6E+01	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.001
RM 6.5 East	Total Aroclors	2.0E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	2	0.0004	0.001
	Total PCB TEQ	3.0E+00	pg/g	2	0.0001	0.0001
	Total DDT	1.5E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 6.5 West	Total Aroclors	6.4E+01	ug/kg	25	0.00007	0.002
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	2	0.0004	0.001
	Total PCB TEQ	1.8E+00	pg/g	2	0.00004	0.0001
	Total DDT	9.2E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.003
RM 7 East	Total Aroclors	4.2E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.0003	0.0007
	Total PCB TEQ	5.5E-01	pg/g	2	0.00001	0.00003
	Total DDT	3.6E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.002
RM 7 West	Total Aroclors	7.1E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	2	0.03	0.1
	Total PCB TEQ	7.7E+00	pg/g	2	0.0002	0.0004
	Total DDT	2.3E+03	ug/kg	2	0.0001	0.0002
Exposure Point Total						0.1
RM 7.5 East	Total Aroclors	3.2E+01	ug/kg	25	0.00004	0.001
	Total DDT	1.1E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 7.5 West	Total Aroclors	8.6E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	6.6E-01	pg/g	2	0.00002	0.00003
	Total DDT	2.1E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.003
RM 8 East	Total Aroclors	1.7E+02	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	5.8E+00	pg/g	2	0.0001	0.0003
	Total DDT	1.1E+01	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01

TABLE 5-33.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	2.8E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	1.2E+01	pg/g	2	0.0003	0.0006
	Total DDT	5.2E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.009
RM 8 West	Total Aroclors	1.2E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	3.6E+00	pg/g	2	0.0001	0.0002
	Total DDT	6.5E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.004
RM 8.5 East	Total Aroclors	4.6E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	4.2E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.5E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 8.5 West	Total Aroclors	1.4E+03	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.3E+01	pg/g	2	0.0008	0.002
	Total DDT	6.0E+00	ug/kg	2	0.0000002	0.0000005
Exposure Point Total						0.04
RM 9 East	Total Aroclors	5.2E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	6.3E-01	pg/g	2	0.00001	0.00003
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.002
RM 9 West	Total Aroclors	4.5E+02	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.6E+01	pg/g	2	0.0004	0.0007
	Total DDT	4.4E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 9.5 East	Total Aroclors	4.0E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	2.6E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.1E+00	ug/kg	2	0.00000005	0.0000001
Exposure Point Total						0.001
RM 9.5 West	Total Aroclors	2.1E+02	ug/kg	25	0.0002	0.0061
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	3.6E+00	pg/g	2	0.0001	0.0002
	Total DDT	3.1E+00	ug/kg	2	0.0000001	0.0000
Exposure Point Total						0.01
RM 10 East	Total Aroclors	3.4E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	6.9E-01	pg/g	2	0.00002	0.00003
	Total DDT	5.3E-01	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.001
RM 10 West	Total Aroclors	1.8E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.8E+00	pg/g	2	0.00004	0.0001
	Total DDT	4.7E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 10.5 East	Total Aroclors	5.2E+01	ug/kg	25	0.0001	0.001
	Total PCB TEQ	3.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	2.8E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 10.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00004	0.001
	Total PCB TEQ	6.9E-01	pg/g	2	0.00002	0.00003
	Total DDT	1.7E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 11 East	Total Aroclors	1.1E+03	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	1.2E+01	pg/g	2	0.0003	0.001
	Total DDT	9.9E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.03
RM 11 West	Total Aroclors	2.8E+01	ug/kg	25	0.00003	0.001
	Total DDT	1.3E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 11.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0004
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	2.9E-01	pg/g	2	0.00001	0.00001
	Total DDT	9.8E-01	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.0004

TABLE 5-33.
Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.6E+02	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	3.9E+00	pg/g	2	0.0001	0.0002
	Total DDT	9.4E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.005
RM 12 West	Total Aroclors	7.0E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	4.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	5.9E+00	ug/kg	2	0.0000002	0.0000005
Exposure Point Total						0.002
Study Area-wide[b]	Total Aroclors	1.9E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	2	0.002	0.004
	Total PCB TEQ	6.6E+00	pg/g	2	0.0002	0.0003
	Total DDT	1.4E+02	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.01

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-34.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	5.1E+02	ug/kg	25	0.009	0.2
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	2	0.0001	0.0003
	Total PCB TEQ	2.7E-01	pg/g	2	0.0001	0.0002
	Total DDT	4.0E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.2
RM 1 West	Total Aroclors	1.7E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	2	0.0005	0.001
	Total PCB TEQ	3.2E-01	pg/g	2	0.0001	0.0002
	Total DDT	4.6E+00	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.01
RM 1.5 East	Total Aroclors	4.1E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	1.1E-01	pg/g	2	0.00004	0.0001
	Total DDT	2.2E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.02
RM 1.5 West	Total Aroclors	2.2E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	2	0.00002	0.00003
	Total DDT	1.1E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01
RM 2 East	Total Aroclors	1.5E+03	ug/kg	25	0.03	0.6
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	2	0.00069	0.001
	Total PCB TEQ	8.5E+01	pg/g	2	0.03	0.1
	Total DDT	4.2E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.7
RM 2 West	Total Aroclors	1.8E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	3.5E-01	pg/g	2	0.0001	0.0002
	Total DDT	3.2E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.01
RM 2.5 East	Total Aroclors	7.7E+01	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	3.3E+00	pg/g	2	0.001	0.002
	Total DDT	1.1E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.04
RM 2.5 MC	Total Aroclors	3.9E+01	ug/kg	25	0.001	0.02
	Total DDT	1.1E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.02
RM 2.5 West	Total Aroclors	2.1E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	2	0.0001	0.0001
	Total PCB TEQ	2.1E-01	pg/g	2	0.0001	0.0001
	Total DDT	3.4E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.01
RM 3 East	Total Aroclors	2.3E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	1.0E-01	pg/g	2	0.00003	0.0001
	Total DDT	3.8E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.01
RM 3 West	Total Aroclors	1.8E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	4.4E-01	pg/g	2	0.0002	0.0003
	Total DDT	2.1E+02	ug/kg	2	0.0001	0.0001
Exposure Point Total						0.01
RM 3.5 East	Total Aroclors	1.7E+03	ug/kg	25	0.03	0.7
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	2	0.002	0.004
	Total PCB TEQ	1.1E+02	pg/g	2	0.04	0.1
	Total DDT	2.7E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.8
RM 3.5 West	Total Aroclors	2.7E+01	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	7.7E-01	pg/g	2	0.0003	0.001
	Total DDT	2.1E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.01
RM 4 East	Total Aroclors	3.6E+02	ug/kg	25	0.01	0.2
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	3.4E+00	pg/g	2	0.001	0.002
	Total DDT	1.2E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.2
RM 4 West	Total Aroclors	2.6E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	6.5E-01	pg/g	2	0.0002	0.0004
	Total DDT	5.6E+01	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.01

TABLE 5-34.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	4.4E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00005	0.0001
	Total PCB TEQ	3.4E-01	pg/g	2	0.0001	0.0002
	Total DDT	8.7E+00	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.02
RM 4.5 West	Total Aroclors	3.8E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	2.5E+00	pg/g	2	0.001	0.002
	Total DDT	2.7E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.02
RM 5 East	Total Aroclors	2.5E+01	ug/kg	25	0.0004	0.01
	Total DDT	1.9E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 5 West	Total Aroclors	2.5E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	2.1E+00	pg/g	2	0.001	0.001
	Total DDT	8.2E+01	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.01
RM 5.5 East	Total Aroclors	1.8E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	2	0.002	0.003
	Total PCB TEQ	5.8E+00	pg/g	2	0.002	0.004
	Total DDT	2.0E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.1
RM 5.5 West	Total Aroclors	5.1E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	1.1E+00	pg/g	2	0.0004	0.001
	Total DDT	6.2E+01	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.02
RM 6 East	Total Aroclors	1.8E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.001	0.002
	Total DDT	4.2E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.1
RM 6 West	Total Aroclors	6.1E+01	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	2.8E+00	pg/g	2	0.001	0.002
	Total DDT	8.1E+01	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.03
RM 6.5 East	Total Aroclors	1.3E+03	ug/kg	25	0.02	0.6
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	2	0.02	0.03
	Total PCB TEQ	1.3E+01	pg/g	2	0.005	0.01
	Total DDT	1.3E+02	ug/kg	2	0.00004	0.0001
Exposure Point Total						0.6
RM 6.5 West	Total Aroclors	9.1E+01	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	2	0.02	0.04
	Total PCB TEQ	3.0E+00	pg/g	2	0.001	0.002
	Total DDT	1.7E+02	ug/kg	2	0.0001	0.0001
Exposure Point Total						0.1
RM 7 East	Total Aroclors	7.0E+01	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	2	0.01	0.01
	Total PCB TEQ	7.4E-01	pg/g	2	0.0003	0.001
	Total DDT	1.3E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.04
RM 7 West	Total Aroclors	9.3E+01	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	2	2	5
	Total PCB TEQ	2.7E+01	pg/g	2	0.009	0.02
	Total DDT	6.3E+03	ug/kg	2	0.002	0.004
Exposure Point Total						5
RM 7.5 East	Total Aroclors	4.5E+01	ug/kg	25	0.0008	0.02
	Total DDT	3.3E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.02
RM 7.5 West	Total Aroclors	2.5E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.0005	0.001
	Total PCB TEQ	9.2E-01	pg/g	2	0.0003	0.001
	Total DDT	1.3E+02	ug/kg	2	0.00004	0.0001
Exposure Point Total						0.1
RM 8 East	Total Aroclors	5.8E+02	ug/kg	25	0.01	0.2
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	1.7E+01	pg/g	2	0.01	0.01
	Total DDT	9.4E+01	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.3

TABLE 5-34.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	5.3E+02	ug/kg	25	0.01	0.2
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	2	0.01	0.01
	Total PCB TEQ	8.8E+01	pg/g	2	0.03	0.1
	Total DDT	1.2E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.3
RM 8 West	Total Aroclors	4.0E+02	ug/kg	25	0.01	0.2
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	2	0.0001	0.0001
	Total PCB TEQ	6.1E+00	pg/g	2	0.002	0.004
	Total DDT	2.1E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.2
RM 8.5 East	Total Aroclors	7.2E+01	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	2	0.0002	0.0003
	Total PCB TEQ	5.9E-01	pg/g	2	0.0002	0.0004
	Total DDT	2.3E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.03
RM 8.5 West	Total Aroclors	8.5E+03	ug/kg	25	0.1	4
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	2	0.003	0.01
	Total PCB TEQ	2.4E+02	pg/g	2	0.1	0.2
	Total DDT	2.2E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						4
RM 9 East	Total Aroclors	1.0E+02	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.00004	0.0001
	Total PCB TEQ	6.3E-01	pg/g	2	0.0002	0.0004
	Total DDT	1.9E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.04
RM 9 West	Total Aroclors	2.3E+03	ug/kg	25	0.04	1.0
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	3.2E+01	pg/g	2	0.01	0.02
	Total DDT	9.9E+00	ug/kg	2	0.000003	0.00001
Exposure Point Total						1
RM 9.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	3.3E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.6E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.02
RM 9.5 West	Total Aroclors	3.0E+02	ug/kg	25	0.005	0.1
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.003	0.01
	Total PCB TEQ	4.8E+00	pg/g	2	0.002	0.003
	Total DDT	4.5E+00	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.1
RM 10 East	Total Aroclors	4.8E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	8.0E-01	pg/g	2	0.0003	0.001
	Total DDT	7.7E-01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.02
RM 10 West	Total Aroclors	4.4E+02	ug/kg	25	0.01	0.2
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	2	0.002	0.003
	Total PCB TEQ	3.0E+00	pg/g	2	0.001	0.002
	Total DDT	6.7E+00	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.2
RM 10.5 East	Total Aroclors	1.5E+02	ug/kg	25	0.003	0.1
	Total PCB TEQ	3.9E-01	pg/g	2	0.0001	0.0003
	Total DDT	1.2E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.1
RM 10.5 West	Total Aroclors	3.9E+01	ug/kg	25	0.001	0.02
	Total PCB TEQ	6.9E-01	pg/g	2	0.0002	0.0005
	Total DDT	2.7E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.02
RM 11 East	Total Aroclors	3.8E+03	ug/kg	25	0.07	2
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	3.1E+01	pg/g	2	0.01	0.02
	Total DDT	3.8E+02	ug/kg	2	0.0001	0.0003
Exposure Point Total						2
RM 11 West	Total Aroclors	3.5E+01	ug/kg	25	0.001	0.01
	Total DDT	2.1E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 11.5 West	Total Aroclors	2.4E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	2.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.9E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01

TABLE 5-34.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.8E+02	ug/kg	25	0.003	0.08
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	4.6E+00	pg/g	2	0.002	0.003
	Total DDT	9.4E+00	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.1
RM 12 West	Total Aroclors	1.2E+02	ug/kg	25	0.002	0.05
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	4.5E-01	pg/g	2	0.0002	0.0003
	Total DDT	9.5E+00	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.05
Study Area-wide[b]	Total Aroclors	3.6E+02	ug/kg	25	0.01	0.2
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	2	0.1	0.2
	Total PCB TEQ	1.7E+01	pg/g	2	0.01	0.01
	Total DDT	3.7E+02	ug/kg	2	0.0001	0.0003
Exposure Point Total						0.4

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-35.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	1.0E+02	ug/kg	25	0.0002	0.006
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	2.7E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.8E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.01
RM 1 West	Total Aroclors	1.1E+01	ug/kg	25	0.00003	0.0006
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	3.2E-01	pg/g	2	0.00001	0.00003
	Total DDT	2.5E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.0007
RM 1.5 East	Total Aroclors	2.2E+01	ug/kg	25	0.00005	0.0012
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	2	0.00002	0.0000
	Total PCB TEQ	1.1E-01	pg/g	2	0.000005	0.0000
	Total DDT	6.8E+00	ug/kg	2	0.0000004	0.0000
Exposure Point Total						0.001
RM 1.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.0000	0.0007
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	2	0.0000	0.00001
	Total DDT	7.9E-01	ug/kg	2	0.0000	0.0000001
Exposure Point Total						0.001
RM 2 East	Total Aroclors	4.3E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	1.3E+01	pg/g	2	0.0006	0.001
	Total DDT	2.6E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.03
RM 2 West	Total Aroclors	1.3E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	2	0.00002	0.00005
	Total PCB TEQ	2.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.0008
RM 2.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	1.3E+00	pg/g	2	0.0001	0.0001
	Total DDT	2.4E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.003
RM 2.5 MC	Total Aroclors	2.5E+01	ug/kg	25	0.0001	0.001
	Total DDT	3.7E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.001
RM 2.5 West	Total Aroclors	1.1E+01	ug/kg	25	0.00002	0.0006
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	2	0.00001	0.0000
	Total PCB TEQ	2.1E-01	pg/g	2	0.00001	0.0000
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000
Exposure Point Total						0.0006
RM 3 East	Total Aroclors	1.9E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	7.7E-02	pg/g	2	0.000003	0.00001
	Total DDT	1.6E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
RM 3 West	Total Aroclors	1.1E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	4.1E-01	pg/g	2	0.00002	0.00004
	Total DDT	2.8E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.001
RM 3.5 East	Total Aroclors	3.8E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.7E+01	pg/g	2	0.001	0.002
	Total DDT	6.2E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.02
RM 3.5 West	Total Aroclors	2.3E+01	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	5.1E-01	pg/g	2	0.00002	0.00005
	Total DDT	5.8E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.001
RM 4 East	Total Aroclors	1.5E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.9E+00	pg/g	2	0.0001	0.0002
	Total DDT	5.4E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 4 West	Total Aroclors	2.1E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	4.7E-01	pg/g	2	0.00002	0.00004
	Total DDT	1.9E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.001

TABLE 5-35.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	3.5E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	3.2E-01	pg/g	2	0.00001	0.00003
	Total DDT	4.9E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.002
RM 4.5 West	Total Aroclors	2.5E+01	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.4E+00	pg/g	2	0.0001	0.0001
	Total DDT	4.5E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.002
RM 5 East	Total Aroclors	2.0E+01	ug/kg	25	0.00004	0.001
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
RM 5 West	Total Aroclors	1.7E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.2E+00	pg/g	2	0.0001	0.0001
	Total DDT	1.2E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.001
RM 5.5 East	Total Aroclors	1.1E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	2.0E+00	pg/g	2	0.0001	0.0002
	Total DDT	8.2E+00	ug/kg	2	0.0000005	0.000001
Exposure Point Total						0.01
RM 5.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	5.8E-01	pg/g	2	0.00003	0.0001
	Total DDT	1.9E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.002
RM 6 East	Total Aroclors	7.7E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.2E+00	pg/g	2	0.0001	0.0001
	Total DDT	2.9E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.005
RM 6 West	Total Aroclors	4.3E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	1.4E+00	pg/g	2	0.0001	0.0001
	Total DDT	3.6E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.003
RM 6.5 East	Total Aroclors	2.0E+02	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	2	0.001	0.001
	Total PCB TEQ	3.0E+00	pg/g	2	0.0001	0.0003
	Total DDT	1.5E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.01
RM 6.5 West	Total Aroclors	6.4E+01	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	2	0.001	0.001
	Total PCB TEQ	1.8E+00	pg/g	2	0.0001	0.0002
	Total DDT	9.2E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.005
RM 7 East	Total Aroclors	4.2E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.0005	0.001
	Total PCB TEQ	5.5E-01	pg/g	2	0.00002	0.00005
	Total DDT	3.6E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.003
RM 7 West	Total Aroclors	7.1E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	2	0.05	0.1
	Total PCB TEQ	7.7E+00	pg/g	2	0.0003	0.001
	Total DDT	2.3E+03	ug/kg	2	0.0001	0.0003
Exposure Point Total						0.1
RM 7.5 East	Total Aroclors	3.2E+01	ug/kg	25	0.0001	0.002
	Total DDT	1.1E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.002
RM 7.5 West	Total Aroclors	8.6E+01	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	6.6E-01	pg/g	2	0.00003	0.0001
	Total DDT	2.1E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.005
RM 8 East	Total Aroclors	1.7E+02	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	5.8E+00	pg/g	2	0.0003	0.001
	Total DDT	1.1E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01

TABLE 5-35.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	2.8E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	1.2E+01	pg/g	2	0.001	0.001
	Total DDT	5.2E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.02
RM 8 West	Total Aroclors	1.2E+02	ug/kg	25	0.0003	0.007
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	3.6E+00	pg/g	2	0.0002	0.0003
	Total DDT	6.5E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.007
RM 8.5 East	Total Aroclors	4.6E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	4.2E-01	pg/g	2	0.00002	0.00004
	Total DDT	1.5E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.003
RM 8.5 West	Total Aroclors	1.4E+03	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	3.3E+01	pg/g	2	0.001	0.003
	Total DDT	6.0E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.1
RM 9 East	Total Aroclors	5.2E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	6.3E-01	pg/g	2	0.00003	0.0001
	Total DDT	1.4E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.003
RM 9 West	Total Aroclors	4.5E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.6E+01	pg/g	2	0.0007	0.001
	Total DDT	4.4E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.03
RM 9.5 East	Total Aroclors	4.0E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	2.6E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.1E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.002
RM 9.5 West	Total Aroclors	2.1E+02	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	2	0.0003	0.0005
	Total PCB TEQ	3.6E+00	pg/g	2	0.0002	0.0003
	Total DDT	3.1E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 10 East	Total Aroclors	3.4E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.00002	0.00003
	Total PCB TEQ	6.9E-01	pg/g	2	0.00003	0.0001
	Total DDT	5.3E-01	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.002
RM 10 West	Total Aroclors	1.8E+02	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	1.8E+00	pg/g	2	0.0001	0.0002
	Total DDT	4.7E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 10.5 East	Total Aroclors	5.2E+01	ug/kg	25	0.0001	0.003
	Total PCB TEQ	3.5E-01	pg/g	2	0.00002	0.00003
	Total DDT	2.8E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.003
RM 10.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.0001	0.002
	Total PCB TEQ	6.9E-01	pg/g	2	0.00003	0.0001
	Total DDT	1.7E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 11 East	Total Aroclors	1.1E+03	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	1.2E+01	pg/g	2	0.001	0.001
	Total DDT	9.9E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.1
RM 11 West	Total Aroclors	2.8E+01	ug/kg	25	0.0001	0.002
	Total DDT	1.3E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 11.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	2.9E-01	pg/g	2	0.00001	0.00003
	Total DDT	9.8E-01	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001

TABLE 5-35.
Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.6E+02	ug/kg	25	0.0004	0.009
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	3.9E+00	pg/g	2	0.0002	0.0004
	Total DDT	9.4E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 12 West	Total Aroclors	7.0E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.000005	0.00001
	Total PCB TEQ	4.5E-01	pg/g	2	0.00002	0.00004
	Total DDT	5.9E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.004
Study Area-wide[b]	Total Aroclors	1.9E+02	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	2	0.003	0.01
	Total PCB TEQ	6.6E+00	pg/g	2	0.0003	0.001
	Total DDT	1.4E+02	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.02

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-36.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	5.1E+02	ug/kg	25	0.01	0.1
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	2.7E-01	pg/g	2	0.0001	0.0001
	Total DDT	4.0E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.1
RM 1 West	Total Aroclors	1.7E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	3.2E-01	pg/g	2	0.0001	0.0001
	Total DDT	4.6E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.005
RM 1.5 East	Total Aroclors	4.1E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	1.1E-01	pg/g	2	0.00002	0.00004
	Total DDT	2.2E+01	ug/kg	2	0.000005	0.00001
Exposure Point Total						0.01
RM 1.5 West	Total Aroclors	2.2E+01	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	2	0.00001	0.00002
	Total DDT	1.1E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 2 East	Total Aroclors	1.5E+03	ug/kg	25	0.02	0.4
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	8.5E+01	pg/g	2	0.02	0.03
	Total DDT	4.2E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.4
RM 2 West	Total Aroclors	1.8E+01	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	2	0.0002	0.0005
	Total PCB TEQ	3.5E-01	pg/g	2	0.0001	0.0001
	Total DDT	3.2E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 2.5 East	Total Aroclors	7.7E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.3E+00	pg/g	2	0.001	0.001
	Total DDT	1.1E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.02
RM 2.5 MC	Total Aroclors	3.9E+01	ug/kg	25	0.0004	0.01
	Total DDT	1.1E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.01
RM 2.5 West	Total Aroclors	2.1E+01	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	2	0.00004	0.0001
	Total PCB TEQ	2.1E-01	pg/g	2	0.00004	0.0001
	Total DDT	3.4E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 3 East	Total Aroclors	2.3E+01	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	1.0E-01	pg/g	2	0.00002	0.00004
	Total DDT	3.8E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.01
RM 3 West	Total Aroclors	1.8E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	4.4E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.1E+02	ug/kg	2	0.00004	0.0001
Exposure Point Total						0.01
RM 3.5 East	Total Aroclors	1.7E+03	ug/kg	25	0.02	0.4
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	2	0.001	0.002
	Total PCB TEQ	1.1E+02	pg/g	2	0.02	0.05
	Total DDT	2.7E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.5
RM 3.5 West	Total Aroclors	2.7E+01	ug/kg	25	0.0003	0.007
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.0002	0.000
	Total PCB TEQ	7.7E-01	pg/g	2	0.0002	0.000
	Total DDT	2.1E+01	ug/kg	2	0.0000	0.000
Exposure Point Total						0.007
RM 4 East	Total Aroclors	3.6E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.001	0.001
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.1
RM 4 West	Total Aroclors	2.6E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	6.5E-01	pg/g	2	0.0001	0.0003
	Total DDT	5.6E+01	ug/kg	2	0.0000	0.00002
Exposure Point Total						0.01

TABLE 5-36.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	4.4E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	3.4E-01	pg/g	2	0.0001	0.0001
	Total DDT	8.7E+00	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.01
RM 4.5 West	Total Aroclors	3.8E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	2.5E+00	pg/g	2	0.001	0.001
	Total DDT	2.7E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.01
RM 5 East	Total Aroclors	2.5E+01	ug/kg	25	0.0003	0.01
	Total DDT	1.9E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01
RM 5 West	Total Aroclors	2.5E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	2.1E+00	pg/g	2	0.0004	0.001
	Total DDT	8.2E+01	ug/kg	2	0.00002	0.00003
Exposure Point Total						0.01
RM 5.5 East	Total Aroclors	1.8E+02	ug/kg	25	0.002	0.05
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	5.8E+00	pg/g	2	0.001	0.002
	Total DDT	2.0E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.05
RM 5.5 West	Total Aroclors	5.1E+01	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	2	0.0002	0.0005
	Total PCB TEQ	1.1E+00	pg/g	2	0.0002	0.0004
	Total DDT	6.2E+01	ug/kg	2	0.00001	0.00003
Exposure Point Total						0.01
RM 6 East	Total Aroclors	1.8E+02	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.001	0.001
	Total DDT	4.2E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.05
RM 6 West	Total Aroclors	6.1E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	2.8E+00	pg/g	2	0.001	0.001
	Total DDT	8.1E+01	ug/kg	2	0.00002	0.00003
Exposure Point Total						0.02
RM 6.5 East	Total Aroclors	1.3E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	2	0.01	0.02
	Total PCB TEQ	1.3E+01	pg/g	2	0.003	0.01
	Total DDT	1.3E+02	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.4
RM 6.5 West	Total Aroclors	9.1E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	2	0.01	0.02
	Total PCB TEQ	3.0E+00	pg/g	2	0.001	0.001
	Total DDT	1.7E+02	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.05
RM 7 East	Total Aroclors	7.0E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	2	0.004	0.01
	Total PCB TEQ	7.4E-01	pg/g	2	0.0002	0.0003
	Total DDT	1.3E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.03
RM 7 West	Total Aroclors	9.3E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	2	1	3
	Total PCB TEQ	2.7E+01	pg/g	2	0.005	0.01
	Total DDT	6.3E+03	ug/kg	2	0.001	0.003
Exposure Point Total						3
RM 7.5 East	Total Aroclors	4.5E+01	ug/kg	25	0.0005	0.01
	Total DDT	3.3E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 7.5 West	Total Aroclors	2.5E+02	ug/kg	25	0.003	0.06
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	9.2E-01	pg/g	2	0.0002	0.0004
	Total DDT	1.3E+02	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.1
RM 8 East	Total Aroclors	5.8E+02	ug/kg	25	0.01	0.1
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	1.7E+01	pg/g	2	0.004	0.01
	Total DDT	9.4E+01	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.2

TABLE 5-36.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	5.3E+02	ug/kg	25	0.005	0.1
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	2	0.003	0.01
	Total PCB TEQ	8.8E+01	pg/g	2	0.02	0.04
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.2
RM 8 West	Total Aroclors	4.0E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	2	0.00004	0.0001
	Total PCB TEQ	6.1E+00	pg/g	2	0.001	0.002
	Total DDT	2.1E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.1
RM 8.5 East	Total Aroclors	7.2E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	5.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.3E+00	ug/kg	2	0.0000005	0.000001
Exposure Point Total						0.02
RM 8.5 West	Total Aroclors	8.5E+03	ug/kg	25	0.1	2
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	2	0.002	0.004
	Total PCB TEQ	2.4E+02	pg/g	2	0.05	0.10
	Total DDT	2.2E+01	ug/kg	2	0.0000	0.00001
Exposure Point Total						2
RM 9 East	Total Aroclors	1.0E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	6.3E-01	pg/g	2	0.0001	0.0003
	Total DDT	1.9E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.03
RM 9 West	Total Aroclors	2.3E+03	ug/kg	25	0.02	0.6
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	3.2E+01	pg/g	2	0.01	0.01
	Total DDT	9.9E+00	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.6
RM 9.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.3E-01	pg/g	2	0.0001	0.0001
	Total DDT	1.6E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 9.5 West	Total Aroclors	3.0E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.002	0.003
	Total PCB TEQ	4.8E+00	pg/g	2	0.001	0.002
	Total DDT	4.5E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.1
RM 10 East	Total Aroclors	4.8E+01	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.0001	0.0001
	Total PCB TEQ	8.0E-01	pg/g	2	0.0002	0.0003
	Total DDT	7.7E-01	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.01
RM 10 West	Total Aroclors	4.4E+02	ug/kg	25	0.005	0.1
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	2	0.001	0.002
	Total PCB TEQ	3.0E+00	pg/g	2	0.001	0.001
	Total DDT	6.7E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.1
RM 10.5 East	Total Aroclors	1.5E+02	ug/kg	25	0.002	0.04
	Total PCB TEQ	3.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.04
RM 10.5 West	Total Aroclors	3.9E+01	ug/kg	25	0.0004	0.01
	Total PCB TEQ	6.9E-01	pg/g	2	0.0001	0.0003
	Total DDT	2.7E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 11 East	Total Aroclors	3.8E+03	ug/kg	25	0.04	1
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	3.1E+01	pg/g	2	0.01	0.01
	Total DDT	3.8E+02	ug/kg	2	0.0001	0.0002
Exposure Point Total						1
RM 11 West	Total Aroclors	3.5E+01	ug/kg	25	0.0004	0.01
	Total DDT	2.1E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01
RM 11.5 West	Total Aroclors	2.4E+01	ug/kg	25	0.0002	0.006
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	2.9E-01	pg/g	2	0.0001	0.0001
	Total DDT	1.9E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01

TABLE 5-36.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.8E+02	ug/kg	25	0.002	0.05
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	4.6E+00	pg/g	2	0.001	0.002
	Total DDT	9.4E+00	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.05
RM 12 West	Total Aroclors	1.2E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.00002	0.00003
	Total PCB TEQ	4.5E-01	pg/g	2	0.0001	0.0002
	Total DDT	9.5E+00	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.03
Study Area-wide[b]	Total Aroclors	3.6E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	2	0.1	0.1
	Total PCB TEQ	1.7E+01	pg/g	2	0.003	0.01
	Total DDT	3.7E+02	ug/kg	2	0.0001	0.0002
Exposure Point Total						0.2

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-37.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	1.0E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	2.7E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.8E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.003
RM 1 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	3.2E-01	pg/g	2	0.00001	0.00001
	Total DDT	2.5E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0004
RM 1.5 East	Total Aroclors	2.2E+01	ug/kg	25	0.00002	0.0006
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	1.1E-01	pg/g	2	0.000002	0.000005
	Total DDT	6.8E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.0006
RM 1.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	2	0.000001	0.000003
	Total DDT	7.9E-01	ug/kg	2	0.00000002	0.00000005
Exposure Point Total						0.0003
RM 2 East	Total Aroclors	4.3E+02	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	1.3E+01	pg/g	2	0.0003	0.0006
	Total DDT	2.6E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.01
RM 2 West	Total Aroclors	1.3E+01	ug/kg	25	0.00001	0.0004
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	2.5E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.4E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.0004
RM 2.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	1.3E+00	pg/g	2	0.00003	0.00006
	Total DDT	2.4E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.002
RM 2.5 MC	Total Aroclors	2.5E+01	ug/kg	25	0.00003	0.0007
	Total DDT	3.7E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
RM 2.5 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	2.1E-01	pg/g	2	0.000005	0.00001
	Total DDT	1.4E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.0003
RM 3 East	Total Aroclors	1.9E+01	ug/kg	25	0.00002	0.001
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	7.7E-02	pg/g	2	0.000002	0.000003
	Total DDT	1.6E+00	ug/kg	2	0.00000005	0.0000001
Exposure Point Total						0.001
RM 3 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	4.1E-01	pg/g	2	0.00001	0.00002
	Total DDT	2.8E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.0004
RM 3.5 East	Total Aroclors	3.8E+02	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	1.7E+01	pg/g	2	0.0004	0.001
	Total DDT	6.2E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 3.5 West	Total Aroclors	2.3E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	5.1E-01	pg/g	2	0.00001	0.00002
	Total DDT	5.8E+00	ug/kg	2	0.00000	0.0000003
Exposure Point Total						0.001
RM 4 East	Total Aroclors	1.5E+02	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	1.9E+00	pg/g	2	0.00004	0.0001
	Total DDT	5.4E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.004
RM 4 West	Total Aroclors	2.1E+01	ug/kg	25	0.00002	0.0006
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	4.7E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.9E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.001

TABLE 5-37.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	3.5E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00000	0.00001
	Total PCB TEQ	3.2E-01	pg/g	2	0.00001	0.00001
	Total DDT	4.9E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.001
RM 4.5 West	Total Aroclors	2.5E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	1.4E+00	pg/g	2	0.00003	0.0001
	Total DDT	4.5E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.001
RM 5 East	Total Aroclors	2.0E+01	ug/kg	25	0.00002	0.001
	Total DDT	1.4E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 5 West	Total Aroclors	1.7E+01	ug/kg	25	0.00002	0.0005
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	1.2E+00	pg/g	2	0.00003	0.0001
	Total DDT	1.2E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.001
RM 5.5 East	Total Aroclors	1.1E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	2.0E+00	pg/g	2	0.00005	0.0001
	Total DDT	8.2E+00	ug/kg	2	0.0000002	0.0000005
Exposure Point Total						0.003
RM 5.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	5.8E-01	pg/g	2	0.00001	0.00003
	Total DDT	1.9E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.001
RM 6 East	Total Aroclors	7.7E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	1.2E+00	pg/g	2	0.00003	0.0001
	Total DDT	2.9E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 6 West	Total Aroclors	4.3E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	1.4E+00	pg/g	2	0.00003	0.0001
	Total DDT	3.6E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.001
RM 6.5 East	Total Aroclors	2.0E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	2	0.0003	0.001
	Total PCB TEQ	3.0E+00	pg/g	2	0.0001	0.0001
	Total DDT	1.5E+01	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01
RM 6.5 West	Total Aroclors	6.4E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	2	0.0003	0.001
	Total PCB TEQ	1.8E+00	pg/g	2	0.00004	0.0001
	Total DDT	9.2E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.002
RM 7 East	Total Aroclors	4.2E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.0002	0.0005
	Total PCB TEQ	5.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	3.6E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 7 West	Total Aroclors	7.1E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	2	0.02	0.05
	Total PCB TEQ	7.7E+00	pg/g	2	0.0002	0.0003
	Total DDT	2.3E+03	ug/kg	2	0.0001	0.0001
Exposure Point Total						0.05
RM 7.5 East	Total Aroclors	3.2E+01	ug/kg	25	0.00004	0.0009
	Total DDT	1.1E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.001
RM 7.5 West	Total Aroclors	8.6E+01	ug/kg	25	0.00010	0.002
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	6.6E-01	pg/g	2	0.00002	0.00003
	Total DDT	2.1E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.002
RM 8 East	Total Aroclors	1.7E+02	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	5.8E+00	pg/g	2	0.0001	0.0003
	Total DDT	1.1E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.005

TABLE 5-37.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	2.8E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.2E+01	pg/g	2	0.0003	0.0005
	Total DDT	5.2E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.01
RM 8 West	Total Aroclors	1.2E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	3.6E+00	pg/g	2	0.0001	0.0002
	Total DDT	6.5E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.004
RM 8.5 East	Total Aroclors	4.6E+01	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	4.2E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.5E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 8.5 West	Total Aroclors	1.4E+03	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	3.3E+01	pg/g	2	0.001	0.001
	Total DDT	6.0E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.04
RM 9 East	Total Aroclors	5.2E+01	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	6.3E-01	pg/g	2	0.00001	0.00003
	Total DDT	1.4E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.002
RM 9 West	Total Aroclors	4.5E+02	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	1.6E+01	pg/g	2	0.0004	0.001
	Total DDT	4.4E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.01
RM 9.5 East	Total Aroclors	4.0E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	2.6E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.1E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.001
RM 9.5 West	Total Aroclors	2.1E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	3.6E+00	pg/g	2	0.0001	0.0002
	Total DDT	3.1E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.006
RM 10 East	Total Aroclors	3.4E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	6.9E-01	pg/g	2	0.00002	0.00003
	Total DDT	5.3E-01	ug/kg	2	0.00000002	0.00000003
Exposure Point Total						0.001
RM 10 West	Total Aroclors	1.8E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.8E+00	pg/g	2	0.00004	0.0001
	Total DDT	4.7E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.01
RM 10.5 East	Total Aroclors	5.2E+01	ug/kg	25	0.0001	0.001
	Total PCB TEQ	3.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	2.8E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
RM 10.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00004	0.001
	Total PCB TEQ	6.9E-01	pg/g	2	0.00002	0.00003
	Total DDT	1.7E+00	ug/kg	2	0.00000005	0.0000001
Exposure Point Total						0.001
RM 11 East	Total Aroclors	1.1E+03	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.2E+01	pg/g	2	0.0003	0.001
	Total DDT	9.9E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.03
RM 11 West	Total Aroclors	2.8E+01	ug/kg	25	0.00003	0.001
	Total DDT	1.3E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 11.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	2.9E-01	pg/g	2	0.00001	0.00001
	Total DDT	9.8E-01	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.0004

TABLE 5-37.
Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.6E+02	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	3.9E+00	pg/g	2	0.0001	0.0002
	Total DDT	9.4E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.005
RM 12 West	Total Aroclors	7.0E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.000002	0.000005
	Total PCB TEQ	4.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	5.9E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.002
Study Area-wide[b]	Total Aroclors	1.9E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	2	0.002	0.003
	Total PCB TEQ	6.6E+00	pg/g	2	0.0001	0.0003
	Total DDT	1.4E+02	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.01

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-38.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	5.1E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	2	0.0001	0.0001
	Total PCB TEQ	2.7E-01	pg/g	2	0.00004	0.0001
	Total DDT	4.0E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.1
RM 1 West	Total Aroclors	1.7E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	3.2E-01	pg/g	2	0.00004	0.0001
	Total DDT	4.6E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.003
RM 1.5 East	Total Aroclors	4.1E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	1.1E-01	pg/g	2	0.00001	0.00003
	Total DDT	2.2E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.01
RM 1.5 West	Total Aroclors	2.2E+01	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	2	0.00001	0.00001
	Total DDT	1.1E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.004
RM 2 East	Total Aroclors	1.5E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	2	0.00028	0.001
	Total PCB TEQ	8.5E+01	pg/g	2	0.01	0.02
	Total DDT	4.2E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.3
RM 2 West	Total Aroclors	1.8E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	3.5E-01	pg/g	2	0.00005	0.0001
	Total DDT	3.2E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.003
RM 2.5 East	Total Aroclors	7.7E+01	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	3.3E+00	pg/g	2	0.0004	0.0009
	Total DDT	1.1E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.01
RM 2.5 MC	Total Aroclors	3.9E+01	ug/kg	25	0.0003	0.01
	Total DDT	1.1E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.01
RM 2.5 West	Total Aroclors	2.1E+01	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	2.1E-01	pg/g	2	0.00003	0.0001
	Total DDT	3.4E+00	ug/kg	2	0.0000005	0.000001
Exposure Point Total						0.004
RM 3 East	Total Aroclors	2.3E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	1.0E-01	pg/g	2	0.00001	0.00003
	Total DDT	3.8E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.005
RM 3 West	Total Aroclors	1.8E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	4.4E-01	pg/g	2	0.0001	0.0001
	Total DDT	2.1E+02	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.003
RM 3.5 East	Total Aroclors	1.7E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	2	0.001	0.002
	Total PCB TEQ	1.1E+02	pg/g	2	0.02	0.03
	Total DDT	2.7E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.3
RM 3.5 West	Total Aroclors	2.7E+01	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	7.7E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.1E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.005
RM 4 East	Total Aroclors	3.6E+02	ug/kg	25	0.002	0.1
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	2	0.0005	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.0005	0.001
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.06
RM 4 West	Total Aroclors	2.6E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	6.5E-01	pg/g	2	0.0001	0.0002
	Total DDT	5.6E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.005

TABLE 5-38.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	4.4E+01	ug/kg	25	0.0003	0.007
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	3.4E-01	pg/g	2	0.00005	0.0001
	Total DDT	8.7E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.01
RM 4.5 West	Total Aroclors	3.8E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	2	0.0005	0.001
	Total PCB TEQ	2.5E+00	pg/g	2	0.0003	0.001
	Total DDT	2.7E+01	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.01
RM 5 East	Total Aroclors	2.5E+01	ug/kg	25	0.0002	0.004
	Total DDT	1.9E+00	ug/kg	2	0.0000003	0.0000005
Exposure Point Total						0.004
RM 5 West	Total Aroclors	2.5E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	2.1E+00	pg/g	2	0.0003	0.001
	Total DDT	8.2E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.01
RM 5.5 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	5.8E+00	pg/g	2	0.001	0.002
	Total DDT	2.0E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.03
RM 5.5 West	Total Aroclors	5.1E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	1.1E+00	pg/g	2	0.0001	0.0003
	Total DDT	6.2E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.01
RM 6 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.0005	0.001
	Total DDT	4.2E+00	ug/kg	2	0.000001	0.00000117
Exposure Point Total						0.03
RM 6 West	Total Aroclors	6.1E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	2.8E+00	pg/g	2	0.0004	0.001
	Total DDT	8.1E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.01
RM 6.5 East	Total Aroclors	1.3E+03	ug/kg	25	0.009	0.2
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	2	0.01	0.01
	Total PCB TEQ	1.3E+01	pg/g	2	0.002	0.004
	Total DDT	1.3E+02	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.2
RM 6.5 West	Total Aroclors	9.1E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	2	0.01	0.02
	Total PCB TEQ	3.0E+00	pg/g	2	0.0004	0.001
	Total DDT	1.7E+02	ug/kg	2	0.00002	0.00005
Exposure Point Total						0.03
RM 7 East	Total Aroclors	7.0E+01	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	2	0.003	0.01
	Total PCB TEQ	7.4E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.3E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.02
RM 7 West	Total Aroclors	9.3E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	2	1	2
	Total PCB TEQ	2.7E+01	pg/g	2	0.004	0.01
	Total DDT	6.3E+03	ug/kg	2	0.001	0.002
Exposure Point Total						2
RM 7.5 East	Total Aroclors	4.5E+01	ug/kg	25	0.0003	0.01
	Total DDT	3.3E+00	ug/kg	2	0.0000005	0.000001
Exposure Point Total						0.01
RM 7.5 West	Total Aroclors	2.5E+02	ug/kg	25	0.002	0.04
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	9.2E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.3E+02	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.04
RM 8 East	Total Aroclors	5.8E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	1.7E+01	pg/g	2	0.00	0.005
	Total DDT	9.4E+01	ug/kg	2	0.00001	0.00003
Exposure Point Total						0.1

TABLE 5-38.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	5.3E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	2	0.002	0.005
	Total PCB TEQ	8.8E+01	pg/g	2	0.01	0.02
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.1
RM 8 West	Total Aroclors	4.0E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	2	0.00003	0.00006
	Total PCB TEQ	6.1E+00	pg/g	2	0.001	0.002
	Total DDT	2.1E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.07
RM 8.5 East	Total Aroclors	7.2E+01	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	2	0.0001	0.0001
	Total PCB TEQ	5.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.3E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 8.5 West	Total Aroclors	8.5E+03	ug/kg	25	0.1	1
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	2	0.001	0.003
	Total PCB TEQ	2.4E+02	pg/g	2	0.03	0.1
	Total DDT	2.2E+01	ug/kg	2	0.000003	0.000006
Exposure Point Total						2
RM 9 East	Total Aroclors	1.0E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	6.3E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.9E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.02
RM 9 West	Total Aroclors	2.3E+03	ug/kg	25	0.02	0.4
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	3.2E+01	pg/g	2	0.004	0.01
	Total DDT	9.9E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.4
RM 9.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.3E-01	pg/g	2	0.00004	0.0001
	Total DDT	1.6E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 9.5 West	Total Aroclors	3.0E+02	ug/kg	25	0.002	0.05
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.001	0.002
	Total PCB TEQ	4.8E+00	pg/g	2	0.001	0.001
	Total DDT	4.5E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.1
RM 10 East	Total Aroclors	4.8E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.00004	0.0001
	Total PCB TEQ	8.0E-01	pg/g	2	0.0001	0.0002
	Total DDT	7.7E-01	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.01
RM 10 West	Total Aroclors	4.4E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	2	0.001	0.001
	Total PCB TEQ	3.0E+00	pg/g	2	0.0004	0.001
	Total DDT	6.7E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.1
RM 10.5 East	Total Aroclors	1.5E+02	ug/kg	25	0.001	0.03
	Total PCB TEQ	3.9E-01	pg/g	2	0.00005	0.0001
	Total DDT	1.2E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.03
RM 10.5 West	Total Aroclors	3.9E+01	ug/kg	25	0.0003	0.01
	Total PCB TEQ	6.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.7E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.01
RM 11 East	Total Aroclors	3.8E+03	ug/kg	25	0.03	0.7
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	2	0.0002	0.0004
	Total PCB TEQ	3.1E+01	pg/g	2	0.004	0.01
	Total DDT	3.8E+02	ug/kg	2	0.0001	0.0001
Exposure Point Total						0.7
RM 11 West	Total Aroclors	3.5E+01	ug/kg	25	0.0002	0.01
	Total DDT	2.1E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 11.5 West	Total Aroclors	2.4E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	2.9E-01	pg/g	2	0.00004	0.00008
	Total DDT	1.9E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.004

TABLE 5-38.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	4.6E+00	pg/g	2	0.001	0.001
	Total DDT	9.4E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.03
RM 12 West	Total Aroclors	1.2E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	4.5E-01	pg/g	2	0.0001	0.0001
	Total DDT	9.5E+00	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.02
Study Area-wide[b]	Total Aroclors	3.6E+02	ug/kg	25	0.002	0.1
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	2	0.05	0.1
	Total PCB TEQ	1.7E+01	pg/g	2	0.002	0.005
	Total DDT	3.7E+02	ug/kg	2	0.0001	0.0001
Exposure Point Total						0.2

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-39.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	1.0E+02	ug/kg	25	0.00006	0.001
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	2.7E-01	pg/g	2	0.000003	0.00001
	Total DDT	1.8E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.001
RM 1 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	3.2E-01	pg/g	2	0.000004	0.00001
	Total DDT	2.5E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.0002
RM 1.5 East	Total Aroclors	2.2E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	1.1E-01	pg/g	2	0.000001	0.000002
	Total DDT	6.8E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.0003
RM 1.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	2	0.000001	0.000001
	Total DDT	7.9E-01	ug/kg	2	0.00000001	0.00000002
Exposure Point Total						0.0002
RM 2 East	Total Aroclors	4.3E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	1.3E+01	pg/g	2	0.0002	0.0003
	Total DDT	2.6E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.01
RM 2 West	Total Aroclors	1.3E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	2.5E-01	pg/g	2	0.000003	0.00001
	Total DDT	1.4E+00	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.0002
RM 2.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	2	0.000005	0.00001
	Total PCB TEQ	1.3E+00	pg/g	2	0.00002	0.00003
	Total DDT	2.4E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 2.5 MC	Total Aroclors	2.5E+01	ug/kg	25	0.00001	0.0004
	Total DDT	3.7E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0004
RM 2.5 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	2	0.000002	0.000004
	Total PCB TEQ	2.1E-01	pg/g	2	0.000002	0.000005
	Total DDT	1.4E+00	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.0002
RM 3 East	Total Aroclors	1.9E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	7.7E-02	pg/g	2	0.000001	0.000002
	Total DDT	1.6E+00	ug/kg	2	0.00000002	0.00000005
Exposure Point Total						0.0003
RM 3 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	4.1E-01	pg/g	2	0.000005	0.00001
	Total DDT	2.8E+01	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.0002
RM 3.5 East	Total Aroclors	3.8E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	1.7E+01	pg/g	2	0.0002	0.0004
	Total DDT	6.2E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.01
RM 3.5 West	Total Aroclors	2.3E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	5.1E-01	pg/g	2	0.00001	0.00001
	Total DDT	5.8E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.0003
RM 4 East	Total Aroclors	1.5E+02	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.9E+00	pg/g	2	0.00002	0.00004
	Total DDT	5.4E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 4 West	Total Aroclors	2.1E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	4.7E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.9E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.0003

TABLE 5-39.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	3.5E+01	ug/kg	25	0.00002	0.0005
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.000002	0.000004
	Total PCB TEQ	3.2E-01	pg/g	2	0.000004	0.00001
	Total DDT	4.9E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0005
RM 4.5 West	Total Aroclors	2.5E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	1.4E+00	pg/g	2	0.00002	0.00003
	Total DDT	4.5E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0004
RM 5 East	Total Aroclors	2.0E+01	ug/kg	25	0.00001	0.0003
	Total DDT	1.4E+00	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.0003
RM 5 West	Total Aroclors	1.7E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.2E+00	pg/g	2	0.00001	0.00003
	Total DDT	1.2E+01	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.0003
RM 5.5 East	Total Aroclors	1.1E+02	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	2.0E+00	pg/g	2	0.00002	0.00005
	Total DDT	8.2E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 5.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00002	0.0005
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	5.8E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.9E+01	ug/kg	2	0.0000003	0.0000006
Exposure Point Total						0.0005
RM 6 East	Total Aroclors	7.7E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	1.2E+00	pg/g	2	0.00001	0.00003
	Total DDT	2.9E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 6 West	Total Aroclors	4.3E+01	ug/kg	25	0.00002	0.0006
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	1.4E+00	pg/g	2	0.00002	0.00003
	Total DDT	3.6E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.001
RM 6.5 East	Total Aroclors	2.0E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	2	0.0001	0.0003
	Total PCB TEQ	3.0E+00	pg/g	2	0.00003	0.0001
	Total DDT	1.5E+01	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.003
RM 6.5 West	Total Aroclors	6.4E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	2	0.0002	0.0003
	Total PCB TEQ	1.8E+00	pg/g	2	0.00002	0.00004
	Total DDT	9.2E+01	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.001
RM 7 East	Total Aroclors	4.2E+01	ug/kg	25	0.00002	0.001
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	5.5E-01	pg/g	2	0.00001	0.00001
	Total DDT	3.6E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 7 West	Total Aroclors	7.1E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	2	0.01	0.02
	Total PCB TEQ	7.7E+00	pg/g	2	0.0001	0.0002
	Total DDT	2.3E+03	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.03
RM 7.5 East	Total Aroclors	3.2E+01	ug/kg	25	0.00002	0.0004
	Total DDT	1.1E+00	ug/kg	2	0.00000002	0.00000003
Exposure Point Total						0.0004
RM 7.5 West	Total Aroclors	8.6E+01	ug/kg	25	0.00005	0.001
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	6.6E-01	pg/g	2	0.00001	0.00002
	Total DDT	2.1E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.001
RM 8 East	Total Aroclors	1.7E+02	ug/kg	25	0.00010	0.002
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	5.8E+00	pg/g	2	0.0001	0.0001
	Total DDT	1.1E+01	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.003

TABLE 5-39.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	2.8E+02	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	1.2E+01	pg/g	2	0.0001	0.0003
	Total DDT	5.2E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.004
RM 8 West	Total Aroclors	1.2E+02	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	2	0.000002	0.000004
	Total PCB TEQ	3.6E+00	pg/g	2	0.00004	0.0001
	Total DDT	6.5E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 8.5 East	Total Aroclors	4.6E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	2	0.000005	0.00001
	Total PCB TEQ	4.2E-01	pg/g	2	0.000005	0.00001
	Total DDT	1.5E+00	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.001
RM 8.5 West	Total Aroclors	1.4E+03	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	3.3E+01	pg/g	2	0.0004	0.001
	Total DDT	6.0E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.02
RM 9 East	Total Aroclors	5.2E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.000002	0.000003
	Total PCB TEQ	6.3E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.4E+00	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.001
RM 9 West	Total Aroclors	4.5E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.6E+01	pg/g	2	0.0002	0.0004
	Total DDT	4.4E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.007
RM 9.5 East	Total Aroclors	4.0E+01	ug/kg	25	0.00002	0.001
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	2.6E-01	pg/g	2	0.000003	0.00001
	Total DDT	1.1E+00	ug/kg	2	0.00000002	0.00000003
Exposure Point Total						0.001
RM 9.5 West	Total Aroclors	2.1E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	3.6E+00	pg/g	2	0.00004	0.0001
	Total DDT	3.1E+00	ug/kg	2	0.00000005	0.0000001
Exposure Point Total						0.003
RM 10 East	Total Aroclors	3.4E+01	ug/kg	25	0.00002	0.0005
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	6.9E-01	pg/g	2	0.00001	0.00002
	Total DDT	5.3E-01	ug/kg	2	0.00000001	0.00000002
Exposure Point Total						0.001
RM 10 West	Total Aroclors	1.8E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	1.8E+00	pg/g	2	0.00002	0.00004
	Total DDT	4.7E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.003
RM 10.5 East	Total Aroclors	5.2E+01	ug/kg	25	0.00003	0.0007
	Total PCB TEQ	3.5E-01	pg/g	2	0.000004	0.00001
	Total DDT	2.8E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 10.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00002	0.0004
	Total PCB TEQ	6.9E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.7E+00	ug/kg	2	0.00000002	0.00000005
Exposure Point Total						0.0005
RM 11 East	Total Aroclors	1.1E+03	ug/kg	25	0.0006	0.02
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	2	0.00002	0.00003
	Total PCB TEQ	1.2E+01	pg/g	2	0.0001	0.0003
	Total DDT	9.9E+01	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.02
RM 11 West	Total Aroclors	2.8E+01	ug/kg	25	0.00002	0.0004
	Total DDT	1.3E+00	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.0004
RM 11.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.000001	0.000003
	Total PCB TEQ	2.9E-01	pg/g	2	0.000003	0.00001
	Total DDT	9.8E-01	ug/kg	2	0.00000001	0.00000003
Exposure Point Total						0.0002

TABLE 5-39.
Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposu
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.6E+02	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.00001	0.00003
	Total PCB TEQ	3.9E+00	pg/g	2	0.00004	0.0001
	Total DDT	9.4E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.002
RM 12 West	Total Aroclors	7.0E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.000001	0.000002
	Total PCB TEQ	4.5E-01	pg/g	2	0.00001	0.00001
	Total DDT	5.9E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
Study Area-wide[b]	Total Aroclors	1.9E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	2	0.001	0.002
	Total PCB TEQ	6.6E+00	pg/g	2	0.0001	0.0001
	Total DDT	1.4E+02	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.004

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-40.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	5.1E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	2	0.00003	0.0001
	Total PCB TEQ	2.7E-01	pg/g	2	0.00004	0.0001
	Total DDT	4.0E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.1
RM 1 West	Total Aroclors	1.7E+01	ug/kg	25	0.0001	0.00
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.2E-01	pg/g	2	0.0001	0.0001
	Total DDT	4.6E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.004
RM 1.5 East	Total Aroclors	4.1E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.1E-01	pg/g	2	0.00002	0.00003
	Total DDT	2.2E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.01
RM 1.5 West	Total Aroclors	2.2E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	2	0.000004	0.00001
	Total DDT	1.1E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.004
RM 2 East	Total Aroclors	1.5E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	8.5E+01	pg/g	2	0.01	0.03
	Total DDT	4.2E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.3
RM 2 West	Total Aroclors	1.8E+01	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.5E-01	pg/g	2	0.0001	0.0001
	Total DDT	3.2E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.004
RM 2.5 East	Total Aroclors	7.7E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	3.3E+00	pg/g	2	0.001	0.001
	Total DDT	1.1E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.02
RM 2.5 MC	Total Aroclors	3.9E+01	ug/kg	25	0.0003	0.01
	Total DDT	1.1E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.01
RM 2.5 West	Total Aroclors	2.1E+01	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	2	0.00002	0.00003
	Total PCB TEQ	2.1E-01	pg/g	2	0.00003	0.0001
	Total DDT	3.4E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.004
RM 3 East	Total Aroclors	2.3E+01	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.00022	0.0004
	Total PCB TEQ	1.0E-01	pg/g	2	0.00002	0.00003
	Total DDT	3.8E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.005
RM 3 West	Total Aroclors	1.8E+01	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	4.4E-01	pg/g	2	0.0001	0.0001
	Total DDT	2.1E+02	ug/kg	2	0.00002	0.00004
Exposure Point Total						0.004
RM 3.5 East	Total Aroclors	1.7E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	2	0.0005	0.001
	Total PCB TEQ	1.1E+02	pg/g	2	0.02	0.04
	Total DDT	2.7E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.4
RM 3.5 West	Total Aroclors	2.7E+01	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	7.7E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.1E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.01
RM 4 East	Total Aroclors	3.6E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	3.4E+00	pg/g	2	0.001	0.001
	Total DDT	1.2E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.1
RM 4 West	Total Aroclors	2.6E+01	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	6.5E-01	pg/g	2	0.0001	0.0002
	Total DDT	5.6E+01	ug/kg	2	0.000005	0.00001
Exposure Point Total						0.01

TABLE 5-40.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	4.4E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	3.4E-01	pg/g	2	0.0001	0.0001
	Total DDT	8.7E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 4.5 West	Total Aroclors	3.8E+01	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	2	0.0003	0.001
	Total PCB TEQ	2.5E+00	pg/g	2	0.0004	0.001
	Total DDT	2.7E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.01
RM 5 East	Total Aroclors	2.5E+01	ug/kg	25	0.0002	0.005
	Total DDT	1.9E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.01
RM 5 West	Total Aroclors	2.5E+01	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.0002	0.0005
	Total PCB TEQ	2.1E+00	pg/g	2	0.0003	0.001
	Total DDT	8.2E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.01
RM 5.5 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.04
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	5.8E+00	pg/g	2	0.001	0.002
	Total DDT	2.0E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.04
RM 5.5 West	Total Aroclors	5.1E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.1E+00	pg/g	2	0.0002	0.0003
	Total DDT	6.2E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.01
RM 6 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0002	0.0003
	Total PCB TEQ	3.4E+00	pg/g	2	0.001	0.001
	Total DDT	4.2E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.04
RM 6 West	Total Aroclors	6.1E+01	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	2.8E+00	pg/g	2	0.0004	0.001
	Total DDT	8.1E+01	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.01
RM 6.5 East	Total Aroclors	1.3E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	2	0.004	0.01
	Total PCB TEQ	1.3E+01	pg/g	2	0.002	0.004
	Total DDT	1.3E+02	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.3
RM 6.5 West	Total Aroclors	9.1E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	2	0.005	0.01
	Total PCB TEQ	3.0E+00	pg/g	2	0.0005	0.001
	Total DDT	1.7E+02	ug/kg	2	0.00001	0.00003
Exposure Point Total						0.03
RM 7 East	Total Aroclors	7.0E+01	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	2	0.002	0.003
	Total PCB TEQ	7.4E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.3E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.02
RM 7 West	Total Aroclors	9.3E+01	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	2	0.6	1
	Total PCB TEQ	2.7E+01	pg/g	2	0.004	0.01
	Total DDT	6.3E+03	ug/kg	2	0.001	0.001
Exposure Point Total						1
RM 7.5 East	Total Aroclors	4.5E+01	ug/kg	25	0.0004	0.01
	Total DDT	3.3E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.009
RM 7.5 West	Total Aroclors	2.5E+02	ug/kg	25	0.002	0.05
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	9.2E-01	pg/g	2	0.0001	0.0003
	Total DDT	1.3E+02	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.05
RM 8 East	Total Aroclors	5.8E+02	ug/kg	25	0.005	0.1
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.7E+01	pg/g	2	0.003	0.01
	Total DDT	9.4E+01	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.1

TABLE 5-40.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	5.3E+02	ug/kg	25	0.004	0.10
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	2	0.001	0.003
	Total PCB TEQ	8.8E+01	pg/g	2	0.01	0.03
	Total DDT	1.2E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.1
RM 8 West	Total Aroclors	4.0E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	2	0.00002	0.00004
	Total PCB TEQ	6.1E+00	pg/g	2	0.001	0.002
	Total DDT	2.1E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						0.1
RM 8.5 East	Total Aroclors	7.2E+01	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	2	0.00004	0.0001
	Total PCB TEQ	5.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.3E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 8.5 West	Total Aroclors	8.5E+03	ug/kg	25	0.1	2
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	2	0.001	0.002
	Total PCB TEQ	2.4E+02	pg/g	2	0.04	0.1
	Total DDT	2.2E+01	ug/kg	2	0.000002	0.000004
Exposure Point Total						2
RM 9 East	Total Aroclors	1.0E+02	ug/kg	25	0.0008	0.02
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	6.3E-01	pg/g	2	0.0001	0.0002
	Total DDT	1.9E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.02
RM 9 West	Total Aroclors	2.3E+03	ug/kg	25	0.02	0.5
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	2	0.0002	0.0005
	Total PCB TEQ	3.2E+01	pg/g	2	0.005	0.01
	Total DDT	9.9E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.5
RM 9.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	3.3E-01	pg/g	2	0.00005	0.0001
	Total DDT	1.6E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.01
RM 9.5 West	Total Aroclors	3.0E+02	ug/kg	25	0.002	0.1
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.001	0.001
	Total PCB TEQ	4.8E+00	pg/g	2	0.001	0.002
	Total DDT	4.5E+00	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.1
RM 10 East	Total Aroclors	4.8E+01	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.00002	0.00005
	Total PCB TEQ	8.0E-01	pg/g	2	0.0001	0.0003
	Total DDT	7.7E-01	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.01
RM 10 West	Total Aroclors	4.4E+02	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	2	0.0004	0.001
	Total PCB TEQ	3.0E+00	pg/g	2	0.0005	0.001
	Total DDT	6.7E+00	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.1
RM 10.5 East	Total Aroclors	1.5E+02	ug/kg	25	0.001	0.03
	Total PCB TEQ	3.9E-01	pg/g	2	0.00006	0.00012
	Total DDT	1.2E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.03
RM 10.5 West	Total Aroclors	3.9E+01	ug/kg	25	0.0003	0.01
	Total PCB TEQ	6.9E-01	pg/g	2	0.0001	0.0002
	Total DDT	2.7E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.01
RM 11 East	Total Aroclors	3.8E+03	ug/kg	25	0.03	0.8
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	3.1E+01	pg/g	2	0.005	0.01
	Total DDT	3.8E+02	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.8
RM 11 West	Total Aroclors	3.5E+01	ug/kg	25	0.0003	0.01
	Total DDT	2.1E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.01
RM 11.5 West	Total Aroclors	2.4E+01	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	2.9E-01	pg/g	2	0.00005	0.0001
	Total DDT	1.9E+00	ug/kg	2	0.0000002	0.0000003
Exposure Point Total						0.005

TABLE 5-40.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.8E+02	ug/kg	25	0.001	0.04
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	4.6E+00	pg/g	2	0.001	0.001
	Total DDT	9.4E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.04
RM 12 West	Total Aroclors	1.2E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	4.5E-01	pg/g	2	0.0001	0.0001
	Total DDT	9.5E+00	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.02
Study Area-wide[b]	Total Aroclors	3.6E+02	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	2	0.03	0.1
	Total PCB TEQ	1.7E+01	pg/g	2	0.003	0.01
	Total DDT	3.7E+02	ug/kg	2	0.00003	0.0001
Exposure Point Total						0.1

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-41.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	1.0E+02	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	4.7E-01	pg/g	2	0.000002	0.000005
	Total PCB TEQ	2.7E-01	pg/g	2	0.000004	0.000008
	Total DDT	1.8E+00	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.002
RM 1 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	7.6E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	3.2E-01	pg/g	2	0.000005	0.00001
	Total DDT	2.5E+00	ug/kg	2	0.00000002	0.00000005
Exposure Point Total						0.0002
RM 1.5 East	Total Aroclors	2.2E+01	ug/kg	25	0.00002	0.0004
	Total Dioxin/Furan TEQ	5.7E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	1.1E-01	pg/g	2	0.000002	0.000003
	Total DDT	6.8E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0004
RM 1.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	8.5E-02	pg/g	2	0.0000004	0.000001
	Total DDT	7.9E-01	ug/kg	2	0.00000001	0.00000002
Exposure Point Total						0.0002
RM 2 East	Total Aroclors	4.3E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	1.2E+00	pg/g	2	0.00001	0.00001
	Total PCB TEQ	1.3E+01	pg/g	2	0.0002	0.0004
	Total DDT	2.6E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.01
RM 2 West	Total Aroclors	1.3E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	8.2E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	2.5E-01	pg/g	2	0.000004	0.00001
	Total DDT	1.4E+00	ug/kg	2	0.00000001	0.00000003
Exposure Point Total						0.0003
RM 2.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	6.6E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	1.3E+00	pg/g	2	0.00002	0.00004
	Total DDT	2.4E+00	ug/kg	2	0.00000002	0.00000005
Exposure Point Total						0.001
RM 2.5 MC	Total Aroclors	2.5E+01	ug/kg	25	0.00002	0.0005
	Total DDT	3.7E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.0005
RM 2.5 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	2.7E-01	pg/g	2	0.000001	0.000003
	Total PCB TEQ	2.1E-01	pg/g	2	0.000003	0.000007
	Total DDT	1.4E+00	ug/kg	2	0.00000001	0.00000003
Exposure Point Total						0.0002
RM 3 East	Total Aroclors	1.9E+01	ug/kg	25	0.00002	0.0004
	Total Dioxin/Furan TEQ	2.9E+00	pg/g	2	0.00001	0.00003
	Total PCB TEQ	7.7E-02	pg/g	2	0.000001	0.000002
	Total DDT	1.6E+00	ug/kg	2	0.00000002	0.00000003
Exposure Point Total						0.0004
RM 3 West	Total Aroclors	1.1E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	4.1E-01	pg/g	2	0.000007	0.00001
	Total DDT	2.8E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.0002
RM 3.5 East	Total Aroclors	3.8E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.00002	0.00003
	Total PCB TEQ	1.7E+01	pg/g	2	0.0003	0.0006
	Total DDT	6.2E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.01
RM 3.5 West	Total Aroclors	2.3E+01	ug/kg	25	0.00002	0.0004
	Total Dioxin/Furan TEQ	9.1E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	5.1E-01	pg/g	2	0.000008	0.00002
	Total DDT	5.8E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.0005
RM 4 East	Total Aroclors	1.5E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	1.9E+00	pg/g	2	0.00003	0.00006
	Total DDT	5.4E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.003
RM 4 West	Total Aroclors	2.1E+01	ug/kg	25	0.00002	0.0004
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	4.7E-01	pg/g	2	0.00001	0.00001
	Total DDT	1.9E+01	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.0005

TABLE 5-41.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	3.5E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.000001	0.000003
	Total PCB TEQ	3.2E-01	pg/g	2	0.000005	0.00001
	Total DDT	4.9E+00	ug/kg	2	0.00000005	0.0000001
Exposure Point Total						0.001
RM 4.5 West	Total Aroclors	2.5E+01	ug/kg	25	0.00002	0.0005
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.00001	0.00003
	Total PCB TEQ	1.4E+00	pg/g	2	0.00002	0.00004
	Total DDT	4.5E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 5 East	Total Aroclors	2.0E+01	ug/kg	25	0.00002	0.0004
	Total DDT	1.4E+00	ug/kg	2	0.00000001	0.00000003
Exposure Point Total						0.0004
RM 5 West	Total Aroclors	1.7E+01	ug/kg	25	0.00001	0.0003
	Total Dioxin/Furan TEQ	3.5E+00	pg/g	2	0.00002	0.00003
	Total PCB TEQ	1.2E+00	pg/g	2	0.00002	0.00004
	Total DDT	1.2E+01	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.0004
RM 5.5 East	Total Aroclors	1.1E+02	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	4.4E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	2.0E+00	pg/g	2	0.00003	0.00006
	Total DDT	8.2E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 5.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00001	0.00001
	Total PCB TEQ	5.8E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.9E+01	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.001
RM 6 East	Total Aroclors	7.7E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	3.2E+00	pg/g	2	0.00002	0.00003
	Total PCB TEQ	1.2E+00	pg/g	2	0.00002	0.00004
	Total DDT	2.9E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.002
RM 6 West	Total Aroclors	4.3E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	1.4E+00	pg/g	2	0.00002	0.00005
	Total DDT	3.6E+01	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.001
RM 6.5 East	Total Aroclors	2.0E+02	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	2.0E+01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.0E+00	pg/g	2	0.00005	0.0001
	Total DDT	1.5E+01	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.004
RM 6.5 West	Total Aroclors	6.4E+01	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	2.1E+01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	1.8E+00	pg/g	2	0.00003	0.0001
	Total DDT	9.2E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.002
RM 7 East	Total Aroclors	4.2E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.0001	0.0002
	Total PCB TEQ	5.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	3.6E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.001
RM 7 West	Total Aroclors	7.1E+01	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	1.7E+03	pg/g	2	0.01	0.02
	Total PCB TEQ	7.7E+00	pg/g	2	0.0001	0.0002
	Total DDT	2.3E+03	ug/kg	2	0.00002	0.00005
Exposure Point Total						0.02
RM 7.5 East	Total Aroclors	3.2E+01	ug/kg	25	0.00003	0.001
	Total DDT	1.1E+00	ug/kg	2	0.00000001	0.00000002
Exposure Point Total						0.001
RM 7.5 West	Total Aroclors	8.6E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.000005	0.00001
	Total PCB TEQ	6.6E-01	pg/g	2	0.000011	0.00002
	Total DDT	2.1E+01	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.002
RM 8 East	Total Aroclors	1.7E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	9.3E-01	pg/g	2	0.000005	0.00001
	Total PCB TEQ	5.8E+00	pg/g	2	0.00009	0.0002
	Total DDT	1.1E+01	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.004

TABLE 5-41.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	2.8E+02	ug/kg	25	0.0002	0.01
	Total Dioxin/Furan TEQ	6.3E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.2E+01	pg/g	2	0.0002	0.0004
	Total DDT	5.2E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.01
RM 8 West	Total Aroclors	1.2E+02	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.6E-01	pg/g	2	0.000001	0.000003
	Total PCB TEQ	3.6E+00	pg/g	2	0.00006	0.0001
	Total DDT	6.5E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.002
RM 8.5 East	Total Aroclors	4.6E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	6.3E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	4.2E-01	pg/g	2	0.000007	0.00001
	Total DDT	1.5E+00	ug/kg	2	0.00000001	0.00000003
Exposure Point Total						0.001
RM 8.5 West	Total Aroclors	1.4E+03	ug/kg	25	0.001	0.03
	Total Dioxin/Furan TEQ	5.0E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	3.3E+01	pg/g	2	0.0005	0.001
	Total DDT	6.0E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.03
RM 9 East	Total Aroclors	5.2E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.000001	0.000002
	Total PCB TEQ	6.3E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.4E+00	ug/kg	2	0.00000001	0.00000003
Exposure Point Total						0.001
RM 9 West	Total Aroclors	4.5E+02	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	3.9E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	1.6E+01	pg/g	2	0.0002	0.0005
	Total DDT	4.4E+00	ug/kg	2	0.0000	0.0000001
Exposure Point Total						0.01
RM 9.5 East	Total Aroclors	4.0E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	8.9E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	2.6E-01	pg/g	2	0.000004	0.00001
	Total DDT	1.1E+00	ug/kg	2	0.00000001	0.00000002
Exposure Point Total						0.001
RM 9.5 West	Total Aroclors	2.1E+02	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	8.6E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	3.6E+00	pg/g	2	0.00006	0.0001
	Total DDT	3.1E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.004
RM 10 East	Total Aroclors	3.4E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	6.9E-01	pg/g	2	0.00001	0.00002
	Total DDT	5.3E-01	ug/kg	2	0.00000001	0.00000001
Exposure Point Total						0.001
RM 10 West	Total Aroclors	1.8E+02	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	5.1E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.8E+00	pg/g	2	0.00003	0.0001
	Total DDT	4.7E+00	ug/kg	2	0.00000005	0.0000001
Exposure Point Total						0.004
RM 10.5 East	Total Aroclors	5.2E+01	ug/kg	25	0.00004	0.001
	Total PCB TEQ	3.5E-01	pg/g	2	0.00001	0.00001
	Total DDT	2.8E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.001
RM 10.5 West	Total Aroclors	3.2E+01	ug/kg	25	0.00003	0.001
	Total PCB TEQ	6.9E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.7E+00	ug/kg	2	0.00000002	0.00000003
Exposure Point Total						0.001
RM 11 East	Total Aroclors	1.1E+03	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	2.0E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	1.2E+01	pg/g	2	0.0002	0.0004
	Total DDT	9.9E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.02
RM 11 West	Total Aroclors	2.8E+01	ug/kg	25	0.00002	0.001
	Total DDT	1.3E+00	ug/kg	2	0.00000001	0.00000003
Exposure Point Total						0.001
RM 11.5 West	Total Aroclors	1.2E+01	ug/kg	25	0.00001	0.0002
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.000001	0.000002
	Total PCB TEQ	2.9E-01	pg/g	2	0.000005	0.000009
	Total DDT	9.8E-01	ug/kg	2	0.00000001	0.00000002
Exposure Point Total						0.0003

TABLE 5-41.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Wet Suit, In-water Sediment I
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.6E+02	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.00001	0.00002
	Total PCB TEQ	3.9E+00	pg/g	2	0.00006	0.0001
	Total DDT	9.4E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.003
RM 12 West	Total Aroclors	7.0E+01	ug/kg	25	0.0001	0.001
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.000001	0.000002
	Total PCB TEQ	4.5E-01	pg/g	2	0.000007	0.00001
	Total DDT	5.9E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
Study Area-wide[b]	Total Aroclors	1.9E+02	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	1.0E+02	pg/g	2	0.001	0.001
	Total PCB TEQ	6.6E+00	pg/g	2	0.0001	0.0002
	Total DDT	1.4E+02	ug/kg	2	0.000001	0.000003
Exposure Point Total						0.005

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-42.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Dry Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 1 East	Total Aroclors	5.1E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	7.5E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	2.7E-01	pg/g	2	0.00001	0.00002
	Total DDT	4.0E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.02
RM 1 West	Total Aroclors	1.7E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	2.7E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	3.2E-01	pg/g	2	0.00001	0.00002
	Total DDT	4.6E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.001
RM 1.5 East	Total Aroclors	4.1E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.8E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.1E-01	pg/g	2	0.000003	0.00001
	Total DDT	2.2E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.002
RM 1.5 West	Total Aroclors	2.2E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	9.4E-02	pg/g	2	0.000001	0.000003
	Total DDT	1.1E+00	ug/kg	2	0.00000003	0.0000001
Exposure Point Total						0.001
RM 2 East	Total Aroclors	1.5E+03	ug/kg	25	0.002	0.1
	Total Dioxin/Furan TEQ	4.0E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	8.5E+01	pg/g	2	0.003	0.01
	Total DDT	4.2E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.1
RM 2 West	Total Aroclors	1.8E+01	ug/kg	25	0.00003	0.0007
	Total Dioxin/Furan TEQ	2.2E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	3.5E-01	pg/g	2	0.00001	0.00002
	Total DDT	3.2E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
RM 2.5 East	Total Aroclors	7.7E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.00002	0.00003
	Total PCB TEQ	3.3E+00	pg/g	2	0.0001	0.0002
	Total DDT	1.1E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.003
RM 2.5 MC	Total Aroclors	3.9E+01	ug/kg	25	0.0001	0.001
	Total DDT	1.1E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.001
RM 2.5 West	Total Aroclors	2.1E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	4.1E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	2.1E-01	pg/g	2	0.00001	0.00001
	Total DDT	3.4E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
RM 3 East	Total Aroclors	2.3E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.00008	0.0002
	Total PCB TEQ	1.0E-01	pg/g	2	0.000003	0.00001
	Total DDT	3.8E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.001
RM 3 West	Total Aroclors	1.8E+01	ug/kg	25	0.00003	0.001
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	4.4E-01	pg/g	2	0.00001	0.00003
	Total DDT	2.1E+02	ug/kg	2	0.00001	0.00001
Exposure Point Total						0.001
RM 3.5 East	Total Aroclors	1.7E+03	ug/kg	25	0.003	0.1
	Total Dioxin/Furan TEQ	1.1E+01	pg/g	2	0.0002	0.0003
	Total PCB TEQ	1.1E+02	pg/g	2	0.003	0.01
	Total DDT	2.7E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.1
RM 3.5 West	Total Aroclors	2.7E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	1.6E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	7.7E-01	pg/g	2	0.00002	0.00005
	Total DDT	2.1E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.001
RM 4 East	Total Aroclors	3.6E+02	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	6.9E+00	pg/g	2	0.00010	0.0002
	Total PCB TEQ	3.4E+00	pg/g	2	0.00010	0.0002
	Total DDT	1.2E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 4 West	Total Aroclors	2.6E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.00005	0.0001
	Total PCB TEQ	6.5E-01	pg/g	2	0.00002	0.00004
	Total DDT	5.6E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.001

TABLE 5-42.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Dry Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 4.5 East	Total Aroclors	4.4E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.8E-01	pg/g	2	0.000004	0.00001
	Total PCB TEQ	3.4E-01	pg/g	2	0.00001	0.00002
	Total DDT	8.7E+00	ug/kg	2	0.0000002	0.0000005
Exposure Point Total						0.002
RM 4.5 West	Total Aroclors	3.8E+01	ug/kg	25	0.00006	0.001
	Total Dioxin/Furan TEQ	6.8E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	2.5E+00	pg/g	2	0.0001	0.0002
	Total DDT	2.7E+01	ug/kg	2	0.000001	0.000002
Exposure Point Total						0.002
RM 5 East	Total Aroclors	2.5E+01	ug/kg	25	0.00004	0.001
	Total DDT	1.9E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 5 West	Total Aroclors	2.5E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	5.4E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	2.1E+00	pg/g	2	0.0001	0.0001
	Total DDT	8.2E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.001
RM 5.5 East	Total Aroclors	1.8E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	8.9E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	5.8E+00	pg/g	2	0.0002	0.0004
	Total DDT	2.0E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.01
RM 5.5 West	Total Aroclors	5.1E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	2.3E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.1E+00	pg/g	2	0.00003	0.0001
	Total DDT	6.2E+01	ug/kg	2	0.000002	0.000003
Exposure Point Total						0.002
RM 6 East	Total Aroclors	1.8E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	4.1E+00	pg/g	2	0.0001	0.0001
	Total PCB TEQ	3.4E+00	pg/g	2	0.0001	0.0002
	Total DDT	4.2E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.01
RM 6 West	Total Aroclors	6.1E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.00002	0.00004
	Total PCB TEQ	2.8E+00	pg/g	2	0.0001	0.0002
	Total DDT	8.1E+01	ug/kg	2	0.000002	0.000005
Exposure Point Total						0.003
RM 6.5 East	Total Aroclors	1.3E+03	ug/kg	25	0.002	0.1
	Total Dioxin/Furan TEQ	8.9E+01	pg/g	2	0.001	0.003
	Total PCB TEQ	1.3E+01	pg/g	2	0.0004	0.001
	Total DDT	1.3E+02	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.1
RM 6.5 West	Total Aroclors	9.1E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	1.1E+02	pg/g	2	0.002	0.003
	Total PCB TEQ	3.0E+00	pg/g	2	0.0001	0.0002
	Total DDT	1.7E+02	ug/kg	2	0.000005	0.00001
Exposure Point Total						0.01
RM 7 East	Total Aroclors	7.0E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	4.0E+01	pg/g	2	0.001	0.001
	Total PCB TEQ	7.4E-01	pg/g	2	0.00002	0.00005
	Total DDT	1.3E+01	ug/kg	2	0.0000004	0.000001
Exposure Point Total						0.004
RM 7 West	Total Aroclors	9.3E+01	ug/kg	25	0.0001	0.004
	Total Dioxin/Furan TEQ	1.4E+04	pg/g	2	0.2	0.4
	Total PCB TEQ	2.7E+01	pg/g	2	0.001	0.002
	Total DDT	6.3E+03	ug/kg	2	0.0002	0.0004
Exposure Point Total						0.4
RM 7.5 East	Total Aroclors	4.5E+01	ug/kg	25	0.0001	0.002
	Total DDT	3.3E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 7.5 West	Total Aroclors	2.5E+02	ug/kg	25	0.0004	0.01
	Total Dioxin/Furan TEQ	2.6E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	9.2E-01	pg/g	2	0.00003	0.0001
	Total DDT	1.3E+02	ug/kg	2	0.000004	0.00001
Exposure Point Total						0.01
RM 8 East	Total Aroclors	5.8E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	2.1E+00	pg/g	2	0.00003	0.0001
	Total PCB TEQ	1.7E+01	pg/g	2	0.001	0.001
	Total DDT	9.4E+01	ug/kg	2	0.000003	0.00001
Exposure Point Total						0.02

TABLE 5-42.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Dry Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Hazard Calculations[a] IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 8 SIL	Total Aroclors	5.3E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	3.3E+01	pg/g	2	0.0005	0.001
	Total PCB TEQ	8.8E+01	pg/g	2	0.003	0.01
	Total DDT	1.2E+01	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.03
RM 8 West	Total Aroclors	4.0E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	4.3E-01	pg/g	2	0.00001	0.00001
	Total PCB TEQ	6.1E+00	pg/g	2	0.0002	0.0004
	Total DDT	2.1E+01	ug/kg	2	0.0000006	0.000001
Exposure Point Total						0.02
RM 8.5 East	Total Aroclors	7.2E+01	ug/kg	25	0.0001	0.003
	Total Dioxin/Furan TEQ	9.4E-01	pg/g	2	0.00001	0.00003
	Total PCB TEQ	5.9E-01	pg/g	2	0.00002	0.00004
	Total DDT	2.3E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.003
RM 8.5 West	Total Aroclors	8.5E+03	ug/kg	25	0.01	0.3
	Total Dioxin/Furan TEQ	1.8E+01	pg/g	2	0.0003	0.001
	Total PCB TEQ	2.4E+02	pg/g	2	0.01	0.01
	Total DDT	2.2E+01	ug/kg	2	0.000001	0.000001
Exposure Point Total						0.3
RM 9 East	Total Aroclors	1.0E+02	ug/kg	25	0.0002	0.004
	Total Dioxin/Furan TEQ	2.2E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	6.3E-01	pg/g	2	0.00002	0.00004
	Total DDT	1.9E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.004
RM 9 West	Total Aroclors	2.3E+03	ug/kg	25	0.004	0.1
	Total Dioxin/Furan TEQ	6.0E+00	pg/g	2	0.0001	0.0002
	Total PCB TEQ	3.2E+01	pg/g	2	0.001	0.002
	Total DDT	9.9E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.1
RM 9.5 East	Total Aroclors	5.6E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	1.1E+00	pg/g	2	0.00002	0.00003
	Total PCB TEQ	3.3E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.6E+00	ug/kg	2	0.00000004	0.0000001
Exposure Point Total						0.002
RM 9.5 West	Total Aroclors	3.0E+02	ug/kg	25	0.0005	0.01
	Total Dioxin/Furan TEQ	1.7E+01	pg/g	2	0.0002	0.0005
	Total PCB TEQ	4.8E+00	pg/g	2	0.0001	0.0003
	Total DDT	4.5E+00	ug/kg	2	0.0000001	0.0000003
Exposure Point Total						0.01
RM 10 East	Total Aroclors	4.8E+01	ug/kg	25	0.0001	0.002
	Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.00001	0.00002
	Total PCB TEQ	8.0E-01	pg/g	2	0.00002	0.00005
	Total DDT	7.7E-01	ug/kg	2	0.00000002	0.00000004
Exposure Point Total						0.002
RM 10 West	Total Aroclors	4.4E+02	ug/kg	25	0.001	0.02
	Total Dioxin/Furan TEQ	9.9E+00	pg/g	2	0.0001	0.0003
	Total PCB TEQ	3.0E+00	pg/g	2	0.0001	0.0002
	Total DDT	6.7E+00	ug/kg	2	0.0000002	0.0000004
Exposure Point Total						0.02
RM 10.5 East	Total Aroclors	1.5E+02	ug/kg	25	0.00024	0.006
	Total PCB TEQ	3.9E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.2E+01	ug/kg	2	0.00000	0.00000
Exposure Point Total						0.006
RM 10.5 West	Total Aroclors	3.9E+01	ug/kg	25	0.0001	0.001
	Total PCB TEQ	6.9E-01	pg/g	2	0.00002	0.00004
	Total DDT	2.7E+00	ug/kg	2	0.0000001	0.0000002
Exposure Point Total						0.002
RM 11 East	Total Aroclors	3.8E+03	ug/kg	25	0.01	0.1
	Total Dioxin/Furan TEQ	3.0E+00	pg/g	2	0.00004	0.0001
	Total PCB TEQ	3.1E+01	pg/g	2	0.001	0.002
	Total DDT	3.8E+02	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.1
RM 11 West	Total Aroclors	3.5E+01	ug/kg	25	0.00005	0.001
	Total DDT	2.1E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001
RM 11.5 West	Total Aroclors	2.4E+01	ug/kg	25	0.00004	0.001
	Total Dioxin/Furan TEQ	1.8E-01	pg/g	2	0.000003	0.00001
	Total PCB TEQ	2.9E-01	pg/g	2	0.00001	0.00002
	Total DDT	1.9E+00	ug/kg	2	0.0000001	0.0000001
Exposure Point Total						0.001

TABLE 5-42.
Calculation of Noncancer Hazards - Breastfeeding Infant of Commercial Diver in Dry Suit, In-water Sediment I
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: In-water Sediment
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	EPC		Noncancer Hazard Calculations[a]		
		Value	Units	IRAF	Adult (Mother) Total Noncancer HQ	Breastfeeding Infant Noncancer HQ
RM 12 East	Total Aroclors	1.8E+02	ug/kg	25	0.0003	0.01
	Total Dioxin/Furan TEQ	1.7E+00	pg/g	2	0.00002	0.00005
	Total PCB TEQ	4.6E+00	pg/g	2	0.0001	0.0003
	Total DDT	9.4E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.01
RM 12 West	Total Aroclors	1.2E+02	ug/kg	25	0.0002	0.005
	Total Dioxin/Furan TEQ	1.7E-01	pg/g	2	0.000002	0.000005
	Total PCB TEQ	4.5E-01	pg/g	2	0.00001	0.00003
	Total DDT	9.5E+00	ug/kg	2	0.0000003	0.000001
Exposure Point Total						0.005
Study Area-wide[b]	Total Aroclors	3.6E+02	ug/kg	25	0.001	0.01
	Total Dioxin/Furan TEQ	6.6E+02	pg/g	2	0.01	0.02
	Total PCB TEQ	1.7E+01	pg/g	2	0.001	0.001
	Total DDT	3.7E+02	ug/kg	2	0.00001	0.00002
Exposure Point Total						0.03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

Abbreviations:

-- = Not Applicable.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor
PCB = Polychlorinated Biphenyls.
pg/g = Picograms per gram.
RM = River mile.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-43. Summary of Risks From Exposures to In-water Sediment[a]

Exposure Point	In-water Worker	Tribal Fisher	High Frequency Fisher	Low Frequency Fisher	Diver in Wet Suit	Diver in Dry Suit	Breastfeeding Infant of In-water Worker[b]	Breastfeeding Infant of Tribal Fisher[b]	Breastfeeding Infant of High Frequency Fisher[b]	Breastfeeding Infant of Low Frequency Fisher[b]	Breastfeeding Infant of Diver in Wet Suit[b]	Breastfeeding Infant of Diver in Dry Suit[b]
RM 1 West	--	2E-06	--	--	--	--	--	--	--	--	--	--
RM 1 East	--	2E-06	--	--	--	--	--	--	--	--	--	--
RM 1.5 West	--	--	--	--	--	--	--	--	--	--	--	--
RM 1.5 East	--	6E-06	--	--	--	--	--	--	--	--	--	--
RM 2 West	--	--	--	--	--	--	--	--	--	--	--	--
RM 2 East	--	6E-06	2E-06	--	--	--	--	--	--	--	--	--
RM 2.5 West	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 2.5 East	--	2E-05	4E-06	3E-06	3E-06	--	--	--	--	--	--	--
RM 2.5 MC	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 3 West	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 3 East	--	2E-06	--	--	--	--	--	--	--	--	--	--
RM 3.5 West	--	1E-05	3E-06	2E-06	2E-06	--	--	--	--	--	--	--
RM 3.5 East	--	1E-05	3E-06	2E-06	2E-06	--	--	--	--	--	--	--
RM 4 West	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 4 East	--	1E-05	3E-06	2E-06	2E-06	--	--	--	--	--	--	--
RM 4.5 West	--	8E-06	2E-06	--	--	--	--	--	--	--	--	--
RM 4.5 East	2E-06	3E-05	9E-06	6E-06	5E-06	--	--	--	--	--	--	--
RM 5 West	--	1E-05	4E-06	3E-06	2E-06	--	--	--	--	--	--	--
RM 5 East	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 5 West	--	1E-05	4E-06	3E-06	2E-06	--	--	--	--	--	--	--
RM 5 East	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 5.5 West	--	2E-05	4E-06	3E-06	2E-06	--	--	--	--	--	--	--
RM 5.5 East	--	5E-06	--	--	--	--	--	--	--	--	--	--
RM 6 West	9E-06	2E-04	5E-05	3E-05	3E-05	6E-06	--	--	--	--	--	--
RM 6 East	--	8E-06	2E-06	--	--	--	--	--	--	--	--	--
RM 6.5 West	--	1E-05	3E-06	2E-06	--	--	--	--	--	--	--	--
RM 6.5 East	--	6E-06	--	--	--	--	--	--	--	--	--	--
RM 7 West	2E-05	3E-04 (3)	8E-05 (2)	6E-05	3E-05	1E-05	2	5	3	2	--	--
RM 7 East	--	7E-06	2E-06	--	--	--	--	--	--	--	--	--
RM 7.5 West	--	2E-06	--	--	--	--	--	--	--	--	--	--
RM 7.5 East	--	--	--	--	--	--	--	--	--	--	--	--
RM 8 West	--	5E-06	--	--	--	--	--	--	--	--	--	--
RM 8 East	--	5E-06	--	--	--	--	--	--	--	--	--	--
RM 8 SIL	--	8E-06	2E-06	--	--	--	--	--	--	--	--	--
RM 8.5 West	--	2E-05	5E-06	4E-06	3E-06	--	--	4	2	2	2	--
RM 8.5 East	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 9 West	--	5E-06	--	--	--	--	--	--	--	--	--	--
RM 9 East	--	--	--	--	--	--	--	--	--	--	--	--
RM 9.5 West	--	3E-06	--	--	--	--	--	--	--	--	--	--
RM 9.5 East	--	--	--	--	--	--	--	--	--	--	--	--
RM 10 West	--	9E-06	2E-06	2E-06	--	--	--	--	--	--	--	--
RM 10 East	--	2E-06	--	--	--	--	--	--	--	--	--	--
RM 10.5 West	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 5-43. Summary of Risks From Exposures to In-water Sediment[a]

Exposure Point	In-water Worker	Tribal Fisher	High Frequency Fisher	Low Frequency Fisher	Diver in Wet Suit	Diver in Dry Suit	Breastfeeding Infant of In-water Worker[b]	Breastfeeding Infant of Tribal Fisher[b]	Breastfeeding Infant of High Frequency Fisher[b]	Breastfeeding Infant of Low Frequency Fisher[b]	Breastfeeding Infant of Diver in Wet Suit[b]	Breastfeeding Infant of Diver in Dry Suit[b]
RM 10.5 East	--	--	--	--	--	--	--	--	--	--	--	--
RM 11 West	--	2E-06	--	--	--	--	--	--	--	--	--	--
RM 11 East	--	5E-06	--	--	--	--	--	2	--	--	--	--
RM 11.5 West	--	--	--	--	--	--	--	--	--	--	--	--
RM 12 West	--	7E-06	2E-06	--	--	--	--	--	--	--	--	--
RM 12 East	--	--	--	--	--	--	--	--	--	--	--	--
Study Area-wide	2E-06	3E-05	7E-06	5E-06	4E-06	--	--	--	--	--	--	--

Notes:

a Table presents cumulative risk (or cumulative hazard indices) per exposure area for reasonable maximum exposure scenarios, per exposure area and per receptor

b Only hazard indices values are presented for breast feeding infant exposure scenarios.

Abbreviations:

-- Exposure area does not result in risk greater than 1 x 10^{-6} or hazard index greater than 1.

MC Multnomah Channel

SIL Swan Island Lagoon

TABLE 5-44.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Willamette Cove	**Metals**																
W014	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	2.7E-10	4.2E-07	4.1E-10	6.4E-07	6.E-07	3.0E-04	3.0E-04	9.5E-09	1.5E-05	3.2E-05	5.0E-02	0.05
Exposure Point Total[b]										6.E-07							0.05
Transect, RM 3.9	**Metals**																
W005	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	2.7E-10	4.2E-07	4.1E-10	6.3E-07	6.E-07	3.0E-04	3.0E-04	9.5E-09	1.5E-05	3.2E-05	4.9E-02	0.05
	Herbicides																
	MCPP	9.1E+00	ug/l	--	--	3.9E-07	7.4E-06	--	--	--	1.0E-03	1.0E-03	1.4E-05	2.6E-04	1.4E-02	2.6E-01	0.3
Exposure Point Total										6.E-07							0.3
Transect, RM 6.3	**Metals**																
W011	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	2.4E-10	3.8E-07	3.7E-10	5.7E-07	6.E-07	3.0E-04	3.0E-04	8.5E-09	1.3E-05	2.8E-05	4.4E-02	0.04
	Chromium, hexavalent	9.0E-01	ug/l	1.3E-02	5.0E-01	4.7E-10	7.3E-07	5.9E-12	3.7E-07	4.E-07	7.5E-05	3.0E-03	1.6E-08	2.6E-05	2.2E-04	8.6E-03	0.01
Exposure Point Total										9.E-07							0.05
Transect, RM 11	**Metals**																
W023	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	2.4E-10	3.8E-07	3.7E-10	5.7E-07	6.E-07	3.0E-04	3.0E-04	8.5E-09	1.3E-05	2.8E-05	4.4E-02	0.04
	Herbicides																
	MCPP	8.0E+00	ug/l	--	--	3.5E-07	6.5E-06	--	--	--	1.0E-03	1.0E-03	1.2E-05	2.3E-04	1.2E-02	2.3E-01	0.2
Exposure Point Total										6.E-07							0.3
Transect, RM 2	**Metals**																
W025	Arsenic, total	6.0E-01	ug/l	1.5E+00	1.5E+00	3.2E-10	4.9E-07	4.7E-10	7.4E-07	7.E-07	3.0E-04	3.0E-04	1.1E-08	1.7E-05	3.7E-05	5.7E-02	0.06
Exposure Point Total										7.E-07							0.06

TABLE 5-44.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transect, MC W027	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	2.6E-10	4.0E-07	3.9E-10	6.1E-07	6.E-07	3.0E-04	3.0E-04	9.1E-09	1.4E-05	3.0E-05	4.7E-02	0.05
	Herbicides																
	MCPP	1.3E+01	ug/l	--	--	5.4E-07	1.0E-05	--	--	--	1.0E-03	1.0E-03	1.9E-05	3.6E-04	1.9E-02	3.6E-01	0.4
Exposure Point Total										6.E-07							0.4
Study Area-wide Transects	**Metals**																
	Arsenic, total	4.5E-01	ug/l	1.5E+00	1.5E+00	2.4E-10	3.7E-07	3.5E-10	5.5E-07	6.E-07	3.0E-04	3.0E-04	8.2E-09	1.3E-05	2.7E-05	4.3E-02	0.04
	Chromium, hexavalent	9.0E-01	ug/l	1.3E-02	5.0E-01	4.7E-10	7.3E-07	5.9E-12	3.7E-07	4.E-07	7.5E-05	3.0E-03	1.6E-08	2.6E-05	2.2E-04	8.6E-03	0.01
	Herbicides																
	MCPP	9.1E+00	ug/l	--	--	3.9E-07	7.4E-06	--	--	--	1.0E-03	1.0E-03	1.4E-05	2.6E-04	1.4E-02	2.6E-01	0.3
Exposure Point Total										9.E-07							0.3

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative cancer risks include total metals only.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MC = Multnomah Channel
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference dose.
ug = microgram.

TABLE 5-45.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Willamette Cove	**Metals**																
W014	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	3.7E-11	6.3E-08	5.5E-11	9.5E-08	9.E-08	3.0E-04	3.0E-04	2.6E-09	4.4E-06	8.6E-06	1.5E-02	0.01
Exposure Point Total[b]										9.E-08							0.01
Transect, RM 3.9	**Metals**																
W005	Arsenic, total	4.6E-01	ug/l	1.5E+00	1.5E+00	3.8E-11	6.5E-08	5.7E-11	9.8E-08	1.E-07	3.0E-04	3.0E-04	2.7E-09	4.6E-06	8.9E-06	1.5E-02	0.02
	Herbicides																
	MCPP	4.7E+00	ug/l	--	--	4.0E-08	6.7E-07	--	--	--	1.0E-03	1.0E-03	2.8E-06	4.7E-05	2.8E-03	4.7E-02	0.05
Exposure Point Total										1.E-07							0.06
Transect, RM 6.3	**Metals**																
W011	Arsenic, total	3.9E-01	ug/l	1.5E+00	1.5E+00	3.2E-11	5.5E-08	4.9E-11	8.3E-08	8.E-08	3.0E-04	3.0E-04	2.3E-09	3.9E-06	7.6E-06	1.3E-02	0.01
	Chromium, hexavalent	6.0E-01	ug/l	1.3E-02	5.0E-01	5.0E-11	8.6E-08	6.3E-13	4.3E-08	4.E-08	7.5E-05	3.0E-03	3.5E-09	6.0E-06	4.7E-05	2.0E-03	0.002
Exposure Point Total										1.E-07							0.01
Transect, RM 11	**Metals**																
W023	Arsenic, total	4.0E-01	ug/l	1.5E+00	1.5E+00	3.3E-11	5.7E-08	5.0E-11	8.5E-08	9.E-08	3.0E-04	3.0E-04	2.3E-09	4.0E-06	7.8E-06	1.3E-02	0.01
	Herbicides																
	MCPP	4.2E+00	ug/l	--	--	3.7E-08	6.1E-07	--	--	--	1.0E-03	1.0E-03	2.6E-06	4.3E-05	2.6E-03	4.3E-02	0.05
Exposure Point Total										9.E-08							0.06
Transect, RM 2	**Metals**																
W025	Arsenic, total	3.5E-01	ug/l	1.5E+00	1.5E+00	2.9E-11	5.0E-08	4.4E-11	7.5E-08	7.E-08	3.0E-04	3.0E-04	2.0E-09	3.5E-06	6.8E-06	1.2E-02	0.01
Exposure Point Total										7.E-08							0.01

TABLE 5-45.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[a]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transect, MC W027	**Metals**																
	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	3.7E-11	6.3E-08	5.5E-11	9.5E-08	9.E-08	3.0E-04	3.0E-04	2.6E-09	4.4E-06	8.6E-06	1.5E-02	0.01
	Herbicides																
	MCPP	6.3E+00	ug/l	--	--	5.4E-08	9.0E-07	--	--	--	1.0E-03	1.0E-03	3.8E-06	6.3E-05	3.8E-03	6.3E-02	0.07
Exposure Point Total										9.E-08							0.08
Study Area-wide Transects	**Metals**																
	Arsenic, total	4.0E-01	ug/l	1.5E+00	1.5E+00	3.4E-11	5.8E-08	5.1E-11	8.7E-08	9.E-08	3.0E-04	3.0E-04	2.4E-09	4.0E-06	7.9E-06	1.3E-02	0.01
	Chromium, hexavalent	6.0E-01	ug/l	1.3E-02	5.0E-01	5.0E-11	8.6E-08	6.3E-13	4.3E-08	4.E-08	7.5E-05	3.0E-03	3.5E-09	6.0E-06	4.7E-05	2.0E-03	0.002
	Herbicides																
	MCPP	4.0E+00	ug/l	--	--	3.4E-08	5.7E-07	--	--	--	1.0E-03	1.0E-03	2.4E-06	4.0E-05	2.4E-03	4.0E-02	0.04
Exposure Point Total										1.E-07							0.06

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative cancer risks include total metals only.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MC = Multnomah Channel
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference dose.
ug = microgram.

TABLE 5-46.
Calculation of Noncancer Hazards - Child Recreational Beach User, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Cathedral Park W010	**Metals** Arsenic, total	5.4E-01	ug/l	3.0E-04	3.0E-04	4.2E-08	3.2E-07	1.4E-04	1.1E-03	0.001
Exposure Point Total[b]										0.001
Willamette Cove W014	**Metals** Arsenic, total	5.2E-01	ug/l	3.0E-04	3.0E-04	4.1E-08	3.1E-07	1.4E-04	1.0E-03	0.001
Exposure Point Total										0.001
Swan Island Lagoon W020	**Metals** Arsenic, total	4.7E-01	ug/l	3.0E-04	3.0E-04	3.7E-08	2.8E-07	1.2E-04	9.3E-04	0.001
Exposure Point Total										0.001
Study Area-wide Transects	**Metals** Arsenic, total	5.5E-01	ug/l	3.0E-04	3.0E-04	4.3E-08	3.3E-07	1.4E-04	1.1E-03	0.001
Exposure Point Total										0.001

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Cumulative noncancer hazards include total metals only.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference dose.
ug = microgram.

TABLE 5-47.
Calculation of Noncancer Hazards - Child Recreational Beach User, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child Recreational Beach User
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Cathedral Park W010	**Metals** Arsenic, total	5.4E-01	ug/l	3.0E-04	3.0E-04	8.5E-09	6.4E-08	2.8E-05	2.1E-04	0.0002
Exposure Point Total[b]										0.0002
Willamette Cove W014	**Metals** Arsenic, total	5.2E-01	ug/l	3.0E-04	3.0E-04	8.1E-09	6.2E-08	2.7E-05	2.1E-04	0.0002
Exposure Point Total										0.0002
Swan Island Lagoon W020	**Metals** Arsenic, total	4.7E-01	ug/l	3.0E-04	3.0E-04	7.4E-09	5.6E-08	2.5E-05	1.9E-04	0.0002
Exposure Point Total										0.0002
Study Area-wide Transects	**Metals** Arsenic, total	5.1E-01	ug/l	3.0E-04	3.0E-04	8.0E-09	6.1E-08	2.7E-05	2.0E-04	0.0002
Exposure Point Total										0.0002

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Cumulative noncancer hazards include total metals only.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference dose.
ug = microgram.

TABLE 5-48.
Calculation of Cancer Risks - Combined Child and Adult Recreational Beach User, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child & Adult Recreational Beach User
Population Age: Child and Adult
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	**Adult Total Cancer Risk[a]**	**Child Total Cancer Risk[a]**	**Combined Adult and Child Cancer Risk[a,b]**
Cathedral Park W010	**Metals** Arsenic, total	5.4E-01	ug/l	2.E-08	5.E-08	7.E-08
Exposure Point Total[b]				2.E-08	5.E-08	7.E-08
Willamette Cove W014	**Metals** Arsenic, total	5.2E-01	ug/l	2.E-08	4.E-08	6.E-08
Exposure Point Total				2.E-08	4.E-08	6.E-08
Swan Island Lagoon W020	**Metals** Arsenic, total	4.7E-01	ug/l	2.E-08	4.E-08	6.E-08
Exposure Point Total				2.E-08	4.E-08	6.E-08
Study Area-wide Transects	**Metals** Arsenic, total	5.5E-01	ug/l	2.E-08	5.E-08	7.E-08
Exposure Point Total				2.E-08	5.E-08	7.E-08

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Cumulative cancer risks include total metals only. Combined adult and child cancer risks calculated based on child exposure of 6 years and weighted adult exposure of 24 years for a recreational beach user.

Abbreviations:

-- = Not applicable.
EPC = Exposure Point Concentration.
l = liter.
ug = microgram.

TABLE 5-49.
Calculation of Cancer Risks - Combined Child and Adult Recreational Beach User, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Child & Adult Recreational Beach User
Population Age: Child and Adult
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	**Adult Total Cancer Risk[a]**	**Child Total Cancer Risk[a]**	**Combined Adult and Child Cancer Risk[a,b]**
Cathedral Park W010	**Metals** Arsenic, total	5.4E-01	ug/l	2.E-09	9.E-09	1.E-08
Exposure Point Total[b]				2.E-09	9.E-09	1.E-08
Willamette Cove W014	**Metals** Arsenic, total	5.2E-01	ug/l	2.E-09	9.E-09	1.E-08
Exposure Point Total				2.E-09	9.E-09	1.E-08
Swan Island Lagoon W020	**Metals** Arsenic, total	4.7E-01	ug/l	2.E-09	8.E-09	9.E-09
Exposure Point Total				2.E-09	8.E-09	9.E-09
Study Area-wide Transects	**Metals** Arsenic, total	5.1E-01	ug/l	2.E-09	9.E-09	1.E-08
Exposure Point Total				2.E-09	9.E-09	1.E-08

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Cumulative cancer risks include total metals only. Combined adult and child cancer risks are calculated based on sum of child exposure of 6 years and adult CT exposure of 9 years.

Abbreviations: -- = Not applicable.
CT = Central tendency
EPC = Exposure Point Concentration.
l = liter.
ug = microgram.

TABLE 5-50.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Single Point Samples																	
RM 2.0 E	**Metals**																
	Arsenic, total	6.2E-01	ug/l	1.5E+00	1.5E+00	3.2E-09	8.7E-09	4.7E-09	1.3E-08	2.E-08	3.0E-04	3.0E-04	8.8E-09	2.4E-08	2.9E-05	8.1E-05	0.0001
	Naphthalene	6.5E-03	ug/l	--	--	1.8E-09	9.1E-11	--	--	--	2.0E-02	2.0E-02	5.0E-09	2.5E-10	2.5E-07	1.3E-08	0.0000003
	Herbicides																
	MCPP	5.2E+00	ug/l	--	--	5.5E-07	7.3E-08	--	--	--	1.0E-03	1.0E-03	1.5E-06	2.0E-07	1.5E-03	2.0E-04	0.002
	Exposure Point Total[c]									2.E-08							0.002
RM 2.0 W	**Metals**																
	Arsenic, total	6.9E-01	ug/l	1.5E+00	1.5E+00	3.5E-09	9.6E-09	5.2E-09	1.4E-08	2.E-08	3.0E-04	3.0E-04	9.8E-09	2.7E-08	3.3E-05	9.0E-05	0.0001
	Exposure Point Total									2.E-08							0.0001
RM 3.0 W	**Metals**																
	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	2.5E-09	6.8E-09	3.7E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	7.0E-09	1.9E-08	2.3E-05	6.4E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E-03	ug/l	7.3E-01	7.3E-01	1.4E-08	4.2E-11	1.0E-08	3.1E-11	1.E-08	--	--	4.0E-08	1.2E-10	--	--	--
	Benzo(a)pyrene	2.7E-03	ug/l	7.3E+00	7.3E+00	2.2E-08	3.8E-11	1.6E-07	2.8E-10	2.E-07	--	--	6.1E-08	1.1E-10	--	--	--
	Benzo(b)fluoranthene	2.8E-03	ug/l	7.3E-01	7.3E-01	2.3E-08	3.9E-11	1.7E-08	2.9E-11	2.E-08	--	--	6.4E-08	1.1E-10	--	--	--
	Exposure Point Total									2.E-07							0.0001
RM 3.5 E	**Metals**																
	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	2.5E-09	6.8E-09	3.7E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	6.9E-09	1.9E-08	2.3E-05	6.4E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E-02	ug/l	7.3E-01	7.3E-01	5.7E-08	1.7E-10	4.1E-08	1.2E-10	4.E-08	--	--	1.6E-07	4.7E-10	--	--	--
	Benzo(b)fluoranthene	9.0E-03	ug/l	7.3E-01	7.3E-01	7.4E-08	1.3E-10	5.4E-08	9.2E-11	5.E-08	--	--	2.1E-07	3.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.5E-03	ug/l	7.3E-01	7.3E-01	4.5E-08	7.7E-11	3.3E-08	5.6E-11	3.E-08	--	--	1.3E-07	2.2E-10	--	--	--
	Exposure Point Total									1.E-07							0.0001
RM 4.0 E	**Metals**																
	Arsenic, total	4.8E-01	ug/l	1.5E+00	1.5E+00	2.4E-09	6.7E-09	3.7E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	6.8E-09	1.9E-08	2.3E-05	6.3E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E-03	ug/l	7.3E-01	7.3E-01	3.1E-08	9.1E-11	2.2E-08	6.6E-11	2.E-08	--	--	8.6E-08	2.5E-10	--	--	--
	Benzo(a)pyrene	4.0E-03	ug/l	7.3E+00	7.3E+00	3.2E-08	5.6E-11	2.4E-07	4.1E-10	2.E-07	--	--	9.0E-08	1.6E-10	--	--	--
	Benzo(b)fluoranthene	4.0E-03	ug/l	7.3E-01	7.3E-01	3.3E-08	5.6E-11	2.4E-08	4.1E-11	2.E-08	--	--	9.2E-08	1.6E-10	--	--	--
	Exposure Point Total									3.E-07							0.0001
RM 4.0 W	**Metals**																
	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	2.5E-09	6.8E-09	3.7E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	7.0E-09	1.9E-08	2.3E-05	6.4E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E-03	ug/l	7.3E-01	7.3E-01	2.8E-08	8.2E-11	2.0E-08	6.0E-11	2.E-08	--	--	7.8E-08	2.3E-10	--	--	--
	Exposure Point Total									3.E-08							0.0001

TABLE 5-50.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 4.5 E	**Metals**																
	Arsenic, total	4.8E-01	ug/l	1.5E+00	1.5E+00	2.4E-09	6.7E-09	3.7E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	6.8E-09	1.9E-08	2.3E-05	6.3E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.8E-03	ug/l	7.3E-01	7.3E-01	3.7E-08	1.1E-10	2.7E-08	8.0E-11	3.E-08	--	--	1.0E-07	3.1E-10	--	--	--
	Benzo(a)pyrene	7.5E-03	ug/l	7.3E+00	7.3E+00	6.1E-08	1.0E-10	4.4E-07	7.7E-10	4.E-07	--	--	1.7E-07	2.9E-10	--	--	--
	Benzo(b)fluoranthene	8.0E-03	ug/l	7.3E-01	7.3E-01	6.6E-08	1.1E-10	4.8E-08	8.2E-11	5.E-08	--	--	1.8E-07	3.1E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E-03	ug/l	7.3E+00	7.3E+00	5.5E-08	6.2E-11	4.0E-07	4.5E-10	4.E-07	--	--	1.5E-07	1.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.7E-03	ug/l	7.3E-01	7.3E-01	4.7E-08	8.0E-11	3.4E-08	5.8E-11	3.E-08	--	--	1.3E-07	2.2E-10	--	--	--
	Exposure Point Total									1.E-06							0.0001
RM 5.5 E	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	2.5E-09	6.9E-09	3.8E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	7.1E-09	1.9E-08	2.4E-05	6.5E-05	0.0001
	Pesticides																
	Aldrin	4.1E-03	ug/l	1.7E+01	1.7E+01	1.4E-10	5.7E-11	2.3E-09	9.6E-10	3.E-09	3.0E-05	3.0E-05	3.8E-10	1.6E-10	1.3E-05	5.3E-06	0.00002
	Exposure Point Total									2.E-08							0.0001
RM 5.5 W	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	2.5E-09	7.0E-09	3.8E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	7.1E-09	2.0E-08	2.4E-05	6.5E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E-03	ug/l	7.3E-01	7.3E-01	2.0E-08	6.0E-11	1.5E-08	4.4E-11	1.E-08	--	--	5.7E-08	1.7E-10	--	--	--
	Exposure Point Total									3.E-08							0.0001
RM 6.0 W	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	2.6E-09	7.2E-09	3.9E-09	1.1E-08	1.E-08	3.0E-04	3.0E-04	7.3E-09	2.0E-08	2.4E-05	6.7E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E-01	ug/l	7.3E-01	7.3E-01	6.5E-07	1.9E-09	4.7E-07	1.4E-09	5.E-07	--	--	1.8E-06	5.4E-09	--	--	--
	Benzo(a)pyrene	1.5E-01	ug/l	7.3E+00	7.3E+00	1.2E-06	2.1E-09	8.8E-06	1.5E-08	9.E-06	--	--	3.4E-06	5.9E-09	--	--	--
	Benzo(b)fluoranthene	1.1E-01	ug/l	7.3E-01	7.3E-01	9.0E-07	1.5E-09	6.6E-07	1.1E-09	7.E-07	--	--	2.5E-06	4.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E-02	ug/l	7.3E+00	7.3E+00	1.7E-07	1.9E-10	1.3E-06	1.4E-09	1.E-06	--	--	4.8E-07	5.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E-01	ug/l	7.3E-01	7.3E-01	9.0E-07	1.5E-09	6.6E-07	1.1E-09	7.E-07	--	--	2.5E-06	4.3E-09	--	--	--
	Naphthalene	7.7E-01	ug/l	--	--	2.1E-07	1.1E-08	--	--	--	2.0E-02	2.0E-02	5.9E-07	3.0E-08	3.0E-05	1.5E-06	0.00003
	Pesticides																
	Aldrin	2.1E-06	ug/l	1.7E+01	1.7E+01	7.3E-14	3.0E-14	1.2E-12	5.1E-13	2.E-12	3.0E-05	3.0E-05	2.0E-13	8.4E-14	6.8E-09	2.8E-09	0.00000001
	Exposure Point Total									1.E-05							0.0001
RM 6.5 E	**Metals**																
	Arsenic, total	4.2E-01	ug/l	1.5E+00	1.5E+00	2.2E-09	5.9E-09	3.2E-09	8.9E-09	1.E-08	3.0E-04	3.0E-04	6.0E-09	1.7E-08	2.0E-05	5.5E-05	0.0001
	Chromium, hexavalent	7.0E-01	ug/l	1.3E-02	5.0E-01	3.6E-09	9.8E-09	4.4E-11	4.9E-09	5.E-09	7.5E-05	3.0E-03	9.9E-09	2.7E-08	1.3E-04	9.1E-06	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E-03	ug/l	7.3E-01	7.3E-01	5.4E-09	1.6E-11	4.0E-09	1.2E-11	4.E-09	--	--	1.5E-08	4.5E-11	--	--	--
	Benzo(a)pyrene	9.4E-04	ug/l	7.3E+00	7.3E+00	7.6E-09	1.3E-11	5.5E-08	9.6E-11	6.E-08	--	--	2.1E-08	3.7E-11	--	--	--
	Benzo(b)fluoranthene	7.2E-04	ug/l	7.3E-01	7.3E-01	5.9E-09	1.0E-11	4.3E-09	7.4E-12	4.E-09	--	--	1.7E-08	2.8E-11	--	--	--

TABLE 5-50.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Dibenzo(a,h)anthracene	8.8E-04	ug/l	7.3E+00	7.3E+00	1.1E-08	1.2E-11	8.0E-08	9.0E-11	8.E-08	--	--	3.1E-08	3.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.5E-04	ug/l	7.3E-01	7.3E-01	3.7E-09	6.4E-12	2.7E-09	4.6E-12	3.E-09	--	--	1.0E-08	1.8E-11	--	--	--
	Naphthalene	1.7E-02	ug/l	--	--	4.7E-09	2.4E-10	--	--	--	2.0E-02	2.0E-02	1.3E-08	6.6E-10	6.5E-07	3.3E-08	0.000001
	Pesticides																
	Aldrin	2.1E-06	ug/l	1.7E+01	1.7E+01	7.2E-14	3.0E-14	1.2E-12	5.1E-13	2.E-12	3.0E-05	3.0E-05	2.0E-13	8.3E-14	6.7E-09	2.8E-09	0.00000001
	Exposure Point Total									2.E-07							0.0002
RM 6.5 W	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	2.6E-09	7.3E-09	4.0E-09	1.1E-08	1.E-08	3.0E-04	3.0E-04	7.4E-09	2.0E-08	2.5E-05	6.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E-03	ug/l	7.3E-01	7.3E-01	2.9E-08	8.6E-11	2.1E-08	6.3E-11	2.E-08	--	--	8.1E-08	2.4E-10	--	--	--
	Benzo(a)pyrene	6.6E-03	ug/l	7.3E+00	7.3E+00	5.4E-08	9.3E-11	3.9E-07	6.8E-10	4.E-07	--	--	1.5E-07	2.6E-10	--	--	--
	Benzo(b)fluoranthene	6.8E-03	ug/l	7.3E-01	7.3E-01	5.5E-08	9.5E-11	4.0E-08	6.9E-11	4.E-08	--	--	1.6E-07	2.6E-10	--	--	--
	Dibenzo(a,h)anthracene	8.7E-04	ug/l	7.3E+00	7.3E+00	1.1E-08	1.2E-11	7.9E-08	8.8E-11	8.E-08	--	--	3.0E-08	3.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E-03	ug/l	7.3E-01	7.3E-01	5.0E-08	8.5E-11	3.6E-08	6.2E-11	4.E-08	--	--	1.4E-07	2.4E-10	--	--	--
	Naphthalene	2.9E-02	ug/l	--	--	7.9E-09	4.0E-10	--	--	--	2.0E-02	2.0E-02	2.2E-08	1.1E-09	1.1E-06	5.6E-08	0.000001
	Pesticides																
	Aldrin	1.6E-05	ug/l	1.7E+01	1.7E+01	5.5E-13	2.3E-13	9.4E-12	3.9E-12	1.E-11	3.0E-05	3.0E-05	1.5E-12	6.4E-13	5.2E-08	2.1E-08	0.0000001
	Exposure Point Total									6.E-07							0.0001
RM 7.0 W	**Metals**																
	Arsenic, total	4.5E-01	ug/l	1.5E+00	1.5E+00	2.3E-09	6.3E-09	3.4E-09	9.5E-09	1.E-08	3.0E-04	3.0E-04	6.4E-09	1.8E-08	2.1E-05	5.9E-05	0.0001
	Chromium, hexavalent	9.0E-01	ug/l	1.3E-02	5.0E-01	4.6E-09	1.3E-08	5.7E-11	6.3E-09	6.E-09	7.5E-05	3.0E-03	1.3E-08	3.5E-08	1.7E-04	1.2E-05	0.0002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E-03	ug/l	7.3E-01	7.3E-01	1.6E-08	4.8E-11	1.2E-08	3.5E-11	1.E-08	--	--	4.5E-08	1.3E-10	--	--	--
	Benzo(a)pyrene	2.9E-03	ug/l	7.3E+00	7.3E+00	2.3E-08	4.0E-11	1.7E-07	2.9E-10	2.E-07	--	--	6.5E-08	1.1E-10	--	--	--
	Benzo(b)fluoranthene	2.4E-03	ug/l	7.3E-01	7.3E-01	1.9E-08	3.3E-11	1.4E-08	2.4E-11	1.E-08	--	--	5.4E-08	9.2E-11	--	--	--
	Dibenzo(a,h)anthracene	5.4E-04	ug/l	7.3E+00	7.3E+00	6.8E-09	7.6E-12	4.9E-08	5.5E-11	5.E-08	--	--	1.9E-08	2.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E-03	ug/l	7.3E-01	7.3E-01	2.3E-08	3.9E-11	1.7E-08	2.9E-11	2.E-08	--	--	6.4E-08	1.1E-10	--	--	--
	Naphthalene	7.4E-04	ug/l	--	--	2.0E-10	1.0E-11	--	--	--	2.0E-02	2.0E-02	5.7E-10	2.9E-11	2.9E-08	1.5E-09	0.00000003
	Pesticides																
	Aldrin	3.3E-06	ug/l	1.7E+01	1.7E+01	1.1E-13	4.6E-14	1.9E-12	7.9E-13	3.E-12	3.0E-05	3.0E-05	3.1E-13	1.3E-13	1.0E-08	4.3E-09	0.00000001
	Herbicides																
	MCPP	6.2E+00	ug/l	--	--	6.5E-07	8.6E-08	--	--	--	1.0E-03	1.0E-03	1.8E-06	2.4E-07	1.8E-03	2.4E-04	0.002
	Conventionals																
	Perchlorate	7.0E+00	ug/l	--	--	2.5E-12	9.8E-08	--	--	--	7.0E-04	7.0E-04	7.1E-12	2.7E-07	1.0E-08	3.9E-04	0.0004
	Exposure Point Total									3.E-07							0.003
RM 7.5 W	**Metals**																
	Arsenic, total	5.4E-01	ug/l	1.5E+00	1.5E+00	2.8E-09	7.6E-09	4.1E-09	1.1E-08	2.E-08	3.0E-04	3.0E-04	7.7E-09	2.1E-08	2.6E-05	7.1E-05	0.0001
	Pesticides																
	Aldrin	8.7E-07	ug/l	1.7E+01	1.7E+01	3.0E-14	1.2E-14	5.0E-13	2.1E-13	7.E-13	3.0E-05	3.0E-05	8.3E-14	3.4E-14	2.8E-09	1.1E-09	0.000000004
	Exposure Point Total									2.E-08							0.0001

TABLE 5-50.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8 SIL	**Metals**																
	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	2.2E-09	6.2E-09	3.4E-09	9.3E-09	1.E-08	3.0E-04	3.0E-04	6.3E-09	1.7E-08	2.1E-05	5.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E-03	ug/l	7.3E-01	7.3E-01	1.4E-08	4.1E-11	1.0E-08	3.0E-11	1.E-08	--	--	3.9E-08	1.1E-10	--	--	--
	Benzo(a)pyrene	4.8E-03	ug/l	7.3E+00	7.3E+00	3.9E-08	6.8E-11	2.9E-07	4.9E-10	3.E-07	--	--	1.1E-07	1.9E-10	--	--	--
	Benzo(b)fluoranthene	2.6E-03	ug/l	7.3E-01	7.3E-01	2.1E-08	3.6E-11	1.5E-08	2.6E-11	2.E-08	--	--	5.9E-08	1.0E-10	--	--	--
	Dibenzo(a,h)anthracene	7.8E-04	ug/l	7.3E+00	7.3E+00	9.7E-09	1.1E-11	7.1E-08	8.0E-11	7.E-08	--	--	2.7E-08	3.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E-03	ug/l	7.3E-01	7.3E-01	1.6E-08	2.7E-11	1.1E-08	1.9E-11	1.E-08	--	--	4.4E-08	7.5E-11	--	--	--
	Naphthalene	6.9E-03	ug/l	--	--	1.9E-09	9.6E-11	--	--	--	2.0E-02	2.0E-02	5.3E-09	2.7E-10	2.6E-07	1.3E-08	0.0000003
	Pesticides																
	Aldrin	4.0E-06	ug/l	1.7E+01	1.7E+01	1.3E-13	5.6E-14	2.3E-12	9.4E-13	3.E-12	3.0E-05	3.0E-05	3.8E-13	1.6E-13	1.3E-08	5.2E-09	0.00000002
	Herbicides																
	MCPP	1.9E+01	ug/l	--	--	2.0E-06	2.6E-07	--	--	--	1.0E-03	1.0E-03	5.5E-06	7.3E-07	5.5E-03	7.3E-04	0.006
	Exposure Point Total									4.E-07							0.006
RM 8.5 W	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	2.5E-09	7.0E-09	3.8E-09	1.1E-08	1.E-08	3.0E-04	3.0E-04	7.1E-09	2.0E-08	2.4E-05	6.5E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Indeno(1,2,3-cd)pyrene	5.1E-03	ug/l	7.3E-01	7.3E-01	4.2E-08	7.1E-11	3.0E-08	5.2E-11	3.E-08	--	--	1.2E-07	2.0E-10	--	--	--
	Naphthalene	8.3E-02	ug/l	--	--	2.3E-08	1.2E-09	--	--	--	2.0E-02	2.0E-02	6.4E-08	3.3E-09	3.2E-06	1.6E-07	0.000003
	Exposure Point Total									4.E-08							0.0001
RM 9.5 E	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	2.6E-09	7.3E-09	4.0E-09	1.1E-08	1.E-08	3.0E-04	3.0E-04	7.4E-09	2.0E-08	2.5E-05	6.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Naphthalene	2.0E-02	ug/l	--	--	5.6E-09	2.8E-10	--	--	--	2.0E-02	2.0E-02	1.6E-08	7.9E-10	7.8E-07	4.0E-08	0.000001
	Exposure Point Total									1.E-08							0.0001
RM 9.5 W	**Metals**																
	Arsenic, total	6.1E-01	ug/l	1.5E+00	1.5E+00	3.1E-09	8.5E-09	4.6E-09	1.3E-08	2.E-08	3.0E-04	3.0E-04	8.7E-09	2.4E-08	2.9E-05	7.9E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Dibenzo(a,h)anthracene	7.2E-03	ug/l	7.3E+00	7.3E+00	9.0E-08	1.0E-10	6.6E-07	7.3E-10	7.E-07	--	--	2.5E-07	2.8E-10	--	--	--
	Exposure Point Total									7.E-07							0.0001
Transect Samples																	
Transect W025, RM 2	**Metals**																
	Arsenic, total	6.0E-01	ug/l	1.5E+00	1.5E+00	3.1E-09	8.4E-09	4.6E-09	1.3E-08	2.E-08	3.0E-04	3.0E-04	8.6E-09	2.4E-08	2.9E-05	7.9E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E-04	ug/l	7.3E-01	7.3E-01	2.9E-09	8.7E-12	2.1E-09	6.3E-12	2.E-09	--	--	8.2E-09	2.4E-11	--	--	--
	Benzo(a)pyrene	5.1E-04	ug/l	7.3E+00	7.3E+00	4.1E-09	7.1E-12	3.0E-08	5.2E-11	3.E-08	--	--	1.1E-08	2.0E-11	--	--	--

TABLE 5-50.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Benzo(b)fluoranthene	6.2E-04	ug/l	7.3E-01	7.3E-01	5.1E-09	8.7E-12	3.7E-09	6.3E-12	4.E-09	--	--	1.4E-08	2.4E-11	--	--	--
	Dibenzo(a,h)anthracene	1.5E-04	ug/l	7.3E+00	7.3E+00	1.9E-09	2.1E-12	1.4E-08	1.5E-11	1.E-08	--	--	5.2E-09	5.8E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E-04	ug/l	7.3E-01	7.3E-01	1.6E-09	2.7E-12	1.1E-09	2.0E-12	1.E-09	--	--	4.4E-09	7.5E-12	--	--	--
	Pesticides																
	Aldrin	4.0E-06	ug/l	1.7E+01	1.7E+01	1.4E-13	5.6E-14	2.3E-12	9.5E-13	3.E-12	3.0E-05	3.0E-05	3.8E-13	1.6E-13	1.3E-08	5.2E-09	0.00000002
	Exposure Point Total									7.E-08							0.0001
Transect W027, MC	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	2.5E-09	6.9E-09	3.8E-09	1.0E-08	1.E-08	3.0E-04	3.0E-04	7.0E-09	1.9E-08	2.3E-05	6.5E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E-03	ug/l	7.3E-01	7.3E-01	2.8E-08	8.2E-11	2.0E-08	6.0E-11	2.E-08	--	--	7.8E-08	2.3E-10	--	--	--
	Benzo(a)pyrene	1.7E-03	ug/l	7.3E+00	7.3E+00	1.4E-08	2.4E-11	1.0E-07	1.8E-10	1.E-07	--	--	3.9E-08	6.7E-11	--	--	--
	Benzo(b)fluoranthene	8.3E-03	ug/l	7.3E-01	7.3E-01	6.8E-08	1.2E-10	5.0E-08	8.5E-11	5.E-08	--	--	1.9E-07	3.2E-10	--	--	--
	Dibenzo(a,h)anthracene	5.6E-03	ug/l	7.3E+00	7.3E+00	7.0E-08	7.8E-11	5.1E-07	5.7E-10	5.E-07	--	--	2.0E-07	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E-03	ug/l	7.3E-01	7.3E-01	9.5E-09	1.6E-11	6.9E-09	1.2E-11	7.E-09	--	--	2.7E-08	4.5E-11	--	--	--
	Naphthalene	8.6E-03	ug/l	--	--	2.4E-09	1.2E-10	--	--	--	2.0E-02	2.0E-02	6.6E-09	3.4E-10	3.3E-07	1.7E-08	0.0000003
	Pesticides																
	Aldrin	4.5E-06	ug/l	1.7E+01	1.7E+01	1.5E-13	6.3E-14	2.6E-12	1.1E-12	4.E-12	3.0E-05	3.0E-05	4.3E-13	1.8E-13	1.4E-08	5.9E-09	0.00000002
	Herbicides																
	MCPP	1.3E+01	ug/l	--	--	1.3E-06	1.7E-07	--	--	--	1.0E-03	1.0E-03	3.7E-06	4.9E-07	3.7E-03	4.9E-04	0.004
	Exposure Point Total									7.E-07							0.004
Transect W005, RM 3.9	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	2.6E-09	7.2E-09	3.9E-09	1.1E-08	1.E-08	3.0E-04	3.0E-04	7.3E-09	2.0E-08	2.4E-05	6.7E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E-03	ug/l	7.3E-01	7.3E-01	7.6E-09	2.3E-11	5.6E-09	1.6E-11	6.E-09	--	--	2.1E-08	6.3E-11	--	--	--
	Benzo(a)pyrene	1.4E-03	ug/l	7.3E+00	7.3E+00	1.1E-08	1.9E-11	8.1E-08	1.4E-10	8.E-08	--	--	3.1E-08	5.4E-11	--	--	--
	Benzo(b)fluoranthene	1.5E-03	ug/l	7.3E-01	7.3E-01	1.2E-08	2.0E-11	8.7E-09	1.5E-11	9.E-09	--	--	3.4E-08	5.7E-11	--	--	--
	Dibenzo(a,h)anthracene	2.2E-04	ug/l	7.3E+00	7.3E+00	2.7E-09	3.0E-12	2.0E-08	2.2E-11	2.E-08	--	--	7.6E-09	8.5E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	9.8E-04	ug/l	7.3E-01	7.3E-01	8.0E-09	1.4E-11	5.8E-09	1.0E-11	6.E-09	--	--	2.2E-08	3.8E-11	--	--	--
	Naphthalene	2.4E-02	ug/l	--	--	6.5E-09	3.3E-10	--	--	--	2.0E-02	2.0E-02	1.8E-08	9.3E-10	9.1E-07	4.6E-08	0.000001
	Pesticides																
	Aldrin	3.8E-06	ug/l	1.7E+01	1.7E+01	1.3E-13	5.3E-14	2.2E-12	9.0E-13	3.E-12	3.0E-05	3.0E-05	3.6E-13	1.5E-13	1.2E-08	4.9E-09	0.00000002
	Herbicides																
	MCPP	9.1E+00	ug/l	--	--	9.5E-07	1.3E-07	--	--	--	1.0E-03	1.0E-03	2.7E-06	3.6E-07	2.7E-03	3.6E-04	0.003
	Exposure Point Total									1.E-07							0.003

TABLE 5-50.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transect W011, RM 6.3	**Metals**																
	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	2.4E-09	6.5E-09	3.5E-09	9.8E-09	1.E-08	3.0E-04	3.0E-04	6.6E-09	1.8E-08	2.2E-05	6.1E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E-03	ug/l	7.3E-01	7.3E-01	1.5E-08	4.3E-11	1.1E-08	3.2E-11	1.E-08	--	--	4.1E-08	1.2E-10	--	--	--
	Benzo(a)pyrene	1.4E-03	ug/l	7.3E+00	7.3E+00	1.1E-08	1.9E-11	8.0E-08	1.4E-10	8.E-08	--	--	3.1E-08	5.3E-11	--	--	--
	Benzo(b)fluoranthene	1.2E-03	ug/l	7.3E-01	7.3E-01	9.4E-09	1.6E-11	6.9E-09	1.2E-11	7.E-09	--	--	2.6E-08	4.5E-11	--	--	--
	Dibenzo(a,h)anthracene	2.1E-04	ug/l	7.3E+00	7.3E+00	2.6E-09	2.9E-12	1.9E-08	2.2E-11	2.E-08	--	--	7.4E-09	8.3E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E-03	ug/l	7.3E-01	7.3E-01	8.8E-09	1.5E-11	6.4E-09	1.1E-11	6.E-09	--	--	2.5E-08	4.2E-11	--	--	--
	Naphthalene	1.5E-02	ug/l	--	--	4.2E-09	2.1E-10	--	--	--	2.0E-02	2.0E-02	1.2E-08	6.0E-10	5.9E-07	3.0E-08	0.000001
	Pesticides																
	Aldrin	3.4E-06	ug/l	1.7E+01	1.7E+01	1.1E-13	4.7E-14	1.9E-12	8.0E-13	3.E-12	3.0E-05	3.0E-05	3.2E-13	1.3E-13	1.1E-08	4.4E-09	0.00000001
	Exposure Point Total									1.E-07							0.0001
Transect W023, RM 11	**Metals**																
	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	2.4E-09	6.5E-09	3.5E-09	9.8E-09	1.E-08	3.0E-04	3.0E-04	6.6E-09	1.8E-08	2.2E-05	6.1E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E-03	ug/l	7.3E-01	7.3E-01	1.6E-08	4.8E-11	1.2E-08	3.5E-11	1.E-08	--	--	4.5E-08	1.3E-10	--	--	--
	Benzo(a)pyrene	4.1E-04	ug/l	7.3E+00	7.3E+00	3.3E-09	5.8E-12	2.4E-08	4.2E-11	2.E-08	--	--	9.3E-09	1.6E-11	--	--	--
	Benzo(b)fluoranthene	5.2E-04	ug/l	7.3E-01	7.3E-01	4.2E-09	7.2E-12	3.1E-09	5.3E-12	3.E-09	--	--	1.2E-08	2.0E-11	--	--	--
	Dibenzo(a,h)anthracene	4.5E-04	ug/l	7.3E+00	7.3E+00	5.6E-09	6.3E-12	4.1E-08	4.6E-11	4.E-08	--	--	1.6E-08	1.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E-03	ug/l	7.3E-01	7.3E-01	1.4E-08	2.4E-11	1.0E-08	1.7E-11	1.E-08	--	--	3.9E-08	6.7E-11	--	--	--
	Naphthalene	3.5E-02	ug/l	--	--	9.5E-09	4.8E-10	--	--	--	2.0E-02	2.0E-02	2.7E-08	1.4E-09	1.3E-06	6.8E-08	0.000001
	Pesticides																
	Aldrin	2.8E-06	ug/l	1.7E+01	1.7E+01	9.6E-14	4.0E-14	1.6E-12	6.8E-13	2.E-12	3.0E-05	3.0E-05	2.7E-13	1.1E-13	9.0E-09	3.7E-09	0.00000001
	Herbicides																
	MCPP	8.0E+00	ug/l	--	--	8.4E-07	1.1E-07	--	--	--	1.0E-03	1.0E-03	2.4E-06	3.1E-07	2.4E-03	3.1E-04	0.003
	Exposure Point Total									1.E-07							0.003

Notes:

a Exposure areas for divers are ½ - mile reaches per side of river throughout the Study Area, where single point samples from RM 2.0 - 2.4 are in exposure area 2.0, samples from RM 2.5 - 2.9 are in exposure area 2.5, etc. Each transect sample represents its own exposure area, and is listed individually. River mile segments not listed indicate there are no human health surface water samples from that river reach. Swan Island Lagoon and Multnomah Channel are their own exposure areas.

b Numbers presented are rounded values. Sums calculated before rounding.

c Cumulative cancer risks include total metals only.

Abbreviations: -- = Not applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference dose.
ug = microgram.

TABLE 5-51.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Single Point Samples																	
RM 2.0 E	**Metals**																
	Arsenic, total	4.6E-01	ug/l	1.5E+00	1.5E+00	1.7E-10	4.6E-10	2.5E-10	6.9E-10	9.E-10	3.0E-04	3.0E-04	1.3E-09	3.6E-09	4.3E-06	1.2E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Naphthalene	4.1E-03	ug/l	--	--	1.0E-10	4.1E-12	--	--	--	2.0E-02	2.0E-02	8.0E-10	3.2E-11	4.0E-08	1.6E-09	0.00000004
	Herbicides																
	MCPP	5.2E+00	ug/l	--	--	5.6E-08	5.3E-09	--	--	--	1.0E-03	1.0E-03	4.3E-07	4.1E-08	4.3E-04	4.1E-05	0.0005
	Exposure Point Total[c]									9.E-10							0.0005
RM 2.0 W	**Metals**																
	Arsenic, total	5.6E-01	ug/l	1.5E+00	1.5E+00	2.0E-10	5.6E-10	3.1E-10	8.4E-10	1.E-09	3.0E-04	3.0E-04	1.6E-09	4.4E-09	5.3E-06	1.5E-05	0.00002
	Exposure Point Total									1.E-09							0.00002
RM 3.0 W	**Metals**																
	Arsenic, total	4.3E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.3E-10	2.3E-10	6.5E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.3E-09	4.0E-06	1.1E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E-03	ug/l	7.3E-01	7.3E-01	1.4E-09	3.0E-12	1.1E-09	2.2E-12	1.E-09	--	--	1.1E-08	2.3E-11	--	--	--
	Benzo(a)pyrene	2.7E-03	ug/l	7.3E+00	7.3E+00	2.2E-09	2.7E-12	1.6E-08	2.0E-11	2.E-08	--	--	1.7E-08	2.1E-11	--	--	--
	Benzo(b)fluoranthene	2.8E-03	ug/l	7.3E-01	7.3E-01	2.3E-09	2.8E-12	1.7E-09	2.1E-12	2.E-09	--	--	1.8E-08	2.2E-11	--	--	--
	Exposure Point Total									2.E-08							0.00002
RM 3.5 E	**Metals**																
	Arsenic, total	4.3E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.3E-10	2.3E-10	6.5E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.3E-09	4.1E-06	1.1E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.6E-03	ug/l	7.3E-01	7.3E-01	2.2E-09	4.7E-12	1.6E-09	3.4E-12	2.E-09	--	--	1.7E-08	3.6E-11	--	--	--
	Benzo(b)fluoranthene	4.6E-03	ug/l	7.3E-01	7.3E-01	3.9E-09	4.7E-12	2.8E-09	3.4E-12	3.E-09	--	--	3.0E-08	3.6E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E-03	ug/l	7.3E-01	7.3E-01	2.7E-09	3.3E-12	2.0E-09	2.4E-12	2.E-09	--	--	2.1E-08	2.6E-11	--	--	--
	Exposure Point Total									7.E-09							0.00002
RM 4.0 E	**Metals**																
	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.4E-10	2.4E-10	6.6E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.4E-09	4.1E-06	1.1E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.6E-03	ug/l	7.3E-01	7.3E-01	1.7E-09	3.6E-12	1.3E-09	2.6E-12	1.E-09	--	--	1.3E-08	2.8E-11	--	--	--
	Benzo(a)pyrene	2.4E-03	ug/l	7.3E+00	7.3E+00	2.0E-09	2.4E-12	1.4E-08	1.8E-11	1.E-08	--	--	1.5E-08	1.9E-11	--	--	--
	Benzo(b)fluoranthene	2.6E-03	ug/l	7.3E-01	7.3E-01	2.2E-09	2.7E-12	1.6E-09	1.9E-12	2.E-09	--	--	1.7E-08	2.1E-11	--	--	--
	Exposure Point Total									2.E-08							0.00002
RM 4.0 W	**Metals**																
	Arsenic, total	3.7E-01	ug/l	1.5E+00	1.5E+00	1.4E-10	3.8E-10	2.0E-10	5.6E-10	8.E-10	3.0E-04	3.0E-04	1.1E-09	2.9E-09	3.5E-06	9.8E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E-03	ug/l	7.3E-01	7.3E-01	1.6E-09	3.4E-12	1.2E-09	2.5E-12	1.E-09	--	--	1.3E-08	2.6E-11	--	--	--
	Exposure Point Total									2.E-09							0.00001

TABLE 5-51.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 4.5 E	**Metals**																
	Arsenic, total	4.3E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.3E-10	2.3E-10	6.5E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.4E-09	4.1E-06	1.1E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.8E-03	ug/l	7.3E-01	7.3E-01	2.3E-09	4.9E-12	1.7E-09	3.6E-12	2.E-09	--	--	1.8E-08	3.8E-11	--	--	--
	Benzo(a)pyrene	4.1E-03	ug/l	7.3E+00	7.3E+00	3.4E-09	4.2E-12	2.5E-08	3.0E-11	2.E-08	--	--	2.6E-08	3.2E-11	--	--	--
	Benzo(b)fluoranthene	4.7E-03	ug/l	7.3E-01	7.3E-01	3.9E-09	4.7E-12	2.8E-09	3.4E-12	3.E-09	--	--	3.0E-08	3.6E-11	--	--	--
	Dibenzo(a,h)anthracene	2.6E-03	ug/l	7.3E+00	7.3E+00	3.3E-09	2.6E-12	2.4E-08	1.9E-11	2.E-08	--	--	2.5E-08	2.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	3.3E-03	ug/l	7.3E-01	7.3E-01	2.7E-09	3.3E-12	2.0E-09	2.4E-12	2.E-09	--	--	2.1E-08	2.6E-11	--	--	--
	Exposure Point Total									6.E-08							0.00002
RM 5.5 E	**Metals**																
	Arsenic, total	4.2E-01	ug/l	1.5E+00	1.5E+00	1.5E-10	4.2E-10	2.3E-10	6.3E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.3E-09	4.0E-06	1.1E-05	0.00001
	Pesticides																
	Aldrin	9.8E-04	ug/l	1.7E+01	1.7E+01	3.4E-12	9.9E-13	5.8E-11	1.7E-11	7.E-11	3.0E-05	3.0E-05	2.6E-11	7.7E-12	8.8E-07	2.6E-07	0.000001
	Exposure Point Total									9.E-10							0.00002
RM 5.5 W	**Metals**																
	Arsenic, total	4.3E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.3E-10	2.4E-10	6.5E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.4E-09	4.1E-06	1.1E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.8E-03	ug/l	7.3E-01	7.3E-01	1.4E-09	2.9E-12	1.0E-09	2.1E-12	1.E-09	--	--	1.1E-08	2.2E-11	--	--	--
	Exposure Point Total									2.E-09							0.00002
RM 6.0 W	**Metals**																
	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.4E-10	2.4E-10	6.7E-10	9.E-10	3.0E-04	3.0E-04	1.3E-09	3.5E-09	4.2E-06	1.2E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.5E-02	ug/l	7.3E-01	7.3E-01	2.6E-08	5.5E-11	1.9E-08	4.0E-11	2.E-08	--	--	2.0E-07	4.3E-10	--	--	--
	Benzo(a)pyrene	5.5E-02	ug/l	7.3E+00	7.3E+00	4.5E-08	5.5E-11	3.3E-07	4.0E-10	3.E-07	--	--	3.5E-07	4.3E-10	--	--	--
	Benzo(b)fluoranthene	4.1E-02	ug/l	7.3E-01	7.3E-01	3.4E-08	4.2E-11	2.5E-08	3.0E-11	3.E-08	--	--	2.7E-07	3.2E-10	--	--	--
	Dibenzo(a,h)anthracene	6.3E-03	ug/l	7.3E+00	7.3E+00	8.1E-09	6.4E-12	5.9E-08	4.7E-11	6.E-08	--	--	6.3E-08	5.0E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.1E-02	ug/l	7.3E-01	7.3E-01	3.4E-08	4.1E-11	2.5E-08	3.0E-11	2.E-08	--	--	2.6E-07	3.2E-10	--	--	--
	Naphthalene	1.9E-01	ug/l	--	--	5.0E-09	2.0E-10	--	--	--	2.0E-02	2.0E-02	3.9E-08	1.5E-09	1.9E-06	7.6E-08	0.000002
	Pesticides																
	Aldrin	1.6E-06	ug/l	1.7E+01	1.7E+01	5.7E-15	1.7E-15	9.6E-14	2.8E-14	1.E-13	3.0E-05	3.0E-05	4.4E-14	1.3E-14	1.5E-09	4.3E-10	0.000000002
	Exposure Point Total									5.E-07							0.00002
RM 6.5 E	**Metals**																
	Arsenic, total	3.9E-01	ug/l	1.5E+00	1.5E+00	1.4E-10	3.9E-10	2.1E-10	5.9E-10	8.E-10	3.0E-04	3.0E-04	1.1E-09	3.1E-09	3.7E-06	1.0E-05	0.00001
	Chromium, hexavalent	5.0E-01	ug/l	1.3E-02	5.0E-01	1.8E-10	5.0E-10	2.3E-12	2.5E-10	3.E-10	7.5E-05	3.0E-03	1.4E-09	3.9E-09	1.9E-05	1.3E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	8.0E-04	ug/l	7.3E-01	7.3E-01	3.9E-10	8.1E-13	2.8E-10	5.9E-13	3.E-10	--	--	3.0E-09	6.3E-12	--	--	--
	Benzo(a)pyrene	6.3E-04	ug/l	7.3E+00	7.3E+00	5.2E-10	6.4E-13	3.8E-09	4.6E-12	4.E-09	--	--	4.0E-09	4.9E-12	--	--	--
	Benzo(b)fluoranthene	5.1E-04	ug/l	7.3E-01	7.3E-01	4.2E-10	5.1E-13	3.1E-10	3.7E-13	3.E-10	--	--	3.3E-09	4.0E-12	--	--	--
	Dibenzo(a,h)anthracene	1.6E-04	ug/l	7.3E+00	7.3E+00	2.1E-10	1.6E-13	1.5E-09	1.2E-12	2.E-09	--	--	1.6E-09	1.3E-12	--	--	--

TABLE 5-51.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Indeno(1,2,3-cd)pyrene	3.5E-04	ug/l	7.3E-01	7.3E-01	2.9E-10	3.5E-13	2.1E-10	2.6E-13	2.E-10	--	--	2.3E-09	2.7E-12	--	--	--
	Naphthalene	6.5E-03	ug/l	--	--	1.7E-10	6.5E-12	--	--	--	2.0E-02	2.0E-02	1.3E-09	5.1E-11	6.4E-08	2.5E-09	0.0000001
	Pesticides																
	Aldrin	1.6E-06	ug/l	1.7E+01	1.7E+01	5.4E-15	1.6E-15	9.2E-14	2.7E-14	1.E-13	3.0E-05	3.0E-05	4.2E-14	1.2E-14	1.4E-09	4.1E-10	0.000000002
	Exposure Point Total									7.E-09							0.00003
RM 6.5 W	**Metals**																
	Arsenic, total	4.5E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.5E-10	2.5E-10	6.8E-10	9.E-10	3.0E-04	3.0E-04	1.3E-09	3.5E-09	4.3E-06	1.2E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E-03	ug/l	7.3E-01	7.3E-01	1.4E-09	2.9E-12	1.0E-09	2.1E-12	1.E-09	--	--	1.1E-08	2.3E-11	--	--	--
	Benzo(a)pyrene	2.7E-03	ug/l	7.3E+00	7.3E+00	2.2E-09	2.7E-12	1.6E-08	2.0E-11	2.E-08	--	--	1.7E-08	2.1E-11	--	--	--
	Benzo(b)fluoranthene	3.0E-03	ug/l	7.3E-01	7.3E-01	2.5E-09	3.0E-12	1.8E-09	2.2E-12	2.E-09	--	--	2.0E-08	2.4E-11	--	--	--
	Dibenzo(a,h)anthracene	5.0E-04	ug/l	7.3E+00	7.3E+00	6.4E-10	5.0E-13	4.6E-09	3.7E-12	5.E-09	--	--	4.9E-09	3.9E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	3.2E-03	ug/l	7.3E-01	7.3E-01	2.6E-09	3.2E-12	1.9E-09	2.3E-12	2.E-09	--	--	2.1E-08	2.5E-11	--	--	--
	Naphthalene	1.2E-02	ug/l	--	--	3.0E-10	1.2E-11	--	--	--	2.0E-02	2.0E-02	2.3E-09	9.2E-11	1.2E-07	4.6E-09	0.0000001
	Pesticides																
	Aldrin	6.9E-06	ug/l	1.7E+01	1.7E+01	2.4E-14	7.0E-15	4.1E-13	1.2E-13	5.E-13	3.0E-05	3.0E-05	1.9E-13	5.4E-14	6.2E-09	1.8E-09	0.00000001
	Exposure Point Total									3.E-08							0.00002
RM 7.0 W	**Metals**																
	Arsenic, total	3.5E-01	ug/l	1.5E+00	1.5E+00	1.3E-10	3.5E-10	1.9E-10	5.3E-10	7.E-10	3.0E-04	3.0E-04	9.9E-10	2.7E-09	3.3E-06	9.1E-06	0.00001
	Chromium, hexavalent	5.0E-01	ug/l	1.3E-02	5.0E-01	1.8E-10	5.0E-10	2.3E-12	2.5E-10	3.E-10	7.5E-05	3.0E-03	1.4E-09	3.9E-09	1.9E-05	1.3E-06	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E-03	ug/l	7.3E-01	7.3E-01	1.0E-09	2.2E-12	7.7E-10	1.6E-12	8.E-10	--	--	8.2E-09	1.7E-11	--	--	--
	Benzo(a)pyrene	2.0E-03	ug/l	7.3E+00	7.3E+00	1.6E-09	2.0E-12	1.2E-08	1.4E-11	1.E-08	--	--	1.3E-08	1.5E-11	--	--	--
	Benzo(b)fluoranthene	1.9E-03	ug/l	7.3E-01	7.3E-01	1.5E-09	1.9E-12	1.1E-09	1.4E-12	1.E-09	--	--	1.2E-08	1.5E-11	--	--	--
	Dibenzo(a,h)anthracene	2.7E-04	ug/l	7.3E+00	7.3E+00	3.4E-10	2.7E-13	2.5E-09	2.0E-12	2.E-09	--	--	2.7E-09	2.1E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E-03	ug/l	7.3E-01	7.3E-01	9.2E-10	1.1E-12	6.7E-10	8.1E-13	7.E-10	--	--	7.2E-09	8.6E-12	--	--	--
	Naphthalene	7.4E-04	ug/l	--	--	1.9E-11	7.5E-13	--	--	--	2.0E-02	2.0E-02	1.5E-10	5.8E-12	7.4E-09	2.9E-10	0.00000001
	Pesticides																
	Aldrin	2.3E-06	ug/l	1.7E+01	1.7E+01	8.1E-15	2.4E-15	1.4E-13	4.0E-14	2.E-13	3.0E-05	3.0E-05	6.3E-14	1.8E-14	2.1E-09	6.1E-10	0.000000003
	Herbicides																
	MCPP	4.6E+00	ug/l	--	--	4.9E-08	4.6E-09	--	--	--	1.0E-03	1.0E-03	3.8E-07	3.6E-08	3.8E-04	3.6E-05	0.0004
	Conventionals																
	Perchlorate	2.7E+00	ug/l	--	--	8.1E-14	2.7E-09	--	--	--	7.0E-04	7.0E-04	6.3E-13	2.1E-08	9.0E-10	3.0E-05	0.00003
	Exposure Point Total									2.E-08							0.0005
RM 7.5 W	**Metals**																
	Arsenic, total	4.8E-01	ug/l	1.5E+00	1.5E+00	1.8E-10	4.9E-10	2.7E-10	7.3E-10	1.E-09	3.0E-04	3.0E-04	1.4E-09	3.8E-09	4.6E-06	1.3E-05	0.00002
	Pesticides																
	Aldrin	8.7E-07	ug/l	1.7E+01	1.7E+01	3.0E-15	8.8E-16	5.1E-14	1.5E-14	7.E-14	3.0E-05	3.0E-05	2.3E-14	6.8E-15	7.8E-10	2.3E-10	0.000000001
	Exposure Point Total									1.E-09							0.00002

TABLE 5-51.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8 SIL	**Metals**																
	Arsenic, total	4.1E-01	ug/l	1.5E+00	1.5E+00	1.5E-10	4.2E-10	2.3E-10	6.3E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.2E-09	3.9E-06	1.1E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.6E-03	ug/l	7.3E-01	7.3E-01	1.3E-09	2.6E-12	9.3E-10	1.9E-12	9.E-10	--	--	9.9E-09	2.1E-11	--	--	--
	Benzo(a)pyrene	1.5E-03	ug/l	7.3E+00	7.3E+00	1.2E-09	1.5E-12	8.9E-09	1.1E-11	9.E-09	--	--	9.4E-09	1.2E-11	--	--	--
	Benzo(b)fluoranthene	1.5E-03	ug/l	7.3E-01	7.3E-01	1.2E-09	1.5E-12	9.0E-10	1.1E-12	9.E-10	--	--	9.5E-09	1.2E-11	--	--	--
	Dibenzo(a,h)anthracene	3.1E-04	ug/l	7.3E+00	7.3E+00	4.0E-10	3.1E-13	2.9E-09	2.3E-12	3.E-09	--	--	3.1E-09	2.4E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E-03	ug/l	7.3E-01	7.3E-01	9.1E-10	1.1E-12	6.6E-10	8.0E-13	7.E-10	--	--	7.1E-09	8.5E-12	--	--	--
	Naphthalene	3.5E-03	ug/l	--	--	8.9E-11	3.5E-12	--	--	--	2.0E-02	2.0E-02	6.9E-10	2.7E-11	3.5E-08	1.4E-09	0.00000004
	Pesticides																
	Aldrin	2.2E-06	ug/l	1.7E+01	1.7E+01	7.7E-15	2.3E-15	1.3E-13	3.8E-14	2.E-13	3.0E-05	3.0E-05	6.0E-14	1.8E-14	2.0E-09	5.8E-10	0.000000003
	Herbicides																
	MCPP	7.2E+00	ug/l	--	--	7.7E-08	7.3E-09	--	--	--	1.0E-03	1.0E-03	6.0E-07	5.7E-08	6.0E-04	5.7E-05	0.001
	Exposure Point Total									2.E-08							0.0007
RM 8.5 W	**Metals**																
	Arsenic, total	4.3E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.4E-10	2.4E-10	6.6E-10	9.E-10	3.0E-04	3.0E-04	1.2E-09	3.4E-09	4.1E-06	1.1E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Indeno(1,2,3-cd)pyrene	2.9E-03	ug/l	7.3E-01	7.3E-01	2.4E-09	2.9E-12	1.7E-09	2.1E-12	2.E-09	--	--	1.8E-08	2.2E-11	--	--	--
	Naphthalene	2.1E-02	ug/l	--	--	5.3E-10	2.1E-11	--	--	--	2.0E-02	2.0E-02	4.1E-09	1.6E-10	2.1E-07	8.1E-09	0.0000002
	Exposure Point Total									3.E-09							0.00002
RM 9.5 E	**Metals**																
	Arsenic, total	4.1E-01	ug/l	1.5E+00	1.5E+00	1.5E-10	4.1E-10	2.3E-10	6.2E-10	8.E-10	3.0E-04	3.0E-04	1.2E-09	3.2E-09	3.9E-06	1.1E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Naphthalene	1.3E-02	ug/l	--	--	3.4E-10	1.3E-11	--	--	--	2.0E-02	2.0E-02	2.7E-09	1.0E-10	1.3E-07	5.2E-09	0.0000001
	Exposure Point Total									8.E-10							0.00001
RM 9.5 W	**Metals**																
	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	1.8E-10	5.0E-10	2.7E-10	7.5E-10	1.E-09	3.0E-04	3.0E-04	1.4E-09	3.9E-09	4.7E-06	1.3E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Dibenzo(a,h)anthracene	3.5E-03	ug/l	7.3E+00	7.3E+00	4.5E-09	3.6E-12	3.3E-08	2.6E-11	3.E-08	--	--	3.5E-08	2.8E-11	--	--	--
	Exposure Point Total									3.E-08							0.00002
Transect Samples																	
Transect W025, RM 2	**Metals**																
	Arsenic, total	3.5E-01	ug/l	1.5E+00	1.5E+00	1.3E-10	3.5E-10	1.9E-10	5.2E-10	7.E-10	3.0E-04	3.0E-04	9.9E-10	2.7E-09	3.3E-06	9.1E-06	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.7E-04	ug/l	7.3E-01	7.3E-01	1.8E-10	3.7E-13	1.3E-10	2.7E-13	1.E-10	--	--	1.4E-09	2.9E-12	--	--	--
	Benzo(a)pyrene	2.5E-04	ug/l	7.3E+00	7.3E+00	2.1E-10	2.5E-13	1.5E-09	1.8E-12	2.E-09	--	--	1.6E-09	2.0E-12	--	--	--
	Benzo(b)fluoranthene	3.1E-04	ug/l	7.3E-01	7.3E-01	2.6E-10	3.1E-13	1.9E-10	2.2E-13	2.E-10	--	--	2.0E-09	2.4E-12	--	--	--
	Dibenzo(a,h)anthracene	1.5E-04	ug/l	7.3E+00	7.3E+00	1.9E-10	1.5E-13	1.4E-09	1.1E-12	1.E-09	--	--	1.5E-09	1.2E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.4E-04	ug/l	7.3E-01	7.3E-01	1.2E-10	1.4E-13	8.7E-11	1.0E-13	9.E-11	--	--	9.2E-10	1.1E-12	--	--	--

TABLE 5-51.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Pesticides																
	Aldrin	2.6E-06	ug/l	1.7E+01	1.7E+01	9.1E-15	2.6E-15	1.5E-13	4.5E-14	2.E-13	3.0E-05	3.0E-05	7.1E-14	2.1E-14	2.4E-09	6.9E-10	0.000000003
	Exposure Point Total									4.E-09							0.00001
Transect W027, MC	**Metals**																
	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	1.6E-10	4.4E-10	2.4E-10	6.6E-10	9.E-10	3.0E-04	3.0E-04	1.3E-09	3.4E-09	4.2E-06	1.1E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.2E-03	ug/l	7.3E-01	7.3E-01	1.1E-09	2.2E-12	7.8E-10	1.6E-12	8.E-10	--	--	8.3E-09	1.7E-11	--	--	--
	Benzo(a)pyrene	1.1E-03	ug/l	7.3E+00	7.3E+00	9.1E-10	1.1E-12	6.7E-09	8.2E-12	7.E-09	--	--	7.1E-09	8.7E-12	--	--	--
	Benzo(b)fluoranthene	2.8E-03	ug/l	7.3E-01	7.3E-01	2.3E-09	2.8E-12	1.7E-09	2.0E-12	2.E-09	--	--	1.8E-08	2.2E-11	--	--	--
	Dibenzo(a,h)anthracene	1.7E-03	ug/l	7.3E+00	7.3E+00	2.2E-09	1.7E-12	1.6E-08	1.3E-11	2.E-08	--	--	1.7E-08	1.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	8.1E-04	ug/l	7.3E-01	7.3E-01	6.7E-10	8.1E-13	4.9E-10	5.9E-13	5.E-10	--	--	5.2E-09	6.3E-12	--	--	--
	Naphthalene	8.6E-03	ug/l	--	--	2.2E-10	8.6E-12	--	--	--	2.0E-02	2.0E-02	1.7E-09	6.7E-11	8.5E-08	3.4E-09	0.0000001
	Pesticides																
	Aldrin	4.3E-06	ug/l	1.7E+01	1.7E+01	1.5E-14	4.3E-15	2.5E-13	7.3E-14	3.E-13	3.0E-05	3.0E-05	1.1E-13	3.3E-14	3.8E-09	1.1E-09	0.000000005
	Herbicides																
	MCPP	6.3E+00	ug/l	--	--	6.7E-08	6.3E-09	--	--	--	1.0E-03	1.0E-03	5.2E-07	4.9E-08	5.2E-04	4.9E-05	0.001
	Exposure Point Total									3.E-08							0.0006
Transect W005, RM 3.9	**Metals**																
	Arsenic, total	4.6E-01	ug/l	1.5E+00	1.5E+00	1.7E-10	4.6E-10	2.5E-10	6.9E-10	9.E-10	3.0E-04	3.0E-04	1.3E-09	3.6E-09	4.3E-06	1.2E-05	0.00002
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.1E-03	ug/l	7.3E-01	7.3E-01	5.5E-10	1.2E-12	4.0E-10	8.4E-13	4.E-10	--	--	4.3E-09	9.0E-12	--	--	--
	Benzo(a)pyrene	9.8E-04	ug/l	7.3E+00	7.3E+00	8.1E-10	9.9E-13	5.9E-09	7.2E-12	6.E-09	--	--	6.3E-09	7.7E-12	--	--	--
	Benzo(b)fluoranthene	1.1E-03	ug/l	7.3E-01	7.3E-01	9.0E-10	1.1E-12	6.6E-10	7.9E-13	7.E-10	--	--	7.0E-09	8.4E-12	--	--	--
	Dibenzo(a,h)anthracene	1.3E-04	ug/l	7.3E+00	7.3E+00	1.6E-10	1.3E-13	1.2E-09	9.3E-13	1.E-09	--	--	1.2E-09	9.9E-13	--	--	--
	Indeno(1,2,3-cd)pyrene	6.7E-04	ug/l	7.3E-01	7.3E-01	5.6E-10	6.7E-13	4.1E-10	4.9E-13	4.E-10	--	--	4.3E-09	5.2E-12	--	--	--
	Naphthalene	7.7E-03	ug/l	--	--	2.0E-10	7.7E-12	--	--	--	2.0E-02	2.0E-02	1.5E-09	6.0E-11	7.6E-08	3.0E-09	0.0000001
	Pesticides																
	Aldrin	2.7E-06	ug/l	1.7E+01	1.7E+01	9.3E-15	2.7E-15	1.6E-13	4.6E-14	2.E-13	3.0E-05	3.0E-05	7.3E-14	2.1E-14	2.4E-09	7.1E-10	0.000000003
	Herbicides																
	MCPP	4.7E+00	ug/l	--	--	5.0E-08	4.7E-09	--	--	--	1.0E-03	1.0E-03	3.9E-07	3.7E-08	3.9E-04	3.7E-05	0.0004
	Exposure Point Total									9.E-09							0.0004
Transect W011, RM 6.3	**Metals**																
	Arsenic, total	3.9E-01	ug/l	1.5E+00	1.5E+00	1.4E-10	3.9E-10	2.1E-10	5.8E-10	8.E-10	3.0E-04	3.0E-04	1.1E-09	3.0E-09	3.7E-06	1.0E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.5E-03	ug/l	7.3E-01	7.3E-01	1.2E-09	2.5E-12	8.9E-10	1.9E-12	9.E-10	--	--	9.5E-09	2.0E-11	--	--	--
	Benzo(a)pyrene	8.5E-04	ug/l	7.3E+00	7.3E+00	6.9E-10	8.5E-13	5.1E-09	6.2E-12	5.E-09	--	--	5.4E-09	6.6E-12	--	--	--
	Benzo(b)fluoranthene	8.0E-04	ug/l	7.3E-01	7.3E-01	6.7E-10	8.0E-13	4.9E-10	5.9E-13	5.E-10	--	--	5.2E-09	6.2E-12	--	--	--
	Dibenzo(a,h)anthracene	1.0E-04	ug/l	7.3E+00	7.3E+00	1.3E-10	1.0E-13	9.4E-10	7.5E-13	9.E-10	--	--	1.0E-09	7.9E-13	--	--	--
	Indeno(1,2,3-cd)pyrene	6.5E-04	ug/l	7.3E-01	7.3E-01	5.4E-10	6.5E-13	3.9E-10	4.7E-13	4.E-10	--	--	4.2E-09	5.1E-12	--	--	--
	Naphthalene	6.0E-03	ug/l	--	--	1.5E-10	6.0E-12	--	--	--	2.0E-02	2.0E-02	1.2E-09	4.7E-11	5.9E-08	2.3E-09	0.0000001
	Pesticides																
	Aldrin	2.3E-06	ug/l	1.7E+01	1.7E+01	7.9E-15	2.3E-15	1.3E-13	3.9E-14	2.E-13	3.0E-05	3.0E-05	6.1E-14	1.8E-14	2.0E-09	6.0E-10	0.000000003
	Exposure Point Total									9.E-09							0.00001

TABLE 5-51.
Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, Surface Water Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Wet Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transect W023, RM 11	**Metals**																
	Arsenic, total	4.0E-01	ug/l	1.5E+00	1.5E+00	1.5E-10	4.0E-10	2.2E-10	6.0E-10	8.E-10	3.0E-04	3.0E-04	1.1E-09	3.1E-09	3.8E-06	1.0E-05	0.00001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.0E-03	ug/l	7.3E-01	7.3E-01	9.6E-10	2.0E-12	7.0E-10	1.5E-12	7.E-10	--	--	7.5E-09	1.6E-11	--	--	--
	Benzo(a)pyrene	2.8E-04	ug/l	7.3E+00	7.3E+00	2.3E-10	2.8E-13	1.7E-09	2.1E-12	2.E-09	--	--	1.8E-09	2.2E-12	--	--	--
	Benzo(b)fluoranthene	3.6E-04	ug/l	7.3E-01	7.3E-01	3.0E-10	3.7E-13	2.2E-10	2.7E-13	2.E-10	--	--	2.4E-09	2.8E-12	--	--	--
	Dibenzo(a,h)anthracene	1.3E-04	ug/l	7.3E+00	7.3E+00	1.6E-10	1.3E-13	1.2E-09	9.3E-13	1.E-09	--	--	1.3E-09	9.9E-13	--	--	--
	Indeno(1,2,3-cd)pyrene	1.8E-03	ug/l	7.3E-01	7.3E-01	1.5E-09	1.8E-12	1.1E-09	1.3E-12	1.E-09	--	--	1.2E-08	1.4E-11	--	--	--
	Naphthalene	9.0E-03	ug/l	--	--	2.3E-10	9.1E-12	--	--	--	2.0E-02	2.0E-02	1.8E-09	7.0E-11	8.9E-08	3.5E-09	0.0000001
	Pesticides																
	Aldrin	2.0E-06	ug/l	1.7E+01	1.7E+01	6.9E-15	2.0E-15	1.2E-13	3.4E-14	2.E-13	3.0E-05	3.0E-05	5.4E-14	1.6E-14	1.8E-09	5.2E-10	0.000000002
	Herbicides																
	MCPP	4.2E+00	ug/l	--	--	4.5E-08	4.3E-09	--	--	--	1.0E-03	1.0E-03	3.5E-07	3.3E-08	3.5E-04	3.3E-05	0.0004
	Exposure Point Total									6.E-09							0.0004

Notes:

a Exposure areas for divers are ½ - mile reaches per side of river throughout the Study Area, where single point samples from RM 2.0 - 2.4 are in exposure area 2.0, samples from RM 2.5 - 2.9 are in exposure area 2.5, etc. Each transect sample represents its own exposure area, and is listed individually. River mile segments not listed indicate there are no human health surface water samples from that river reach. Swan Island Lagoon and Multnomah Channel are their own exposure areas.

b Numbers presented are rounded values. Sums calculated before rounding.

c Cumulative cancer risks include total metals only.

Abbreviations: -- = Not applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference dose.
ug = microgram.

TABLE 5-52.
Calculation of Cancer Risks and Noncancer Hazards - Commerical Diver in Dry Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Single Point Samples																	
RM 2.0 E	**Metals**																
	Arsenic, total	6.2E-01	ug/l	1.5E+00	1.5E+00	4.4E-10	8.7E-09	6.5E-10	1.3E-08	1.E-08	3.0E-04	3.0E-04	1.2E-09	2.4E-08	4.1E-06	8.1E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Naphthalene	6.5E-03	ug/l	--	--	2.5E-10	9.1E-11	--	--	--	2.0E-02	2.0E-02	6.9E-10	2.5E-10	3.5E-08	1.3E-08	0.00000005
	Herbicides																
	MCPP	5.2E+00	ug/l	--	--	7.6E-08	7.3E-08	--	--	--	1.0E-03	1.0E-03	2.1E-07	2.0E-07	2.1E-04	2.0E-04	0.0004
	Exposure Point Total[c]									1.E-08							0.0005
RM 2.0 W	**Metals**																
	Arsenic, total	6.9E-01	ug/l	1.5E+00	1.5E+00	4.8E-10	9.6E-09	7.2E-10	1.4E-08	2.E-08	3.0E-04	3.0E-04	1.3E-09	2.7E-08	4.5E-06	9.0E-05	0.0001
	Exposure Point Total									2.E-08							0.0001
RM 3.0 W	**Metals**																
	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	3.4E-10	6.8E-09	5.2E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.6E-10	1.9E-08	3.2E-06	6.4E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.0E-03	ug/l	7.3E-01	7.3E-01	2.0E-09	4.2E-11	1.4E-09	3.1E-11	1.E-09	--	--	5.5E-09	1.2E-10	--	--	--
	Benzo(a)pyrene	2.7E-03	ug/l	7.3E+00	7.3E+00	3.0E-09	3.8E-11	2.2E-08	2.8E-10	2.E-08	--	--	8.4E-09	1.1E-10	--	--	--
	Benzo(b)fluoranthene	2.8E-03	ug/l	7.3E-01	7.3E-01	3.2E-09	3.9E-11	2.3E-09	2.9E-11	2.E-09	--	--	8.9E-09	1.1E-10	--	--	--
	Exposure Point Total									4.E-08							0.0001
RM 3.5 E	**Metals**																
	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	3.4E-10	6.8E-09	5.1E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.6E-10	1.9E-08	3.2E-06	6.4E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E-02	ug/l	7.3E-01	7.3E-01	7.9E-09	1.7E-10	5.7E-09	1.2E-10	6.E-09	--	--	2.2E-08	4.7E-10	--	--	--
	Benzo(b)fluoranthene	9.0E-03	ug/l	7.3E-01	7.3E-01	1.0E-08	1.3E-10	7.4E-09	9.2E-11	8.E-09	--	--	2.9E-08	3.5E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.5E-03	ug/l	7.3E-01	7.3E-01	6.2E-09	7.7E-11	4.5E-09	5.6E-11	5.E-09	--	--	1.7E-08	2.2E-10	--	--	--
	Exposure Point Total									3.E-08							0.0001
RM 4.0 E	**Metals**																
	Arsenic, total	4.8E-01	ug/l	1.5E+00	1.5E+00	3.4E-10	6.7E-09	5.1E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.4E-10	1.9E-08	3.1E-06	6.3E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.5E-03	ug/l	7.3E-01	7.3E-01	4.3E-09	9.1E-11	3.1E-09	6.6E-11	3.E-09	--	--	1.2E-08	2.5E-10	--	--	--
	Benzo(a)pyrene	4.0E-03	ug/l	7.3E+00	7.3E+00	4.5E-09	5.6E-11	3.3E-08	4.1E-10	3.E-08	--	--	1.3E-08	1.6E-10	--	--	--
	Benzo(b)fluoranthene	4.0E-03	ug/l	7.3E-01	7.3E-01	4.5E-09	5.6E-11	3.3E-09	4.1E-11	3.E-09	--	--	1.3E-08	1.6E-10	--	--	--
	Exposure Point Total									5.E-08							0.0001
RM 4.0 W	**Metals**																
	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	3.4E-10	6.8E-09	5.2E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.6E-10	1.9E-08	3.2E-06	6.4E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E-03	ug/l	7.3E-01	7.3E-01	3.9E-09	8.2E-11	2.8E-09	6.0E-11	3.E-09	--	--	1.1E-08	2.3E-10	--	--	--
	Exposure Point Total									1.E-08							0.0001

TABLE 5-52.
Calculation of Cancer Risks and Noncancer Hazards - Commerical Diver in Dry Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 4.5 E	**Metals**																
	Arsenic, total	4.8E-01	ug/l	1.5E+00	1.5E+00	3.4E-10	6.7E-09	5.1E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.4E-10	1.9E-08	3.1E-06	6.3E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	7.8E-03	ug/l	7.3E-01	7.3E-01	5.1E-09	1.1E-10	3.7E-09	8.0E-11	4.E-09	--	--	1.4E-08	3.1E-10	--	--	--
	Benzo(a)pyrene	7.5E-03	ug/l	7.3E+00	7.3E+00	8.4E-09	1.0E-10	6.1E-08	7.7E-10	6.E-08	--	--	2.3E-08	2.9E-10	--	--	--
	Benzo(b)fluoranthene	8.0E-03	ug/l	7.3E-01	7.3E-01	9.1E-09	1.1E-10	6.6E-09	8.2E-11	7.E-09	--	--	2.5E-08	3.1E-10	--	--	--
	Dibenzo(a,h)anthracene	4.4E-03	ug/l	7.3E+00	7.3E+00	7.6E-09	6.2E-11	5.6E-08	4.5E-10	6.E-08	--	--	2.1E-08	1.7E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	5.7E-03	ug/l	7.3E-01	7.3E-01	6.4E-09	8.0E-11	4.7E-09	5.8E-11	5.E-09	--	--	1.8E-08	2.2E-10	--	--	--
	Exposure Point Total									1.E-07							0.0001
RM 5.5 E	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	3.5E-10	6.9E-09	5.2E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.8E-10	1.9E-08	3.3E-06	6.5E-05	0.0001
	Pesticides																
	Aldrin	4.1E-03	ug/l	1.7E+01	1.7E+01	1.9E-11	5.7E-11	3.2E-10	9.6E-10	1.E-09	3.0E-05	3.0E-05	5.3E-11	1.6E-10	1.8E-06	5.3E-06	0.00001
	Exposure Point Total									1.E-08							0.0001
RM 5.5 W	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	3.5E-10	7.0E-09	5.3E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.8E-10	2.0E-08	3.3E-06	6.5E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	4.3E-03	ug/l	7.3E-01	7.3E-01	2.8E-09	6.0E-11	2.1E-09	4.4E-11	2.E-09	--	--	7.9E-09	1.7E-10	--	--	--
	Exposure Point Total									1.E-08							0.0001
RM 6.0 W	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	3.6E-10	7.2E-09	5.4E-10	1.1E-08	1.E-08	3.0E-04	3.0E-04	1.0E-09	2.0E-08	3.4E-06	6.7E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.4E-01	ug/l	7.3E-01	7.3E-01	9.0E-08	1.9E-09	6.5E-08	1.4E-09	7.E-08	--	--	2.5E-07	5.4E-09	--	--	--
	Benzo(a)pyrene	1.5E-01	ug/l	7.3E+00	7.3E+00	1.7E-07	2.1E-09	1.2E-06	1.5E-08	1.E-06	--	--	4.7E-07	5.9E-09	--	--	--
	Benzo(b)fluoranthene	1.1E-01	ug/l	7.3E-01	7.3E-01	1.2E-07	1.5E-09	9.1E-08	1.1E-09	9.E-08	--	--	3.5E-07	4.3E-09	--	--	--
	Dibenzo(a,h)anthracene	1.4E-02	ug/l	7.3E+00	7.3E+00	2.4E-08	1.9E-10	1.7E-07	1.4E-09	2.E-07	--	--	6.7E-08	5.4E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E-01	ug/l	7.3E-01	7.3E-01	1.2E-07	1.5E-09	9.1E-08	1.1E-09	9.E-08	--	--	3.5E-07	4.3E-09	--	--	--
	Naphthalene	7.7E-01	ug/l	--	--	2.9E-08	1.1E-08	--	--	--	2.0E-02	2.0E-02	8.2E-08	3.0E-08	4.1E-06	1.5E-06	0.00001
	Pesticides																
	Aldrin	2.1E-06	ug/l	1.7E+01	1.7E+01	1.0E-14	3.0E-14	1.7E-13	5.1E-13	7.E-13	3.0E-05	3.0E-05	2.8E-14	8.4E-14	9.4E-10	2.8E-09	0.000000004
	Exposure Point Total									2.E-06							0.0001
RM 6.5 E	**Metals**																
	Arsenic, total	4.2E-01	ug/l	1.5E+00	1.5E+00	3.0E-10	5.9E-09	4.5E-10	8.9E-09	9.E-09	3.0E-04	3.0E-04	8.3E-10	1.7E-08	2.8E-06	5.5E-05	0.0001
	Chromium, hexavalent	7.0E-01	ug/l	1.3E-02	5.0E-01	4.9E-10	9.8E-09	6.1E-12	4.9E-09	5.E-09	7.5E-05	3.0E-03	1.4E-09	2.7E-08	1.8E-05	9.1E-06	0.00003
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.2E-03	ug/l	7.3E-01	7.3E-01	7.5E-10	1.6E-11	5.5E-10	1.2E-11	6.E-10	--	--	2.1E-09	4.5E-11	--	--	--
	Benzo(a)pyrene	9.4E-04	ug/l	7.3E+00	7.3E+00	1.1E-09	1.3E-11	7.7E-09	9.6E-11	8.E-09	--	--	2.9E-09	3.7E-11	--	--	--
	Benzo(b)fluoranthene	7.2E-04	ug/l	7.3E-01	7.3E-01	8.2E-10	1.0E-11	6.0E-10	7.4E-12	6.E-10	--	--	2.3E-09	2.8E-11	--	--	--
	Dibenzo(a,h)anthracene	8.8E-04	ug/l	7.3E+00	7.3E+00	1.5E-09	1.2E-11	1.1E-08	9.0E-11	1.E-08	--	--	4.3E-09	3.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	4.5E-04	ug/l	7.3E-01	7.3E-01	5.1E-10	6.4E-12	3.8E-10	4.6E-12	4.E-10	--	--	1.4E-09	1.8E-11	--	--	--

TABLE 5-52.
Calculation of Cancer Risks and Noncancer Hazards - Commerical Diver in Dry Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
	Naphthalene	1.7E-02	ug/l	--	--	6.4E-10	2.4E-10	--	--	--	2.0E-02	2.0E-02	1.8E-09	6.6E-10	9.0E-08	3.3E-08	0.0000001
	Pesticides																
	Aldrin	2.1E-06	ug/l	1.7E+01	1.7E+01	1.0E-14	3.0E-14	1.7E-13	5.1E-13	7.E-13	3.0E-05	3.0E-05	2.8E-14	8.3E-14	9.3E-10	2.8E-09	0.000000004
	Exposure Point Total									3.E-08							0.0001
RM 6.5 W	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	3.6E-10	7.3E-09	5.5E-10	1.1E-08	1.E-08	3.0E-04	3.0E-04	1.0E-09	2.0E-08	3.4E-06	6.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.1E-03	ug/l	7.3E-01	7.3E-01	4.0E-09	8.6E-11	2.9E-09	6.3E-11	3.E-09	--	--	1.1E-08	2.4E-10	--	--	--
	Benzo(a)pyrene	6.6E-03	ug/l	7.3E+00	7.3E+00	7.4E-09	9.3E-11	5.4E-08	6.8E-10	5.E-08	--	--	2.1E-08	2.6E-10	--	--	--
	Benzo(b)fluoranthene	6.8E-03	ug/l	7.3E-01	7.3E-01	7.7E-09	9.5E-11	5.6E-09	6.9E-11	6.E-09	--	--	2.1E-08	2.6E-10	--	--	--
	Dibenzo(a,h)anthracene	8.7E-04	ug/l	7.3E+00	7.3E+00	1.5E-09	1.2E-11	1.1E-08	8.8E-11	1.E-08	--	--	4.2E-09	3.4E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	6.1E-03	ug/l	7.3E-01	7.3E-01	6.9E-09	8.5E-11	5.0E-09	6.2E-11	5.E-09	--	--	1.9E-08	2.4E-10	--	--	--
	Naphthalene	2.9E-02	ug/l	--	--	1.1E-09	4.0E-10	--	--	--	2.0E-02	2.0E-02	3.0E-09	1.1E-09	1.5E-07	5.6E-08	0.0000002
	Pesticides																
	Aldrin	1.6E-05	ug/l	1.7E+01	1.7E+01	7.6E-14	2.3E-13	1.3E-12	3.9E-12	5.E-12	3.0E-05	3.0E-05	2.1E-13	6.4E-13	7.1E-09	2.1E-08	0.00000003
	Exposure Point Total									9.E-08							0.0001
RM 7.0 W	**Metals**																
	Arsenic, total	4.5E-01	ug/l	1.5E+00	1.5E+00	3.2E-10	6.3E-09	4.7E-10	9.5E-09	1.E-08	3.0E-04	3.0E-04	8.9E-10	1.8E-08	3.0E-06	5.9E-05	0.0001
	Chromium, hexavalent	9.0E-01	ug/l	1.3E-02	5.0E-01	6.3E-10	1.3E-08	7.9E-12	6.3E-09	6.E-09	7.5E-05	3.0E-03	1.8E-09	3.5E-08	2.4E-05	1.2E-05	0.00004
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E-03	ug/l	7.3E-01	7.3E-01	2.2E-09	4.8E-11	1.6E-09	3.5E-11	2.E-09	--	--	6.3E-09	1.3E-10	--	--	--
	Benzo(a)pyrene	2.9E-03	ug/l	7.3E+00	7.3E+00	3.2E-09	4.0E-11	2.3E-08	2.9E-10	2.E-08	--	--	9.0E-09	1.1E-10	--	--	--
	Benzo(b)fluoranthene	2.4E-03	ug/l	7.3E-01	7.3E-01	2.7E-09	3.3E-11	1.9E-09	2.4E-11	2.E-09	--	--	7.5E-09	9.2E-11	--	--	--
	Dibenzo(a,h)anthracene	5.4E-04	ug/l	7.3E+00	7.3E+00	9.4E-10	7.6E-12	6.8E-09	5.5E-11	7.E-09	--	--	2.6E-09	2.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	2.8E-03	ug/l	7.3E-01	7.3E-01	3.2E-09	3.9E-11	2.3E-09	2.9E-11	2.E-09	--	--	8.9E-09	1.1E-10	--	--	--
	Naphthalene	7.4E-04	ug/l	--	--	2.8E-11	1.0E-11	--	--	--	2.0E-02	2.0E-02	7.9E-11	2.9E-11	4.0E-09	1.5E-09	0.00000001
	Pesticides																
	Aldrin	3.3E-06	ug/l	1.7E+01	1.7E+01	1.6E-14	4.6E-14	2.6E-13	7.9E-13	1.E-12	3.0E-05	3.0E-05	4.4E-14	1.3E-13	1.5E-09	4.3E-09	0.00000001
	Herbicides																
	MCPP	6.2E+00	ug/l	--	--	9.0E-08	8.6E-08	--	--	--	1.0E-03	1.0E-03	2.5E-07	2.4E-07	2.5E-04	2.4E-04	0.0005
	Conventionals																
	Perchlorate	7.0E+00	ug/l	--	--	3.5E-13	9.8E-08	--	--	--	7.0E-04	7.0E-04	9.9E-13	2.7E-07	1.4E-09	3.9E-04	0.0004
	Exposure Point Total									5.E-08							0.001
RM 7.5 W	**Metals**																
	Arsenic, total	5.4E-01	ug/l	1.5E+00	1.5E+00	3.8E-10	7.6E-09	5.7E-10	1.1E-08	1.E-08	3.0E-04	3.0E-04	1.1E-09	2.1E-08	3.5E-06	7.1E-05	0.0001
	Pesticides																
	Aldrin	8.7E-07	ug/l	1.7E+01	1.7E+01	4.1E-15	1.2E-14	7.0E-14	2.1E-13	3.E-13	3.0E-05	3.0E-05	1.1E-14	3.4E-14	3.8E-10	1.1E-09	0.000000002
	Exposure Point Total									1.E-08							0.0001

TABLE 5-52.
Calculation of Cancer Risks and Noncancer Hazards - Commerical Diver in Dry Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8 SIL	**Metals**																
	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	3.1E-10	6.2E-09	4.7E-10	9.3E-09	1.E-08	3.0E-04	3.0E-04	8.7E-10	1.7E-08	2.9E-06	5.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	2.9E-03	ug/l	7.3E-01	7.3E-01	1.9E-09	4.1E-11	1.4E-09	3.0E-11	1.E-09	--	--	5.4E-09	1.1E-10	--	--	--
	Benzo(a)pyrene	4.8E-03	ug/l	7.3E+00	7.3E+00	5.4E-09	6.8E-11	4.0E-08	4.9E-10	4.E-08	--	--	1.5E-08	1.9E-10	--	--	--
	Benzo(b)fluoranthene	2.6E-03	ug/l	7.3E-01	7.3E-01	2.9E-09	3.6E-11	2.1E-09	2.6E-11	2.E-09	--	--	8.2E-09	1.0E-10	--	--	--
	Dibenzo(a,h)anthracene	7.8E-04	ug/l	7.3E+00	7.3E+00	1.3E-09	1.1E-11	9.8E-09	8.0E-11	1.E-08	--	--	3.8E-09	3.1E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E-03	ug/l	7.3E-01	7.3E-01	2.2E-09	2.7E-11	1.6E-09	1.9E-11	2.E-09	--	--	6.0E-09	7.5E-11	--	--	--
	Naphthalene	6.9E-03	ug/l	--	--	2.6E-10	9.6E-11	--	--	--	2.0E-02	2.0E-02	7.3E-10	2.7E-10	3.7E-08	1.3E-08	0.00000005
	Pesticides																
	Aldrin	4.0E-06	ug/l	1.7E+01	1.7E+01	1.9E-14	5.6E-14	3.2E-13	9.4E-13	1.E-12	3.0E-05	3.0E-05	5.2E-14	1.6E-13	1.7E-09	5.2E-09	0.00000001
	Herbicides																
	MCPP	1.9E+01	ug/l	--	--	2.7E-07	2.6E-07	--	--	--	1.0E-03	1.0E-03	7.6E-07	7.3E-07	7.6E-04	7.3E-04	0.001
	Exposure Point Total									6.E-08							0.002
RM 8.5 W	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	3.5E-10	7.0E-09	5.3E-10	1.1E-08	1.E-08	3.0E-04	3.0E-04	9.9E-10	2.0E-08	3.3E-06	6.5E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Indeno(1,2,3-cd)pyrene	5.1E-03	ug/l	7.3E-01	7.3E-01	5.8E-09	7.1E-11	4.2E-09	5.2E-11	4.E-09	--	--	1.6E-08	2.0E-10	--	--	--
	Naphthalene	8.3E-02	ug/l	--	--	3.2E-09	1.2E-09	--	--	--	2.0E-02	2.0E-02	8.9E-09	3.3E-09	4.4E-07	1.6E-07	0.000001
	Exposure Point Total									2.E-08							0.0001
RM 9.5 E	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	3.6E-10	7.3E-09	5.5E-10	1.1E-08	1.E-08	3.0E-04	3.0E-04	1.0E-09	2.0E-08	3.4E-06	6.8E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Naphthalene	2.0E-02	ug/l	--	--	7.7E-10	2.8E-10	--	--	--	2.0E-02	2.0E-02	2.2E-09	7.9E-10	1.1E-07	4.0E-08	0.0000001
	Exposure Point Total									1.E-08							0.0001
RM 9.5 W	**Metals**																
	Arsenic, total	6.1E-01	ug/l	1.5E+00	1.5E+00	4.3E-10	8.5E-09	6.4E-10	1.3E-08	1.E-08	3.0E-04	3.0E-04	1.2E-09	2.4E-08	4.0E-06	7.9E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Dibenzo(a,h)anthracene	7.2E-03	ug/l	7.3E+00	7.3E+00	1.2E-08	1.0E-10	9.1E-08	7.3E-10	9.E-08	--	--	3.5E-08	2.8E-10	--	--	--
	Pesticides																
	Aldrin	ND	ug/l	1.7E+01	1.7E+01	ND	ND	ND	ND	ND	3.0E-05	3.0E-05	ND	ND	ND	ND	ND
	Herbicides																
	MCPP	ND	ug/l	--	--	ND	ND	ND	ND	ND	1.0E-03	1.0E-03	ND	ND	ND	ND	ND
	Conventionals																
	Perchlorate	NA	NA	--	--	NA	NA	NA	NA	NA	7.0E-04	7.0E-04	NA	NA	NA	NA	NA
	Exposure Point Total									1.E-07							0.0001

TABLE 5-52.
Calculation of Cancer Risks and Noncancer Hazards - Commerical Diver in Dry Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transect Samples																	
Transect W025, RM 2	**Metals**																
	Arsenic, total	6.0E-01	ug/l	1.5E+00	1.5E+00	4.2E-10	8.4E-09	6.4E-10	1.3E-08	1.E-08	3.0E-04	3.0E-04	1.2E-09	2.4E-08	4.0E-06	7.9E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	6.2E-04	ug/l	7.3E-01	7.3E-01	4.1E-10	8.7E-12	3.0E-10	6.3E-12	3.E-10	--	--	1.1E-09	2.4E-11	--	--	--
	Benzo(a)pyrene	5.1E-04	ug/l	7.3E+00	7.3E+00	5.7E-10	7.1E-12	4.1E-09	5.2E-11	4.E-09	--	--	1.6E-09	2.0E-11	--	--	--
	Benzo(b)fluoranthene	6.2E-04	ug/l	7.3E-01	7.3E-01	7.0E-10	8.7E-12	5.1E-10	6.3E-12	5.E-10	--	--	2.0E-09	2.4E-11	--	--	--
	Dibenzo(a,h)anthracene	1.5E-04	ug/l	7.3E+00	7.3E+00	2.6E-10	2.1E-12	1.9E-09	1.5E-11	2.E-09	--	--	7.2E-10	5.8E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.9E-04	ug/l	7.3E-01	7.3E-01	2.2E-10	2.7E-12	1.6E-10	2.0E-12	2.E-10	--	--	6.1E-10	7.5E-12	--	--	--
	Naphthalene	ND	ug/l	--	--	ND	ND	ND	ND	ND	2.0E-02	2.0E-02	ND	ND	ND	ND	ND
	Pesticides																
	Aldrin	4.0E-06	ug/l	1.7E+01	1.7E+01	1.9E-14	5.6E-14	3.2E-13	9.5E-13	1.E-12	3.0E-05	3.0E-05	5.2E-14	1.6E-13	1.7E-09	5.2E-09	0.00000001
	Exposure Point Total									2.E-08							0.0001
Transect W027, MC	**Metals**																
	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	3.5E-10	6.9E-09	5.2E-10	1.0E-08	1.E-08	3.0E-04	3.0E-04	9.7E-10	1.9E-08	3.2E-06	6.5E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	5.9E-03	ug/l	7.3E-01	7.3E-01	3.9E-09	8.2E-11	2.8E-09	6.0E-11	3.E-09	--	--	1.1E-08	2.3E-10	--	--	--
	Benzo(a)pyrene	1.7E-03	ug/l	7.3E+00	7.3E+00	1.9E-09	2.4E-11	1.4E-08	1.8E-10	1.E-08	--	--	5.4E-09	6.7E-11	--	--	--
	Benzo(b)fluoranthene	8.3E-03	ug/l	7.3E-01	7.3E-01	9.4E-09	1.2E-10	6.9E-09	8.5E-11	7.E-09	--	--	2.6E-08	3.2E-10	--	--	--
	Dibenzo(a,h)anthracene	5.6E-03	ug/l	7.3E+00	7.3E+00	9.7E-09	7.8E-11	7.1E-08	5.7E-10	7.E-08	--	--	2.7E-08	2.2E-10	--	--	--
	Indeno(1,2,3-cd)pyrene	1.2E-03	ug/l	7.3E-01	7.3E-01	1.3E-09	1.6E-11	9.6E-10	1.2E-11	1.E-09	--	--	3.7E-09	4.5E-11	--	--	--
	Naphthalene	8.6E-03	ug/l	--	--	3.3E-10	1.2E-10	--	--	--	2.0E-02	2.0E-02	9.1E-10	3.4E-10	4.6E-08	1.7E-08	0.0000001
	Pesticides																
	Aldrin	4.5E-06	ug/l	1.7E+01	1.7E+01	2.1E-14	6.3E-14	3.6E-13	1.1E-12	1.E-12	3.0E-05	3.0E-05	5.9E-14	1.8E-13	2.0E-09	5.9E-09	0.00000001
	Herbicides																
	MCPP	1.3E+01	ug/l	--	--	1.8E-07	1.7E-07	--	--	--	1.0E-03	1.0E-03	5.1E-07	4.9E-07	5.1E-04	4.9E-04	0.001
	Exposure Point Total									1.E-07							0.001
Transect W005, RM 3.9	**Metals**																
	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	3.6E-10	7.2E-09	5.4E-10	1.1E-08	1.E-08	3.0E-04	3.0E-04	1.0E-09	2.0E-08	3.4E-06	6.7E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	1.6E-03	ug/l	7.3E-01	7.3E-01	1.1E-09	2.3E-11	7.7E-10	1.6E-11	8.E-10	--	--	3.0E-09	6.3E-11	--	--	--
	Benzo(a)pyrene	1.4E-03	ug/l	7.3E+00	7.3E+00	1.5E-09	1.9E-11	1.1E-08	1.4E-10	1.E-08	--	--	4.3E-09	5.4E-11	--	--	--
	Benzo(b)fluoranthene	1.5E-03	ug/l	7.3E-01	7.3E-01	1.7E-09	2.0E-11	1.2E-09	1.5E-11	1.E-09	--	--	4.6E-09	5.7E-11	--	--	--
	Dibenzo(a,h)anthracene	2.2E-04	ug/l	7.3E+00	7.3E+00	3.8E-10	3.0E-12	2.8E-09	2.2E-11	3.E-09	--	--	1.1E-09	8.5E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	9.8E-04	ug/l	7.3E-01	7.3E-01	1.1E-09	1.4E-11	8.1E-10	1.0E-11	8.E-10	--	--	3.1E-09	3.8E-11	--	--	--
	Naphthalene	2.4E-02	ug/l	--	--	9.0E-10	3.3E-10	--	--	--	2.0E-02	2.0E-02	2.5E-09	9.3E-10	1.3E-07	4.6E-08	0.0000002
	Pesticides																
	Aldrin	3.8E-06	ug/l	1.7E+01	1.7E+01	1.8E-14	5.3E-14	3.0E-13	9.0E-13	1.E-12	3.0E-05	3.0E-05	5.0E-14	1.5E-13	1.7E-09	4.9E-09	0.00000001
	Herbicides																
	MCPP	9.1E+00	ug/l	--	--	1.3E-07	1.3E-07	--	--	--	1.0E-03	1.0E-03	3.7E-07	3.6E-07	3.7E-04	3.6E-04	0.0007
	Exposure Point Total									3.E-08							0.0008

TABLE 5-52.
Calculation of Cancer Risks and Noncancer Hazards - Commerical Diver in Dry Suit, Surface Water Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Diver in Dry Suit
Population Age: Adult

Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Direct Contact

Exposure Point[a]	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transect W011, RM 6.3	**Metals**																
	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	3.3E-10	6.5E-09	4.9E-10	9.8E-09	1.E-08	3.0E-04	3.0E-04	9.2E-10	1.8E-08	3.1E-06	6.1E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.1E-03	ug/l	7.3E-01	7.3E-01	2.0E-09	4.3E-11	1.5E-09	3.2E-11	2.E-09	--	--	5.7E-09	1.2E-10	--	--	--
	Benzo(a)pyrene	1.4E-03	ug/l	7.3E+00	7.3E+00	1.5E-09	1.9E-11	1.1E-08	1.4E-10	1.E-08	--	--	4.3E-09	5.3E-11	--	--	--
	Benzo(b)fluoranthene	1.2E-03	ug/l	7.3E-01	7.3E-01	1.3E-09	1.6E-11	9.5E-10	1.2E-11	1.E-09	--	--	3.6E-09	4.5E-11	--	--	--
	Dibenzo(a,h)anthracene	2.1E-04	ug/l	7.3E+00	7.3E+00	3.6E-10	2.9E-12	2.7E-09	2.2E-11	3.E-09	--	--	1.0E-09	8.3E-12	--	--	--
	Indeno(1,2,3-cd)pyrene	1.1E-03	ug/l	7.3E-01	7.3E-01	1.2E-09	1.5E-11	8.8E-10	1.1E-11	9.E-10	--	--	3.4E-09	4.2E-11	--	--	--
	Naphthalene	1.5E-02	ug/l	--	--	5.8E-10	2.1E-10	--	--	--	2.0E-02	2.0E-02	1.6E-09	6.0E-10	8.2E-08	3.0E-08	0.0000001
	Pesticides																
	Aldrin	3.4E-06	ug/l	1.7E+01	1.7E+01	1.6E-14	4.7E-14	2.7E-13	8.0E-13	1.E-12	3.0E-05	3.0E-05	4.4E-14	1.3E-13	1.5E-09	4.4E-09	0.00000001
	Exposure Point Total									3.E-08							0.0001
Transect W023, RM 11	**Metals**																
	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	3.3E-10	6.5E-09	4.9E-10	9.8E-09	1.E-08	3.0E-04	3.0E-04	9.2E-10	1.8E-08	3.1E-06	6.1E-05	0.0001
	Polynuclear Aromatic Hydrocarbons																
	Benzo(a)anthracene	3.4E-03	ug/l	7.3E-01	7.3E-01	2.2E-09	4.8E-11	1.6E-09	3.5E-11	2.E-09	--	--	6.2E-09	1.3E-10	--	--	--
	Benzo(a)pyrene	4.1E-04	ug/l	7.3E+00	7.3E+00	4.6E-10	5.8E-12	3.4E-09	4.2E-11	3.E-09	--	--	1.3E-09	1.6E-11	--	--	--
	Benzo(b)fluoranthene	5.2E-04	ug/l	7.3E-01	7.3E-01	5.8E-10	7.2E-12	4.3E-10	5.3E-12	4.E-10	--	--	1.6E-09	2.0E-11	--	--	--
	Dibenzo(a,h)anthracene	4.5E-04	ug/l	7.3E+00	7.3E+00	7.8E-10	6.3E-12	5.7E-09	4.6E-11	6.E-09	--	--	2.2E-09	1.8E-11	--	--	--
	Indeno(1,2,3-cd)pyrene	1.7E-03	ug/l	7.3E-01	7.3E-01	1.9E-09	2.4E-11	1.4E-09	1.7E-11	1.E-09	--	--	5.4E-09	6.7E-11	--	--	--
	Naphthalene	3.5E-02	ug/l	--	--	1.3E-09	4.8E-10	--	--	--	2.0E-02	2.0E-02	3.7E-09	1.4E-09	1.8E-07	6.8E-08	0.0000003
	Pesticides																
	Aldrin	2.8E-06	ug/l	1.7E+01	1.7E+01	1.3E-14	4.0E-14	2.3E-13	6.8E-13	9.E-13	3.0E-05	3.0E-05	3.7E-14	1.1E-13	1.2E-09	3.7E-09	0.000000005
	Herbicides																
	MCPP	8.0E+00	ug/l	--	--	1.2E-07	1.1E-07	--	--	--	1.0E-03	1.0E-03	3.3E-07	3.1E-07	3.3E-04	3.1E-04	0.0006
	Exposure Point Total									2.E-08							0.0007

Notes:

a Exposure areas for divers are ½ - mile reaches per side of river throughout the Study Area, where single point samples from RM 2.0 - 2.4 are in exposure area 2.0, samples from RM 2.5 - 2.9 are in exposure area 2.5, etc. Each transect sample represents its own exposure area, and is listed individually. River mile segments not listed indicate there are no human health surface water samples from that river reach. Swan Island Lagoon and Multnomah Channel are their own exposure areas.

b Numbers presented are rounded values. Sums calculated before rounding.

c Cumulative cancer risks include total metals only.

Abbreviations: -- = Not applicable.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference dose.
ug = microgram.

TABLE 5-53.
Calculation of Noncancer Hazards - Child Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Child Resident
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transects										
Transect, RM 2	**Metals**									
W025	Arsenic, total	6.0E-01	ug/l	3.0E-04	3.0E-04	2.5E-07	5.8E-05	8E-04	2E-01	0.2
	Pesticides									
	Aldrin	4.0E-06	ug/l	3.0E-05	3.0E-05	2.2E-11	3.8E-10	7E-07	1E-05	0.00001
	Exposure Point Total[b]									0.2
Transect, RM 3.9	**Metals**									
W005	Arsenic, total	5.2E-01	ug/l	3.0E-04	3.0E-04	2.2E-07	5.0E-05	7E-04	2E-01	0.2
	Pesticides									
	Aldrin	3.8E-06	ug/l	3.0E-05	3.0E-05	2.1E-11	3.6E-10	7E-07	1E-05	0.00001
	Herbicides									
	MCPP	9.1E+00	ug/l	1.0E-03	1.0E-03	1.6E-04	8.7E-04	2E-01	9E-01	1
	Exposure Point Total									1
Cathedral Park, RM 5.7	**Metals**									
W010	Arsenic, total	5.4E-01	ug/l	3.0E-04	3.0E-04	2.3E-07	5.2E-05	8E-04	2E-01	0.2
	Exposure Point Total									0.2
Transect, RM 6.3	**Metals**									
W011	Arsenic, total	4.7E-01	ug/l	3.0E-04	3.0E-04	2.0E-07	4.5E-05	7E-04	1E-01	0.1
	Pesticides									
	Aldrin	3.4E-06	ug/l	3.0E-05	3.0E-05	1.9E-11	3.2E-10	6E-07	1E-05	0.00001
	Exposure Point Total									0.1
Willamette Cove, RM 6.9	**Metals**									
W014	Arsenic, total	5.2E-01	ug/l	3.0E-04	3.0E-04	2.2E-07	5.0E-05	7E-04	2E-01	0.2
	Exposure Point Total									0.2
Swan Island Lagoon, RM 9.1	**Metals**									
W020	Arsenic, total	4.7E-01	ug/l	3.0E-04	3.0E-04	2.0E-07	4.5E-05	7E-04	2E-01	0.2
	Exposure Point Total									0.2
Transect, RM 11	**Metals**									
W023	Arsenic, total	3.7E-01	ug/l	3.0E-04	3.0E-04	1.6E-07	3.5E-05	5E-04	1E-01	0.1
	Pesticides									
	Aldrin	2.9E-06	ug/l	3.0E-05	3.0E-05	1.6E-11	2.8E-10	5E-07	9E-06	0.00001
	Herbicides									
	MCPP	8.0E+00	ug/l	1.0E-03	1.0E-03	1.4E-04	7.7E-04	1E-01	8E-01	0.9
	Exposure Point Total									1
Single Point Stations										
RM 2.1	**Metals**									
W026	Arsenic, total	4.7E-01	ug/l	3.0E-04	3.0E-04	2.0E-07	4.5E-05	7E-04	2E-01	0.2
	Herbicides									
	MCPP	5.2E+00	ug/l	1.0E-03	1.0E-03	9.1E-05	5.0E-04	9E-02	5E-01	0.6
	Exposure Point Total									0.7

TABLE 5-53.
Calculation of Noncancer Hazards - Child Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Child Resident
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 2.9 (Multnomah Channel)	**Metals**									
W027	Arsenic, total	5.0E-01	ug/l	3.0E-04	3.0E-04	2.1E-07	4.7E-05	7E-04	2E-01	0.2
	Pesticides									
	Aldrin	4.5E-06	ug/l	3.0E-05	3.0E-05	2.5E-11	4.3E-10	8E-07	1E-05	0.00002
	Herbicides									
	MCPP	1.3E+01	ug/l	1.0E-03	1.0E-03	2.2E-04	1.2E-03	2E-01	1E+00	1
	Exposure Point Total									2
RM 3.6	**Metals**									
W028	Arsenic, total	4.6E-01	ug/l	3.0E-04	3.0E-04	1.9E-07	4.4E-05	6E-04	1E-01	0.1
	Exposure Point Total									0.1
RM 4.4	**Metals**									
W029	Arsenic, total	3.2E-01	ug/l	3.0E-04	3.0E-04	1.4E-07	3.1E-05	5E-04	1E-01	0.1
	Exposure Point Total									0.1
RM 5.5	**Metals**									
W030	Arsenic, total	4.4E-01	ug/l	3.0E-04	3.0E-04	1.9E-07	4.2E-05	6E-04	1E-01	0.1
	Pesticides									
	Aldrin	4.1E-03	ug/l	3.0E-05	3.0E-05	2.3E-08	3.9E-07	8E-04	1E-02	0.01
	Exposure Point Total									0.2
RM 6.1	**Metals**									
W031	Arsenic, total	4.5E-01	ug/l	3.0E-04	3.0E-04	1.9E-07	4.4E-05	6E-04	1E-01	0.1
	Pesticides									
	Aldrin	2.1E-06	ug/l	3.0E-05	3.0E-05	1.2E-11	2.1E-10	4E-07	7E-06	0.00001
	Exposure Point Total									0.1
RM 6.7	**Metals**									
W032	Arsenic, total	3.4E-01	ug/l	3.0E-04	3.0E-04	1.4E-07	3.3E-05	5E-04	1E-01	0.1
	Pesticides									
	Aldrin	2.4E-06	ug/l	3.0E-05	3.0E-05	1.4E-11	2.3E-10	5E-07	8E-06	0.00001
	Exposure Point Total									0.1
RM 7.0	**Metals**									
W033	Arsenic, total	3.4E-01	ug/l	3.0E-04	3.0E-04	1.4E-07	3.2E-05	5E-04	1E-01	0.1
	Chromium hexavalent	8.5E-01	ug/l	7.5E-05	3.0E-03	3.6E-07	8.2E-05	5E-03	3E-02	0.03
	Pesticides									
	Aldrin	4.0E-06	ug/l	3.0E-05	3.0E-05	2.2E-11	3.8E-10	7E-07	1E-05	0.00001
	Herbicides									
	MCPP	6.2E+00	ug/l	1.0E-03	1.0E-03	1.1E-04	5.9E-04	1E-01	6E-01	0.7
	Exposure Point Total									0.8
RM 7.5	**Metals**									
W034	Arsenic, total	4.9E-01	ug/l	3.0E-04	3.0E-04	2.1E-07	4.7E-05	7E-04	2E-01	0.2
	Pesticides									
	Aldrin	8.7E-07	ug/l	3.0E-05	3.0E-05	4.9E-12	8.4E-11	2E-07	3E-06	0.000003
	Exposure Point Total									0.2

TABLE 5-53.
Calculation of Noncancer Hazards - Child Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Child Resident
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5	**Metals**									
W035	Arsenic, total	4.6E-01	ug/l	3.0E-04	3.0E-04	1.9E-07	4.4E-05	6E-04	1E-01	0.1
	Pesticides									
	Aldrin	4.9E-06	ug/l	3.0E-05	3.0E-05	2.8E-11	4.7E-10	9E-07	2E-05	0.00002
	Herbicides									
	MCPP	1.9E+01	ug/l	1.0E-03	1.0E-03	3.2E-04	1.8E-03	3E-01	2E+00	2
	Exposure Point Total									2
RM 8.6	**Metals**									
W036	Arsenic, total	4.5E-01	ug/l	3.0E-04	3.0E-04	1.9E-07	4.3E-05	6E-04	1E-01	0.1
	Exposure Point Total									0.1
RM 9.6	**Metals**									
W037	Arsenic, total	4.8E-01	ug/l	3.0E-04	3.0E-04	2.0E-07	4.6E-05	7E-04	2E-01	0.2
	Exposure Point Total									0.2
RM 9.9	**Metals**									
W038	Arsenic, total	5.2E-01	ug/l	3.0E-04	3.0E-04	2.2E-07	5.0E-05	7E-04	2E-01	0.2
	Exposure Point Total									0.2
Study Area-wide	**Metals**									
	Arsenic, total	4.3E-01	ug/l	3.0E-04	3.0E-04	1.8E-07	4.1E-05	6E-04	1E-01	0.1
	Chromium hexavalent	9.0E-01	ug/l	7.5E-05	3.0E-03	3.8E-07	8.6E-05	5E-03	3E-02	0.03
	Pesticides									
	Aldrin	3.6E-04	ug/l	3.0E-05	3.0E-05	2.0E-09	3.5E-08	7E-05	1E-03	0.001
	Herbicides									
	MCPP	6.4E+00	ug/l	1.0E-03	1.0E-03	1.1E-04	6.1E-04	1E-01	6E-01	0.7
	Exposure Point Total									0.9

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Cumulative cancer risks include total metals only.

Abbreviations:

-- = Not Applicable. Chemical not evaluated for toxicity endpoint.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference Dose.
RM = River mile.
ug = microgram.

TABLE 5-54.
Calculation of Noncancer Hazards - Child Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Child Resident
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Transects										
Transect, RM 2	**Metals**									
W025	Arsenic, total	3.5E-01	ug/l	3.0E-04	3.0E-04	4.8E-08	2.0E-05	2E-04	7E-02	0.07
	Pesticides									
	Aldrin	2.6E-06	ug/l	3.0E-05	3.0E-05	8.5E-12	1.5E-10	3E-07	5E-06	0.00001
	Exposure Point Total[b]									0.07
Transect, RM 3.9	**Metals**									
W005	Arsenic, total	4.6E-01	ug/l	3.0E-04	3.0E-04	6.4E-08	2.6E-05	2E-04	9E-02	0.09
	Pesticides									
	Aldrin	2.7E-06	ug/l	3.0E-05	3.0E-05	8.8E-12	1.6E-10	3E-07	5E-06	0.000005
	Herbicides									
	MCPP	5.9E+00	ug/l	1.0E-03	1.0E-03	6.0E-05	3.4E-04	6E-02	3E-01	0.4
	Exposure Point Total									0.5
Cathedral Park, RM 5.7	**Metals**									
W010	Arsenic, total	4.5E-01	ug/l	3.0E-04	3.0E-04	6.2E-08	2.6E-05	2E-04	9E-02	0.09
	Exposure Point Total									0.09
Transect, RM 6.3	**Metals**									
W011	Arsenic, total	3.9E-01	ug/l	3.0E-04	3.0E-04	5.4E-08	2.2E-05	2E-04	7E-02	0.07
	Pesticides									
	Aldrin	2.3E-06	ug/l	3.0E-05	3.0E-05	7.4E-12	1.3E-10	2E-07	4E-06	0.000005
	Exposure Point Total									0.07
Willamette Cove, RM 6.9	**Metals**									
W014	Arsenic, total	4.4E-01	ug/l	3.0E-04	3.0E-04	6.1E-08	2.5E-05	2E-04	8E-02	0.08
	Exposure Point Total									0.08
Swan Island Lagoon, RM 9.1	**Metals**									
W020	Arsenic, total	4.2E-01	ug/l	3.0E-04	3.0E-04	5.9E-08	2.4E-05	2E-04	8E-02	0.08
	Exposure Point Total									0.08
Transect, RM 11	**Metals**									
W023	Arsenic, total	4.0E-01	ug/l	3.0E-04	3.0E-04	5.5E-08	2.3E-05	2E-04	8E-02	0.08
	Pesticides									
	Aldrin	2.0E-06	ug/l	3.0E-05	3.0E-05	6.5E-12	1.1E-10	2E-07	4E-06	0.000004
	Herbicides									
	MCPP	5.6E+00	ug/l	1.0E-03	1.0E-03	5.6E-05	3.2E-04	6E-02	3E-01	0.4
	Exposure Point Total									0.5

TABLE 5-54.
Calculation of Noncancer Hazards - Child Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Child Resident
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Single Point Stations										
RM 2.1	**Metals**									
W026	Arsenic, total	3.9E-01	ug/l	3.0E-04	3.0E-04	5.5E-08	2.3E-05	2E-04	8E-02	0.08
	Herbicides									
	MCPP	4.2E+00	ug/l	1.0E-03	1.0E-03	4.3E-05	2.4E-04	4E-02	2E-01	0.3
	Exposure Point Total									0.4
RM 2.9 (Multnomah Channel)	**Metals**									
W027	Arsenic, total	4.4E-01	ug/l	3.0E-04	3.0E-04	6.1E-08	2.5E-05	2E-04	8E-02	0.08
	Pesticides									
	Aldrin	4.3E-06	ug/l	3.0E-05	3.0E-05	1.4E-11	2.5E-10	5E-07	8E-06	0.00001
	Herbicides									
	MCPP	6.3E+00	ug/l	1.0E-03	1.0E-03	6.3E-05	3.6E-04	6E-02	4E-01	0.4
	Exposure Point Total									0.5
RM 3.6	**Metals**									
W028	Arsenic, total	3.9E-01	ug/l	3.0E-04	3.0E-04	5.4E-08	2.2E-05	2E-04	7E-02	0.07
	Exposure Point Total									0.07
RM 4.4	**Metals**									
W029	Arsenic, total	2.8E-01	ug/l	3.0E-04	3.0E-04	3.8E-08	1.6E-05	1E-04	5E-02	0.05
	Exposure Point Total									0.05
RM 5.5	**Metals**									
W030	Arsenic, total	3.8E-01	ug/l	3.0E-04	3.0E-04	5.3E-08	2.2E-05	2E-04	7E-02	0.07
	Pesticides									
	Aldrin	2.1E-03	ug/l	3.0E-05	3.0E-05	6.8E-09	1.2E-07	2E-04	4E-03	0.004
	Exposure Point Total									0.08
RM 6.1	**Metals**									
W031	Arsenic, total	4.3E-01	ug/l	3.0E-04	3.0E-04	6.0E-08	2.5E-05	2E-04	8E-02	0.08
	Pesticides									
	Aldrin	1.6E-06	ug/l	3.0E-05	3.0E-05	5.3E-12	9.5E-11	2E-07	3E-06	0.000003
	Exposure Point Total									0.08
RM 6.7	**Metals**									
W032	Arsenic, total	3.3E-01	ug/l	3.0E-04	3.0E-04	4.6E-08	1.9E-05	2E-04	6E-02	0.06
	Pesticides									
	Aldrin	2.3E-06	ug/l	3.0E-05	3.0E-05	7.4E-12	1.3E-10	2E-07	4E-06	0.000005
	Exposure Point Total									0.06

TABLE 5-54.
Calculation of Noncancer Hazards - Child Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Child Resident
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7.0	**Metals**									
W033	Arsenic, total	2.8E-01	ug/l	3.0E-04	3.0E-04	3.8E-08	1.6E-05	1E-04	5E-02	0.05
	Chromium hexavalent	5.0E-01	ug/l	7.5E-05	3.0E-03	7.0E-08	2.9E-05	9E-04	1E-02	0.01
	Pesticides									
	Aldrin	3.5E-06	ug/l	3.0E-05	3.0E-05	1.1E-11	2.0E-10	4E-07	7E-06	0.00001
	Herbicides									
	MCPP	4.2E+00	ug/l	1.0E-03	1.0E-03	4.2E-05	2.4E-04	4E-02	2E-01	0.3
	Exposure Point Total									0.3
RM 7.5	**Metals**									
W034	Arsenic, total	4.7E-01	ug/l	3.0E-04	3.0E-04	6.5E-08	2.7E-05	2E-04	9E-02	0.09
	Pesticides									
	Aldrin	1.3E-06	ug/l	3.0E-05	3.0E-05	4.4E-12	7.7E-11	1E-07	3E-06	0.000003
	Exposure Point Total									0.09
RM 8.5	**Metals**									
W035	Arsenic, total	4.1E-01	ug/l	3.0E-04	3.0E-04	5.8E-08	2.4E-05	2E-04	8E-02	0.08
	Pesticides									
	Aldrin	4.1E-06	ug/l	3.0E-05	3.0E-05	1.3E-11	2.3E-10	4E-07	8E-06	0.00001
	Herbicides									
	MCPP	1.1E+01	ug/l	1.0E-03	1.0E-03	1.1E-04	6.2E-04	1E-01	6E-01	0.7
	Exposure Point Total									0.8
RM 8.6	**Metals**									
W036	Arsenic, total	4.1E-01	ug/l	3.0E-04	3.0E-04	5.7E-08	2.4E-05	2E-04	8E-02	0.08
	Exposure Point Total									0.08
RM 9.6	**Metals**									
W037	Arsenic, total	4.1E-01	ug/l	3.0E-04	3.0E-04	5.7E-08	2.3E-05	2E-04	8E-02	0.08
	Exposure Point Total									0.08
RM 9.9	**Metals**									
W038	Arsenic, total	4.1E-01	ug/l	3.0E-04	3.0E-04	5.7E-08	2.4E-05	2E-04	8E-02	0.08
	Exposure Point Total									0.08

TABLE 5-54.
Calculation of Noncancer Hazards - Child Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Child Resident
Population Age: Child

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Noncancer Risk Calculations[a] Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Study Area-wide	**Metals**									
	Arsenic, total	4.0E-01	ug/l	3.0E-04	3.0E-04	5.5E-08	2.3E-05	2E-04	8E-02	0.08
	Chromium hexavalent	9.0E-01	ug/l	7.5E-05	3.0E-03	1.3E-07	5.2E-05	2E-03	2E-02	0.02
	Pesticides									
	Aldrin	1.6E-04	ug/l	3.0E-05	3.0E-05	5.3E-10	9.4E-09	2E-05	3E-04	0.0003
	Herbicides									
	MCPP	7.7E+00	ug/l	1.0E-03	1.0E-03	7.8E-05	4.5E-04	8E-02	4E-01	0.5
	Exposure Point Total									0.6

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Cumulative cancer risks include total metals only.

Abbreviations:

-- = Not Applicable. Chemical not evaluated for toxicity endpoint.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference Dose.
RM = River mile.
ug = microgram.

TABLE 5-55.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
Transects								
Transect, RM 2	**Metals**							
W025	Arsenic, total	6.0E-01	ug/l	1.5E+00	1.5E+00	1E-05	7E-06	2E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	6.2E-04	ug/l	7.3E-01	7.3E-01	7E-08	2E-07	3E-07
	Benzo(a)pyrene	5.1E-04	ug/l	7.3E+00	7.3E+00	1E-06	2E-06	3E-06
	Benzo(b)fluoranthene	6.2E-04	ug/l	7.3E-01	7.3E-01	1E-07	3E-07	4E-07
	Dibenzo(a,h)anthracene	1.5E-04	ug/l	7.3E+00	7.3E+00	3E-07	7E-07	1E-06
	Indeno(1,2,3-cd)pyrene	1.9E-04	ug/l	7.3E-01	7.3E-01	6E-08	1E-07	2E-07
	Pesticides							
	Aldrin	4.0E-06	ug/l	1.7E+01	1.7E+01	9E-10	6E-10	1E-09
	Exposure Point Total[b]					1E-05	1E-05	2E-05
Transect, RM 3.9	**Metals**							
W005	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	9E-06	6E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	1.6E-03	ug/l	7.3E-01	7.3E-01	2E-07	5E-07	7E-07
	Benzo(a)pyrene	1.4E-03	ug/l	7.3E+00	7.3E+00	3E-06	7E-06	9E-06
	Benzo(b)fluoranthene	1.5E-03	ug/l	7.3E-01	7.3E-01	3E-07	7E-07	1E-06
	Dibenzo(a,h)anthracene	2.2E-04	ug/l	7.3E+00	7.3E+00	4E-07	1E-06	1E-06
	Indeno(1,2,3-cd)pyrene	9.8E-04	ug/l	7.3E-01	7.3E-01	3E-07	7E-07	1E-06
	Pesticides							
	Aldrin	3.8E-06	ug/l	1.7E+01	1.7E+01	8E-10	6E-10	1E-09
	Herbicides							
	MCPP	9.1E+00	ug/l	--	--	--	--	--
	Exposure Point Total					1E-05	2E-05	3E-05
Cathedral Park, RM 5.7	**Metals**							
W010	Arsenic, total	5.4E-01	ug/l	1.5E+00	1.5E+00	1E-05	7E-06	1E-05
	Exposure Point Total					1E-05	7E-06	1E-05

TABLE 5-55.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
Transect, RM 6.3	**Metals**							
W011	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	2.5E-03	ug/l	7.3E-01	7.3E-01	3E-07	7E-07	1E-06
	Benzo(a)pyrene	1.4E-03	ug/l	7.3E+00	7.3E+00	3E-06	7E-06	9E-06
	Benzo(b)fluoranthene	1.2E-03	ug/l	7.3E-01	7.3E-01	2E-07	6E-07	8E-07
	Dibenzo(a,h)anthracene	2.1E-04	ug/l	7.3E+00	7.3E+00	4E-07	1E-06	1E-06
	Indeno(1,2,3-cd)pyrene	1.1E-03	ug/l	7.3E-01	7.3E-01	3E-07	8E-07	1E-06
	Pesticides							
	Aldrin	3.4E-06	ug/l	1.7E+01	1.7E+01	7E-10	5E-10	1E-09
	Exposure Point Total					1E-05	2E-05	3E-05
Willamette Cove, RM 6.9	**Metals**							
W014	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	9E-06	6E-06	1E-05
	Exposure Point Total					9E-06	6E-06	1E-05
Swan Island Lagoon, RM 9.1	**Metals**							
W020	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Exposure Point Total					8E-06	6E-06	1E-05
Transect, RM 11	**Metals**							
W023	Arsenic, total	3.7E-01	ug/l	1.5E+00	1.5E+00	7E-06	5E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	3.0E-03	ug/l	7.3E-01	7.3E-01	4E-07	9E-07	1E-06
	Benzo(a)pyrene	6.3E-04	ug/l	7.3E+00	7.3E+00	1E-06	3E-06	4E-06
	Benzo(b)fluoranthene	5.5E-04	ug/l	7.3E-01	7.3E-01	1E-07	3E-07	4E-07
	Dibenzo(a,h)anthracene	4.5E-04	ug/l	7.3E+00	7.3E+00	9E-07	2E-06	3E-06
	Indeno(1,2,3-cd)pyrene	2.5E-04	ug/l	7.3E-01	7.3E-01	7E-08	2E-07	2E-07
	Pesticides							
	Aldrin	2.9E-06	ug/l	1.7E+01	1.7E+01	6E-10	4E-10	9E-10
	Herbicides							
	MCPP	8.0E+00	ug/l	--	--	--	--	--
	Exposure Point Total					9E-06	1E-05	2E-05

TABLE 5-55.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
Single Point Stations								
RM 2.1	**Metals**							
W026	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Herbicides							
	MCPP	5.2E+00	ug/l	--	--	--	--	--
	Exposure Point Total					8E-06	6E-06	1E-05
RM 2.9 (Multnomah Channel)	**Metals**							
W027	Arsenic, total	5.0E-01	ug/l	1.5E+00	1.5E+00	9E-06	6E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	5.9E-03	ug/l	7.3E-01	7.3E-01	7E-07	2E-06	2E-06
	Benzo(a)pyrene	1.7E-03	ug/l	7.3E+00	7.3E+00	3E-06	8E-06	1E-05
	Benzo(b)fluoranthene	8.3E-03	ug/l	7.3E-01	7.3E-01	2E-06	4E-06	6E-06
	Dibenzo(a,h)anthracene	5.6E-03	ug/l	7.3E+00	7.3E+00	1E-05	3E-05	4E-05
	Indeno(1,2,3-cd)pyrene	1.2E-03	ug/l	7.3E-01	7.3E-01	3E-07	8E-07	1E-06
	Pesticides							
	Aldrin	4.5E-06	ug/l	1.7E+01	1.7E+01	1E-09	7E-10	1E-09
	Herbicides							
	MCPP	1.3E+01	ug/l	--	--	--	--	--
	Exposure Point Total					3E-05	5E-05	7E-05
RM 3.6	**Metals**							
W028	Arsenic, total	4.6E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Exposure Point Total					8E-06	6E-06	1E-05
RM 4.4	**Metals**							
W029	Arsenic, total	3.2E-01	ug/l	1.5E+00	1.5E+00	6E-06	4E-06	9E-06
	Exposure Point Total					6E-06	4E-06	9E-06
RM 5.5	**Metals**							
W030	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	8E-06	5E-06	1E-05
	Pesticides							
	Aldrin	4.1E-03	ug/l	1.7E+01	1.7E+01	9E-07	6E-07	1E-06
	Exposure Point Total					9E-06	6E-06	1E-05

TABLE 5-55.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
RM 6.1	**Metals**							
W031	Arsenic, total	4.5E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	1.4E-01	ug/l	7.3E-01	7.3E-01	2E-05	4E-05	6E-05
	Benzo(a)pyrene	9.7E-02	ug/l	7.3E+00	7.3E+00	2E-04	5E-04	6E-04
	Benzo(b)fluoranthene	6.7E-02	ug/l	7.3E-01	7.3E-01	1E-05	3E-05	5E-05
	Dibenzo(a,h)anthracene	1.4E-02	ug/l	7.3E+00	7.3E+00	3E-05	7E-05	9E-05
	Indeno(1,2,3-cd)pyrene	6.2E-02	ug/l	7.3E-01	7.3E-01	2E-05	4E-05	6E-05
	Pesticides							
	Aldrin	2.1E-06	ug/l	1.7E+01	1.7E+01	5E-10	3E-10	7E-10
	Exposure Point Total					3E-04	7E-04	9E-04
RM 6.7	**Metals**							
W032	Arsenic, total	3.4E-01	ug/l	1.5E+00	1.5E+00	6E-06	4E-06	9E-06
	Arsenic, dissolved	3.9E-01	ug/l	1.5E+00	1.5E+00	7E-06	5E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	3.2E-04	ug/l	7.3E-01	7.3E-01	4E-08	9E-08	1E-07
	Benzo(a)pyrene	3.3E-04	ug/l	7.3E+00	7.3E+00	7E-07	2E-06	2E-06
	Benzo(b)fluoranthene	4.9E-04	ug/l	7.3E-01	7.3E-01	1E-07	2E-07	3E-07
	Dibenzo(a,h)anthracene	8.8E-04	ug/l	7.3E+00	7.3E+00	2E-06	4E-06	6E-06
	Indeno(1,2,3-cd)pyrene	2.6E-04	ug/l	7.3E-01	7.3E-01	8E-08	2E-07	3E-07
	Pesticides							
	Aldrin	2.4E-06	ug/l	1.7E+01	1.7E+01	5E-10	4E-10	8E-10
	Exposure Point Total					9E-06	1E-05	2E-05
RM 7.0	**Metals**							
W033	Arsenic, total	3.4E-01	ug/l	1.5E+00	1.5E+00	6E-06	4E-06	9E-06
	Arsenic, dissolved	2.6E-01	ug/l	1.5E+00	1.5E+00	5E-06	3E-06	7E-06
	Chromium hexavalent	8.5E-01	ug/l	1.3E-02	5.0E-01	5E-06	3E-06	7E-06

TABLE 5-55.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a]: Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	7.0E-03	ug/l	7.3E-01	7.3E-01	8E-07	2E-06	3E-06
	Benzo(a)pyrene	6.6E-03	ug/l	7.3E+00	7.3E+00	1E-05	3E-05	4E-05
	Benzo(b)fluoranthene	2.0E-03	ug/l	7.3E-01	7.3E-01	4E-07	1E-06	1E-06
	Dibenzo(a,h)anthracene	4.6E-04	ug/l	7.3E+00	7.3E+00	9E-07	2E-06	3E-06
	Indeno(1,2,3-cd)pyrene	1.5E-03	ug/l	7.3E-01	7.3E-01	4E-07	1E-06	1E-06
	Pesticides							
	Aldrin	4.0E-06	ug/l	1.7E+01	1.7E+01	9E-10	6E-10	1E-09
	Herbicides							
	MCPP	6.2E+00	ug/l	--	--	--	--	--
	Exposure Point Total					3E-05	5E-05	7E-05
RM 7.5	**Metals**							
W034	Arsenic, total	4.9E-01	ug/l	1.5E+00	1.5E+00	9E-06	6E-06	1E-05
	Pesticides							
	Aldrin	8.7E-07	ug/l	1.7E+01	1.7E+01	2E-10	1E-10	3E-10
	Exposure Point Total					9E-06	6E-06	1E-05
RM 8.5	**Metals**							
W035	Arsenic, total	4.6E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	1.1E-02	ug/l	7.3E-01	7.3E-01	1E-06	3E-06	4E-06
	Benzo(a)pyrene	4.8E-03	ug/l	7.3E+00	7.3E+00	9E-06	2E-05	3E-05
	Benzo(b)fluoranthene	3.8E-03	ug/l	7.3E-01	7.3E-01	8E-07	2E-06	3E-06
	Dibenzo(a,h)anthracene	7.8E-04	ug/l	7.3E+00	7.3E+00	2E-06	4E-06	5E-06
	Indeno(1,2,3-cd)pyrene	2.9E-03	ug/l	7.3E-01	7.3E-01	9E-07	2E-06	3E-06
	Pesticides							
	Aldrin	4.9E-06	ug/l	1.7E+01	1.7E+01	1E-09	7E-10	2E-09
	Herbicides							
	MCPP	1.9E+01	ug/l	--	--	--	--	--
	Exposure Point Total					2E-05	4E-05	6E-05

TABLE 5-55.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
RM 8.6	**Metals**							
W036	Arsenic, total	4.5E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Polynuclear Aromatic Hydrocarbons							
	Indeno(1,2,3-cd)pyrene	5.1E-03	ug/l	7.3E-01	7.3E-01	2E-06	4E-06	5E-06
	Exposure Point Total					9E-06	9E-06	2E-05
RM 9.6	**Metals**							
W037	Arsenic, total	4.8E-01	ug/l	1.5E+00	1.5E+00	8E-06	6E-06	1E-05
	Exposure Point Total					8E-06	6E-06	1E-05
RM 9.9	**Metals**							
W038	Arsenic, total	5.2E-01	ug/l	1.5E+00	1.5E+00	9E-06	6E-06	1E-05
	Exposure Point Total					9E-06	6E-06	1E-05
Study Area-wide	**Metals**							
	Arsenic, total	4.3E-01	ug/l	1.5E+00	1.5E+00	8E-06	5E-06	1E-05
	Chromium hexavalent	9.0E-01	ug/l	1.3E-02	5.0E-01	5E-06	4E-06	8E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	9.1E-03	ug/l	7.3E-01	7.3E-01	1E-06	3E-06	4E-06
	Benzo(a)pyrene	6.5E-03	ug/l	7.3E+00	7.3E+00	1E-05	3E-05	4E-05
	Benzo(b)fluoranthene	3.0E-03	ug/l	7.3E-01	7.3E-01	6E-07	1E-06	2E-06
	Dibenzo(a,h)anthracene	6.7E-04	ug/l	7.3E+00	7.3E+00	1E-06	3E-06	4E-06
	Indeno(1,2,3-cd)pyrene	2.6E-03	ug/l	7.3E-01	7.3E-01	8E-07	2E-06	3E-06
	Pesticides							
	Aldrin	3.6E-04	ug/l	1.7E+01	1.7E+01	8E-08	5E-08	1E-07

TABLE 5-55.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Reasonable Maximum Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
	Herbicides							
	MCPP	6.4E+00	ug/l	--	--	--	--	--
	Exposure Point Total					3E-05	5E-05	8E-05

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. For carcinogenic polynuclear aromatic hydrocarbons (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene), early life exposure was considered and mutagenic age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

b Cumulative cancer risks include total metals only.

Abbreviations:

-- = Not Applicable. Chemical not evaluated for toxicity endpoint.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference Dose.
RM = River mile.
ug = microgram.

TABLE 5-56.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
Transects								
Transect, RM 2	**Metals**							
W025	Arsenic, total	3.5E-01	ug/l	1.5E+00	1.5E+00	1E-06	3E-06	4E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	2.1E-03	ug/l	7.3E-01	7.3E-01	5E-08	4E-07	4E-07
	Benzo(a)pyrene	2.3E-03	ug/l	7.3E+00	7.3E+00	9E-07	6E-06	6E-06
	Benzo(b)fluoranthene	2.5E-03	ug/l	7.3E-01	7.3E-01	1E-07	7E-07	7E-07
	Dibenzo(a,h)anthracene	2.0E-03	ug/l	7.3E+00	7.3E+00	8E-07	6E-06	6E-06
	Indeno(1,2,3-cd)pyrene	1.8E-03	ug/l	7.3E-01	7.3E-01	1E-07	8E-07	8E-07
	Pesticides							
	Aldrin	2.6E-06	ug/l	1.7E+01	1.7E+01	1E-10	2E-10	3E-10
	Exposure Point Total[b]					3E-06	2E-05	2E-05
Transect, RM 3.9	**Metals**							
W005	Arsenic, total	4.6E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	5E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	1.9E-03	ug/l	7.3E-01	7.3E-01	4E-08	3E-07	3E-07
	Benzo(a)pyrene	1.7E-03	ug/l	7.3E+00	7.3E+00	7E-07	5E-06	5E-06
	Benzo(b)fluoranthene	1.9E-03	ug/l	7.3E-01	7.3E-01	8E-08	5E-07	6E-07
	Dibenzo(a,h)anthracene	1.2E-03	ug/l	7.3E+00	7.3E+00	5E-07	3E-06	4E-06
	Indeno(1,2,3-cd)pyrene	1.5E-03	ug/l	7.3E-01	7.3E-01	9E-08	6E-07	6E-07
	Pesticides							
	Aldrin	2.7E-06	ug/l	1.7E+01	1.7E+01	1E-10	2E-10	3E-10
	Herbicides							
	MCPP	5.9E+00	ug/l	--	--	--	--	--
	Exposure Point Total					3E-06	1E-05	1E-05
Cathedral Park, RM 5.7	**Metals**							
W010	Arsenic, total	4.5E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	5E-06
	Exposure Point Total					2E-06	3E-06	5E-06

TABLE 5-56.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
Transect, RM 6.3	**Metals**							
W011	Arsenic, total	3.9E-01	ug/l	1.5E+00	1.5E+00	1E-06	3E-06	4E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	2.5E-03	ug/l	7.3E-01	7.3E-01	6E-08	4E-07	4E-07
	Benzo(a)pyrene	2.0E-03	ug/l	7.3E+00	7.3E+00	8E-07	6E-06	6E-06
	Benzo(b)fluoranthene	2.2E-03	ug/l	7.3E-01	7.3E-01	9E-08	6E-07	6E-07
	Dibenzo(a,h)anthracene	1.6E-03	ug/l	7.3E+00	7.3E+00	6E-07	4E-06	4E-06
	Indeno(1,2,3-cd)pyrene	1.9E-03	ug/l	7.3E-01	7.3E-01	1E-07	8E-07	8E-07
	Pesticides							
	Aldrin	2.3E-06	ug/l	1.7E+01	1.7E+01	1E-10	2E-10	3E-10
	Exposure Point Total					3E-06	1E-05	2E-05
Willamette Cove, RM 6.9	**Metals**							
W014	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	5E-06
	Exposure Point Total					2E-06	3E-06	5E-06
Swan Island Lagoon, RM 9.1	**Metals**							
W020	Arsenic, total	4.2E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	4E-06
	Exposure Point Total					2E-06	3E-06	4E-06
Transect, RM 11	**Metals**							
W023	Arsenic, total	4.0E-01	ug/l	1.5E+00	1.5E+00	1E-06	3E-06	4E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	2.0E-03	ug/l	7.3E-01	7.3E-01	5E-08	3E-07	3E-07
	Benzo(a)pyrene	1.6E-03	ug/l	7.3E+00	7.3E+00	6E-07	4E-06	5E-06
	Benzo(b)fluoranthene	1.8E-03	ug/l	7.3E-01	7.3E-01	7E-08	5E-07	5E-07
	Dibenzo(a,h)anthracene	1.4E-03	ug/l	7.3E+00	7.3E+00	5E-07	4E-06	4E-06
	Indeno(1,2,3-cd)pyrene	1.8E-03	ug/l	7.3E-01	7.3E-01	1E-07	8E-07	8E-07
	Pesticides							
	Aldrin	2.0E-06	ug/l	1.7E+01	1.7E+01	9E-11	2E-10	2E-10
	Herbicides							
	MCPP	5.6E+00	ug/l	--	--	--	--	--
	Exposure Point Total					3E-06	1E-05	1E-05

TABLE 5-56.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
Single Point Stations								
RM 2.1	**Metals**							
W026	Arsenic, total	3.9E-01	ug/l	1.5E+00	1.5E+00	1E-06	3E-06	4E-06
	Herbicides							
	MCPP	4.2E+00	ug/l	--	--	--	--	--
	Exposure Point Total					1E-06	3E-06	4E-06
RM 2.9 (Multnomah Channel)	**Metals**							
W027	Arsenic, total	4.4E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	5E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	2.8E-03	ug/l	7.3E-01	7.3E-01	6E-08	5E-07	5E-07
	Benzo(a)pyrene	2.5E-03	ug/l	7.3E+00	7.3E+00	1E-06	7E-06	7E-06
	Benzo(b)fluoranthene	3.4E-03	ug/l	7.3E-01	7.3E-01	1E-07	1E-06	1E-06
	Dibenzo(a,h)anthracene	2.4E-03	ug/l	7.3E+00	7.3E+00	9E-07	7E-06	7E-06
	Indeno(1,2,3-cd)pyrene	2.1E-03	ug/l	7.3E-01	7.3E-01	1E-07	9E-07	9E-07
	Pesticides							
	Aldrin	4.3E-06	ug/l	1.7E+01	1.7E+01	2E-10	4E-10	5E-10
	Herbicides							
	MCPP	6.3E+00	ug/l	--	--	--	--	--
	Exposure Point Total					4E-06	2E-05	2E-05
RM 3.6	**Metals**							
W028	Arsenic, total	3.9E-01	ug/l	1.5E+00	1.5E+00	1E-06	3E-06	4E-06
	Exposure Point Total					1E-06	3E-06	4E-06
RM 4.4	**Metals**							
W029	Arsenic, total	2.8E-01	ug/l	1.5E+00	1.5E+00	1E-06	2E-06	3E-06
	Exposure Point Total					1E-06	2E-06	3E-06
RM 5.5	**Metals**							
W030	Arsenic, total	3.8E-01	ug/l	1.5E+00	1.5E+00	1E-06	3E-06	4E-06
	Pesticides							
	Aldrin	2.1E-03	ug/l	1.7E+01	1.7E+01	1E-07	2E-07	3E-07
	Exposure Point Total					2E-06	3E-06	4E-06

TABLE 5-56.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
RM 6.1	**Metals**							
W031	Arsenic, total	4.3E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	4E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	7.0E-02	ug/l	7.3E-01	7.3E-01	2E-06	1E-05	1E-05
	Benzo(a)pyrene	5.1E-02	ug/l	7.3E+00	7.3E+00	2E-05	1E-04	1E-04
	Benzo(b)fluoranthene	3.6E-02	ug/l	7.3E-01	7.3E-01	1E-06	1E-05	1E-05
	Dibenzo(a,h)anthracene	8.7E-03	ug/l	7.3E+00	7.3E+00	3E-06	2E-05	2E-05
	Indeno(1,2,3-cd)pyrene	3.2E-02	ug/l	7.3E-01	7.3E-01	2E-06	1E-05	1E-05
	Pesticides							
	Aldrin	1.6E-06	ug/l	1.7E+01	1.7E+01	7E-11	1E-10	2E-10
	Exposure Point Total					3E-05	2E-04	2E-04
RM 6.7	**Metals**							
W032	Arsenic, total	3.3E-01	ug/l	1.5E+00	1.5E+00	1E-06	2E-06	3E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	1.8E-03	ug/l	7.3E-01	7.3E-01	4E-08	3E-07	3E-07
	Benzo(a)pyrene	2.0E-03	ug/l	7.3E+00	7.3E+00	8E-07	6E-06	6E-06
	Benzo(b)fluoranthene	2.2E-03	ug/l	7.3E-01	7.3E-01	9E-08	6E-07	6E-07
	Dibenzo(a,h)anthracene	1.8E-03	ug/l	7.3E+00	7.3E+00	7E-07	5E-06	5E-06
	Indeno(1,2,3-cd)pyrene	1.6E-03	ug/l	7.3E-01	7.3E-01	9E-08	7E-07	7E-07
	Pesticides							
	Aldrin	2.3E-06	ug/l	1.7E+01	1.7E+01	1E-10	2E-10	3E-10
	Exposure Point Total					3E-06	1E-05	2E-05
RM 7.0	**Metals**							
W033	Arsenic, total	2.8E-01	ug/l	1.5E+00	1.5E+00	1E-06	2E-06	3E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	3.1E-03	ug/l	7.3E-01	7.3E-01	7E-08	5E-07	5E-07
	Benzo(a)pyrene	3.4E-03	ug/l	7.3E+00	7.3E+00	1E-06	9E-06	1E-05
	Benzo(b)fluoranthene	3.1E-03	ug/l	7.3E-01	7.3E-01	1E-07	9E-07	9E-07
	Dibenzo(a,h)anthracene	2.2E-03	ug/l	7.3E+00	7.3E+00	9E-07	6E-06	6E-06

TABLE 5-56.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
	Indeno(1,2,3-cd)pyrene	2.2E-03	ug/l	7.3E-01	7.3E-01	1E-07	9E-07	1E-06
	Pesticides							
	Aldrin	3.5E-06	ug/l	1.7E+01	1.7E+01	2E-10	3E-10	4E-10
	Herbicides							
	MCPP	4.2E+00	ug/l	--	--	--	--	--
	Exposure Point Total					4E-06	2E-05	2E-05
RM 7.5	**Metals**							
W034	Arsenic, total	4.7E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	5E-06
	Pesticides							
	Aldrin	1.3E-06	ug/l	1.7E+01	1.7E+01	6E-11	1E-10	2E-10
	Exposure Point Total					2E-06	3E-06	5E-06
RM 8.5	**Metals**							
W035	Arsenic, total	4.1E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	4E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	5.0E-03	ug/l	7.3E-01	7.3E-01	1E-07	9E-07	9E-07
	Benzo(a)pyrene	3.4E-03	ug/l	7.3E+00	7.3E+00	1E-06	1E-05	1E-05
	Benzo(b)fluoranthene	3.5E-03	ug/l	7.3E-01	7.3E-01	1E-07	1E-06	1E-06
	Dibenzo(a,h)anthracene	2.1E-03	ug/l	7.3E+00	7.3E+00	8E-07	6E-06	6E-06
	Indeno(1,2,3-cd)pyrene	2.5E-03	ug/l	7.3E-01	7.3E-01	1E-07	1E-06	1E-06
	Pesticides							
	Aldrin	4.1E-06	ug/l	1.7E+01	1.7E+01	2E-10	4E-10	5E-10
	Herbicides							
	MCPP	1.1E+01	ug/l	--	--	--	--	--
	Exposure Point Total					4E-06	2E-05	2E-05
RM 8.6	**Metals**							
W036	Arsenic, total	4.1E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	4E-06
	Polynuclear Aromatic Hydrocarbons							
	Indeno(1,2,3-cd)pyrene	4.2E-03	ug/l	7.3E-01	7.3E-01	2E-07	2E-06	2E-06
	Exposure Point Total					2E-06	5E-06	6E-06

TABLE 5-56.
Calculation of Cancer Risks - Combined Child and Adult Resident, Potential Future Domestic Water Use
Central Tendency Exposure

Scenario Timeframe: Future
Receptor Population: Combined Child/Adult Resident
Population Age: Combined Child/Adult

Medium: Surface Water
Exposure Medium: Surface Water, Potential Future Domestic Water Source
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations[a] Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Adult Total Cancer Risk	Child Total Cancer Risk	Combined Adult and Child Cancer Risk
RM 9.6	**Metals**							
W037	Arsenic, total	4.1E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	4E-06
	Exposure Point Total					2E-06	3E-06	4E-06
RM 9.9	**Metals**							
W038	Arsenic, total	4.1E-01	ug/l	1.5E+00	1.5E+00	2E-06	3E-06	4E-06
	Exposure Point Total					2E-06	3E-06	4E-06
Study Area-wide	**Metals**							
	Arsenic, total	4.0E-01	ug/l	1.5E+00	1.5E+00	1E-06	3E-06	4E-06
	Chromium hexavalent	9.0E-01	ug/l	1.3E-02	5.0E-01	1E-06	2E-06	3E-06
	Polynuclear Aromatic Hydrocarbons							
	Benzo(a)anthracene	4.0E-03	ug/l	7.3E-01	7.3E-01	9E-08	7E-07	7E-07
	Benzo(a)pyrene	3.4E-03	ug/l	7.3E+00	7.3E+00	1E-06	1E-05	1E-05
	Benzo(b)fluoranthene	3.4E-03	ug/l	7.3E-01	7.3E-01	1E-07	9E-07	1E-06
	Dibenzo(a,h)anthracene	2.1E-03	ug/l	7.3E+00	7.3E+00	8E-07	6E-06	6E-06
	Indeno(1,2,3-cd)pyrene	2.8E-03	ug/l	7.3E-01	7.3E-01	2E-07	1E-06	1E-06
	Pesticides							
	Aldrin	1.6E-04	ug/l	1.7E+01	1.7E+01	7E-09	1E-08	2E-08
	Herbicides							
	MCPP	7.7E+00	ug/l	--	--	--	--	--
	Exposure Point Total					5E-06	2E-05	3E-05

Notes:

a Numbers presented are rounded values. Sums calculated before rounding. For carcinogenic polynuclear aromatic hydrocarbons (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene), early life exposure was considered and mutagenic age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

b Cumulative cancer risks include total metals only.

Abbreviations:

-- = Not Applicable. Chemical not evaluated for toxicity endpoint.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
mg = milligram.
RfD = Reference Dose.
RM = River mile.
ug = microgram.

Table 5-57. Summary of Risks From Exposures to Surface Water[a]

Exposure Areas	Transients	Child Recreational Beach User[b]	Combined Adult and Child Recreational Beach User	Diver in Wet Suit	Diver in Dry Suit	Future Child (Potential Future Domestic Use)[b]	Combined Future Adult and Child (Potential Future Domestic Use)
W025	--	NA	NA	--	--	--	2E-05
W005	--	NA	NA	--	--	--	3E-05
W010, Cathedral Park	NA	--	--	NA	NA	--	1E-05
W011	--	NA	NA	--	--	--	3E-05
W014, Willamette Cove	--	--	--	NA	NA	--	1E-05
W020, SIL	NA	--	--	NA	NA	--	1E-05
W023	--	NA	NA	--	--	--	2E-05
W026	NA	NA	NA	NA	NA	--	1E-05
W027 MC	--	NA	NA	--	--	2	7E-05
W028	NA	NA	NA	NA	NA	--	1E-05
W029	NA	NA	NA	NA	NA	--	9E-06
W030	NA	NA	NA	NA	NA	--	1E-05
W031	NA	NA	NA	NA	NA	--	9E-04
W032	NA	NA	NA	NA	NA	--	2E-05
W033	NA	NA	NA	NA	NA	--	7E-05
W034	NA	NA	NA	NA	NA	--	1E-05
W035	NA	NA	NA	NA	NA	2	6E-05
W036	NA	NA	NA	NA	NA	--	2E-05
W037	NA	NA	NA	NA	NA	--	1E-05
W038	NA	NA	NA	NA	NA	--	1E-05
RM 2.0 E	NA	NA	NA	--	--	NA	NA
RM 2.0 W	NA	NA	NA	--	--	NA	NA
RM 3.0 W	NA	NA	NA	--	--	NA	NA
RM 3.5 E	NA	NA	NA	--	--	NA	NA
RM 4.0 E	NA	NA	NA	--	--	NA	NA
RM 4.0 W	NA	NA	NA	--	--	NA	NA
RM 4.5 E	NA	NA	NA	--	--	NA	NA
RM 5.5 E	NA	NA	NA	--	--	NA	NA
RM 5.5 W	NA	NA	NA	--	--	NA	NA
RM 6.0 W	NA	NA	NA	1E-05	2.E-06	NA	NA
RM 6.5 E	NA	NA	NA	--	--	NA	NA
RM 6.5 W	NA	NA	NA	--	--	NA	NA
RM 7.0 W	NA	NA	NA	--	--	NA	NA
RM 7.5 W	NA	NA	NA	--	--	NA	NA
SIL	NA	NA	NA	--	--	NA	NA
RM 8.5 W	NA	NA	NA	--	--	NA	NA
RM 9.5 E	NA	NA	NA	--	--	NA	NA
RM 9.5 W	NA	NA	NA	--	--	NA	NA
Study-area Wide	--	--	--	NA	NA	--	8E-05

Notes:

a Table presents cumulative risks greater than 1 x 10^{-6} (and cumulative hazard indices greater than 1) per exposure area and per receptor for reasonable maximum exposure scenarios.

b Only hazard indices values are presented for child exposure scenarios.

Abbreviations:

-- Exposure area does not result in risk greater than 1 x 10^{-6} or hazard index greater than 1.
E East
NA Exposure area does not coincide with use by a given receptor
MC Multnomah Channel
RM River Mile
SIL Swan Island Lagoon
W West

TABLE 5-58.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Groundwater Seep Exposure
Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Groundwater
Exposure Medium: Groundwater Seep
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Outfall 22B	**Metals**																
	Arsenic, total	8.1E+00	ug/l	1.5E+00	1.5E+00	1.1E-10	9.4E-10	1.6E-10	1.4E-09	2.E-09	3.0E-04	3.0E-04	3.8E-09	3.3E-08	1.3E-05	1.1E-04	0.0001
	Arsenic, dissolved	5.5E+00	ug/l	1.5E+00	1.5E+00	7.3E-11	6.4E-10	1.1E-10	9.6E-10	1.E-09	3.0E-04	3.0E-04	2.5E-09	2.2E-08	8.5E-06	7.4E-05	0.0001
	Boron	1.4E+03	ug/l	--	--	1.8E-08	1.6E-07	--	--	--	2.0E-01	2.0E-01	6.3E-07	5.5E-06	3.1E-06	2.7E-05	0.00003
	Iron	1.6E+04	ug/l	--	--	2.1E-07	1.9E-06	--	--	--	7.0E-01	7.0E-01	7.4E-06	6.5E-05	1.1E-05	9.3E-05	0.0001
	Manganese	2.4E+03	ug/l	--	--	3.2E-08	2.8E-07	--	--	--	5.6E-03	1.4E-01	1.1E-06	9.9E-06	2.0E-04	7.1E-05	0.0003
	Molybdenum	2.4E+03	ug/l	--	--	3.2E-08	2.8E-07	--	--	--	5.0E-03	5.0E-03	1.1E-06	9.9E-06	2.3E-04	2.0E-03	0.002
	Vanadium, total	8.9E+00	ug/l	--	--	1.2E-10	1.0E-09	--	--	--	1.8E-06	7.0E-05	4.1E-09	3.6E-08	2.3E-03	5.2E-04	0.003
	Vanadium, dissolved	2.3E+00	ug/l	--	--	3.0E-11	2.7E-10	--	--	--	1.8E-06	7.0E-05	1.1E-09	9.4E-09	5.9E-04	1.3E-04	0.001
	SVOCs																
	1,4-Dichlorobenzene	1.2E+00	ug/l	5.4E-03	5.4E-03	5.7E-09	1.4E-10	3.1E-11	7.8E-13	3.E-11	7.0E-02	7.0E-02	2.0E-07	5.0E-09	2.8E-06	7.2E-08	0.000003
	Phenols																
	2,4-Dichlorophenol	1.6E+01	ug/l	--	--	4.1E-08	1.9E-09	--	--	--	3.0E-03	3.0E-03	1.4E-06	6.5E-08	4.7E-04	2.2E-05	0.0005
	4-Nitrophenol	5.7E-01	ug/l	--	--	2.8E-10	6.6E-11	--	--	--	5.0E-03	5.0E-03	1.0E-08	2.3E-09	2.0E-06	4.6E-07	0.000002
	Pesticides																
	Aldrin	4.1E-03	ug/l	1.7E+01	1.7E+01	2.5E-12	4.7E-13	4.3E-11	8.0E-12	5.E-11	3.0E-05	3.0E-05	8.9E-11	1.7E-11	3.0E-06	5.5E-07	0.000004
	VOCs																
	Chlorobenzene	9.2E+00	ug/l	--	--	2.3E-08	1.1E-09	--	--	--	2.0E-02	2.0E-02	7.9E-07	3.7E-08	4.0E-05	1.9E-06	0.00004
	Tetrachloroethene	6.4E-01	ug/l	5.4E-01	5.4E-01	2.6E-09	7.4E-11	1.4E-09	4.0E-11	1.E-09	1.0E-02	1.0E-02	9.1E-08	2.6E-09	9.1E-06	2.6E-07	0.00001
	Trichloroethene	3.4E-01	ug/l	8.9E-02	8.9E-02	3.9E-10	4.0E-11	3.4E-11	3.5E-12	4.E-11	--	--	1.4E-08	1.4E-09	--	--	--
Exposure Point Total										3.E-09							0.006

Notes:

a When available, both total and dissolved fractions of each metal of potential concern are provided. The total fraction is quoted if no further definition is provided. Cumulative cancer risks and HQs include total metals only.

b Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations:

-- = Not Applicable. Chemical not evaluated for toxicity endpoint.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
mg = milligram.
RfD = Reference Dose.
SVOCs = Semi-Volatile Organic Compounds.
ug = microgram.
VOCs = Volatile Organic Compounds.

TABLE 5-59.
Calculation of Cancer Risks and Noncancer Hazards - Transients, Groundwater Seep Exposure
Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Transient
Population Age: Adult

Medium: Groundwater
Exposure Medium: Groundwater Seep
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Dermal Cancer Slope Factor (mg/kg-day)$^{-1}$	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Noncancer Risk Calculations[b]: Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
Outfall 22B	**Metals**																
	Arsenic, total	6.9E+00	ug/l	1.5E+00	1.5E+00	1.1E-11	1.0E-10	1.7E-11	1.5E-10	2.E-10	3.0E-04	3.0E-04	8.0E-10	7.1E-09	2.7E-06	2.4E-05	0.00003
	Arsenic, dissolved	5.5E+00	ug/l	1.5E+00	1.5E+00	9.1E-12	8.0E-11	1.4E-11	1.2E-10	1.E-10	3.0E-04	3.0E-04	6.4E-10	5.6E-09	2.1E-06	1.9E-05	0.00002
	Boron	1.4E+03	ug/l	--	--	2.2E-09	2.0E-08	--	--	--	2.0E-01	2.0E-01	1.6E-07	1.4E-06	7.8E-07	6.9E-06	0.00001
	Iron	1.6E+04	ug/l	--	--	2.7E-08	2.3E-07	--	--	--	7.0E-01	7.0E-01	1.9E-06	1.6E-05	2.7E-06	2.3E-05	0.00003
	Manganese	2.4E+03	ug/l	--	--	4.0E-09	3.5E-08	--	--	--	5.6E-03	1.4E-01	2.8E-07	2.5E-06	5.1E-05	1.8E-05	0.0001
	Molybdenum	6.9E+02	ug/l	--	--	1.1E-09	1.0E-08	--	--	--	5.0E-03	5.0E-03	8.0E-08	7.0E-07	1.6E-05	1.4E-04	0.0002
	Vanadium, total	7.5E+00	ug/l	--	--	1.2E-11	1.1E-10	--	--	--	1.8E-06	7.0E-05	8.7E-10	7.7E-09	4.8E-04	1.1E-04	0.001
	Vanadium, dissolved	2.3E+00	ug/l	--	--	3.8E-12	3.3E-11	--	--	--	1.8E-06	7.0E-05	2.7E-10	2.3E-09	1.5E-04	3.3E-05	0.0002
	SVOCs																
	1,4-Dichlorobenzene	1.1E+00	ug/l	5.4E-03	5.4E-03	1.3E-09	1.6E-11	6.8E-12	8.6E-14	7.E-12	7.0E-02	7.0E-02	8.8E-08	1.1E-09	1.3E-06	1.6E-08	0.000001
	Phenols																
	2,4-Dichlorophenol	1.3E+01	ug/l	--	--	8.5E-09	1.9E-10	--	--	--	3.0E-03	3.0E-03	5.9E-07	1.4E-08	2.0E-04	4.5E-06	0.0002
	4-Nitrophenol	5.7E-01	ug/l	--	--	7.1E-11	8.3E-12	--	--	--	5.0E-03	5.0E-03	5.0E-09	5.8E-10	1.0E-06	1.2E-07	0.000001
	Pesticides																
	Aldrin	4.1E-03	ug/l	1.7E+01	1.7E+01	6.4E-13	5.9E-14	1.1E-11	1.0E-12	1.E-11	3.0E-05	3.0E-05	4.5E-11	4.1E-12	1.5E-06	1.4E-07	0.000002
	VOCs																
	Chlorobenzene	8.8E+00	ug/l	--	--	5.4E-09	1.3E-10	--	--	--	2.0E-02	2.0E-02	3.8E-07	9.0E-09	1.9E-05	4.5E-07	0.00002
	Tetrachloroethene	4.5E-01	ug/l	5.4E-01	5.4E-01	4.5E-10	6.5E-12	2.4E-10	3.5E-12	2.E-10	1.0E-02	1.0E-02	3.1E-08	4.5E-10	3.1E-06	4.5E-08	0.000003
	Trichloroethene	3.4E-01	ug/l	8.9E-02	8.9E-02	9.7E-11	4.9E-12	8.6E-12	4.4E-13	9.E-12	--	--	6.8E-09	3.5E-10	--	--	--
Exposure Point Total										4.E-10							0.001

Notes:

a When available, both total and dissolved fractions of each metal of potential concern are provided. The total fraction is quoted if no further definition is provided. Cumulative cancer risks and HQs include total metals only.

b Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations:

-- = Not Applicable. Chemical not evaluated for toxicity endpoint.
CDI = Chronic Daily Intake.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
kg = kilogram.
l = liter.
LADI = Lifetime Average Daily Intake.
mg = milligram.
RfD = Reference Dose.
SVOCs = Semi-Volatile Organic Compounds.
ug = microgram.
VOCs = Volatile Organic Compounds.

TABLE 5-60. Summary of Risks From Exposures to Groundwater Seep[a]

Seep Location	Transients
Outfall 22B	No cancer risks above 10^{-6} No noncancer hazards above 1

Notes:

a Table presents cumulative risk (or cumulative hazard indices) per exposure area for reasonable maximum exposure scenarios.

TABLE 5-61.
Calculation of Noncancer Hazards - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC for mixed diet[b]		Noncancer Hazard Calculations[c]		
			Value	Units	Oral RfD mg/kg-day	ConsumptionRate: 73 g/day	
						CDI mg/kg-day	Noncancer Hazard Quotient
WB tissue[d]	Study Area-wide	**Metals**					
		Aluminum	2.6E+01	mg/kg	1.E+00	1.3E-01	0.1
		Antimony	3.2E-01	mg/kg	4.E-04	1.5E-03	4
		Arsenic, inorganic	5.3E-02	mg/kg	3.E-04	2.6E-04	0.9
		Cadmium	2.0E-02	mg/kg	1.E-03	9.9E-05	0.1
		Chromium[e]	6.3E-01	mg/kg	2.E+00	3.1E-03	0.002
		Copper	1.4E+00	mg/kg	4.E-02	6.8E-03	0.2
		Manganese	3.1E+00	mg/kg	1.E-01	1.5E-02	0.1
		Mercury	8.1E-02	mg/kg	1.E-04	4.0E-04	4
		Nickel	3.4E-01	mg/kg	2.E-02	1.7E-03	0.1
		Selenium	4.8E-01	mg/kg	5.E-03	2.3E-03	0.5
		Silver	1.5E-02	mg/kg	5.E-03	7.5E-05	0.02
		Zinc	3.4E+01	mg/kg	3.E-01	1.6E-01	0.5
		Butyltins					
		Butyltin ion	2.8E-03	mg/kg	3.E-04	1.3E-05	0.04
		Dibutyltin ion	5.8E-04	mg/kg	3.E-04	2.8E-06	0.01
		Tributyltin ion	1.1E-03	mg/kg	3.E-04	5.1E-06	0.02
		PAHs					
		1-Methylnaphthalene	3.7E-03	mg/kg	7.E-02	1.8E-05	0.0003
		2-Methylnaphthalene	8.9E-03	mg/kg	4.E-03	4.3E-05	0.01
		Acenaphthene	1.1E-02	mg/kg	6.E-02	5.4E-05	0.001
		Acenaphthylene	6.5E-04	mg/kg	6.E-02	3.2E-06	0.0001
		Anthracene	1.3E-03	mg/kg	3.E-01	6.2E-06	0.00002
		Benzo(g,h,i)perylene	1.5E-04	mg/kg	3.E-02	7.2E-07	0.00002
		Dibenzothiophene	2.0E-03	mg/kg	4.E-02	9.9E-06	0.0002
		Fluoranthene	8.5E-03	mg/kg	4.E-02	4.1E-05	0.001
		Fluorene	5.2E-03	mg/kg	4.E-02	2.5E-05	0.001
		Naphthalene	6.5E-03	mg/kg	2.E-02	3.2E-05	0.002
		Phenanthrene	1.2E-02	mg/kg	3.E-02	5.9E-05	0.002
		Pyrene	2.0E-03	mg/kg	3.E-02	9.6E-06	0.0003
		Phthalates					
		Bis(2-ethylhexyl) phthalate	1.5E+00	mg/kg	2.E-02	7.3E-03	0.4
		Dibutyl phthalate	4.6E-03	mg/kg	1.E-01	2.2E-05	0.0002
		Diethyl phthalate	1.2E-03	mg/kg	8.E-01	6.0E-06	0.00001
		Di-n-octyl phthalate	2.6E-01	mg/kg	1.E-01	1.3E-03	0.01
		SVOCs					
		Benzoic acid	1.1E-01	mg/kg	4.E+00	5.6E-04	0.0001
		Benzyl alcohol	1.3E-02	mg/kg	1.E-01	6.2E-05	0.001
		Bis(2-chloroethoxy) methane	4.6E-03	mg/kg	3.E-03	2.2E-05	0.01
		Dibenzofuran	3.6E-03	mg/kg	1.E-03	1.8E-05	0.02
		Hexachlorobenzene	3.6E-03	mg/kg	8.E-04	1.8E-05	0.02
		Hexachlorobutadiene	3.4E-04	mg/kg	1.E-03	1.7E-06	0.002
		Isophorone	7.3E-04	mg/kg	2.E-01	3.6E-06	0.00002
		Phenols					
		4-Methylphenol	1.6E-03	mg/kg	5.E-03	7.8E-06	0.002
		4-Nitrophenol	2.3E-03	mg/kg	5.E-03	1.1E-05	0.002
		Phenol	3.9E-02	mg/kg	3.E-01	1.9E-04	0.001
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	2.9E+00	mg/kg	2.E-05	1.4E-02	700
		Dioxin/Furan					
		Total Dioxin/Furan TEQ	2.6E-06	mg/kg	1.E-09	1.3E-08	10
		Total PCB TEQ	5.6E-06	mg/kg	1.E-09	2.7E-08	30
		Pesticides					
		Aldrin	2.1E-05	mg/kg	3.E-05	1.0E-07	0.003
		alpha-Hexachlorocyclohexane	1.8E-04	mg/kg	8.E-03	8.9E-07	0.0001
		beta-Hexachlorocyclohexane	6.2E-06	mg/kg	6.E-04	3.0E-08	0.0001
		Dieldrin	2.1E-03	mg/kg	5.E-05	1.0E-05	0.2
		Endrin	7.2E-06	mg/kg	3.E-04	3.5E-08	0.0001
		Endrin aldehyde	1.7E-06	mg/kg	3.E-04	8.2E-09	0.00003
		Endrin ketone	3.8E-06	mg/kg	3.E-04	1.8E-08	0.0001
		gamma-Hexachlorocyclohexane	2.4E-04	mg/kg	3.E-04	1.2E-06	0.004
		Heptachlor	8.8E-04	mg/kg	5.E-04	4.3E-06	0.01
		Heptachlor epoxide	3.6E-05	mg/kg	1.E-05	1.8E-07	0.01
		Methoxychlor	2.3E-03	mg/kg	5.E-03	1.1E-05	0.002
		Total Chlordanes	1.4E-02	mg/kg	5.E-04	6.7E-05	0.1
		Total DDD	2.8E-02	mg/kg	5.E-04	1.4E-04	0.3
		Total DDE	6.2E-02	mg/kg	5.E-04	3.0E-04	0.6
		Total DDT	3.3E-02	mg/kg	5.E-04	1.6E-04	0.3
		Total Endosulfan	2.5E-03	mg/kg	6.E-03	1.2E-05	0.002
Exposure Area Total[f]							800

TABLE 5-61.
Calculation of Noncancer Hazards - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC for mixed diet[b]		Noncancer Hazard Calculations[c]		
			Value	Units	Oral RfD mg/kg-day	ConsumptionRate: 73 g/day	
						CDI mg/kg-day	Noncancer Hazard Quotient
Fillet[g]	Study Area-wide	**Metals**					
		Aluminum	2.6E+00	mg/kg	1.E+00	1.3E-02	0.01
		Antimony	1.4E-01	mg/kg	4.E-04	7.0E-04	2
		Arsenic, inorganic	5.9E-02	mg/kg	3.E-04	2.9E-04	1
		Cadmium	5.5E-03	mg/kg	1.E-03	2.7E-05	0.03
		Chromium	6.5E-01	mg/kg	2.E+00	3.2E-03	0.002
		Copper	7.3E-01	mg/kg	4.E-02	3.6E-03	0.1
		Manganese	8.9E-01	mg/kg	1.E-01	4.3E-03	0.03
		Mercury	9.4E-02	mg/kg	1.E-04	4.6E-04	5
		Nickel	1.2E-01	mg/kg	2.E-02	5.9E-04	0.03
		Selenium	7.9E-01	mg/kg	5.E-03	3.8E-03	0.8
		Silver	6.4E-03	mg/kg	5.E-03	3.1E-05	0.01
		Zinc	9.7E+00	mg/kg	3.E-01	4.7E-02	0.2
		Butyltins					
		Butyltin ion	1.5E-04	mg/kg	3.E-04	7.2E-07	0.002
		Dibutyltin ion	9.8E-04	mg/kg	3.E-04	4.7E-06	0.02
		Tributyltin ion	9.6E-04	mg/kg	3.E-04	4.7E-06	0.02
		PAHs					
		1-Methylnaphthalene	1.9E-03	mg/kg	7.E-02	9.2E-06	0.0001
		2-Methylnaphthalene	4.6E-03	mg/kg	4.E-03	2.3E-05	0.01
		Acenaphthene	6.6E-03	mg/kg	6.E-02	3.2E-05	0.001
		Acenaphthylene	5.4E-04	mg/kg	6.E-02	2.6E-06	0.00004
		Anthracene	1.2E-03	mg/kg	3.E-01	6.0E-06	0.00002
		Benzo(g,h,i)perylene	9.8E-05	mg/kg	3.E-02	4.8E-07	0.00002
		Dibenzothiophene	3.1E-04	mg/kg	4.E-02	1.5E-06	0.00004
		Fluoranthene	1.5E-02	mg/kg	4.E-02	7.5E-05	0.002
		Fluorene	2.6E-03	mg/kg	4.E-02	1.3E-05	0.0003
		Naphthalene	2.1E-03	mg/kg	2.E-02	1.0E-05	0.001
		Phenanthrene	2.0E-02	mg/kg	3.E-02	9.7E-05	0.003
		Pyrene	2.2E-03	mg/kg	3.E-02	1.1E-05	0.0004
		Phthalates					
		Bis(2-ethylhexyl) phthalate	2.9E-02	mg/kg	2.E-02	1.4E-04	0.01
		Dibutyl phthalate	5.3E-03	mg/kg	1.E-01	2.6E-05	0.0003
		Diethyl phthalate	2.1E-03	mg/kg	8.E-01	1.0E-05	0.00001
		SVOCs					
		Benzyl alcohol	6.9E-03	mg/kg	1.E-01	3.4E-05	0.0003
		Dibenzofuran	6.8E-04	mg/kg	1.E-03	3.3E-06	0.003
		Hexachlorobenzene	9.5E-03	mg/kg	8.E-04	4.6E-05	0.1
		Hexachlorobutadiene	2.2E-05	mg/kg	1.E-03	1.1E-07	0.0001
		Isophorone	1.2E-03	mg/kg	2.E-01	5.9E-06	0.00003
		Phenols					
		4-Nitrophenol	3.5E-03	mg/kg	5.E-03	1.7E-05	0.003
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	2.5E+00	mg/kg	2.E-05	1.2E-02	600
		Dioxin/Furan					
		Total Dioxin/Furan TEQ	9.5E-07	mg/kg	1.E-09	4.6E-09	5
		Total PCB TEQ	1.6E-06	mg/kg	1.E-09	8.0E-09	8
		Pesticides					
		Aldrin	1.3E-05	mg/kg	3.E-05	6.6E-08	0.002
		alpha-Hexachlorocyclohexane	4.2E-06	mg/kg	8.E-03	2.0E-08	0.000003
		beta-Hexachlorocyclohexane	5.6E-04	mg/kg	6.E-04	2.7E-06	0.005
		Dieldrin	1.5E-03	mg/kg	5.E-05	7.2E-06	0.1
		Endrin	3.2E-06	mg/kg	3.E-04	1.5E-08	0.0001
		Endrin aldehyde	2.5E-04	mg/kg	3.E-04	1.2E-06	0.004
		Endrin ketone	2.2E-06	mg/kg	3.E-04	1.1E-08	0.00004
		gamma-Hexachlorocyclohexane	4.3E-06	mg/kg	3.E-04	2.1E-08	0.0001
		Heptachlor	6.2E-07	mg/kg	5.E-04	3.0E-09	0.00001
		Heptachlor epoxide	1.8E-05	mg/kg	1.E-05	8.7E-08	0.01
		Methoxychlor	1.1E-03	mg/kg	5.E-03	5.4E-06	0.001
		Total Chlordanes	2.4E-03	mg/kg	5.E-04	1.2E-05	0.02
		Total DDD	1.6E-02	mg/kg	5.E-04	7.9E-05	0.2
		Total DDE	2.8E-02	mg/kg	5.E-04	1.4E-04	0.3

TABLE 5-61.
Calculation of Noncancer Hazards - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC for mixed diet[b]		Noncancer Hazard Calculations[c]		
			Value	Units	Oral RfD mg/kg-day	ConsumptionRate: 73 g/day	
						CDI mg/kg-day	Noncancer Hazard Quotient
		Total DDT	1.2E-02	mg/kg	5.E-04	6.1E-05	0.1
		Total Endosulfan	8.2E-04	mg/kg	6.E-03	4.0E-06	0.001
Exposure Area Total							600

Notes:

a Chemicals listed for whole body exposure are analytes detected Study Area-wide in whole body tissue samples resident species (smallmouth bass, black crappie, common carp, brown bullhead). Chemicals listed for fillet exposure are analytes detected in Study Area-wide fillet tissue samples of resident species.

b The Tribal multi-species fish diet EPCs were calculated assuming different consumptionrates for each of seven fish species, which can also be represented by that species' percent of total fish diet. The EPCs shown in the table are the weighted sums of the EPCs for the individual species based on the following percentages:
(38.4% x Salmon EPC)
+ (7.0% x Lamprey EPC)
+ (4.9% x Sturgeon EPC)
+ (12.4% x Smallmouth Bass EPC)
+ (12.4% x Black Crappie EPC)
+ (12.4% x Common Carp EPC)
+ (12.4% x Brown Bullhead EPC)
100% Tribal fish tissue diet EPC

These percentages are the consumptionrates for each species as discussed in the Portland Harbor RI/FS Programmatic Work Plan, Appendix C: Human Health Risk Assessment Approach, LWG, 2004.

c Numbers presented are rounded values. Sums calculated before rounding.

d Whole Body Tissue EPCs are based on Study Area-wide whole body EPCs for each of the target resident species (smallmouth bass, black crappie, common carp, brown bullhead), and the available tissue data from the ODHS sampling effort, which are: whole body Chinook salmon, whole body lamprey, and fillet tissue (no

e Toxicity values for trivalent chromium used for total chromium.

f Cumulative hazard sums calculated using PCB congener data.

g Fillet Tissue EPCs are based on Study Area-wide fillet tissue EPCs for each of the target resident species (smallmouth bass, black crappie, common carp, brown bullhead), and the available tissue data from the ODHS sampling effort, which are: fillet (with skin) Chinook salmon, whole body lamprey, and fillet (no skin) sturgeon.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
NL = Not listed.
PAHs = Polycyclic Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RfD = Reference Dose.
TEQ = Toxic Equivalents.
WB = Whole body.

TABLE 5-62.
Calculation of Endpoint-Specific Hazard Indices - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer HQ[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
WB tissue	Study Area-wide	**Metals**																
		Aluminum	0.1					0.1										
		Antimony	4	4														
		Arsenic, inorganic	0.9	0.9	0.9													
		Cadmium	0.1			0.1												
		Copper	0.2				0.2											
		Manganese	0.1					0.1										
		Mercury	4					4										
		Nickel	0.08						0.08									
		Selenium	0.5						0.5									
		Silver	0.02		0.02													
		Zinc	0.5	0.5														
		Butyltins																
		Butyltin ion	0.04								0.04							
		Dibutyltin ion	0.01								0.01							
		Tributyltin ion	0.02								0.02							
		PAHs																
		2-Methylnaphthalene	0.01									0.01						
		Acenaphthene	0.001							0.001								
		Acenaphthylene	0.0001							0.0001								
		Benzo(g,h,i)perylene	0.00002			0.00002												
		Dibenzothiophene	0.0002	0.0002														
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.001	0.001														
		Naphthalene	0.002						0.002						0.002			
		Phenanthrene	0.002			0.002												
		Pyrene	0.0003			0.0003												

TABLE 5-62.
Calculation of Endpoint-Specific Hazard Indices - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer HQ[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.4							0.4								
		Dibutyl phthalate	0.0002						0.0002									
		Diethyl phthalate	0.00001						0.00001							0.00001		
		Di-n-octyl phthalate	0.01							0.01								
		SVOCs																
		Benzyl alcohol	0.001				0.001											
		Bis(2-chloroethoxy) methane	0.01							0.01								
		Dibenzofuran	0.02	0.02														
		Hexachlorobenzene	0.02							0.02								
		Hexachlorobutadiene	0.002			0.002												
		Isophorone	0.00002			0.00002												
		Phenols																
		4-Methylphenol	0.002					0.002	0.002									
		4-Nitrophenol	0.002					0.002	0.002									
		Phenol	0.001						0.001									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	700		700						700							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	10											10				
		Total PCB TEQ	30											30				
		Pesticides																
		Aldrin	0.003							0.003								
		alpha-Hexachlorocyclohexane	0.0001							0.0001								
		beta-Hexachlorocyclohexane	0.0001							0.0001								
		Dieldrin	0.2							0.2								
		Endrin	0.0001							0.0001								
		Endrin aldehyde	0.00003							0.00003								
		Endrin ketone	0.0001							0.0001								

TABLE 5-62.
Calculation of Endpoint-Specific Hazard Indices - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer HQ[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		gamma-Hexachlorocyclohexane	0.004			0.004				0.004								
		Heptachlor	0.01							0.01								
		Heptachlor epoxide	0.01							0.01								
		Methoxychlor	0.002											0.002				0.002
		Total Chlordanes	0.1							0.1								
		Total DDD	0.3							0.3								
		Total DDE	0.6							0.6								
		Total DDT	0.3							0.3								
		Total Endosulfan	0.002	0.002				0.002	0.002									
Exposure Area Total[b]				5	700	0.1	0.2	4	0.6	2.0	700	0.01		40	0.002	0.00001		0.002
Fillet	Study Area-wide	**Metals**																
		Aluminum	0.01					0.01										
		Antimony	2	2														
		Arsenic, inorganic	1	1	1													
		Cadmium	0.03			0.03												
		Copper	0.09				0.09											
		Manganese	0.03					0.03										
		Mercury	5					5										
		Nickel	0.03						0.03									
		Selenium	0.8						0.8									
		Silver	0.01		0.01													
		Zinc	0.2	0.2														
		Butyltins																
		Butyltin ion	0.002								0.002							
		Dibutyltin ion	0.02								0.02							
		Tributyltin ion	0.02								0.02							

TABLE 5-62.
Calculation of Endpoint-Specific Hazard Indices - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer HQ[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		PAHs																
		2-Methylnaphthalene	0.01									0.01						
		Acenaphthene	0.001							0.001								
		Acenaphthylene	0.00004							0.00004								
		Anthracene	0.00002															
		Benzo(g,h,i)perylene	0.00002			0.00002												
		Dibenzothiophene	0.00004	0.00004														
		Fluoranthene	0.002	0.002		0.002				0.002								
		Fluorene	0.0003	0.0003														
		Naphthalene	0.001						0.001						0.001			
		Phenanthrene	0.003			0.003												
		Pyrene	0.0004			0.0004												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.01							0.01								
		Dibutyl phthalate	0.0003						0.0003									
		Diethyl phthalate	0.00001						0.00001							0.00001		
		SVOCs																
		Benzyl alcohol	0.0003				0.0003											
		Dibenzofuran	0.003	0.003														
		Hexachlorobenzene	0.06							0.06								
		Hexachlorobutadiene	0.0001			0.0001												
		Isophorone	0.00003			0.00003												
		Phenols																
		4-Nitrophenol	0.003					0.003	0.003									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	600		600						600							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	5											5				
		Total PCB TEQ	8											8				

TABLE 5-62.
Calculation of Endpoint-Specific Hazard Indices - Child Tribal Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer HQ[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Aldrin	0.002							0.002								
		alpha-Hexachlorocyclohexane	0.000003							0.000003								
		beta-Hexachlorocyclohexane	0.005							0.005								
		Dieldrin	0.1							0.1								
		Endrin	0.0001							0.0001								
		Endrin aldehyde	0.004							0.004								
		Endrin ketone	0.00004							0.00004								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.01							0.01								
		Methoxychlor	0.00											0.001				0.001
		Total Chlordanes	0.02							0.02								
		Total DDD	0.2							0.2								
		Total DDE	0.3							0.3								
		Total DDT	0.1							0.1								
		Total Endosulfan	0.001	0.001				0.001	0.001									
Exposure Area Total				3	600	0.03	0.09	5	0.8	0.8	600	0.01		10	0.001	0.00001		0.001

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Cumulative risk sums calculated using PCB congener data.

Abbreviations:

-- = Not applicable.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.
WB = Whole body.

TABLE 5-63.
Calculation of Cancer Risks - Combined Tribal Child and Adult, Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Combined Child/Adult

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC for mixed diet		Cancer Risk Calculations[a]		Combined Adult/Child Cancer Risk[a,b]
			Value	Units	Tribal Adult Cancer Risk	Tribal Child Cancer Risk	Adult Consumption Rate: 175 g/day Child Consumption Rate: 73 g/day
WB tissue	Study Area-wide	**Metals**					
		Arsenic, inorganic	5.3E-02	mg/kg	2.E-04	3.E-05	2E-04
		PAHs					
		1-Methylnaphthalene	3.7E-03	mg/kg	3.E-07	4.E-08	3E-07
		Benzo(a)anthracene	9.2E-05	mg/kg	2.E-07	1.E-07	4E-07
		Benzo(a)pyrene	1.2E-04	mg/kg	2.E-06	2.E-06	5E-06
		Benzo(b)fluoranthene	1.7E-04	mg/kg	3.E-07	3.E-07	6E-07
		Benzo(k)fluoranthene	8.8E-05	mg/kg	2.E-08	1.E-08	3E-08
		Chrysene	8.0E-05	mg/kg	1.E-09	1.E-09	3E-09
		Dibenzo(a,h)anthracene	5.1E-05	mg/kg	9.E-07	8.E-07	2E-06
		Indeno(1,2,3-cd)pyrene	1.4E-04	mg/kg	3.E-07	2.E-07	5E-07
		Phthalates					
		Bis(2-ethylhexyl) phthalate	1.5E+00	mg/kg	5.E-05	9.E-06	6E-05
		SVOCs					
		Hexachlorobenzene	3.6E-03	mg/kg	1.E-05	2.E-06	2E-05
		Hexachlorobutadiene	3.4E-04	mg/kg	7.E-08	1.E-08	7E-08
		Isophorone	7.3E-04	mg/kg	2.E-09	3.E-10	2E-09
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	2.9E+00	mg/kg	1.E-02	2.E-03	2E-02
		Dioxin/Furan					
		Total Dioxin/Furan TEQ	2.6E-06	mg/kg	9.E-04	1.E-04	9E-04
		Total PCB TEQ	5.6E-06	mg/kg	2.E-03	3.E-04	2E-03
		Pesticides					
		Aldrin	2.1E-05	mg/kg	9.E-07	1.E-07	1E-06
		alpha-Hexachlorocyclohexane	1.8E-04	mg/kg	3.E-06	5.E-07	3E-06
		beta-Hexachlorocyclohexane	6.2E-06	mg/kg	3.E-08	5.E-09	3E-08
		Dieldrin	2.1E-03	mg/kg	8.E-05	1.E-05	9E-05
		gamma-Hexachlorocyclohexane	2.4E-04	mg/kg	7.E-07	1.E-07	7E-07
		Heptachlor	8.8E-04	mg/kg	1.E-05	2.E-06	1E-05
		Heptachlor epoxide	3.6E-05	mg/kg	8.E-07	1.E-07	9E-07
		Total Chlordanes	1.4E-02	mg/kg	1.E-05	2.E-06	1E-05
		Total DDD	2.8E-02	mg/kg	2.E-05	3.E-06	2E-05
		Total DDE	6.2E-02	mg/kg	5.E-05	9.E-06	6E-05
		Total DDT	3.3E-02	mg/kg	3.E-05	5.E-06	3E-05
Exposure Area Total					2.E-02	3.E-03	2.E-02
Fillet	Study Area-wide	**Metals**					
		Arsenic, inorganic	5.9E-02	mg/kg	2.E-04	4.E-05	2E-04
		PAHs					
		1-Methylnaphthalene	1.9E-03	mg/kg	1.E-07	2.E-08	1E-07
		Benzo(a)anthracene	1.3E-04	mg/kg	2.E-07	2.E-07	5E-07
		Benzo(a)pyrene	8.6E-05	mg/kg	2.E-06	1.E-06	3E-06
		Benzo(b)fluoranthene	1.1E-04	mg/kg	2.E-07	2.E-07	4E-07
		Benzo(k)fluoranthene	7.7E-05	mg/kg	1.E-08	1.E-08	3E-08
		Chrysene	1.8E-04	mg/kg	3.E-09	3.E-09	7E-09
		Dibenzo(a,h)anthracene	3.9E-05	mg/kg	7.E-07	6.E-07	1E-06
		Indeno(1,2,3-cd)pyrene	8.6E-05	mg/kg	2.E-07	1.E-07	3E-07
		Phthalates					
		Bis(2-ethylhexyl) phthalate	2.9E-02	mg/kg	1.E-06	2.E-07	1E-06
		SVOCs					
		Hexachlorobenzene	9.5E-03	mg/kg	4.E-05	6.E-06	4E-05
		Hexachlorobutadiene	2.2E-05	mg/kg	4.E-09	7.E-10	5E-09
		Isophorone	1.2E-03	mg/kg	3.E-09	5.E-10	3E-09
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	2.5E+00	mg/kg	1.E-02	2.E-03	1E-02
		Dioxin/Furan					
		Total Dioxin/Furan TEQ	9.5E-07	mg/kg	3.E-04	5.E-05	3E-04
		Total PCB TEQ	1.6E-06	mg/kg	5.E-04	9.E-05	6E-04
		Pesticides					
		Aldrin	1.3E-05	mg/kg	6.E-07	1.E-07	6E-07
		alpha-Hexachlorocyclohexane	4.2E-06	mg/kg	7.E-08	1.E-08	7E-08
		beta-Hexachlorocyclohexane	5.6E-04	mg/kg	3.E-06	4.E-07	3E-06
		Dieldrin	1.5E-03	mg/kg	6.E-05	1.E-05	6E-05
		gamma-Hexachlorocyclohexane	4.3E-06	mg/kg	1.E-08	2.E-09	1E-08
		Heptachlor	6.2E-07	mg/kg	7.E-09	1.E-09	8E-09
		Heptachlor epoxide	1.8E-05	mg/kg	4.E-07	7.E-08	4E-07
		Total Chlordanes	2.4E-03	mg/kg	2.E-06	4.E-07	2E-06
		Total DDD	1.6E-02	mg/kg	1.E-05	2.E-06	1E-05
		Total DDE	2.8E-02	mg/kg	2.E-05	4.E-06	3E-05

TABLE 5-63.
Calculation of Cancer Risks - Combined Tribal Child and Adult, Fish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher
Population Age: Combined Child/Adult

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC for mixed diet		Cancer Risk Calculations[a]		Combined Adult/Child Cancer Risk[a,b]
			Value	Units	Tribal Adult Cancer Risk	Tribal Child Cancer Risk	Adult Consumption Rate: 175 g/day Child Consumption Rate: 73 g/day
		Total DDT	1.2E-02	mg/kg	1.E-05	2.E-06	1E-05
Exposure Area Total					1.E-02	2.E-03	1.E-02

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b For carcinogenic PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene), early life exposure was considered and age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
g/day = grams per day.
mg/kg = milligrams per kilogram.
PAHs = Polycyclic Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RfD = Reference Dose.
TEQ = Toxic Equivalents.
WB = Whole body.

TABLE - 5-64.
Calculation of Noncancer Hazards -Breastfeeding Infant of Tribal Adult Fish Consumer

Scenario Timeframe: Current/Futu Medium: Fish Tissue (Tribal, multi-species diet)
Receptor Population: Infant Exposure Medium: Breastmilk
Population Age: Infant Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC for mixed diet[a]		Noncancer Hazard Risk Calculations[b]		
			Value	Units	IRAF	Consumption Rate: 175 g/day	
						Adult (Mother) Noncancer HQ	Breastfeeding Infant Noncancer HQ
WB tissue	Study Area-wide	Total PCBs, Adjusted	2.9E+00	mg/kg	25	400	9000
		Total Dioxin/Furan TEQ	2.6E-06	mg/kg	2	7	10
		Total PCB TEQ	5.6E-06	mg/kg	2	10	30
		Total DDX	--		2	1	1
	Exposure Point Total					400	9000
Fillet	Study Area-wide	Total PCBs, Adjusted	2.5E+00	mg/kg	25	300	8000
		Total Dioxin/Furan TEQ	9.5E-07	mg/kg	2	2	5
		Total PCB TEQ	1.6E-06	mg/kg	2	4	8
		Total DDX	--		2	0.3	1
	Exposure Point Total					300	8000

Notes:

a EPCs not calculated for Total DDX in the Baseline Human Health Risk Assessment. Risks to breastfeeing infant are based on cumulative risks to mother from Total DDT, Total DDD, and Total DDE.

b Numbers presented are rounded values. Sums calculated before rounding.

bbreviations:

-- = Not applicable.
EPC = Exposure Point Concentration.
g/day = grams per day.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
mg/kg = milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.
WB = Whole body.

TABLE 5-65. Summary of Risks From Fish Consumption - Tribal Fishers[a]

Study Area-wide Exposure, Adult Consumption Rate: 175 g/day Child Consumption Rate: 73 g/day	Tribal Child Fisher Hazard Index	Combined Tribal Child and Adult Fisher Cancer Risk	Breastfeeding Infant of Tribal Adult Fisher Hazard Index
Whole Body Tissue	800	2×10^{-2}	9000
Fillet Tissue	600	1×10^{-2}	8000

Notes:

a Table presents cumulative risk (or cumulative hazard indices) per tissue type. Fish consumption by a Tribal Fisher was assessed for Study Area-wide exposure only.

b Combined adult and child cancer risks calculated based on child exposure of 6 years and weighted adult exposure of 64 years for a tribal fisher. For carcinogenic PAHs, early life exposure was considered and age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

TABLE 5-66.
Calculation of Noncancer Hazards - Child, Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[b]	EPC Value	EPC Units	Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[c] — Recreational Fisher — Consumption Rate: 20.5 g/day — CDI mg/kg-day	Consumption Rate: 20.5 g/day — Noncancer Hazard Quotient	Consumption Rate: 7 g/day — CDI mg/kg-day	Consumption Rate: 7 g/day — Noncancer Hazard Quotient
F	RM 2	**Metals**							
		Aluminum	1.6E+00	mg/kg	1.0E+00	2.1E-03	0.002	7.3E-04	0.0007
		Arsenic, inorganic	3.4E-02	mg/kg	3.0E-04	4.6E-05	0.2	1.6E-05	0.05
		Chromium	2.0E-01	mg/kg	1.5E+00	2.7E-04	0.0002	9.3E-05	0.0001
		Copper	3.8E-01	mg/kg	4.0E-02	5.2E-04	0.01	1.8E-04	0.004
		Manganese	5.0E-01	mg/kg	1.4E-01	6.9E-04	0.005	2.3E-04	0.002
		Mercury	6.3E-02	mg/kg	1.0E-04	8.6E-05	0.9	2.9E-05	0.3
		Nickel	1.3E-01	mg/kg	2.0E-02	1.8E-04	0.009	6.2E-05	0.003
		Silver	2.0E-03	mg/kg	5.0E-03	2.7E-06	0.0005	9.3E-07	0.0002
		Zinc	7.8E+00	mg/kg	3.0E-01	1.1E-02	0.04	3.7E-03	0.01
		Butyltins							
		Dibutyltin ion	2.9E-01	ug/kg	3.0E-04	4.0E-07	0.001	1.4E-07	0.0005
		PAHs							
		1-Methylnaphthalene	1.2E+00	ug/kg	7.0E-02	1.6E-06	0.00002	5.6E-07	0.00001
		2-Methylnaphthalene	1.3E+00	ug/kg	4.0E-03	1.8E-06	0.0004	6.1E-07	0.0002
		Acenaphthylene	2.6E-01	ug/kg	6.0E-02	3.6E-07	0.00001	1.2E-07	0.000002
		Anthracene	5.8E-01	ug/kg	3.0E-01	7.9E-07	0.000003	2.7E-07	0.000001
		Dibenzothiophene	2.6E-01	ug/kg	4.0E-02	3.6E-07	0.00001	1.2E-07	0.000003
		Fluoranthene	1.5E+00	ug/kg	4.0E-02	2.1E-06	0.0001	7.0E-07	0.00002
		Naphthalene	7.9E-01	ug/kg	2.0E-02	1.1E-06	0.0001	3.7E-07	0.00002
		Semi-Volatile Organic Compounds							
		Hexachlorobenzene	3.4E-01	ug/kg	8.0E-04	4.6E-07	0.0006	1.6E-07	0.0002
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	1.8E+05	pg/g	2.0E-05	2.4E-04	10	8.2E-05	4
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	2.2E-01	pg/g	1.0E-09	3.0E-10	0.3	1.0E-10	0.1
		Total PCB TEQ	1.8E+00	pg/g	1.0E-09	2.5E-09	2	8.4E-10	0.8
		Pesticides							
		Aldrin	6.9E-03	ug/kg	3.0E-05	9.4E-09	0.0003	3.2E-09	0.0001
		alpha-Hexachlorocyclohexane	5.2E-03	ug/kg	8.0E-03	7.1E-09	0.000001	2.4E-09	0.0000003
		Dieldrin	4.2E-01	ug/kg	5.0E-05	5.8E-07	0.01	2.0E-07	0.004
		Endrin	7.1E-03	ug/kg	3.0E-04	9.7E-09	0.00003	3.3E-09	0.00001
		Heptachlor epoxide	2.7E-02	ug/kg	1.3E-05	3.7E-08	0.003	1.3E-08	0.001
		Total Chlordanes	1.5E+00	ug/kg	5.0E-04	2.1E-06	0.004	7.0E-07	0.001
		Total DDD	2.9E+00	ug/kg	5.0E-04	4.0E-06	0.008	1.4E-06	0.003
		Total DDE	1.1E+01	ug/kg	5.0E-04	1.5E-05	0.03	5.2E-06	0.01
		Total DDT	7.2E-01	ug/kg	5.0E-04	9.9E-07	0.002	3.4E-07	0.0007
		Total Endosulfan	1.1E-01	ug/kg	6.0E-03	1.5E-07	0.00002	5.1E-08	0.00001
Exposure Point Total							10		5
F	RM 3	**Metals**							
		Aluminum	3.4E+00	mg/kg	1.0E+00	4.6E-03	0.005	1.6E-03	0.002
		Arsenic, inorganic	2.9E-02	mg/kg	3.0E-04	4.0E-05	0.1	1.4E-05	0.05
		Copper	9.4E-01	mg/kg	4.0E-02	1.3E-03	0.03	4.4E-04	0.01
		Manganese	4.1E-01	mg/kg	1.4E-01	5.6E-04	0.004	1.9E-04	0.001
		Mercury	1.8E-01	mg/kg	1.0E-04	2.4E-04	2	8.4E-05	0.8
		Nickel	1.2E-01	mg/kg	2.0E-02	1.7E-04	0.008	5.8E-05	0.003
		Zinc	9.0E+00	mg/kg	3.0E-01	1.2E-02	0.04	4.2E-03	0.01
		Butyltins							
		Dibutyltin ion	4.1E-01	ug/kg	3.0E-04	5.6E-07	0.002	1.9E-07	0.0006
		Tributyltin ion	5.8E-01	ug/kg	3.0E-04	7.9E-07	0.003	2.7E-07	0.0009
		PAHs							
		1-Methylnaphthalene	2.4E+00	ug/kg	7.0E-02	3.3E-06	0.00005	1.1E-06	0.00002
		2-Methylnaphthalene	2.9E+00	ug/kg	4.0E-03	4.0E-06	0.001	1.4E-06	0.0003
		Acenaphthylene	1.6E-01	ug/kg	6.0E-02	2.2E-07	0.000004	7.5E-08	0.000001
		Anthracene	6.8E-01	ug/kg	3.0E-01	9.3E-07	0.000003	3.2E-07	0.000001
		Dibenzothiophene	4.0E-01	ug/kg	4.0E-02	5.5E-07	0.00001	1.9E-07	0.000005
		Fluoranthene	5.5E+00	ug/kg	4.0E-02	7.5E-06	0.0002	2.6E-06	0.0001
		Naphthalene	9.5E-01	ug/kg	2.0E-02	1.3E-06	0.0001	4.4E-07	0.00002
		Phenanthrene	2.7E+00	ug/kg	3.0E-02	3.7E-06	0.0001	1.3E-06	0.00004
		Pyrene	4.2E+00	ug/kg	3.0E-02	5.7E-06	0.0002	2.0E-06	0.0001
		Semi-Volatile Organic Compounds							
		Hexachlorobenzene	4.3E-01	ug/kg	8.0E-04	5.9E-07	0.0007	2.0E-07	0.0003
		Hexachlorobutadiene	2.2E-02	ug/kg	1.0E-03	3.1E-08	0.00003	1.0E-08	0.00001
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	3.8E+04	pg/g	2.0E-05	5.1E-05	3	1.8E-05	0.9
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	2.6E-01	pg/g	1.0E-09	3.5E-10	0.4	1.2E-10	0.1
		Total PCB TEQ	4.9E-01	pg/g	1.0E-09	6.7E-10	0.7	2.3E-10	0.2
		Pesticides							
		Aldrin	5.2E-03	ug/kg	3.0E-05	7.1E-09	0.0002	2.4E-09	0.0001
		alpha-Hexachlorocyclohexane	4.3E-03	ug/kg	8.0E-03	5.8E-09	0.000001	2.0E-09	0.0000002
		beta-Hexachlorocyclohexane	4.5E+00	ug/kg	6.0E-04	6.2E-06	0.01	2.1E-06	0.004
		Dieldrin	3.3E+00	ug/kg	5.0E-05	4.5E-06	0.09	1.5E-06	0.03
		Endrin aldehyde	2.0E+00	ug/kg	3.0E-04	2.7E-06	0.009	9.3E-07	0.003
		Heptachlor epoxide	2.4E-02	ug/kg	1.3E-05	3.3E-08	0.003	1.1E-08	0.0009
		Total Chlordanes	7.8E+00	ug/kg	5.0E-04	1.1E-05	0.02	3.6E-06	0.007
		Total DDD	4.7E+00	ug/kg	5.0E-04	6.4E-06	0.01	2.2E-06	0.004
		Total DDE	2.6E+01	ug/kg	5.0E-04	3.5E-05	0.07	1.2E-05	0.02
		Total DDT	1.3E+01	ug/kg	5.0E-04	1.8E-05	0.04	6.0E-06	0.01
Exposure Point Total							7		2
F	RM 4	**Metals**							
		Aluminum	1.4E+00	mg/kg	1.0E+00	1.9E-03	0.002	6.5E-04	0.0007
		Arsenic, inorganic	2.2E-02	mg/kg	3.0E-04	3.0E-05	0.1	1.0E-05	0.03
		Copper	3.3E-01	mg/kg	4.0E-02	4.6E-04	0.01	1.6E-04	0.004
		Manganese	5.3E-01	mg/kg	1.4E-01	7.3E-04	0.005	2.5E-04	0.002
		Mercury	2.4E-01	mg/kg	1.0E-04	3.2E-04	3	1.1E-04	1
		Nickel	7.1E-02	mg/kg	2.0E-02	9.7E-05	0.005	3.3E-05	0.002
		Zinc	8.6E+00	mg/kg	3.0E-01	1.2E-02	0.04	4.0E-03	0.01

TABLE 5-66.
Calculation of Noncancer Hazards - Child, Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[b]	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[c] Oral RfD mg/kg-day	Recreational Fisher Consumption Rate: 20.5 g/day CDI mg/kg-day	Recreational Fisher Consumption Rate: 20.5 g/day Noncancer Hazard Quotient	Recreational Fisher Consumption Rate: 7 g/day CDI mg/kg-day	Recreational Fisher Consumption Rate: 7 g/day Noncancer Hazard Quotient
		Butyltins							
		Dibutyltin ion	7.2E-01	ug/kg	3.0E-04	9.8E-07	0.003	3.4E-07	0.001
		Tributyltin ion	9.2E-01	ug/kg	3.0E-04	1.3E-06	0.004	4.3E-07	0.001
		PAHs							
		1-Methylnaphthalene	5.9E-01	ug/kg	7.0E-02	8.1E-07	0.00001	2.8E-07	0.000004
		2-Methylnaphthalene	8.2E-01	ug/kg	4.0E-03	1.1E-06	0.0003	3.8E-07	0.0001
		Acenaphthylene	2.9E-01	ug/kg	6.0E-02	4.0E-07	0.00001	1.4E-07	0.000002
		Anthracene	6.3E-01	ug/kg	3.0E-01	8.6E-07	0.000003	2.9E-07	0.000001
		Benzo(g,h,i)perylene	3.4E-01	ug/kg	3.0E-02	4.6E-07	0.00002	1.6E-07	0.00001
		Dibenzothiophene	5.9E-01	ug/kg	4.0E-02	8.1E-07	0.00002	2.8E-07	0.00001
		Fluoranthene	2.5E+00	ug/kg	4.0E-02	3.4E-06	0.0001	1.2E-06	0.00003
		Naphthalene	1.2E+00	ug/kg	2.0E-02	1.6E-06	0.0001	5.6E-07	0.00003
		Phenanthrene	4.3E+00	ug/kg	3.0E-02	5.9E-06	0.0002	2.0E-06	0.0001
		Phthalates							
		Dibutyl phthalate	4.3E+01	ug/kg	1.0E-01	5.9E-05	0.0006	2.0E-05	0.0002
		Diethyl phthalate	1.7E+01	ug/kg	8.0E-01	2.3E-05	0.00003	7.9E-06	0.00001
		Semi-Volatile Organic Compounds							
		Benzyl alcohol	2.4E+01	ug/kg	1.0E-01	3.3E-05	0.0003	1.1E-05	0.0001
		Hexachlorobenzene	4.6E-01	ug/kg	8.0E-04	6.2E-07	0.0008	2.1E-07	0.0003
		Hexachlorobutadiene	1.3E-02	ug/kg	1.0E-03	1.8E-08	0.00002	6.1E-09	0.00001
		Phenols							
		4-Nitrophenol	1.3E+01	ug/kg	5.0E-03	1.8E-05	0.004	6.1E-06	0.001
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	2.2E+05	pg/g	2.0E-05	3.0E-04	10	1.0E-04	5
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	3.6E-01	pg/g	1.0E-09	4.9E-10	0.5	1.7E-10	0.2
		Total PCB TEQ	1.3E+00	pg/g	1.0E-09	1.8E-09	2	6.3E-10	0.6
		Pesticides							
		Aldrin	5.8E-03	ug/kg	3.0E-05	7.9E-09	0.0003	2.7E-09	0.0001
		alpha-Hexachlorocyclohexane	3.9E-03	ug/kg	8.0E-03	5.4E-09	0.000001	1.8E-09	0.0000002
		beta-Hexachlorocyclohexane	2.8E-03	ug/kg	6.0E-04	3.8E-09	0.00001	1.3E-09	0.000002
		Dieldrin	3.8E-01	ug/kg	5.0E-05	5.1E-07	0.01	1.8E-07	0.004
		Heptachlor epoxide	2.2E-02	ug/kg	1.3E-05	3.0E-08	0.002	1.0E-08	0.0008
		Total Chlordanes	2.3E+00	ug/kg	5.0E-04	3.1E-06	0.006	1.1E-06	0.002
		Total DDD	4.4E+00	ug/kg	5.0E-04	6.0E-06	0.01	2.0E-06	0.004
		Total DDE	1.2E+01	ug/kg	5.0E-04	1.7E-05	0.03	5.8E-06	0.01
		Total DDT	2.0E+00	ug/kg	5.0E-04	2.7E-06	0.005	9.3E-07	0.002
		Total Endosulfan	9.2E-02	ug/kg	6.0E-03	1.3E-07	0.00002	4.3E-08	0.00001
Exposure Point Total							20		7
F	RM 5	**Metals**							
		Aluminum	3.8E+00	mg/kg	1.0E+00	5.2E-03	0.005	1.8E-03	0.002
		Arsenic, inorganic	2.0E-02	mg/kg	3.0E-04	2.7E-05	0.09	9.3E-06	0.03
		Copper	1.1E+00	mg/kg	4.0E-02	1.5E-03	0.04	5.2E-04	0.01
		Manganese	3.9E-01	mg/kg	1.4E-01	5.3E-04	0.004	1.8E-04	0.001
		Mercury	2.1E-01	mg/kg	1.0E-04	2.9E-04	3	9.8E-05	1
		Nickel	2.2E-01	mg/kg	2.0E-02	3.1E-04	0.02	1.0E-04	0.005
		Zinc	1.1E+01	mg/kg	3.0E-01	1.5E-02	0.05	5.1E-03	0.02
		Butyltins							
		Dibutyltin ion	7.7E-01	ug/kg	3.0E-04	1.1E-06	0.004	3.6E-07	0.001
		PAHs							
		1-Methylnaphthalene	5.4E-01	ug/kg	7.0E-02	7.4E-07	0.00001	2.5E-07	0.000004
		2-Methylnaphthalene	9.1E-01	ug/kg	4.0E-03	1.2E-06	0.0003	4.2E-07	0.0001
		Acenaphthylene	1.4E+00	ug/kg	6.0E-02	1.9E-06	0.00003	6.5E-07	0.00001
		Anthracene	2.0E+00	ug/kg	3.0E-01	2.7E-06	0.00001	9.3E-07	0.000003
		Benzo(g,h,i)perylene	2.0E+00	ug/kg	3.0E-02	2.7E-06	0.0001	9.3E-07	0.00003
		Dibenzothiophene	1.5E+00	ug/kg	4.0E-02	2.1E-06	0.0001	7.0E-07	0.00002
		Fluoranthene	8.0E+00	ug/kg	4.0E-02	1.1E-05	0.0003	3.7E-06	0.0001
		Fluorene	1.8E+00	ug/kg	4.0E-02	2.5E-06	0.0001	8.4E-07	0.00002
		Naphthalene	2.9E+00	ug/kg	2.0E-02	4.0E-06	0.0002	1.4E-06	0.0001
		Phenanthrene	1.2E+01	ug/kg	3.0E-02	1.6E-05	0.0005	5.6E-06	0.0002
		Pyrene	8.6E+00	ug/kg	3.0E-02	1.2E-05	0.0004	4.0E-06	0.0001
		Semi-Volatile Organic Compounds							
		Benzyl alcohol	2.3E+01	ug/kg	1.0E-01	3.1E-05	0.0003	1.1E-05	0.0001
		Hexachlorobenzene	3.9E-01	ug/kg	8.0E-04	5.4E-07	0.0007	1.8E-07	0.0002
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	3.1E+04	pg/g	2.0E-05	4.3E-05	2	1.5E-05	0.7
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	2.5E-01	pg/g	1.0E-09	3.4E-10	0.3	1.2E-10	0.1
		Total PCB TEQ	3.2E-01	pg/g	1.0E-09	4.4E-10	0.4	1.5E-10	0.2
		Pesticides							
		Dieldrin	3.7E-01	ug/kg	5.0E-05	5.0E-07	0.01	1.7E-07	0.003
		Endrin aldehyde	1.5E+00	ug/kg	3.0E-04	2.1E-06	0.007	7.0E-07	0.002
		gamma-Hexachlorocyclohexane	9.0E-03	ug/kg	3.0E-04	1.2E-08	0.00004	4.2E-09	0.00001
		Heptachlor epoxide	2.0E-02	ug/kg	1.3E-05	2.7E-08	0.002	9.3E-09	0.0007
		Total Chlordanes	1.7E+00	ug/kg	5.0E-04	2.3E-06	0.005	8.0E-07	0.002
		Total DDD	4.8E+00	ug/kg	5.0E-04	6.5E-06	0.01	2.2E-06	0.004
		Total DDE	1.5E+01	ug/kg	5.0E-04	2.0E-05	0.04	6.8E-06	0.01
		Total DDT	9.5E+00	ug/kg	5.0E-04	1.3E-05	0.03	4.4E-06	0.009
		Total Endosulfan	1.1E-01	ug/kg	6.0E-03	1.5E-07	0.00003	5.1E-08	0.00001
Exposure Point Total							6		2
F	RM 6	**Metals**							
		Aluminum	7.2E+00	mg/kg	1.0E+00	9.8E-03	0.01	3.3E-03	0.003
		Arsenic, inorganic	2.0E-02	mg/kg	3.0E-04	2.7E-05	0.09	9.3E-06	0.03
		Cadmium	1.0E-03	mg/kg	1.0E-03	1.4E-06	0.001	4.7E-07	0.0005
		Copper	3.8E-01	mg/kg	4.0E-02	5.2E-04	0.01	1.8E-04	0.004
		Manganese	5.0E-01	mg/kg	1.4E-01	6.8E-04	0.005	2.3E-04	0.002
		Mercury	1.5E-01	mg/kg	1.0E-04	2.0E-04	2	6.9E-05	0.7
		Nickel	5.6E-02	mg/kg	2.0E-02	7.7E-05	0.004	2.6E-05	0.001
		Zinc	9.6E+00	mg/kg	3.0E-01	1.3E-02	0.04	4.5E-03	0.01

TABLE 5-66.
Calculation of Noncancer Hazards - Child, Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[b]	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[c] Oral RfD mg/kg-day	Recreational Fisher Consumption Rate: 20.5 g/day CDI mg/kg-day	Recreational Fisher Consumption Rate: 20.5 g/day Noncancer Hazard Quotient	Recreational Fisher Consumption Rate: 7 g/day CDI mg/kg-day	Recreational Fisher Consumption Rate: 7 g/day Noncancer Hazard Quotient
		Butyltins							
		Dibutyltin ion	9.2E-01	ug/kg	3.0E-04	1.3E-06	0.004	4.3E-07	0.001
		Tributyltin ion	7.4E-01	ug/kg	3.0E-04	1.0E-06	0.003	3.5E-07	0.001
		PAHs							
		1-Methylnaphthalene	1.2E+00	ug/kg	7.0E-02	1.6E-06	0.00002	5.6E-07	0.00001
		2-Methylnaphthalene	1.4E+00	ug/kg	4.0E-03	1.9E-06	0.0005	6.5E-07	0.0002
		Acenaphthene	5.4E+00	ug/kg	6.0E-02	7.4E-06	0.0001	2.5E-06	0.00004
		Acenaphthylene	4.0E-01	ug/kg	6.0E-02	5.5E-07	0.00001	1.9E-07	0.000003
		Anthracene	1.2E+00	ug/kg	3.0E-01	1.6E-06	0.00001	5.6E-07	0.000002
		Benzo(g,h,i)perylene	8.4E-02	ug/kg	3.0E-02	1.1E-07	0.000004	3.9E-08	0.000001
		Dibenzothiophene	1.7E+00	ug/kg	4.0E-02	2.3E-06	0.0001	7.9E-07	0.00002
		Fluoranthene	1.4E+00	ug/kg	4.0E-02	1.9E-06	0.00005	6.5E-07	0.00002
		Fluorene	2.8E+00	ug/kg	4.0E-02	3.8E-06	0.0001	1.3E-06	0.00003
		Naphthalene	2.7E+00	ug/kg	2.0E-02	3.7E-06	0.0002	1.3E-06	0.0001
		Phenanthrene	7.0E+00	ug/kg	3.0E-02	9.6E-06	0.0003	3.3E-06	0.0001
		Phthalates							
		Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	2.0E-02	1.3E-04	0.006	4.3E-05	0.002
		Semi-Volatile Organic Compounds							
		Hexachlorobenzene	3.6E-01	ug/kg	8.0E-04	4.9E-07	0.0006	1.7E-07	0.0002
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	7.8E+04	pg/g	2.0E-05	1.1E-04	5	3.6E-05	2
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	3.5E-01	pg/g	1.0E-09	4.8E-10	0.5	1.6E-10	0.2
		Total PCB TEQ	3.9E-01	pg/g	1.0E-09	5.4E-10	0.5	1.8E-10	0.2
		Pesticides							
		Dieldrin	3.6E-01	ug/kg	5.0E-05	5.0E-07	0.01	1.7E-07	0.003
		Endrin	3.0E-03	ug/kg	3.0E-04	4.1E-09	0.00001	1.4E-09	0.000005
		gamma-Hexachlorocyclohexane	4.0E-03	ug/kg	3.0E-04	5.5E-09	0.00002	1.9E-09	0.00001
		Heptachlor epoxide	1.8E-02	ug/kg	1.3E-05	2.5E-08	0.002	8.4E-09	0.0006
		Total Chlordanes	4.5E+00	ug/kg	5.0E-04	6.2E-06	0.01	2.1E-06	0.004
		Total DDD	8.5E+00	ug/kg	5.0E-04	1.2E-05	0.02	3.9E-06	0.008
		Total DDE	1.3E+01	ug/kg	5.0E-04	1.7E-05	0.03	5.8E-06	0.01
		Total DDT	7.6E+00	ug/kg	5.0E-04	1.0E-05	0.02	3.5E-06	0.007
		Total Endosulfan	8.5E-02	ug/kg	6.0E-03	1.2E-07	0.00002	4.0E-08	0.00001
Exposure Point Total							9		3
F	RM 7	**Metals**							
		Aluminum	1.3E+00	mg/kg	1.0E+00	1.8E-03	0.002	6.1E-04	0.0006
		Arsenic, inorganic	1.9E-02	mg/kg	3.0E-04	2.6E-05	0.09	8.9E-06	0.03
		Copper	4.9E-01	mg/kg	4.0E-02	6.6E-04	0.02	2.3E-04	0.006
		Manganese	5.5E-01	mg/kg	1.4E-01	7.5E-04	0.005	2.5E-04	0.002
		Mercury	2.5E-01	mg/kg	1.0E-04	3.3E-04	3	1.1E-04	1
		Nickel	5.8E-02	mg/kg	2.0E-02	7.9E-05	0.004	2.7E-05	0.001
		Zinc	9.3E+00	mg/kg	3.0E-01	1.3E-02	0.04	4.3E-03	0.01
		Butyltins							
		Dibutyltin ion	8.8E-01	ug/kg	3.0E-04	1.2E-06	0.004	4.1E-07	0.001
		Tributyltin ion	4.8E-01	ug/kg	3.0E-04	6.6E-07	0.002	2.2E-07	0.0007
		PAHs							
		1-Methylnaphthalene	3.1E-01	ug/kg	7.0E-02	4.2E-07	0.00001	1.4E-07	0.000002
		2-Methylnaphthalene	7.7E-01	ug/kg	4.0E-03	1.1E-06	0.0003	3.6E-07	0.0001
		Acenaphthene	2.6E+00	ug/kg	6.0E-02	3.6E-06	0.0001	1.2E-06	0.00002
		Acenaphthylene	2.9E-01	ug/kg	6.0E-02	4.0E-07	0.00001	1.4E-07	0.000002
		Anthracene	8.2E-01	ug/kg	3.0E-01	1.1E-06	0.000004	3.8E-07	0.000001
		Benzo(g,h,i)perylene	9.3E-02	ug/kg	3.0E-02	1.3E-07	0.000004	4.3E-08	0.000001
		Dibenzothiophene	1.0E+00	ug/kg	4.0E-02	1.4E-06	0.00003	4.7E-07	0.00001
		Fluoranthene	1.6E+00	ug/kg	4.0E-02	2.2E-06	0.0001	7.5E-07	0.00002
		Fluorene	1.6E+00	ug/kg	4.0E-02	2.2E-06	0.0001	7.5E-07	0.00002
		Naphthalene	1.4E+00	ug/kg	2.0E-02	1.9E-06	0.0001	6.5E-07	0.00003
		Phenanthrene	5.2E+00	ug/kg	3.0E-02	7.1E-06	0.0002	2.4E-06	0.0001
		Semi-Volatile Organic Compounds							
		Benzyl alcohol	2.9E+01	ug/kg	1.0E-01	4.0E-05	0.0004	1.4E-05	0.0001
		Hexachlorobenzene	8.8E-01	ug/kg	8.0E-04	1.2E-06	0.001	4.1E-07	0.0005
		Hexachlorobutadiene	1.7E-01	ug/kg	1.0E-03	2.3E-07	0.0002	7.8E-08	0.0001
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	2.0E+05	pg/g	2.0E-05	2.8E-04	10	9.6E-05	5
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	8.7E+00	pg/g	1.0E-09	1.2E-08	10	4.1E-09	4
		Total PCB TEQ	7.0E-01	pg/g	1.0E-09	9.6E-10	1	3.3E-10	0.3
		Pesticides							
		beta-Hexachlorocyclohexane	5.0E-03	ug/kg	6.0E-04	6.8E-09	0.00001	2.3E-09	0.000004
		Dieldrin	3.1E-01	ug/kg	5.0E-05	4.3E-07	0.009	1.5E-07	0.003
		Endrin	4.0E-03	ug/kg	3.0E-04	5.5E-09	0.00002	1.9E-09	0.00001
		Heptachlor epoxide	1.4E-02	ug/kg	1.3E-05	1.9E-08	0.001	6.5E-09	0.0005
		Total Chlordanes	1.5E+00	ug/kg	5.0E-04	2.1E-06	0.004	7.1E-07	0.001
		Total DDD	6.3E+01	ug/kg	5.0E-04	8.6E-05	0.2	2.9E-05	0.06
		Total DDE	5.9E+01	ug/kg	5.0E-04	8.0E-05	0.2	2.7E-05	0.05
		Total DDT	5.9E+01	ug/kg	5.0E-04	8.1E-05	0.2	2.8E-05	0.06
Exposure Point Total							20		10
F	RM 8	**Metals**							
		Aluminum	3.5E+00	mg/kg	1.0E+00	4.8E-03	0.005	1.6E-03	0.002
		Arsenic, inorganic	1.8E-02	mg/kg	3.0E-04	2.5E-05	0.08	8.4E-06	0.03
		Cadmium	1.0E-03	mg/kg	1.0E-03	1.4E-06	0.001	4.7E-07	0.0005
		Copper	3.6E-01	mg/kg	4.0E-02	4.9E-04	0.01	1.7E-04	0.004
		Manganese	3.8E-01	mg/kg	1.4E-01	5.2E-04	0.004	1.8E-04	0.001
		Mercury	1.1E-01	mg/kg	1.0E-04	1.5E-04	2	5.3E-05	0.5
		Nickel	6.4E-02	mg/kg	2.0E-02	8.7E-05	0.004	3.0E-05	0.001
		Zinc	9.2E+00	mg/kg	3.0E-01	1.3E-02	0.04	4.3E-03	0.01
		Butyltins							
		Dibutyltin ion	5.0E-01	ug/kg	3.0E-04	6.8E-07	0.002	2.3E-07	0.0008

TABLE 5-66.
Calculation of Noncancer Hazards - Child, Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[b]	EPC Value	EPC Units	Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[c] — Recreational Fisher — Consumption Rate: 20.5 g/day — CDI mg/kg-day	Consumption Rate: 20.5 g/day — Noncancer Hazard Quotient	Consumption Rate: 7 g/day — CDI mg/kg-day	Consumption Rate: 7 g/day — Noncancer Hazard Quotient
		PAHs							
		1-Methylnaphthalene	1.0E+00	ug/kg	7.0E-02	1.4E-06	0.00002	4.7E-07	0.00001
		2-Methylnaphthalene	1.8E+00	ug/kg	4.0E-03	2.5E-06	0.0006	8.4E-07	0.0002
		Acenaphthylene	2.5E+00	ug/kg	6.0E-02	3.4E-06	0.0001	1.2E-06	0.00002
		Anthracene	3.6E+00	ug/kg	3.0E-01	4.9E-06	0.00002	1.7E-06	0.00001
		Benzo(g,h,i)perylene	2.0E+00	ug/kg	3.0E-02	2.7E-06	0.0001	9.3E-07	0.0000
		Dibenzothiophene	2.1E+00	ug/kg	4.0E-02	2.9E-06	0.0001	9.8E-07	0.00002
		Fluoranthene	1.2E+01	ug/kg	4.0E-02	1.6E-05	0.0004	5.6E-06	0.0001
		Fluorene	2.5E+00	ug/kg	4.0E-02	3.4E-06	0.0001	1.2E-06	0.00003
		Naphthalene	1.1E+01	ug/kg	2.0E-02	1.5E-05	0.0008	5.1E-06	0.0003
		Phenanthrene	2.2E+01	ug/kg	3.0E-02	3.0E-05	0.001	1.0E-05	0.0003
		Pyrene	1.3E+01	ug/kg	3.0E-02	1.8E-05	0.0006	6.1E-06	0.0002
		Semi-Volatile Organic Compounds							
		Benzyl alcohol	2.6E+01	ug/kg	1.0E-01	3.6E-05	0.0004	1.2E-05	0.0001
		Hexachlorobenzene	3.5E-01	ug/kg	8.0E-04	4.8E-07	0.0006	1.6E-07	0.0002
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	4.7E+04	pg/g	2.0E-05	6.4E-05	3	2.2E-05	1
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	6.2E-01	pg/g	1.0E-09	8.4E-10	0.8	2.9E-10	0.3
		Total PCB TEQ	4.0E-01	pg/g	1.0E-09	5.5E-10	0.6	1.9E-10	0.2
		Pesticides							
		Aldrin	5.0E-03	ug/kg	3.0E-05	6.8E-09	0.0002	2.3E-09	0.0001
		Dieldrin	1.4E+00	ug/kg	5.0E-05	1.9E-06	0.04	6.5E-07	0.01
		gamma-Hexachlorocyclohexane	3.0E-03	ug/kg	3.0E-04	4.1E-09	0.00001	1.4E-09	0.000005
		Heptachlor epoxide	1.6E-02	ug/kg	1.3E-05	2.2E-08	0.002	7.5E-09	0.0006
		Total Chlordanes	5.4E+00	ug/kg	5.0E-04	7.4E-06	0.01	2.5E-06	0.005
		Total DDD	1.3E+01	ug/kg	5.0E-04	1.7E-05	0.03	5.9E-06	0.01
		Total DDE	2.2E+01	ug/kg	5.0E-04	3.0E-05	0.06	1.0E-05	0.02
		Total DDT	1.5E+01	ug/kg	5.0E-04	2.1E-05	0.04	7.1E-06	0.01
		Total Endosulfan	7.7E-02	ug/kg	6.0E-03	1.1E-07	0.00002	3.6E-08	0.00001
	Exposure Point Total						7		2
F	RM 8 SIL[e]	**Metals**							
		Aluminum	3.0E+00	mg/kg	1.0E+00	4.1E-03	0.004	1.4E-03	0.001
		Arsenic, inorganic	1.6E-02	mg/kg	3.0E-04	2.1E-05	0.07	7.3E-06	0.02
		Cadmium	5.6E-04	mg/kg	1.0E-03	7.6E-07	0.0008	2.6E-07	0.0003
		Chromium	3.6E-01	mg/kg	1.5E+00	4.9E-04	0.0003	1.7E-04	0.0001
		Copper	4.7E-01	mg/kg	4.0E-02	6.4E-04	0.02	2.2E-04	0.005
		Manganese	3.7E-01	mg/kg	1.4E-01	5.0E-04	0.004	1.7E-04	0.001
		Mercury	1.3E-01	mg/kg	1.0E-04	1.7E-04	2	5.9E-05	0.6
		Zinc	9.5E+00	mg/kg	3.0E-01	1.3E-02	0.04	4.4E-03	0.01
		PAHs							
		2-Methylnaphthalene	3.3E+00	ug/kg	4.0E-03	4.5E-06	0.001	1.5E-06	0.0004
		Acenaphthene	1.9E+00	ug/kg	6.0E-02	2.6E-06	0.00004	8.9E-07	0.00001
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	7.0E+05	pg/g	2.0E-05	9.6E-04	50	3.3E-04	20
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.0E-09	1.0E-09	1	3.5E-10	0.4
		Total PCB TEQ	1.2E+00	pg/g	1.0E-09	1.6E-09	2	5.5E-10	0.6
		Pesticides							
		Total DDD	3.5E+00	ug/kg	5.0E-04	4.8E-06	0.01	1.6E-06	0.003
		Total DDE	1.1E+01	ug/kg	5.0E-04	1.5E-05	0.03	5.2E-06	0.01
		Total DDT	1.9E+00	ug/kg	5.0E-04	2.6E-06	0.005	8.7E-07	0.002
		Total Endosulfan	8.8E-01	ug/kg	6.0E-03	1.2E-06	0.0002	4.1E-07	0.0001
	Exposure Point Total						50		20
F	RM 9	**Metals**							
		Aluminum	3.4E+00	mg/kg	1.0E+00	4.6E-03	0.005	1.6E-03	0.002
		Antimony	5.0E-03	mg/kg	4.0E-04	6.8E-06	0.02	2.3E-06	0.006
		Arsenic, inorganic	1.9E-02	mg/kg	3.0E-04	2.6E-05	0.09	8.9E-06	0.03
		Chromium	9.0E-01	mg/kg	1.5E+00	1.2E-03	0.0008	4.2E-04	0.0003
		Copper	3.9E-01	mg/kg	4.0E-02	5.4E-04	0.01	1.8E-04	0.005
		Manganese	4.6E-01	mg/kg	1.4E-01	6.3E-04	0.005	2.2E-04	0.002
		Mercury	3.5E-01	mg/kg	1.0E-04	4.8E-04	5	1.6E-04	2
		Nickel	7.4E-02	mg/kg	2.0E-02	1.0E-04	0.005	3.5E-05	0.002
		Zinc	9.6E+00	mg/kg	3.0E-01	1.3E-02	0.04	4.5E-03	0.01
		Butyltins							
		Dibutyltin ion	5.6E-01	ug/kg	3.0E-04	7.7E-07	0.003	2.6E-07	0.0009
		PAHs							
		1-Methylnaphthalene	3.5E-01	ug/kg	7.0E-02	4.8E-07	0.00001	1.6E-07	0.000002
		2-Methylnaphthalene	9.5E-01	ug/kg	4.0E-03	1.3E-06	0.0003	4.4E-07	0.0001
		Acenaphthylene	5.3E-01	ug/kg	6.0E-02	7.2E-07	0.00001	2.5E-07	0.000004
		Anthracene	5.5E-01	ug/kg	3.0E-01	7.5E-07	0.000003	2.6E-07	0.000001
		Benzo(g,h,i)perylene	7.2E-01	ug/kg	3.0E-02	9.8E-07	0.00003	3.4E-07	0.00001
		Dibenzothiophene	4.3E-01	ug/kg	4.0E-02	5.9E-07	0.00001	2.0E-07	0.00001
		Fluoranthene	2.5E+00	ug/kg	4.0E-02	3.4E-06	0.0001	1.2E-06	0.00003
		Naphthalene	1.8E+00	ug/kg	2.0E-02	2.5E-06	0.0001	8.4E-07	0.00004
		Phenanthrene	4.4E+00	ug/kg	3.0E-02	6.0E-06	0.0002	2.1E-06	0.0001
		Pyrene	2.8E+00	ug/kg	3.0E-02	3.8E-06	0.0001	1.3E-06	0.00004
		Phthalates							
		Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	2.0E-02	1.8E-04	0.009	6.1E-05	0.003
		Semi-Volatile Organic Compounds							
		Benzyl alcohol	2.8E+01	ug/kg	1.0E-01	3.8E-05	0.0004	1.3E-05	0.0001
		Hexachlorobenzene	5.2E-01	ug/kg	8.0E-04	7.1E-07	0.0009	2.4E-07	0.0003
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	9.6E+04	pg/g	2.0E-05	1.3E-04	7	4.5E-05	2
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	4.5E-01	pg/g	1.0E-09	6.2E-10	0.6	2.1E-10	0.2
		Total PCB TEQ	1.0E+00	pg/g	1.0E-09	1.4E-09	1	4.8E-10	0.5

TABLE 5-66.
Calculation of Noncancer Hazards - Child, Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[b]	EPC Value	EPC Units	Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[c] — Recreational Fisher — Consumption Rate: 20.5 g/day — CDI mg/kg-day	Consumption Rate: 20.5 g/day — Noncancer Hazard Quotient	Consumption Rate: 7 g/day — CDI mg/kg-day	Consumption Rate: 7 g/day — Noncancer Hazard Quotient
		Pesticides							
		Aldrin	1.1E-02	ug/kg	3.0E-05	1.5E-08	0.0005	5.1E-09	0.0002
		alpha-Hexachlorocyclohexane	6.0E-03	ug/kg	8.0E-03	8.2E-09	0.000001	2.8E-09	0.0000004
		Dieldrin	1.0E+00	ug/kg	5.0E-05	1.4E-06	0.03	4.7E-07	0.009
		Endrin	5.0E-03	ug/kg	3.0E-04	6.8E-09	0.00002	2.3E-09	0.00001
		gamma-Hexachlorocyclohexane	5.0E-03	ug/kg	3.0E-04	6.8E-09	0.00002	2.3E-09	0.00001
		Heptachlor epoxide	2.4E-02	ug/kg	1.3E-05	3.3E-08	0.003	1.1E-08	0.0009
		Total Chlordanes	2.5E+00	ug/kg	5.0E-04	3.5E-06	0.007	1.2E-06	0.002
		Total DDD	3.2E+00	ug/kg	5.0E-04	4.4E-06	0.009	1.5E-06	0.003
		Total DDE	1.6E+01	ug/kg	5.0E-04	2.2E-05	0.04	7.4E-06	0.01
		Total DDT	9.3E+00	ug/kg	5.0E-04	1.3E-05	0.03	4.3E-06	0.009
		Total Endosulfan	9.8E-02	ug/kg	6.0E-03	1.3E-07	0.00002	4.6E-08	0.00001
Exposure Point Total							10		5
F	RM 10	**Metals**							
		Aluminum	4.1E+00	mg/kg	1.0E+00	5.6E-03	0.006	1.9E-03	0.002
		Arsenic, inorganic	1.5E-02	mg/kg	3.0E-04	2.1E-05	0.07	7.0E-06	0.02
		Copper	3.5E-01	mg/kg	4.0E-02	4.7E-04	0.01	1.6E-04	0.004
		Manganese	4.7E-01	mg/kg	1.4E-01	6.4E-04	0.005	2.2E-04	0.002
		Mercury	2.4E-01	mg/kg	1.0E-04	3.2E-04	3	1.1E-04	1
		Nickel	4.5E-02	mg/kg	2.0E-02	6.2E-05	0.003	2.1E-05	0.001
		Zinc	7.9E+00	mg/kg	3.0E-01	1.1E-02	0.04	3.7E-03	0.01
		Butyltins							
		Dibutyltin ion	4.4E-01	ug/kg	3.0E-04	6.0E-07	0.002	2.1E-07	0.0007
		PAHs							
		1-Methylnaphthalene	7.3E-01	ug/kg	7.0E-02	1.0E-06	0.00001	3.4E-07	0.00000
		2-Methylnaphthalene	6.5E-01	ug/kg	4.0E-03	8.9E-07	0.0002	3.0E-07	0.0001
		Acenaphthylene	1.8E-01	ug/kg	6.0E-02	2.5E-07	0.000004	8.4E-08	0.000001
		Naphthalene	6.7E-01	ug/kg	2.0E-02	9.2E-07	0.00005	3.1E-07	0.00002
		Phthalates							
		Bis(2-ethylhexyl) phthalate	6.9E+01	ug/kg	2.0E-02	9.4E-05	0.005	3.2E-05	0.002
		Semi-Volatile Organic Compounds							
		Hexachlorobenzene	3.3E-01	ug/kg	8.0E-04	4.5E-07	0.0006	1.5E-07	0.0002
		Hexachlorobutadiene	6.0E-03	ug/kg	1.0E-03	8.2E-09	0.00001	2.8E-09	0.000003
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	1.2E+05	pg/g	2.0E-05	1.6E-04	8	5.5E-05	3
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.0E-09	5.9E-10	0.6	2.0E-10	0.2
		Total PCB TEQ	6.1E-01	pg/g	1.0E-09	8.4E-10	0.8	2.9E-10	0.3
		Pesticides							
		alpha-Hexachlorocyclohexane	5.0E-03	ug/kg	8.0E-03	6.8E-09	0.000001	2.3E-09	0.0000003
		Dieldrin	2.8E-01	ug/kg	5.0E-05	3.9E-07	0.008	1.3E-07	0.003
		Endrin	4.5E-03	ug/kg	3.0E-04	6.2E-09	0.00002	2.1E-09	0.00001
		Endrin ketone	1.1E-02	ug/kg	3.0E-04	1.5E-08	0.00005	5.0E-09	0.00002
		gamma-Hexachlorocyclohexane	1.1E-02	ug/kg	3.0E-04	1.5E-08	0.0001	5.1E-09	0.00002
		Heptachlor epoxide	1.6E-02	ug/kg	1.3E-05	2.2E-08	0.002	7.5E-09	0.0006
		Total Chlordanes	1.3E+00	ug/kg	5.0E-04	1.8E-06	0.004	6.2E-07	0.001
		Total DDD	3.0E+00	ug/kg	5.0E-04	4.1E-06	0.008	1.4E-06	0.003
		Total DDE	8.6E+00	ug/kg	5.0E-04	1.2E-05	0.02	4.0E-06	0.008
		Total DDT	3.9E+00	ug/kg	5.0E-04	5.4E-06	0.01	1.8E-06	0.004
		Total Endosulfan	6.6E-02	ug/kg	6.0E-03	9.0E-08	0.00001	3.1E-08	0.00001
Exposure Point Total							10		4
F	RM 11	**Metals**							
		Aluminum	1.3E+00	mg/kg	1.0E+00	1.7E-03	0.002	5.8E-04	0.0006
		Arsenic, inorganic	1.6E-02	mg/kg	3.0E-04	2.2E-05	0.07	7.5E-06	0.02
		Copper	4.0E-01	mg/kg	4.0E-02	5.5E-04	0.01	1.9E-04	0.005
		Manganese	4.4E-01	mg/kg	1.4E-01	6.1E-04	0.004	2.1E-04	0.001
		Mercury	1.9E-01	mg/kg	1.0E-04	2.6E-04	3	8.8E-05	1
		Nickel	5.5E-02	mg/kg	2.0E-02	7.5E-05	0.004	2.6E-05	0.001
		Selenium	4.5E+00	mg/kg	5.0E-03	6.2E-03	1	2.1E-03	0.4
		Zinc	9.2E+00	mg/kg	3.0E-01	1.3E-02	0.04	4.3E-03	0.01
		Butyltins							
		Dibutyltin ion	2.8E-01	ug/kg	3.0E-04	3.8E-07	0.001	1.3E-07	0.0004
		PAHs							
		1-Methylnaphthalene	4.1E-01	ug/kg	7.0E-02	5.6E-07	0.00001	1.9E-07	0.000003
		2-Methylnaphthalene	5.2E-01	ug/kg	4.0E-03	7.1E-07	0.0002	2.4E-07	0.0001
		Acenaphthylene	1.4E-01	ug/kg	6.0E-02	1.9E-07	0.000003	6.5E-08	0.000001
		Dibenzothiophene	1.5E-01	ug/kg	4.0E-02	2.1E-07	0.00001	7.0E-08	0.000002
		Naphthalene	7.9E-01	ug/kg	2.0E-02	1.1E-06	0.0001	3.7E-07	0.00002
		Phthalates							
		Dibutyl phthalate	3.9E+01	ug/kg	1.0E-01	5.3E-05	0.0005	1.8E-05	0.0002
		Semi-Volatile Organic Compounds							
		Benzyl alcohol	2.5E+01	ug/kg	1.0E-01	3.4E-05	0.0003	1.2E-05	0.0001
		Hexachlorobenzene	3.7E-01	ug/kg	8.0E-04	5.1E-07	0.0006	1.7E-07	0.0002
		Polychlorinated Biphenyls							
		Total PCBs, Adjusted	1.5E+06	pg/g	2.0E-05	2.0E-03	100	6.8E-04	30
		Dioxin/Furans							
		Total Dioxin/Furan TEQ	4.7E-01	pg/g	1.0E-09	6.4E-10	0.6	2.2E-10	0.2
		Total PCB TEQ	2.1E+00	pg/g	1.0E-09	2.8E-09	3	9.6E-10	1
		Pesticides							
		beta-Hexachlorocyclohexane	5.0E-03	ug/kg	6.0E-04	6.8E-09	0.00001	2.3E-09	0.000004
		Dieldrin	3.3E-01	ug/kg	5.0E-05	4.4E-07	0.009	1.5E-07	0.003
		Endrin	1.1E-02	ug/kg	3.0E-04	1.5E-08	0.0001	5.1E-09	0.00002
		gamma-Hexachlorocyclohexane	6.0E-03	ug/kg	3.0E-04	8.2E-09	0.00003	2.8E-09	0.00001
		Heptachlor	5.0E-03	ug/kg	5.0E-04	6.8E-09	0.00001	2.3E-09	0.000005
		Heptachlor epoxide	1.8E-02	ug/kg	1.3E-05	2.5E-08	0.002	8.4E-09	0.0006
		Total Chlordanes	1.4E+00	ug/kg	5.0E-04	2.0E-06	0.004	6.7E-07	0.001
		Total DDD	7.5E-01	ug/kg	5.0E-04	1.0E-06	0.002	3.5E-07	0.0007
		Total DDE	5.8E+00	ug/kg	5.0E-04	7.9E-06	0.02	2.7E-06	0.005

TABLE 5-66.
Calculation of Noncancer Hazards - Child, Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[b]	EPC Value	EPC Units	Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[c] — Recreational Fisher — Consumption Rate: 20.5 g/day — CDI mg/kg-day	Consumption Rate: 20.5 g/day — Noncancer Hazard Quotient	Consumption Rate: 7 g/day — CDI mg/kg-day	Consumption Rate: 7 g/day — Noncancer Hazard Quotient
		Total DDT	8.1E-01	ug/kg	5.0E-04	1.1E-06	0.002	3.8E-07	0.0008
		Total Endosulfan	7.6E-02	ug/kg	6.0E-03	1.0E-07	0.00002	3.5E-08	0.00001
Exposure Point Total							100		30

Notes:
a Smallmouth bass data were used as a surrogate for a multi-species diet on a river mile basis.
b Chemicals listed are analytes detected in Study Area-Wide fillet smallmouth bass tissue samples from RM 0-12.
c Numbers presented are rounded values. Sums calculated before rounding.
d Toxicity values for trivalent Chromium used to assess total Chromium.
e Swan Island Lagoon fillet tissue EPCs derived using Study area-wide ratios of fillet to whole body tissue.

Abbreviations:
CDI = Chronic Daily Intake.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
F= Fillet.
g/day = grams per day.
mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.
PAHs = Polynuclear aromatic hydrocarbons.

TABLE 5-67.
Calculation of Noncancer Hazards - Child, Fish Consumption, Study Area-Wide Basis

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC for mixed diet[b]		Noncancer Hazard Calculations[c]						
						Subsistence Fisher		Recreational Fisher			
						Consumption Rate: 60 g/day		Consumption Rate: 20.5 g/day		Consumption Rate: 7 g/day	
			Value	Units	Oral RfD mg/kg-day	CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
Fillet	Study Area-wide	**Metals**									
		Aluminum	5.0E+00	mg/kg	1.0E+00	2.0E-02	0.02	6.8E-03	0.01	2.3E-03	0.002
		Antimony	1.3E-03	mg/kg	4.0E-04	5.0E-06	0.01	1.7E-06	0.004	5.8E-07	0.001
		Arsenic, inorganic	1.3E-02	mg/kg	3.0E-04	5.3E-05	0.2	1.8E-05	0.06	6.2E-06	0.02
		Cadmium	2.0E-03	mg/kg	1.0E-03	7.8E-06	0.01	2.7E-06	0.003	9.1E-07	0.001
		Chromium	7.3E-01	mg/kg	1.5E+00	2.9E-03	0.00	9.9E-04	0.001	3.4E-04	0.0002
		Copper	3.6E-01	mg/kg	4.0E-02	1.4E-03	0.04	4.9E-04	0.01	1.7E-04	0.004
		Manganese	9.0E-01	mg/kg	1.4E-01	3.6E-03	0.03	1.2E-03	0.01	4.2E-04	0.003
		Mercury	1.3E-01	mg/kg	1.0E-04	5.3E-04	5	1.8E-04	2	6.2E-05	0.6
		Nickel	9.4E-02	mg/kg	2.0E-02	3.7E-04	0.02	1.3E-04	0.01	4.4E-05	0.002
		Selenium	1.2E+00	mg/kg	5.0E-03	4.8E-03	1	1.6E-03	0.3	5.6E-04	0.1
		Silver	5.0E-04	mg/kg	5.0E-03	2.0E-06	0.0004	6.8E-07	0.0001	2.3E-07	0.00005
		Zinc	1.3E+01	mg/kg	3.0E-01	5.2E-02	0.2	1.8E-02	0.06	6.0E-03	0.02
		Butyltins									
		Butyltin ion	3.0E-04	mg/kg	3.0E-04	1.2E-06	0.004	4.1E-07	0.001	1.4E-07	0.0005
		Dibutyltin ion	2.0E-03	mg/kg	3.0E-04	7.9E-06	0.03	2.7E-06	0.01	9.2E-07	0.003
		Tributyltin ion	1.9E-03	mg/kg	3.0E-04	7.7E-06	0.03	2.6E-06	0.01	9.0E-07	0.003
		Polynuclear Aromatic Hydrocarbons									
		1-Methylnaphthalene	1.3E-03	mg/kg	7.0E-02	5.3E-06	0.0001	1.8E-06	0.00003	6.2E-07	0.00001
		2-Methylnaphthalene	1.1E-03	mg/kg	4.0E-03	4.3E-06	0.001	1.5E-06	0.0004	5.0E-07	0.0001
		Acenaphthene	1.2E-02	mg/kg	6.0E-02	4.8E-05	0.001	1.6E-05	0.0003	5.6E-06	0.0001
		Acenaphthylene	8.5E-04	mg/kg	6.0E-02	3.4E-06	0.0001	1.2E-06	0.00002	4.0E-07	0.00001
		Anthracene	1.7E-03	mg/kg	3.0E-01	6.9E-06	0.00002	2.4E-06	0.00001	8.1E-07	0.000003
		Benzo(g,h,i)perylene	2.0E-04	mg/kg	3.0E-02	7.9E-07	0.00003	2.7E-07	0.00001	9.2E-08	0.000003
		Dibenzothiophene	6.2E-04	mg/kg	4.0E-02	2.5E-06	0.0001	8.4E-07	0.00002	2.9E-07	0.00001
		Fluoranthene	3.0E-02	mg/kg	4.0E-02	1.2E-04	0.003	4.0E-05	0.001	1.4E-05	0.0003
		Fluorene	2.7E-03	mg/kg	4.0E-02	1.1E-05	0.0003	3.6E-06	0.0001	1.2E-06	0.00003
		Naphthalene	2.7E-03	mg/kg	2.0E-02	1.1E-05	0.001	3.7E-06	0.0002	1.3E-06	0.0001
		Phenanthrene	3.9E-02	mg/kg	3.0E-02	1.6E-04	0.01	5.3E-05	0.002	1.8E-05	0.001
		Pyrene	4.1E-03	mg/kg	3.0E-02	1.6E-05	0.001	5.6E-06	0.0002	1.9E-06	0.0001
		Phthalates									
		Bis(2-ethylhexyl) phthalate	5.8E-02	mg/kg	2.0E-02	2.3E-04	0.01	7.9E-05	0.004	2.7E-05	0.001
		Dibutyl phthalate	1.1E-02	mg/kg	1.0E-01	4.3E-05	0.0004	1.5E-05	0.0001	5.0E-06	0.0001
		Diethyl phthalate	4.3E-03	mg/kg	8.0E-01	1.7E-05	0.00002	5.8E-06	0.00001	2.0E-06	0.000002
		SVOCs									
		Benzyl alcohol	1.4E-02	mg/kg	1.0E-01	5.6E-05	0.001	1.9E-05	0.0002	6.5E-06	0.0001
		Dibenzofuran	6.1E-04	mg/kg	1.0E-03	2.4E-06	0.002	8.4E-07	0.001	2.9E-07	0.0003
		Hexachlorobenzene	1.8E-02	mg/kg	8.0E-04	7.0E-05	0.09	2.4E-05	0.03	8.2E-06	0.01
		Hexachlorobutadiene	4.5E-05	mg/kg	1.0E-03	1.8E-07	0.0002	6.2E-08	0.0001	2.1E-08	0.00002
		Isophorone	2.5E-03	mg/kg	2.0E-01	9.8E-06	0.00005	3.3E-06	0.00002	1.1E-06	0.00001
		Phenols									
		4-Nitrophenol	7.1E-03	mg/kg	5.0E-03	2.8E-05	0.01	9.7E-06	0.002	3.3E-06	0.0007

TABLE 5-67.
Calculation of Noncancer Hazards - Child, Fish Consumption, Study Area-Wide Basis

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC for mixed diet[b]		Noncancer Hazard Calculations[c]						
						Subsistence Fisher		Recreational Fisher			
						Consumption Rate: 60 g/day		Consumption Rate: 20.5 g/day		Consumption Rate: 7 g/day	
			Value	Units	Oral RfD mg/kg-day	CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Polychlorinated Biphenyls									
		Total PCBs, Adjusted	5.0E+00	mg/kg	2.0E-05	2.0E-02	1000	6.8E-03	300	2.3E-03	100
		Dioxin/Furan									
		Total Dioxin/Furan TEQ	1.6E-06	mg/kg	1.0E-09	6.5E-09	7	2.2E-09	2	7.6E-10	0.8
		Total PCB TEQ	2.9E-06	mg/kg	1.0E-09	1.2E-08	10	4.0E-09	4	1.4E-09	1
		Pesticides									
		Aldrin	2.7E-05	mg/kg	3.0E-05	1.1E-07	0.004	3.7E-08	0.001	1.3E-08	0.0004
		alpha-Hexachlorocyclohexane	8.4E-06	mg/kg	8.0E-03	3.4E-08	0.000004	1.2E-08	0.000001	3.9E-09	0.0000005
		beta-Hexachlorocyclohexane	1.1E-03	mg/kg	6.0E-04	4.5E-06	0.01	1.5E-06	0.003	5.3E-07	0.001
		Dieldrin	1.3E-03	mg/kg	5.0E-05	5.1E-06	0.1	1.8E-06	0.04	6.0E-07	0.01
		Endrin	6.4E-06	mg/kg	3.0E-04	2.6E-08	0.0001	8.8E-09	0.00003	3.0E-09	0.00001
		Endrin aldehyde	5.0E-04	mg/kg	3.0E-04	2.0E-06	0.01	6.8E-07	0.002	2.3E-07	0.001
		Endrin ketone	4.4E-06	mg/kg	3.0E-04	1.7E-08	0.0001	6.0E-09	0.00002	2.0E-09	0.00001
		gamma-Hexachlorocyclohexane	8.6E-06	mg/kg	3.0E-04	3.4E-08	0.0001	1.2E-08	0.00004	4.0E-09	0.00001
		Heptachlor	1.3E-06	mg/kg	5.0E-04	5.0E-09	0.00001	1.7E-09	0.000003	5.8E-10	0.000001
		Heptachlor epoxide	3.6E-05	mg/kg	1.3E-05	1.4E-07	0.01	4.9E-08	0.004	1.7E-08	0.001
		Methoxychlor	1.8E-03	mg/kg	5.0E-03	7.2E-06	0.001	2.5E-06	0.0005	8.4E-07	0.0002
		Total Chlordanes	4.3E-03	mg/kg	5.0E-04	1.7E-05	0.03	5.9E-06	0.01	2.0E-06	0.004
		Total DDD	3.3E-02	mg/kg	5.0E-04	1.3E-04	0.3	4.5E-05	0.09	1.5E-05	0.03
		Total DDE	4.0E-02	mg/kg	5.0E-04	1.6E-04	0.3	5.5E-05	0.1	1.9E-05	0.04
		Total DDT	1.6E-02	mg/kg	5.0E-04	6.5E-05	0.1	2.2E-05	0.04	7.6E-06	0.02
		Total Endosulfan	6.1E-04	mg/kg	6.0E-03	2.4E-06	0.0004	8.3E-07	0.0001	2.8E-07	0.00005
Exposure Area Total[e]							1000		300		100

Notes:

a Chemical list includes analytes detected in any of the four human health target fish species for each tissue type.
b EPCs for the multi-species diet were calculated assuming each of the four target fish species (smallmouth bass, black crappie, common carp, and brown bullhead) represent 1/4 of a person's diet, according to the Portland Harbor RI/FS Programmatic Work Plan

c Numbers presented are rounded values. Sums calculated before rounding.
d Toxicity Values for trivalent Chromium used to assess total Chromium.
e Cumulative hazard sums calculated using PCB congener data.

Abbreviations:

CDI = Chronic Daily Intake.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 2	**Metals**																
		Aluminum	0.001					0.001										
		Arsenic, inorganic	0.05	0.05	0.05													
		Copper	0.004				0.004											
		Manganese	0.002					0.002										
		Mercury	0.3					0.3										
		Nickel	0.003						0.003									
		Silver	0.0002		0.0002													
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.0005								0.0005							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthylene	0.000002							0.000002								
		Dibenzothiophene	0.000003	0.000003														
		Fluoranthene	0.00002	0.00002		0.00002				0.00002								
		Naphthalene	0.00002						0.00002						0.00002			
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	4		4						4							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.8											0.8				
		Pesticides																
		Aldrin	0.0001							0.0001								
		alpha-Hexachlorocyclohexane	0.0000003							0.0000003								
		Dieldrin	0.004							0.004								
		Endrin	0.00001							0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.003							0.003								
		Total DDE	0.01							0.01								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.07	4	0.00002	0.004	0.3	0.003	0.02	4	0.0002		0.9	0.00002			

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 3	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.05	0.05	0.05													
		Copper	0.01				0.01											
		Manganese	0.001					0.001										
		Mercury	0.8					0.8										
		Nickel	0.003						0.003									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		Tributyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0003									0.0003						
		Acenaphthylene	0.000001							0.000001								
		Dibenzothiophene	0.000005	0.000005														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Naphthalene	0.00002						0.00002						0.00002			
		Phenanthrene	0.00004			0.00004												
		Pyrene	0.0001			0.0001												
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0003							0.0003								
		Hexachlorobutadiene	0.00001			0.00001												
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	0.9		0.9						0.9							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.0001							0.0001								
		alpha-Hexachlorocyclohexane	0.0000002							0.0000002								
		beta-Hexachlorocyclohexane	0.004							0.004								
		Dieldrin	0.03							0.03								
		Endrin aldehyde	0.003							0.003								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.007							0.007								
		Total DDD	0.004							0.004								
		Total DDE	0.02							0.02								
		Total DDT	0.01							0.01								
Exposure Point Total				0.06	0.9	0.0002	0.01	0.8	0.003	0.09	0.9	0.0003		0.4	0.00002			

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 4	**Metals**																
		Aluminum	0.001					0.001										
		Arsenic, inorganic	0.03	0.03	0.03													
		Copper	0.004				0.004											
		Manganese	0.002					0.002										
		Mercury	1					1										
		Nickel	0.002						0.002									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		Tributyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthylene	0.000002							0.000002								
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.00003	0.00003		0.00003				0.00003								
		Naphthalene	0.00003						0.00003						0.00003			
		Phenanthrene	0.0001			0.0001												
		Phthalates																
		Dibutyl phthalate	0.0002						0.0002									
		Diethyl phthalate	0.00001						0.00001							0.00001		
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Hexachlorobenzene	0.0003							0.0003								
		Hexachlorobutadiene	0.00001			0.00001												
		Phenols																
		4-Nitrophenol	0.001					0.001	0.001									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	5		5						5							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.6											0.6				
		Pesticides																
		Aldrin	0.0001							0.0001								
		alpha-Hexachlorocyclohexane	0.0000002							0.0000002								
		beta-Hexachlorocyclohexane	0.000002							0.000002								
		Dieldrin	0.004							0.004								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.004							0.004								
		Total DDE	0.01							0.01								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.05	5	0.0001	0.004	1	0.003	0.02	5	0.0001		0.8	0.00003	0.00001		

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 5	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.03	0.03	0.03													
		Copper	0.01				0.01											
		Manganese	0.001					0.001										
		Mercury	1					1										
		Nickel	0.005						0.005									
		Zinc	0.02	0.02														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00003			0.00003												
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.00002	0.00002														
		Naphthalene	0.0001						0.0001						0.0001			
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.0001			0.0001												
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	0.7		0.7						0.7							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Dieldrin	0.003							0.003								
		Endrin aldehyde	0.002							0.002								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.004							0.004								
		Total DDE	0.01							0.01								
		Total DDT	0.009							0.009								
		Total Endosulfan	0.000	0.00001				0.00001	0.00001									
Exposure Point Total				0.05	0.8	0.0005	0.01	1	0.005	0.04	0.7	0.0001		0.3	0.0001			

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 6	**Metals**																
		Aluminum	0.003					0.003										
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.0005			0.0005												
		Copper	0.004				0.004											
		Manganese	0.002					0.002										
		Mercury	0.7					0.7										
		Nickel	0.001						0.001									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		Tributyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthene	0.00004							0.00004								
		Acenaphthylene	0.000003							0.000003								
		Benzo(g,h,i)perylene	0.000001			0.000001												
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.00002	0.00002		0.00002				0.00002								
		Fluorene	0.00003	0.00003														
		Naphthalene	0.00006						0.00006						0.00006			
		Phenanthrene	0.0001			0.0001												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.002							0.002								
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Dieldrin	0.003							0.003								
		Endrin	0.000005							0.000005								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.004							0.004								
		Total DDD	0.008							0.008								
		Total DDE	0.01							0.01								
		Total DDT	0.007							0.007								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.05	2	0.001	0.004	0.7	0.001	0.04	2	0.0002		0.3	0.00006			

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 7	**Metals**																
		Aluminum	0.001					0.001										
		Arsenic, inorganic	0.03	0.03	0.03													
		Copper	0.006				0.006											
		Manganese	0.002					0.002										
		Mercury	1					1										
		Nickel	0.001						0.001									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		Tributyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00002							0.00002								
		Acenaphthylene	0.000002							0.000002								
		Benzo(g,h,i)perylene	0.000001			0.000001												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.00002	0.00002		0.00002				0.00002								
		Fluorene	0.00002	0.00002														
		Naphthalene	0.00003						0.00003						0.00003			
		Phenanthrene	0.00008			0.00008												
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Hexachlorobenzene	0.001							0.001								
		Hexachlorobutadiene	0.0001			0.0001												
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	5		5						5							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	4											4				
		Total PCB TEQ	0.3											0.3				
		Pesticides																
		beta-Hexachlorocyclohexane	0.000004							0.000004								
		Dieldrin	0.003							0.003								
		Endrin	0.00001							0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.06							0.06								
		Total DDE	0.05							0.05								
		Total DDT	0.06							0.06								
Exposure Point Total				0.04	5	0.0002	0.006	1	0.001	0.2	5	0.00009		4	0.00003			

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 8	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.0005			0.0005												
		Copper	0.004				0.004											
		Manganese	0.001					0.001										
		Mercury	0.5					0.5										
		Nickel	0.001						0.001									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthylene	0.00002							0.00002								
		Benzo(g,h,i)perylene	0.00003			0.00003												
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.00003	0.00003														
		Naphthalene	0.0003						0.0003						0.0003			
		Phenanthrene	0.0003			0.0003												
		Pyrene	0.0002			0.0002												
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.3											0.3				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.0001							0.0001								
		Dieldrin	0.01							0.01								
		gamma-Hexachlorocyclohexane	0.000005			0.000005				0.000005								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.005							0.005								
		Total DDD	0.01							0.01								
		Total DDE	0.02							0.02								
		Total DDT	0.01							0.01								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.04	1	0.001	0.004	0.5	0.002	0.07	1	0.0002		0.5	0.0003			

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 8 SIL	**Metals**																
		Aluminum	0.001					0.001										
		Arsenic, inorganic	0.02	0.02	0.02													
		Cadmium	0.0003			0.0003												
		Copper	0.005				0.005											
		Manganese	0.001					0.001										
		Mercury	0.6					0.6										
		Zinc	0.01	0.01														
		PAHs																
		2-Methylnaphthalene	0.0004									0.0004						
		Acenaphthene	0.00001							0.00001								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	20		20						20							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.4											0.4				
		Total PCB TEQ	0.6											0.6				
		Pesticides																
		Total DDD	0.003							0.003								
		Total DDE	0.01							0.01								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Point Total				0.04	20	0.0003	0.005	0.6	0.0001	0.02	20	0.0004		0.9				
F	RM 9	**Metals**																
		Aluminum	0.002					0.002										
		Antimony	0.006	0.006														
		Arsenic, inorganic	0.03	0.03	0.03													
		Copper	0.005				0.005											
		Manganese	0.002					0.002										
		Mercury	2					2										
		Nickel	0.002						0.002									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthylene	0.000004							0.000004								
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.00003	0.00003		0.00003				0.00003								
		Naphthalene	0.00004						0.00004						0.00004			
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.00004			0.00004												

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.003							0.003								
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Hexachlorobenzene	0.0003							0.0003								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.5											0.5				
		Pesticides																
		Aldrin	0.0002							0.0002								
		alpha-Hexachlorocyclohexane	0.0000004							0.0000004								
		Dieldrin	0.009							0.009								
		Endrin	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.003							0.003								
		Total DDE	0.01							0.01								
		Total DDT	0.009							0.009								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.05	2	0.0002	0.005	2	0.002	0.04	2	0.0001		0.7	0.00004			
F	RM 10	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.02	0.02	0.02													
		Copper	0.004				0.004											
		Manganese	0.002					0.002										
		Mercury	1					1										
		Nickel	0.001						0.001									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthylene	0.000001							0.000001								
		Naphthalene	0.00002						0.00002						0.00002			
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.002							0.002								
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0002							0.0002								
		Hexachlorobutadiene	0.000003			0.000003												

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	3		3						3							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.3											0.3				
		Total TEQ	0.5											0.5				
		Pesticides																
		alpha-Hexachlorocyclohexane	0.0000003							0.0000003								
		Dieldrin	0.003							0.003								
		Endrin	0.00001							0.00001								
		Endrin ketone	0.00002							0.00002								
		gamma-Hexachlorocyclohexane	0.00002			0.00002				0.00002								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.003							0.003								
		Total DDE	0.008							0.008								
		Total DDT	0.004							0.004								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.04	3	0.00002	0.004	1	0.001	0.02	3	0.0001		0.5	0.00002			
F	RM 11	**Metals**																
		Aluminum	0.001					0.001										
		Arsenic, inorganic	0.02	0.02	0.02													
		Copper	0.005				0.005											
		Manganese	0.001					0.001										
		Mercury	0.9					0.9										
		Nickel	0.001						0.001									
		Selenium	0.4						0.4									
		Zinc	0.01	0.01														
		Butyltins																
		Dibutyltin ion	0.0004								0.0004							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthylene	0.000001							0.000001								
		Dibenzothiophene	0.00000	0.00000														
		Naphthalene	0.00002						0.00002						0.00002			
		Phthalates																
		Dibutyl phthalate	0.0002						0.0002									
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	30		30						30							

TABLE 5-68.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	1											1				
		Pesticides																
		beta-Hexachlorocyclohexane	0.000004							0.000004								
		Dieldrin	0.003							0.003								
		Endrin	0.00002							0.00002								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor	0.000005							0.000005								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.005							0.005								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.04	30	0.00001	0.005	0.9	0.4	0.01	30	0.0001		1	0.00002			

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Sums calculated using PCB congener data when available, and PCB Aroclors data when congener data not available for a given exposure area.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
F = Fillet.
g/day = grams per day.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
SIL = Swan Island Lagoon.
TEQ = Toxic Equivalents.

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 2	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.2	0.2	0.2													
		Copper	0.01				0.01											
		Manganese	0.005					0.005										
		Mercury	0.9					0.9										
		Nickel	0.009						0.009									
		Silver	0.0005		0.001													
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0004									0.0004						
		Acenaphthylene	0.00001							0.00001								
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Naphthalene	0.0001						0.0001						0.0001			
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0006							0.001								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	10		10						10							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.3											0.3				
		Total PCB TEQ	2											2				
		Pesticides																
		Aldrin	0.0003							0.0003								
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		Dieldrin	0.01							0.01								
		Endrin	0.00003							0.00003								
		Heptachlor epoxide	0.003							0.003								
		Total Chlordanes	0.004							0.004								
		Total DDD	0.008							0.008								
		Total DDE	0.03							0.03								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.2	10	0.0001	0.01	0.9	0.009	0.06	10	0.0004		3	0.0001			

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 3	**Metals**																
		Aluminum	0.005					0.005										
		Arsenic, inorganic	0.1	0.1	0.1													
		Copper	0.03				0.03											
		Manganese	0.004					0.004										
		Mercury	2					2										
		Nickel	0.008						0.008									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.002								0.002							
		Tributyltin ion	0.003								0.003							
		PAHs																
		2-Methylnaphthalene	0.001									0.001						
		Acenaphthylene	0.000004							0.000004								
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.0002	0.0002		0.0002				0.0002								
		Naphthalene	0.0001						0.0001						0.0001			
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0002			0.0002												
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0007							0.0007								
		Hexachlorobutadiene	0.00003			0.00003												
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	3		3						3							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.4											0.4				
		Total PCB TEQ	1											1				
		Pesticides																
		Aldrin	0.0002							0.0002								
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		beta-Hexachlorocyclohexane	0.01							0.01								
		Dieldrin	0.09							0.09								
		Endrin aldehyde	0.009							0.009								
		Heptachlor epoxide	0.003							0.003								
		Total Chlordanes	0.02							0.02								
		Total DDD	0.01							0.01								
		Total DDE	0.07							0.07								
		Total DDT	0.04							0.04								
Exposure Point Total				0.2	3	0.0005	0.03	2	0.009	0.3	3	0.001		1	0.0001			

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 4	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.1	0.1	0.1													
		Copper	0.01				0.01											
		Manganese	0.005					0.005										
		Mercury	3					3										
		Nickel	0.005						0.005									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.003								0.003							
		Tributyltin ion	0.004								0.004							
		PAHs																
		2-Methylnaphthalene	0.0003									0.0003						
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00002			0.00002												
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Naphthalene	0.0001						0.0001						0.0001			
		Phenanthrene	0.0002			0.0002												
		Phthalates																
		Dibutyl phthalate	0.0006						0.0006									
		Diethyl phthalate	0.00003						0.00003							0.00003		
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0003				0.0003											
		Hexachlorobenzene	0.0008							0.0008								
		Hexachlorobutadiene	0.00002			0.00002												
		Phenols																
		4-Nitrophenol	0.004					0.004	0.004									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	10		10						10							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.5											0.5				
		Total PCB TEQ	2											2				
		Pesticides																
		Aldrin	0.0003							0.0003								
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		beta-Hexachlorocyclohexane	0.00001							0.00001								
		Dieldrin	0.01							0.01								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.006							0.006								
		Total DDD	0.01							0.01								

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total DDE	0.03							0.03								
		Total DDT	0.005							0.005								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	10	0.0003	0.01	3	0.009	0.07	10	0.0003		2	0.0001	0.00003		
F	RM 5	**Metals**																
		Aluminum	0.005					0.005										
		Arsenic, inorganic	0.09	0.09	0.09													
		Copper	0.04				0.04											
		Manganese	0.004					0.004										
		Mercury	3					3										
		Nickel	0.02						0.02									
		Zinc	0.05	0.05														
		Butyltins																
		Dibutyltin ion	0.004								0.004							
		PAHs																
		2-Methylnaphthalene	0.0003									0.0003						
		Acenaphthylene	0.00003							0.00003								
		Benzo(g,h,i)perylene	0.0001			0.0001												
		Dibenzothiophene	0.0001	0.0001														
		Fluoranthene	0.0003	0.0003		0.0003				0.0003								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.0002						0.0002						0.0002			
		Phenanthrene	0.0005			0.0005												
		Pyrene	0.0004			0.0004												
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0003				0.0003											
		Hexachlorobenzene	0.0007							0.0007								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.3											0.3				
		Total PCB TEQ	0.4											0.4				
		Pesticides																
		Dieldrin	0.01							0.01								
		Endrin aldehyde	0.007							0.007								
		gamma-Hexachlorocyclohexane	0.00004			0.00004				0.00004								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.005							0.005								
		Total DDD	0.01							0.01								
		Total DDE	0.04							0.04								
		Total DDT	0.03							0.03								
		Total Endosulfan	0.00003	0.00003				0.00003	0.00003									
Exposure Point Total				0.1	2	0.001	0.04	3	0.02	0.1	2	0.0003		0.8	0.0002			

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 6	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.09	0.09	0.09													
		Cadmium	0.001			0.001												
		Copper	0.01				0.01											
		Manganese	0.005					0.005										
		Mercury	2					2										
		Nickel	0.004						0.004									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.004								0.004							
		Tributyltin ion	0.003								0.003							
		PAHs																
		2-Methylnaphthalene	0.0005									0.0005						
		Acenaphthene	0.0001							0.0001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.000004			0.000004												
		Dibenzothiophene	0.0001	0.0001														
		Fluoranthene	0.00005	0.00005		0.00005				0.00005								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.0002						0.0002						0.0002			
		Phenanthrene	0.0003			0.0003												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.006							0.006								
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0006							0.0006								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	5		5						5							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.5											0.5				
		Total PCB TEQ	0.5											0.5				
		Pesticides																
		Dieldrin	0.01							0.01								
		Endrin	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.00002			0.00002				0.00002								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.01							0.01								
		Total DDD	0.02							0.02								
		Total DDE	0.03							0.03								
		Total DDT	0.02							0.02								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	5	0.002	0.01	2	0.004	0.1	5	0.0005		1	0.0002			

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 7	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.09	0.09	0.09													
		Copper	0.02				0.02											
		Manganese	0.005					0.005										
		Mercury	3					3										
		Nickel	0.004						0.004									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.004								0.004							
		Tributyltin ion	0.002								0.002							
		PAHs																
		2-Methylnaphthalene	0.0003									0.0003						
		Acenaphthene	0.0001							0.0001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.000004			0.000004												
		Dibenzothiophene	0.00003	0.00003														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.0001						0.0001						0.0001			
		Phenanthrene	0.0002			0.0002												
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0004				0.0004											
		Hexachlorobenzene	0.001							0.001								
		Hexachlorobutadiene	0.0002			0.0002												
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	10		10						10							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	10											10				
		Total PCB TEQ	1											1				
		Pesticides																
		beta-Hexachlorocyclohexane	0.00001							0.00001								
		Dieldrin	0.009							0.009								
		Endrin	0.00002							0.00002								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.004							0.004								
		Total DDD	0.2							0.2								
		Total DDE	0.2							0.2								
		Total DDT	0.2							0.2								
Exposure Point Total				0.1	10	0.0005	0.02	3	0.004	0.5	10	0.0003		10	0.0001			

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 8	**Metals**																
		Aluminum	0.005					0.005										
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.001			0.001												
		Copper	0.01				0.01											
		Manganese	0.004					0.004										
		Mercury	2					2										
		Nickel	0.004						0.004									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.002								0.002							
		PAHs																
		2-Methylnaphthalene	0.0006									0.0006						
		Acenaphthylene	0.0001							0.0001								
		Benzo(g,h,i)perylene	0.0001			0.0001												
		Dibenzothiophene	0.0001	0.0001														
		Fluoranthene	0.0004	0.0004		0.0004				0.000								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.0008						0.0008						0.0008			
		Phenanthrene	0.001			0.001												
		Pyrene	0.0006			0.0006												
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0004				0.0004											
		Hexachlorobenzene	0.0006							0.0006								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	3		3						3							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.8											0.8				
		Total PCB TEQ	0.6											0.6				
		Pesticides																
		Aldrin	0.0002							0.0002								
		Dieldrin	0.04							0.04								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.01							0.01								
		Total DDD	0.03							0.03								
		Total DDE	0.06							0.06								
		Total DDT	0.04							0.04								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	3	0.003	0.01	2	0.005	0.2	3	0.0006		1	0.0008			

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
F	RM 8 SIL	**Metals**																
		Aluminum	0.004					0.004										
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.0008			0.0008												
		Copper	0.02				0.02											
		Manganese	0.004					0.004										
		Mercury	2					2										
		Zinc	0.04	0.04														
		PAHs																
		2-Methylnaphthalene	0.001									0.001						
		Acenaphthene	0.00004							0.000								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	50		50						50							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	1											1				
		Total PCB TEQ	2											2				
		Pesticides																
		Total DDD	0.01							0.01								
		Total DDE	0.03							0.03								
		Total DDT	0.005							0.005								
		Total Endosulfan	0.0002	0.0002				0.0002	0.0002									
Exposure Point Total				0.1	50	0.0008	0.02	2	0.0002	0.05	50	0.001		3				
F	RM 9	**Metals**																
		Aluminum	0.005					0.005										
		Antimony	0.02	0.02														
		Arsenic, inorganic	0.09	0.09	0.09													
		Copper	0.01				0.01											
		Manganese	0.005					0.005										
		Mercury	5					5										
		Nickel	0.005						0.005									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.003								0.003							
		PAHs																
		2-Methylnaphthalene	0.0003									0.0003						
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00003			0.00003												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Naphthalene	0.0001						0.0001						0.0001			
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.0001			0.0001												

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.009							0.009								
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0004				0.0004											
		Hexachlorobenzene	0.0009							0.0009								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	7		7						7							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.6											0.6				
		Total PCB TEQ	1											1				
		Pesticides																
		Aldrin	0.0005							0.0005								
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		Dieldrin	0.03							0.03								
		Endrin	0.00002							0.00002								
		gamma-Hexachlorocyclohexane	0.00002			0.00002				0.00002								
		Heptachlor epoxide	0.003							0.003								
		Total Chlordanes	0.007							0.007								
		Total DDD	0.009							0.009								
		Total DDE	0.04							0.04								
		Total DDT	0.03							0.03								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	7	0.0005	0.01	5	0.005	0.1	7	0.0003		2	0.0001			
F	RM 10	**Metals**																
		Aluminum	0.006					0.006										
		Arsenic, inorganic	0.07	0.07	0.07													
		Copper	0.01				0.01											
		Manganese	0.005					0.005										
		Mercury	3					3										
		Nickel	0.003						0.003									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.002								0.002							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthylene	0.000004							0.000004								
		Naphthalene	0.00005						0.00005						0.00005			
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.005							0.005								

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Semi-Volatile Organic Compounds																
		Hexachlorobenzene	0.0006							0.0006								
		Hexachlorobutadiene	0.00001			0.00001												
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	8		8						8							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.6											0.6				
		Total PCB TEQ	0.8											0.8				
		Pesticides																
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		Dieldrin	0.008							0.008								
		Endrin	0.00002							0.00002								
		Endrin ketone	0.00005							0.00005								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.004							0.004								
		Total DDD	0.008							0.008								
		Total DDE	0.02							0.02								
		Total DDT	0.01							0.01								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.1	8	0.0001	0.01	3	0.003	0.06	8	0.0002		1	0.00005			
F	RM 11	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.07	0.07	0.07													
		Copper	0.01				0.01											
		Manganese	0.004					0.004										
		Mercury	3					3										
		Nickel	0.004						0.004									
		Selenium	1						1									
		Zinc	0.04	0.04														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthylene	0.000003							0.000003								
		Dibenzothiophene	0.00001	0.00001														
		Naphthalene	0.0001						0.0001						0.0001			
		Phthalates																
		Dibutyl phthalate	0.0005						0.0005									

TABLE 5-69.
Calculation of Endpoint-Specific Hazard Indices - Child Recreational Fish Consumption, River-Mile Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Semi-Volatile Organic Compounds																
		Benzyl alcohol	0.0003				0.0003											
		Hexachlorobenzene	0.0006							0.0006								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	100		100						100							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.6											0.6				
		Total PCB TEQ	3											3				
		Pesticides																
		beta-Hexachlorocyclohexane	0.00001							0.00001								
		Dieldrin	0.009							0.009								
		Endrin	0.0001							0.0001								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.004							0.004								
		Total DDD	0.002							0.002								
		Total DDE	0.02							0.02								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	100	0.00003	0.01	3	1	0.04	100	0.0002		3	0.0001			

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Sums calculated using PCB congener data when available, and PCB Aroclors data when congener data not available for a given exposure area.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
F = Fillet.
g/day = grams per day.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
SIL = Swan Island Lagoon.
TEQ = Toxic Equivalents.

TABLE 5-70.
Calculation of Endpoint-Specific Hazard Indices – Child Recreational Fish Consumption, Study Area-Wide Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
Fillet	Study Area-wide	**Metals**																
		Aluminum	0.002					0.002										
		Antimony	0.001	0.001														
		Arsenic, inorganic	0.02	0.02	0.02													
		Cadmium	0.001			0.001												
		Copper	0.004				0.004											
		Manganese	0.003					0.003										
		Mercury	0.6					0.6										
		Nickel	0.002						0.002									
		Selenium	0.1						0.1									
		Silver	0.00005		0.00005													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.0005								0.0005							
		Dibutyltin ion	0.003								0.003							
		Tributyltin ion	0.003								0.003							
		Polynuclear Aromatic Hydrocarbons																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.0001							0.0001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.000003			0.000003												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.0003	0.0003		0.0003				0.0003								
		Fluorene	0.00003	0.00003														
		Naphthalene	0.00006						0.00006						0.00006			
		Phenanthrene	0.001			0.001												
		Pyrene	0.0001			0.0001												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.001							0.001								
		Dibutyl phthalate	0.0001						0.0001									
		Diethyl phthalate	0.000002						0.000002							0.000002		
		SVOCs																
		Benzyl alcohol	0.0001				0.0001											
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.01							0.01								
		Hexachlorobutadiene	0.00002			0.00002												
		Isophorone	0.00001			0.00001												

TABLE 5-70.
Calculation of Endpoint-Specific Hazard Indices – Child Recreational Fish Consumption, Study Area-Wide Basis, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Phenols																
		4-Nitrophenol	0.001					0.001	0.001									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	100		100						100							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.8											0.8				
		Total PCB TEQ	1											1				
		Pesticides																
		Aldrin	0.0004							0.0004								
		alpha-Hexachlorocyclohexane	0.0000005							0.0000005								
		beta-Hexachlorocyclohexane	0.001							0.001								
		Dieldrin	0.01							0.01								
		Endrin	0.00001							0.00001								
		Endrin aldehyde	0.001							0.001								
		Endrin ketone	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor	0.000001							0.000001								
		Heptachlor epoxide	0.001							0.001								
		Methoxychlor	0.0002											0.0002				0.0002
		Total Chlordanes	0.004							0.004								
		Total DDD	0.03							0.03								
		Total DDE	0.04							0.04								
		Total DDT	0.02							0.02								
		Total Endosulfan	0.00005	0.00005				0.00005	0.00005									
Exposure Area Total				0.04	100	0.002	0.004	0.6	0.1	0.1	100	0.0001		2	0.0001	0.000002		0.0002

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Sums calculated using PCB congener data.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
g/day = grams per day.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.

TABLE 5-71.
Calculation of Endpoint-Specific Hazard Indices – Child Recreational Fish Consumption, Study Area-Wide Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
Fillet	Study Area-wide	**Metals**																
		Aluminum	0.01					0.01										
		Antimony	0.004	0.004														
		Arsenic, inorganic	0.06	0.06	0.06													
		Cadmium	0.003			0.003												
		Copper	0.01				0.01											
		Manganese	0.01					0.01										
		Mercury	2					2										
		Nickel	0.01						0.01									
		Selenium	0.3						0.3									
		Silver	0.0001		0.0001													
		Zinc	0.06	0.06														
		Butyltins																
		Butyltin ion	0.001								0.001							
		Dibutyltin ion	0.01								0.01							
		Tributyltin ion	0.01								0.01							
		Polynuclear Aromatic Hydrocarbons																
		2-Methylnaphthalene	0.0004									0.0004						
		Acenaphthene	0.0003							0.0003								
		Acenaphthylene	0.00002							0.00002								
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.0002						0.0002						0.0002			
		Phenanthrene	0.002			0.002												
		Pyrene	0.0002			0.0002												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.004							0.004								
		Dibutyl phthalate	0.0001						0.0001									
		Diethyl phthalate	0.000007						0.000007							0.000007		
		SVOCs																
		Benzyl alcohol	0.0002				0.0002											
		Dibenzofuran	0.001	0.001														
		Hexachlorobenzene	0.03							0.03								
		Hexachlorobutadiene	0.0001			0.0001												
		Isophorone	0.00002			0.00002												
		Phenols																
		4-Nitrophenol	0.002					0.002	0.002									

TABLE 5-71.
Calculation of Endpoint-Specific Hazard Indices – Child Recreational Fish Consumption, Study Area-Wide Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	300		300						300							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	2											2				
		Total PCB TEQ	4											4				
		Pesticides																
		Aldrin	0.001							0.001								
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		beta-Hexachlorocyclohexane	0.003							0.003								
		Dieldrin	0.04							0.04								
		Endrin	0.00003							0.00003								
		Endrin aldehyde	0.002							0.002								
		Endrin ketone	0.00002							0.00002								
		gamma-Hexachlorocyclohexane	0.00004			0.00004				0.00004								
		Heptachlor	0.000003							0.000003								
		Heptachlor epoxide	0.004							0.004								
		Methoxychlor	0.0005											0.0005				0.0005
		Total Chlordanes	0.01							0.01								
		Total DDD	0.09							0.09								
		Total DDE	0.1							0.1								
		Total DDT	0.04							0.04								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Area Total				0.1	300	0.01	0.01	2	0.3	0.3	300	0.0004		6	0.0002	0.000007		0.0005

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Sums calculated using PCB congener data.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
g/day = grams per day.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.

TABLE 5-72.
Calculation of Endpoint-Specific Hazard Indices – Child Subsistence Fish Consumption, Study Area-Wide Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
Fillet	Study Area-wide	**Metals**																
		Aluminum	0.02					0.02										
		Antimony	0.01	0.01														
		Arsenic, inorganic	0.2	0.2	0.2													
		Cadmium	0.01			0.01												
		Copper	0.04				0.04											
		Manganese	0.03					0.03										
		Mercury	5					5										
		Nickel	0.02						0.02									
		Selenium	1						1									
		Silver	0.0004		0.0004													
		Zinc	0.2	0.2														
		Butyltins																
		Butyltin ion	0.004								0.004							
		Dibutyltin ion	0.03								0.03							
		Tributyltin ion	0.03								0.03							
		Polynuclear Aromatic Hydrocarbons																
		2-Methylnaphthalene	0.001									0.001						
		Acenaphthene	0.001							0.001								
		Acenaphthylene	0.0001							0.0001								
		Benzo(g,h,i)perylene	0.00003			0.00003												
		Dibenzothiophene	0.0001	0.0001														
		Fluoranthene	0.003	0.003		0.003				0.003								
		Fluorene	0.0003	0.0003														
		Naphthalene	0.001						0.001						0.001			
		Phenanthrene	0.01			0.01												
		Pyrene	0.001			0.001												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.01							0.01								
		Dibutyl phthalate	0.0004						0.0004									
		Diethyl phthalate	0.00002						0.00002							0.00002		

TABLE 5-72.
Calculation of Endpoint-Specific Hazard Indices – Child Subsistence Fish Consumption, Study Area-Wide Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		SVOCs																
		Benzyl alcohol	0.001				0.001											
		Dibenzofuran	0.002	0.002														
		Hexachlorobenzene	0.09							0.09								
		Hexachlorobutadiene	0.0002			0.0002												
		Isophorone	0.00005			0.00005												
		Phenols																
		4-Nitrophenol	0.01					0.01	0.01									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1000		1000						1000							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	7											7				
		Total PCB TEQ	10											10				
		Pesticides																
		Aldrin	0.004							0.004								
		alpha-Hexachlorocyclohexane	0.000004							0.000004								
		beta-Hexachlorocyclohexane	0.01							0.01								
		Dieldrin	0.1							0.1								
		Endrin	0.0001							0.0001								
		Endrin aldehyde	0.01							0.01								
		Endrin ketone	0.0001							0.0001								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.01							0.01								
		Methoxychlor	0.00											0.001				0.001
		Total Chlordanes	0.03							0.03								
		Total DDD	0.3							0.3								
		Total DDE	0.3							0.3								

TABLE 5-72.
Calculation of Endpoint-Specific Hazard Indices – Child Subsistence Fish Consumption, Study Area-Wide Basis, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Child

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices															
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total DDT Total Endosulfan	0.1 0.0004	0.0004				0.0004	0.0004	0.1								
Exposure Area Total				0.4	1000	0.02	0.04	5	1	1	1000	0.001		20	0.001	0.00002		0.001

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Sums calculated using PCB congener data.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
g/day = grams per day.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.

TABLE 5-73.
Calculation of Cancer Risks - Combined Child and Adult Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Combined Child/Adult

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 48.9 g/day, Child Consumption Rate: 20.5 g/day	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 17.5 g/day, Child Consumption Rate: 7 g/day
F	RM 2	**Metals**					
		Arsenic, inorganic	3.4E-02	mg/kg	2E+00	2E-05	6E-06
		PAHs					
		1-Methylnaphthalene	1.2E+00	ug/kg	3E-02	1E-08	4E-09
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	3.4E-01	ug/kg	2E+00	2E-07	7E-08
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	1.8E+05	pg/g	2E+00	1E-04	4E-05
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	2.2E-01	pg/g	1E+05	1E-05	4E-06
		Total PCB TEQ	1.8E+00	pg/g	1E+05	8E-05	3E-05
		Pesticides					
		Aldrin	6.9E-03	ug/kg	2E+01	4E-08	1E-08
		alpha-Hexachlorocyclohexane	5.2E-03	ug/kg	6E+00	1E-08	4E-09
		Dieldrin	4.2E-01	ug/kg	2E+01	2E-06	9E-07
		Heptachlor epoxide	2.7E-02	ug/kg	9E+00	9E-08	3E-08
		Total Chlordanes	1.5E+00	ug/kg	4E-01	2E-07	7E-08
		Total DDD	2.9E+00	ug/kg	2E-01	3E-07	9E-08
		Total DDE	1.1E+01	ug/kg	3E-01	1E-06	5E-07
		Total DDT	7.2E-01	ug/kg	3E-01	9E-08	3E-08
	Exposure Point Total					2E-04	9E-05
F	RM 3	**Metals**					
		Arsenic, inorganic	2.9E-02	mg/kg	2E+00	2E-05	5E-06
		PAHs					
		1-Methylnaphthalene	2.4E+00	ug/kg	3E-02	2E-08	9E-09
		Benzo(a)anthracene	8.8E-01	ug/kg	7E-01	7E-07	2E-07
		Chrysene	6.2E+00	ug/kg	7E-03	5E-08	2E-08
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	4.3E-01	ug/kg	2E+00	2E-07	9E-08
		Hexachlorobutadiene	2.2E-02	ug/kg	8E-02	6E-10	2E-10
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	3.8E+04	pg/g	2E+00	3E-05	9E-06
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	2.6E-01	pg/g	1E+05	1E-05	4E-06
		Total PCB TEQ	4.9E-01	pg/g	1E+05	2E-05	8E-06
		Pesticides					
		Aldrin	5.2E-03	ug/kg	2E+01	3E-08	1E-08
		alpha-Hexachlorocyclohexane	4.3E-03	ug/kg	6E+00	1E-08	3E-09
		beta-Hexachlorocyclohexane	4.5E+00	ug/kg	2E+00	3E-06	1E-06
		Dieldrin	3.3E+00	ug/kg	2E+01	2E-05	7E-06
		Heptachlor epoxide	2.4E-02	ug/kg	9E+00	8E-08	3E-08
		Total Chlordanes	7.8E+00	ug/kg	4E-01	1E-06	3E-07
		Total DDD	4.7E+00	ug/kg	2E-01	4E-07	1E-07
		Total DDE	2.6E+01	ug/kg	3E-01	3E-06	1E-06
		Total DDT	1.3E+01	ug/kg	3E-01	2E-06	6E-07
	Exposure Point Total					1E-04	4E-05
F	RM 4	**Metals**					
		Arsenic, inorganic	2.2E-02	mg/kg	2E+00	1E-05	4E-06
		PAHs					
		1-Methylnaphthalene	5.9E-01	ug/kg	3E-02	6E-09	2E-09
		Benzo(a)anthracene	3.6E-01	ug/kg	7E-01	3E-07	1E-07
		Benzo(a)pyrene	2.3E-01	ug/kg	7E+00	2E-06	6E-07
		Benzo(b)fluoranthene	1.0E+00	ug/kg	7E-01	8E-07	3E-07
		Benzo(k)fluoranthene	3.7E-01	ug/kg	7E-02	3E-08	1E-08
		Chrysene	6.1E-01	ug/kg	7E-03	5E-09	2E-09
		Dibenzo(a,h)anthracene	1.5E-01	ug/kg	7E+00	1E-06	4E-07
		Indeno(1,2,3-cd)pyrene	3.5E-01	ug/kg	7E-01	3E-07	9E-08
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	4.6E-01	ug/kg	2E+00	3E-07	9E-08
		Hexachlorobutadiene	1.3E-02	ug/kg	8E-02	4E-10	1E-10
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	2.2E+05	pg/g	2E+00	2E-04	5E-05
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	3.6E-01	pg/g	1E+05	2E-05	6E-06
		Total PCB TEQ	1.3E+00	pg/g	1E+05	6E-05	2E-05
		Pesticides					
		Aldrin	5.8E-03	ug/kg	2E+01	3E-08	1E-08
		alpha-Hexachlorocyclohexane	3.9E-03	ug/kg	6E+00	9E-09	3E-09
		beta-Hexachlorocyclohexane	2.8E-03	ug/kg	2E+00	2E-09	6E-10
		Dieldrin	3.8E-01	ug/kg	2E+01	2E-06	8E-07
		Heptachlor epoxide	2.2E-02	ug/kg	9E+00	7E-08	3E-08
		Total Chlordanes	2.3E+00	ug/kg	4E-01	3E-07	1E-07
		Total DDD	4.4E+00	ug/kg	2E-01	4E-07	1E-07
		Total DDE	1.2E+01	ug/kg	3E-01	2E-06	5E-07
		Total DDT	2.0E+00	ug/kg	3E-01	2E-07	9E-08
		Total Endosulfan	9.2E-02	ug/kg	--	--	--
	Exposure Point Total					3E-04	9E-05

TABLE 5-73.
Calculation of Cancer Risks - Combined Child and Adult Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Combined Child/Adult

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 48.9 g/day, Child Consumption Rate: 20.5 g/day	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 17.5 g/day, Child Consumption Rate: 7 g/day
F	RM 5	**Metals**					
		Arsenic, inorganic	2.0E-02	mg/kg	2E+00	1E-05	4E-06
		PAHs					
		1-Methylnaphthalene	5.4E-01	ug/kg	3E-02	6E-09	2E-09
		Benzo(a)anthracene	1.9E+00	ug/kg	7E-01	1E-06	5E-07
		Benzo(a)pyrene	2.2E+00	ug/kg	7E+00	2E-05	6E-06
		Benzo(b)fluoranthene	1.4E+00	ug/kg	7E-01	1E-06	4E-07
		Benzo(k)fluoranthene	1.2E+00	ug/kg	7E-02	9E-08	3E-08
		Chrysene	2.3E+00	ug/kg	7E-03	2E-08	6E-09
		Dibenzo(a,h)anthracene	1.8E-01	ug/kg	7E+00	1E-06	5E-07
		Indeno(1,2,3-cd)pyrene	1.7E+00	ug/kg	7E-01	1E-06	5E-07
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	3.9E-01	ug/kg	2E+00	2E-07	8E-08
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	3.1E+04	pg/g	2E+00	2E-05	8E-06
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	2.5E-01	pg/g	1E+05	1E-05	4E-06
		Total PCB TEQ	3.2E-01	pg/g	1E+05	2E-05	5E-06
		Pesticides					
		Dieldrin	3.7E-01	ug/kg	2E+01	2E-06	7E-07
		gamma-Hexachlorocyclohexane	9.0E-03	ug/kg	1E+00	4E-09	1E-09
		Heptachlor epoxide	2.0E-02	ug/kg	9E+00	6E-08	2E-08
		Total Chlordanes	1.7E+00	ug/kg	4E-01	2E-07	8E-08
		Total DDD	4.8E+00	ug/kg	2E-01	4E-07	1E-07
		Total DDE	1.5E+01	ug/kg	3E-01	2E-06	6E-07
		Total DDT	9.5E+00	ug/kg	3E-01	1E-06	4E-07
	Exposure Point Total					9E-05	3E-05
F	RM 6	**Metals**					
		Arsenic, inorganic	2.0E-02	mg/kg	2E+00	1E-05	4E-06
		PAHs					
		1-Methylnaphthalene	1.2E+00	ug/kg	3E-02	1E-08	4E-09
		Benzo(a)anthracene	2.0E-01	ug/kg	7E-01	2E-07	5E-08
		Benzo(a)pyrene	9.1E-02	ug/kg	7E+00	7E-07	2E-07
		Benzo(b)fluoranthene	1.5E-01	ug/kg	7E-01	1E-07	4E-08
		Benzo(k)fluoranthene	9.6E-02	ug/kg	7E-02	7E-09	3E-09
		Chrysene	3.0E-01	ug/kg	7E-03	2E-09	8E-10
		Indeno(1,2,3-cd)pyrene	8.0E-02	ug/kg	7E-01	6E-08	2E-08
		Phthalates					
		Bis(2-ethylhexyl) phthalate	9.3E+01	ug/kg	1E-02	5E-07	2E-07
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	3.6E-01	ug/kg	2E+00	2E-07	7E-08
		Polychlorinated Biphenyls					
		Total Aroclors	3.9E+01	ug/kg	2E+00	3E-05	1E-05
		Total PCB Congeners	8.2E+04	pg/g	NA	--	--
		Total PCBs, Adjusted	7.8E+04	pg/g	2E+00	6E-05	2E-05
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	3.5E-01	pg/g	1E+05	2E-05	6E-06
		Total PCB TEQ	3.9E-01	pg/g	1E+05	2E-05	6E-06
		Pesticides					
		Dieldrin	3.6E-01	ug/kg	2E+01	2E-06	7E-07
		gamma-Hexachlorocyclohexane	4.0E-03	ug/kg	1E+00	2E-09	6E-10
		Heptachlor epoxide	1.8E-02	ug/kg	9E+00	6E-08	2E-08
		Total Chlordanes	4.5E+00	ug/kg	4E-01	6E-07	2E-07
		Total DDD	8.5E+00	ug/kg	2E-01	7E-07	3E-07
		Total DDE	1.3E+01	ug/kg	3E-01	2E-06	5E-07
		Total DDT	7.6E+00	ug/kg	3E-01	9E-07	3E-07
	Exposure Point Total					1E-04	4E-05
F	RM 7	**Metals**					
		Arsenic, inorganic	1.9E-02	mg/kg	2E+00	1E-05	4E-06
		PAHs					
		1-Methylnaphthalene	3.1E-01	ug/kg	3E-02	3E-09	1E-09
		Benzo(a)anthracene	1.9E-01	ug/kg	7E-01	1E-07	5E-08
		Benzo(b)fluoranthene	1.3E-01	ug/kg	7E-01	1E-07	4E-08
		Benzo(k)fluoranthene	1.0E-01	ug/kg	7E-02	8E-09	3E-09
		Chrysene	2.7E-01	ug/kg	7E-03	2E-09	7E-10
		Indeno(1,2,3-cd)pyrene	1.1E-01	ug/kg	7E-01	9E-08	3E-08
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	8.8E-01	ug/kg	2E+00	5E-07	2E-07
		Hexachlorobutadiene	1.7E-01	ug/kg	8E-02	5E-09	2E-09
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	2.0E+05	pg/g	2E+00	1E-04	5E-05
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	8.7E+00	pg/g	1E+05	4E-04	1E-04
		Total PCB TEQ	7.0E-01	pg/g	1E+05	3E-05	1E-05
		Pesticides					
		beta-Hexachlorocyclohexane	5.0E-03	ug/kg	2E+00	3E-09	1E-09
		Dieldrin	3.1E-01	ug/kg	2E+01	2E-06	6E-07
		Heptachlor epoxide	1.4E-02	ug/kg	9E+00	5E-08	2E-08
		Total Chlordanes	1.5E+00	ug/kg	4E-01	2E-07	7E-08
		Total DDD	6.3E+01	ug/kg	2E-01	5E-06	2E-06
		Total DDE	5.9E+01	ug/kg	3E-01	7E-06	3E-06
		Total DDT	5.9E+01	ug/kg	3E-01	7E-06	3E-06
	Exposure Point Total					6E-04	2E-04

TABLE 5-73.
Calculation of Cancer Risks - Combined Child and Adult Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Combined Child/Adult

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 48.9 g/day, Child Consumption Rate: 20.5 g/day	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 17.5 g/day, Child Consumption Rate: 7 g/day
F	RM 8	**Metals**					
		Arsenic, inorganic	1.8E-02	mg/kg	2E+00	1E-05	3E-06
		PAHs					
		1-Methylnaphthalene	1.0E+00	ug/kg	3E-02	1E-08	4E-09
		Benzo(a)anthracene	2.6E+00	ug/kg	7E-01	2E-06	7E-07
		Benzo(a)pyrene	2.5E+00	ug/kg	7E+00	2E-05	7E-06
		Benzo(b)fluoranthene	1.7E+00	ug/kg	7E-01	1E-06	5E-07
		Benzo(k)fluoranthene	1.4E+00	ug/kg	7E-02	1E-07	4E-08
		Chrysene	2.9E+00	ug/kg	7E-03	2E-08	8E-09
		Dibenzo(a,h)anthracene	2.4E-01	ug/kg	7E+00	2E-06	6E-07
		Indeno(1,2,3-cd)pyrene	1.9E+00	ug/kg	7E-01	1E-06	5E-07
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	3.5E-01	ug/kg	2E+00	2E-07	7E-08
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	4.7E+04	pg/g	2E+00	3E-05	1E-05
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	6.2E-01	pg/g	1E+05	3E-05	1E-05
		Total PCB TEQ	4.0E-01	pg/g	1E+05	2E-05	7E-06
		Pesticides					
		Aldrin	5.0E-03	ug/kg	2E+01	3E-08	1E-08
		Dieldrin	1.4E+00	ug/kg	2E+01	8E-06	3E-06
		gamma-Hexachlorocyclohexane	3.0E-03	ug/kg	1E+00	1E-09	4E-10
		Heptachlor epoxide	1.6E-02	ug/kg	9E+00	5E-08	2E-08
		Total Chlordanes	5.4E+00	ug/kg	4E-01	7E-07	2E-07
		Total DDD	1.3E+01	ug/kg	2E-01	1E-06	4E-07
		Total DDE	2.2E+01	ug/kg	3E-01	3E-06	9E-07
		Total DDT	1.5E+01	ug/kg	3E-01	2E-06	6E-07
	Exposure Point Total					1E-04	5E-05
F	RM 8 SIL[d]	**Metals**					
		Arsenic, inorganic	1.6E-02	mg/kg	2E+00	8E-06	3E-06
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	7.0E+05	pg/g	2E+00	5E-04	2E-04
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	7.5E-01	pg/g	1E+05	3E-05	1E-05
		Total PCB TEQ	1.2E+00	pg/g	1E+05	5E-05	2E-05
		Pesticides					
		Total DDD	3.5E+00	ug/kg	2E-01	3E-07	1E-07
		Total DDE	1.1E+01	ug/kg	3E-01	1E-06	5E-07
		Total DDT	1.9E+00	ug/kg	3E-01	2E-07	8E-08
	Exposure Point Total					6E-04	2E-04
F	RM 9	**Metals**					
		Arsenic, inorganic	1.9E-02	mg/kg	2E+00	1E-05	4E-06
		PAHs					
		1-Methylnaphthalene	3.5E-01	ug/kg	3E-02	4E-09	1E-09
		Benzo(a)anthracene	7.3E-01	ug/kg	7E-01	6E-07	2E-07
		Benzo(a)pyrene	4.8E-01	ug/kg	7E+00	4E-06	1E-06
		Benzo(b)fluoranthene	3.0E-01	ug/kg	7E-01	2E-07	8E-08
		Benzo(k)fluoranthene	4.7E-01	ug/kg	7E-02	4E-08	1E-08
		Chrysene	7.2E-01	ug/kg	7E-03	6E-09	2E-09
		Indeno(1,2,3-cd)pyrene	8.7E-01	ug/kg	7E-01	7E-07	2E-07
		Phthalates					
		Bis(2-ethylhexyl) phthalate	1.3E+02	ug/kg	1E-02	6E-07	2E-07
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	5.2E-01	ug/kg	2E+00	3E-07	1E-07
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	9.6E+04	pg/g	2E+00	7E-05	2E-05
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	4.5E-01	pg/g	1E+05	2E-05	7E-06
		Total PCB TEQ	1.0E+00	pg/g	1E+05	5E-05	2E-05
		Pesticides					
		Aldrin	1.1E-02	ug/kg	2E+01	7E-08	2E-08
		alpha-Hexachlorocyclohexane	6.0E-03	ug/kg	6E+00	1E-08	5E-09
		Dieldrin	1.0E+00	ug/kg	2E+01	6E-06	2E-06
		gamma-Hexachlorocyclohexane	5.0E-03	ug/kg	1E+00	2E-09	7E-10
		Heptachlor epoxide	2.4E-02	ug/kg	9E+00	8E-08	3E-08
		Total Chlordanes	2.5E+00	ug/kg	4E-01	3E-07	1E-07
		Total DDD	3.2E+00	ug/kg	2E-01	3E-07	1E-07
		Total DDE	1.6E+01	ug/kg	3E-01	2E-06	7E-07
		Total DDT	9.3E+00	ug/kg	3E-01	1E-06	4E-07
	Exposure Point Total					2E-04	6E-05
F	RM 10	**Metals**					
		Arsenic, inorganic	1.5E-02	mg/kg	2E+00	8E-06	3E-06
		PAHs					
		1-Methylnaphthalene	7.3E-01	ug/kg	3E-02	8E-09	3E-09
		Phthalates					
		Bis(2-ethylhexyl) phthalate	6.9E+01	ug/kg	1E-02	3E-07	1E-07
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	3.3E-01	ug/kg	2E+00	2E-07	7E-08
		Hexachlorobutadiene	6.0E-03	ug/kg	8E-02	2E-10	6E-11
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	1.2E+05	pg/g	2E+00	8E-05	3E-05
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	4.3E-01	pg/g	1E+05	2E-05	7E-06
		Total PCB TEQ	6.1E-01	pg/g	1E+05	3E-05	1E-05

TABLE 5-73.
Calculation of Cancer Risks - Combined Child and Adult Fish Consumption, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Combined Child/Adult

Medium: Tissue
Exposure Medium: Smallmouth Bass Tissue (Fillet)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC Value	EPC Units	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 48.9 g/day, Child Consumption Rate: 20.5 g/day	Combined Adult and Child Cancer Risk[b,c] — Recreational Fisher: Adult Consumption Rate: 17.5 g/day, Child Consumption Rate: 7 g/day
		Pesticides					
		alpha-Hexachlorocyclohexane	5.0E-03	ug/kg	6E+00	1E-08	4E-09
		Dieldrin	2.8E-01	ug/kg	2E+01	2E-06	6E-07
		gamma-Hexachlorocyclohexane	1.1E-02	ug/kg	1E+00	4E-09	2E-09
		Heptachlor epoxide	1.6E-02	ug/kg	9E+00	5E-08	2E-08
		Total Chlordanes	1.3E+00	ug/kg	4E-01	2E-07	6E-08
		Total DDD	3.0E+00	ug/kg	2E-01	3E-07	9E-08
		Total DDE	8.6E+00	ug/kg	3E-01	1E-06	4E-07
		Total DDT	3.9E+00	ug/kg	3E-01	5E-07	2E-07
	Exposure Point Total					1E-04	5E-05
F	RM 11	**Metals**					
		Arsenic, inorganic	1.6E-02	mg/kg	2E+00	9E-06	3E-06
		PAHs					
		1-Methylnaphthalene	4.1E-01	ug/kg	3E-02	4E-09	1E-09
		Semi-Volatile Organic Compounds					
		Hexachlorobenzene	3.7E-01	ug/kg	2E+00	2E-07	7E-08
		Polychlorinated Biphenyls					
		Total PCBs, Adjusted	1.5E+06	pg/g	2E+00	1E-03	4E-04
		Dioxin/Furans					
		Total Dioxin/Furan TEQ	4.7E-01	pg/g	1E+05	2E-05	8E-06
		Total PCB TEQ	2.1E+00	pg/g	1E+05	1E-04	3E-05
		Pesticides					
		beta-Hexachlorocyclohexane	5.0E-03	ug/kg	2E+00	3E-09	1E-09
		Dieldrin	3.3E-01	ug/kg	2E+01	2E-06	7E-07
		gamma-Hexachlorocyclohexane	6.0E-03	ug/kg	1E+00	2E-09	8E-10
		Heptachlor	5.0E-03	ug/kg	5E+00	8E-09	3E-09
		Heptachlor epoxide	1.8E-02	ug/kg	9E+00	6E-08	2E-08
		Total Chlordanes	1.4E+00	ug/kg	4E-01	2E-07	6E-08
		Total DDD	7.5E-01	ug/kg	2E-01	6E-08	2E-08
		Total DDE	5.8E+00	ug/kg	3E-01	7E-07	2E-07
		Total DDT	8.1E-01	ug/kg	3E-01	1E-07	3E-08
	Exposure Point Total					1E-03	4E-04

Notes:

a Smallmouth bass data were used as a surrogate for a multi-species diet on a river mile basis.

b Numbers presented are rounded values. Sums calculated before rounding.

c For carcinogenic polynuclear aromatic hydrocarbons (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene), early life exposure was considered and age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

d Swan Island Lagoon fillet tissue EPCs derived using Study area-wide ratios of fillet to whole body tissue.

Abbreviations:

-- = Not applicable.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
F = Fillet tissue.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
PAHs = Polynuclear aromatic hydrocarbons.

TABLE 5-74
Calculation of Cancer Risks - Combined Child and Adult Fish Consumption, Study Area-Wide Basis

Scenario Timeframe: Current/Future
Receptor Population: Nontribal Fisher
Population Age: Combined Child and Adult

Medium: Tissue
Exposure Medium: Multi-Species Fish Tissue
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC for mixed diet		Adult Cancer Risk Calculations[a]			Child Cancer Risk Calculations[a]			Combined Adult and Child Cancer Risk[a,b]		
					Subsistence Fisher	Recreational Fisher		Subsistence Fisher	Recreational Fisher		Subsistence Fisher	Recreational Fisher	
					Consumption Rate: 142 g/day	Consumption Rate: 48.9 g/day	Consumption Rate: 17.5 g/day	Consumption Rate: 60 g/day	Consumption Rate: 20.5 g/day	Consumption Rate: 7 g/day	Adult Consumption Rate: 142 g/day Child Consumption Rate: 60 g/day	Adult Consumption Rate: 48.9 g/day Child Consumption Rate: 20.5 g/day	Adult Consumption Rate: 17.5 g/day Child Consumption Rate: 7 g/day
			Value	Units	Cancer Risk	Cancer Risk	Cancer Risk	Cancer Risk	Cancer Risk	Cancer Risk			
Fillet	Study Area-wide	**Metals**											
		Arsenic, inorganic	1.3E-02	mg/kg	2E-05	6E-06	2E-06	7E-06	2E-06	8E-07	2E-05	7E-06	3E-06
		PAHs											
		1-Methylnaphthalene	1.3E-03	mg/kg	3E-08	1E-08	4E-09	1E-08	5E-09	2E-09	4E-08	1E-08	5E-09
		Benzo(a)anthracene	2.6E-04	mg/kg	2E-07	6E-08	2E-08	3E-07	1E-07	4E-08	6E-07	2E-07	7E-08
		Benzo(a)pyrene	1.7E-04	mg/kg	1E-06	4E-07	1E-07	2E-06	8E-07	3E-07	4E-06	1E-06	5E-07
		Benzo(b)fluoranthene	2.2E-04	mg/kg	1E-07	5E-08	2E-08	3E-07	1E-07	3E-08	5E-07	2E-07	6E-08
		Benzo(k)fluoranthene	1.5E-04	mg/kg	1E-08	3E-09	1E-09	2E-08	7E-09	2E-09	3E-08	1E-08	4E-09
		Chrysene	3.7E-04	mg/kg	2E-09	8E-10	3E-10	5E-09	2E-09	6E-10	8E-09	3E-09	1E-09
		Dibenzo(a,h)anthracene	7.9E-05	mg/kg	5E-07	2E-07	6E-08	1E-06	4E-07	1E-07	2E-06	6E-07	2E-07
		Indeno(1,2,3-cd)pyrene	1.7E-04	mg/kg	1E-07	4E-08	1E-08	2E-07	8E-08	3E-08	4E-07	1E-07	5E-08
		Phthalates											
		Bis(2-ethylhexyl) phthalate	5.8E-02	mg/kg	7E-07	2E-07	9E-08	3E-07	9E-08	3E-08	8E-07	3E-07	1E-07
		SVOCs											
		Hexachlorobenzene	1.8E-02	mg/kg	2E-05	8E-06	3E-06	1E-05	3E-06	1E-06	3E-05	1E-05	4E-06
		Hexachlorobutadiene	4.5E-05	mg/kg	3E-09	1E-09	4E-10	1E-09	4E-10	1E-10	4E-09	1E-09	4E-10
		Isophorone	2.5E-03	mg/kg	2E-09	7E-10	2E-10	8E-10	3E-10	9E-11	2E-09	8E-10	3E-10
		Polychlorinated Biphenyls											
		Total PCBs, Adjusted	5.0E+00	mg/kg	9E-03	3E-03	1E-03	3E-03	1E-03	4E-04	1E-02	4E-03	1E-03
		Dioxin/Furan											
		Total Dioxin/Furan TEQ	1.6E-06	mg/kg	2E-04	6E-05	2E-05	7E-05	2E-05	8E-06	2E-04	8E-05	3E-05
		Total PCB TEQ	2.9E-06	mg/kg	3E-04	1E-04	4E-05	1E-04	4E-05	2E-05	4E-04	1E-04	5E-05
		Pesticides											
		Aldrin	2.7E-05	mg/kg	4E-07	1E-07	5E-08	2E-07	5E-08	2E-08	5E-07	2E-07	6E-08
		alpha-Hexachlorocyclohexane	8.4E-06	mg/kg	5E-08	2E-08	6E-09	2E-08	6E-09	2E-09	6E-08	2E-08	7E-09
		beta-Hexachlorocyclohexane	1.1E-03	mg/kg	2E-06	6E-07	2E-07	7E-07	2E-07	8E-08	2E-06	7E-07	3E-07
		Dieldrin	1.3E-03	mg/kg	2E-05	6E-06	2E-06	7E-06	2E-06	8E-07	2E-05	7E-06	3E-06
		gamma-Hexachlorocyclohexane	8.6E-06	mg/kg	8E-09	3E-09	1E-09	3E-09	1E-09	4E-10	1E-08	3E-09	1E-09
		Heptachlor	1.3E-06	mg/kg	5E-09	2E-09	6E-10	2E-09	7E-10	2E-10	6E-09	2E-09	7E-10
		Heptachlor epoxide	3.6E-05	mg/kg	3E-07	1E-07	4E-08	1E-07	4E-08	1E-08	3E-07	1E-07	4E-08
		Total Chlordanes	4.3E-03	mg/kg	1E-06	4E-07	2E-07	5E-07	2E-07	6E-08	2E-06	5E-07	2E-07
		Total DDD	3.3E-02	mg/kg	7E-06	2E-06	8E-07	3E-06	9E-07	3E-07	8E-06	3E-06	1E-06
		Total DDE	4.0E-02	mg/kg	1E-05	4E-06	1E-06	5E-06	2E-06	5E-07	1E-05	5E-06	2E-06
		Total DDT	1.6E-02	mg/kg	5E-06	2E-06	6E-07	2E-06	6E-07	2E-07	6E-06	2E-06	7E-07
Exposure Area Total					9E-03	3E-03	1E-03	4E-03	1E-03	4E-04	1E-02	4E-03	1E-03

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b For carcinogenic PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene), early life exposure was considered and age dependent adjustment factors were applied to the exposure parameters as described in EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, Risk Assessment Forum, March 2005, EPA/630/R-03/003F.

Abbreviations:

-- = Not applicable.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
PAHs = Polycyclic Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.

TABLE 5-75.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Consuming Fish, River Mile Basis[a]

Scenario Timeframe: Current/Future
Receptor Population: Infant of Adult Consumer of Fish
Population Age: Infant

Medium: Smallmouth Bass Tissue (Fillet)
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[b]	IRAF	Noncancer Hazard Calculations[c]			
				Recreational Fisher			
				Consumption Rate: 48.9 g/day		Consumption Rate: 17.5 g/day	
				Adult (Mother) Noncancer HQ	Infant Noncancer HQ	Adult (Mother) Noncancer HQ	Infant NoncancerHQ
F	RM 2	Total PCBs, Adjusted	25	6	200	2	50
		Total Dioxin/Furan TEQ	2	0.2	0.3	0.1	0.1
		Total PCB TEQ	2	1	3	0.5	1
		Total DDX	2	0.02	0.04	0.01	0.01
					200		50
F	RM 3	Total PCBs, Adjusted	25	1	30	0.5	10
		Total Dioxin/Furan TEQ	2	0.2	0.4	0.1	0.1
		Total PCB TEQ	2	0.3	1	0.1	0.2
		Total DDX	2	0.1	0.1	0.02	0.04
					30		10
F	RM 4	Total PCBs, Adjusted	25	8	200	3	70
		Total Dioxin/Furan TEQ	2	0.2	0.5	0.1	0.2
		Total PCB TEQ	2	1	2	0.3	1
		Total DDX	2	0.03	0.1	0.01	0.02
					200		70
F	RM 5	Total PCBs, Adjusted	25	1	30	0.4	10
		Total Dioxin/Furan TEQ	2	0.2	0.3	0.1	0.1
		Total PCB TEQ	2	0.2	0.5	0.1	0.2
		Total DDX	2	0.04	0.1	0.01	0.03
					30		10
F	RM 6	Total PCBs, Adjusted	25	3	70	1	20
		Total Dioxin/Furan TEQ	2	0.2	0.5	0.1	0.2
		Total PCB TEQ	2	0.3	1	0.1	0.2
		Total DDX	2	0.04	0.1	0.01	0.03
					70		20
F	RM 7	Total PCBs, Adjusted	25	7	200	3	60
		Total Dioxin/Furan TEQ	2	6	10	2	4
		Total PCB TEQ	2	0.5	1	0.2	0.4
		Total DDX	2	0.3	1	0.1	0.2
					200		60
F	RM 8	Total PCBs, Adjusted	25	2	40	1	10
		Total Dioxin/Furan TEQ	2	0.4	1	0.2	0.3
		Total PCB TEQ	2	0.3	1	0.1	0.2
		Total DDX	2	0.1	0.1	0.02	0.05
					40		10
F	RM 8 SIL[d]	Total PCBs, Adjusted	25	24	600	9	200
		Total Dioxin/Furan TEQ	2	1	1	0.2	0.4
		Total PCB TEQ	2	1	2	0.3	1
		Total DDX	2	0.02	0.05	0.01	0.02
					600		200
F	RM 9	Total PCBs, Adjusted	25	3	80	1	30
		Total Dioxin/Furan TEQ	2	0.3	1	0.1	0.2
		Total PCB TEQ	2	1	1	0.3	1
		Total DDX	2	0.04	0.1	0.01	0.03
					80		30
F	RM 10	Total PCBs, Adjusted	25	4	100	1	40
		Total Dioxin/Furan TEQ	2	0.3	1	0.1	0.2
		Total PCB TEQ	2	0.4	1	0.2	0.3
		Total DDX	2	0.02	0.04	0.01	0.02
					100		40
F	RM 11	Total PCBs, Adjusted	25	51	1000	18	500
		Total Dioxin/Furan TEQ	2	0.3	1	0.1	0.2
		Total PCB TEQ	2	1	3	1	1
		Total DDX	2	0.01	0.02	0.004	0.01
					1000		500

Notes:

a Smallmouth bass data were used as a surrogate for a multi-species diet on a river mile basis.
b EPCs not calculated for Total DDX in the Baseline Human Health Risk Assessment. Risks to breastfeeding infant are based on cumulative risks to mother from Total DDT, Total DDD, and Total DDE.
c Numbers presented are rounded values. Sums calculated before rounding.
d Swan Island Lagoon fillet tissue EPCs derived using Study area-wide ratios of fillet to whole body tissue.

Abbreviations:

F = Fillet tissue.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic equivalents.
ug/kg = Micrograms per kilogram.

TABLE 5-76.
Calculation of Noncancer Hazards -Breastfeeding Infant of Adult Consuming Fish, Study Area-Wide Basis

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: Fish Tissue (Nontribal, multi-species diet)
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	EPC for mixed diet[a] Value	Units	Noncancer Hazard Risk Calculations[b] IRAF	Subsistence Fisher Consumption Rate: 142 g/day Adult (Mother) Noncancer HQ	Subsistence Fisher Consumption Rate: 142 g/day Breastfeeding Infant Noncancer HQ	Recreational Fisher Consumption Rate: 48.9 g/day Adult (Mother) Noncancer HQ	Recreational Fisher Consumption Rate: 48.9 g/day Breastfeeding Infant Noncancer HQ	Recreational Fisher Consumption Rate: 17.5 g/day Adult (Mother) Noncancer HQ	Recreational Fisher Consumption Rate: 17.5 g/day Breastfeeding Infant Noncancer HQ
Fillet	Study Area-wide	Total PCBs, Adjusted	5.0E+00	mg/kg	25	500	10000	200	4000	60	2000
		Total Dioxin/Furan TEQ	1.6E-06	mg/kg	2	3	7	1	2	0.4	1
		Total PCB TEQ	2.9E-06	mg/kg	2	6	10	2	4	1	1
		Total DDX	--		2	0.4	1	0.1	0.2	0.04	0.1
Exposure Point Total							10000		4000		2000

Notes:

a EPCs not calculated for Total DDX in the Baseline Human Health Risk Assessment. Risks to breastfeeding infant are based on cumulative risks to mother from Total DDT, Total DDD, and Total DDE.

b Numbers presented are rounded values. Sums calculated before rounding.

Abbreviations:

-- = Not applicable.
EPC = Exposure Point Concentration.
g/day = grams per day.
HQ = Hazard Quotient.
IRAF = Infant Risk Adjustment Factor.
mg/kg = milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
TEQ = Toxic Equivalents.

TABLE 5-77. Summary of Risks From Fish Consumption - Recreational/Subsistence Fishers

Exposure Scale	Receptor: / Consumption Rate/ Exposure Area	Child Fish Consumption Hazard Index			Combined Child and Adult Fish Consumption Cancer Risk			Breastfeeding Infant of Adult Consuming Fish Hazard Index		
		Subsistence	Recreational		Subsistence	Recreational		Subsistence	Recreational	
		60 g/day	20.5 g/day	7 g/day	Adult: 142 g/day Child: 60 g/day	Adult: 48.9 g/day Child: 20.5 g/day	Adult: 17.5 g/day Child: 7 g/day	Adult: 142 g/day	Adult: 48.9 g/day	Adult: 17.5 g/day
River mile basis[b]	RM 2	NA	10	5	NA	2E-04	9E-05	NA	200	50
	RM 3	NA	7	2	NA	1E-04	4E-05	NA	30	10
	RM 4	NA	20	7	NA	3E-04	9E-05	NA	200	70
	RM 5	NA	6	2	NA	9E-05	3E-05	NA	30	10
	RM 6	NA	9	3	NA	1E-04	4E-05	NA	70	20
	RM 7	NA	20	10	NA	6E-04	2E-04	NA	200	60
	RM 8	NA	7	2	NA	1E-04	5E-05	NA	40	10
	RM 8 SIL	NA	50	20	NA	6E-04	2E-04	NA	600	200
	RM 9	NA	10	5	NA	2E-04	6E-05	NA	80	30
	RM 10	NA	10	4	NA	1E-04	5E-05	NA	100	40
	RM 11	NA	100	30	NA	1E-03	4E-04	NA	1000	500
Study Area-wide basis	Study Area-wide	1000	300	100	1E-02	4E-03	1E-03	10000	4000	2000

Notes:

a Table presents cumulative risk (and cumulative hazard indices) per exposure area for recreational and subsistence fish consumption. Results are presented per receptor and consumption rate.

b Smallmouth bass data were used as a surrogate for a multi-species diet on a river mile basis.

Abbreviations:

g/day grams per day

NA Exposure area not applicable for a given receptor

RM river mile

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
UD	RM 1 East	**Metals**												
		Aluminum	7.6E+01	mg/kg	--	8.3E-03	--	1.5E-03	--	1.0E+00	1.9E-02	0.02	3.6E-03	0.004
		Arsenic, inorganic	1.1E-01	mg/kg	1.5E+00	1.2E-05	2.E-05	2.2E-06	3.E-06	3.0E-04	2.8E-05	0.09	5.0E-06	0.02
		Cadmium	1.1E-01	mg/kg	--	1.2E-05	--	2.1E-06	--	1.0E-03	2.7E-05	0.03	5.0E-06	0.005
		Chromium[c]	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002
		Copper	8.2E+00	mg/kg	--	9.1E-04	--	1.7E-04	--	4.0E-02	2.1E-03	0.05	3.9E-04	0.01
		Manganese	5.2E+00	mg/kg	--	5.7E-04	--	1.0E-04	--	1.4E-01	1.3E-03	0.009	2.4E-04	0.002
		Mercury	1.2E-02	mg/kg	--	1.4E-06	--	2.5E-07	--	1.0E-04	3.2E-06	0.03	5.8E-07	0.006
		Nickel	1.8E-01	mg/kg	--	2.0E-05	--	3.6E-06	--	2.0E-02	4.6E-05	0.002	8.4E-06	0.0004
		Selenium	2.2E-01	mg/kg	--	2.4E-05	--	4.4E-06	--	5.0E-03	5.7E-05	0.01	1.0E-05	0.002
		Silver	2.5E-02	mg/kg	--	2.7E-06	--	5.0E-07	--	5.0E-03	6.4E-06	0.001	1.2E-06	0.0002
		Zinc	2.5E+01	mg/kg	--	2.8E-03	--	5.1E-04	--	3.0E-01	6.5E-03	0.02	1.2E-03	0.004
		Butyltins												
		Butyltin ion	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	3.0E-04	7.5E-07	0.002	1.4E-07	0.0005
		Dibutyltin ion	3.4E+00	ug/kg	--	3.7E-07	--	6.9E-08	--	3.0E-04	8.7E-07	0.003	1.6E-07	0.001
		PAHs												
		1-Methylnaphthalene	8.2E-01	ug/kg	2.9E-02	9.0E-08	3.E-09	1.7E-08	5.E-10	7.0E-02	2.1E-07		3.9E-08	0.000001
		2-Methylnaphthalene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	4.0E-03	3.1E-07	0.0001	5.7E-08	0.00001
		Acenaphthene	7.3E-01	ug/kg	--	8.0E-08	--	1.5E-08	--	6.0E-02	1.9E-07	0.000003	3.4E-08	0.000001
		Acenaphthylene	3.1E-01	ug/kg	--	3.4E-08	--	6.3E-09	--	6.0E-02	8.0E-08	0.000001	1.5E-08	0.0000002
		Anthracene	1.9E+00	ug/kg	--	2.1E-07	--	3.8E-08	--	3.0E-01	4.9E-07	0.000002	9.0E-08	0.0000003
		Benzo(a)anthracene	5.5E+00	ug/kg	7.3E-01	6.1E-07	4.E-07	1.1E-07	8.E-08	--	1.4E-06	--	2.6E-07	--
		Benzo(a)pyrene	8.8E-01	ug/kg	7.3E+00	9.7E-08	7.E-07	1.8E-08	1.E-07	--	2.3E-07	--	4.1E-08	--
		Benzo(b)fluoranthene	1.5E+00	ug/kg	7.3E-01	1.7E-07	1.E-07	3.0E-08	2.E-08	--	3.9E-07	--	7.1E-08	--
		Benzo(e)pyrene	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	3.0E-02	7.5E-07	0.00002	1.4E-07	0.000005
		Benzo(g,h,i)perylene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-02	3.1E-07	0.00001	5.7E-08	0.000002
		Benzo(k)fluoranthene	9.7E-01	ug/kg	7.3E-02	1.1E-07	8.E-09	2.0E-08	1.E-09	--	2.5E-07	--	4.6E-08	--
		Chrysene	1.1E+01	ug/kg	7.3E-03	1.2E-06	9.E-09	2.2E-07	2.E-09	--	2.8E-06	--	5.2E-07	--
		Dibenzo(a,h)anthracene	8.7E-01	ug/kg	7.3E+00	9.6E-08	7.E-07	1.8E-08	1.E-07	--	2.2E-07	--	4.1E-08	--
		Dibenzothiophene	7.0E-01	ug/kg	--	7.7E-08	--	1.4E-08	--	4.0E-02	1.8E-07	0.000005	3.3E-08	0.000001
		Fluoranthene	3.1E+01	ug/kg	--	3.4E-06	--	6.3E-07	--	4.0E-02	8.0E-06	0.0002	1.5E-06	0.00004

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Fluorene	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	4.0E-02	4.4E-07	0.00001	8.0E-08	0.000002
		Indeno(1,2,3-cd)pyrene	5.5E-01	ug/kg	7.3E-01	6.1E-08	4.E-08	1.1E-08	8.E-09	--	1.4E-07	--	2.6E-08	--
		Perylene	2.7E-01	ug/kg	--	3.0E-08	--	5.5E-09	--	3.0E-02	6.9E-08	0.000002	1.3E-08	0.0000004
		Phenanthrene	8.5E+00	ug/kg	--	9.4E-07	--	1.7E-07	--	3.0E-02	2.2E-06	0.0001	4.0E-07	0.00001
		Pyrene	2.7E+01	ug/kg	--	3.0E-06	--	5.5E-07	--	3.0E-02	6.9E-06	0.0002	1.3E-06	0.00004
		Semivolatile Organic Compounds												
		Benzoic acid	2.8E+03	ug/kg	--	3.1E-04	--	5.7E-05	--	4.0E+00	7.2E-04	0.0002	1.3E-04	0.00003
		Benzyl alcohol	2.6E+01	ug/kg	--	2.9E-06	--	5.3E-07	--	1.0E-01	6.7E-06	0.0001	1.2E-06	0.00001
		Dibenzofuran	8.1E-01	ug/kg	--	8.9E-08	--	1.6E-08	--	1.0E-03	2.1E-07	0.0002	3.8E-08	0.00004
		Hexachlorobenzene	5.8E-01	ug/kg	1.6E+00	6.4E-08	1.E-07	1.2E-08	2.E-08	8.0E-04	1.5E-07	0.0002	2.7E-08	0.00003
		Hexachlorobutadiene	9.3E-03	ug/kg	7.8E-02	1.0E-09	8.E-11	1.9E-10	1.E-11	1.0E-03	2.4E-09	0.000002	4.4E-10	0.0000004
		Nitrobenzene	3.2E+02	ug/kg	--	3.5E-05	--	6.5E-06	--	2.0E-03	8.2E-05	0.04	1.5E-05	0.008
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted[d]	1.2E+05	pg/g	2.0E+00	1.3E-05	3.E-05	2.4E-06	5.E-06	2.0E-05	3.0E-05	2	5.5E-06	0.3
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	5.1E-01	pg/g	1.3E+05	5.6E-11	7.E-06	1.0E-11	1.E-06	1.0E-09	1.3E-10	0.1	2.4E-11	0.02
		Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.5E-10	2.E-05	2.8E-11	4.E-06	1.0E-09	3.6E-10	0.4	6.6E-11	0.07
		Pesticides												
		Aldrin	2.3E-01	ug/kg	1.7E+01	2.5E-08	4.E-07	4.6E-09	8.E-08	3.0E-05	5.9E-08	0.002	1.1E-08	0.0004
		Dieldrin	5.9E-01	ug/kg	1.6E+01	6.5E-08	1.E-06	1.2E-08	2.E-07	5.0E-05	1.5E-07	0.003	2.8E-08	0.001
		gamma-Hexachlorocyclohexane	3.6E-02	ug/kg	1.1E+00	4.0E-09	4.E-09	7.3E-10	8.E-10	3.0E-04	9.3E-09	0.00003	1.7E-09	0.00001
		Heptachlor epoxide	4.9E-02	ug/kg	9.1E+00	5.4E-09	5.E-08	9.9E-10	9.E-09	1.3E-05	1.3E-08	0.001	2.3E-09	0.0002
		Total Chlordanes	3.0E+00	ug/kg	3.5E-01	3.3E-07	1.E-07	6.1E-08	2.E-08	5.0E-04	7.8E-07	0.002	1.4E-07	0.0003
		Total DDD	1.0E+01	ug/kg	2.4E-01	1.1E-06	3.E-07	2.1E-07	5.E-08	5.0E-04	2.6E-06	0.005	4.8E-07	0.001
		Total DDE	1.7E+01	ug/kg	3.4E-01	1.8E-06	6.E-07	3.3E-07	1.E-07	5.0E-04	4.2E-06	0.008	7.8E-07	0.002
		Total DDT	1.8E+00	ug/kg	3.4E-01	2.0E-07	7.E-08	3.6E-08	1.E-08	5.0E-04	4.6E-07	0.001	8.4E-08	0.0002
		Total Endosulfan	6.0E-01	ug/kg	--	6.6E-08	--	1.2E-08	--	6.0E-03	1.5E-07	0.00003	2.8E-08	0.000005
Exposure Point Total							8.E-05		1.E-05			2		0.4
UD	RM 2 East	**Metals**												
		Aluminum	4.8E+01	mg/kg	--	5.3E-03	--	9.8E-04	--	1.0E+00	1.2E-02	0.01	2.3E-03	0.002
		Antimony	2.0E-03	mg/kg	--	2.2E-07	--	4.0E-08	--	4.0E-04	5.1E-07	0.001	9.4E-08	0.0002
		Arsenic, inorganic	1.3E-01	mg/kg	1.5E+00	1.4E-05	2.E-05	2.5E-06	4.E-06	3.0E-04	3.2E-05	0.1	5.9E-06	0.02
		Cadmium	2.2E-01	mg/kg	--	2.4E-05	--	4.4E-06	--	1.0E-03	5.6E-05	0.06	1.0E-05	0.01
		Chromium	7.9E-01	mg/kg	--	8.7E-05	--	1.6E-05	--	1.5E+00	2.0E-04	0.0001	3.7E-05	0.00002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Copper	1.1E+01	mg/kg	--	1.2E-03	--	2.2E-04	--	4.0E-02	2.9E-03	0.07	5.2E-04	0.01
		Mercury	8.0E-03	mg/kg	--	8.8E-07	--	1.6E-07	--	1.0E-04	2.1E-06	0.02	3.8E-07	0.004
		Nickel	2.9E-01	mg/kg	--	3.2E-05	--	5.9E-06	--	2.0E-02	7.5E-05	0.004	1.4E-05	0.001
		Selenium	1.7E-01	mg/kg	--	1.9E-05	--	3.5E-06	--	5.0E-03	4.5E-05	0.009	8.2E-06	0.002
		Silver	5.2E-02	mg/kg	--	5.7E-06	--	1.1E-06	--	5.0E-03	1.3E-05	0.003	2.5E-06	0.0005
		Zinc	4.0E+01	mg/kg	--	4.4E-03	--	8.1E-04	--	3.0E-01	1.0E-02	0.03	1.9E-03	0.006
		Butyltins												
		Butyltin ion	4.5E+00	ug/kg	--	5.0E-07	--	9.1E-08	--	3.0E-04	1.2E-06	0.004	2.1E-07	0.001
		Dibutyltin ion	5.4E+00	ug/kg	--	6.0E-07	--	1.1E-07	--	3.0E-04	1.4E-06	0.005	2.5E-07	0.001
		Tributyltin ion	6.7E+00	ug/kg	--	7.4E-07	--	1.4E-07	--	3.0E-04	1.7E-06	0.006	3.2E-07	0.001
		PAHs												
		2-Methylnaphthalene	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	4.0E-03	3.9E-07	0.0001	7.1E-08	0.00002
		Acenaphthene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	6.0E-02	3.3E-07	0.00001	6.1E-08	0.000001
		Acenaphthylene	2.0E+00	ug/kg	--	2.2E-07	--	4.0E-08	--	6.0E-02	5.1E-07	0.00001	9.4E-08	0.000002
		Anthracene	7.0E+00	ug/kg	--	7.7E-07	--	1.4E-07	--	3.0E-01	1.8E-06	0.00001	3.3E-07	0.000001
		Benzo(g,h,i)perylene	3.2E+00	ug/kg	--	3.5E-07	--	6.5E-08	--	3.0E-02	8.2E-07	0.00003	1.5E-07	0.00001
		Benzo(k)fluoranthene	5.4E+00	ug/kg	7.3E-02	6.0E-07	4.E-08	1.1E-07	8.E-09	--	1.4E-06	--	2.5E-07	--
		Chrysene	5.4E+01	ug/kg	7.3E-03	6.0E-06	4.E-08	1.1E-06	8.E-09	--	1.4E-05	--	2.5E-06	--
		Fluoranthene	8.3E+01	ug/kg	--	9.1E-06	--	1.7E-06	--	4.0E-02	2.1E-05	0.001	3.9E-06	0.0001
		Fluorene	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	4.0E-02	6.2E-07	0.00002	1.1E-07	0.000003
		Indeno(1,2,3-cd)pyrene	2.0E+00	ug/kg	7.3E-01	2.2E-07	2.E-07	4.0E-08	3.E-08	--	5.1E-07	--	9.4E-08	--
		Phenanthrene	2.1E+01	ug/kg	--	2.3E-06	--	4.2E-07	--	3.0E-02	5.4E-06	0.0002	9.9E-07	0.00003
		Pyrene	1.0E+02	ug/kg	--	1.1E-05	--	2.0E-06	--	3.0E-02	2.6E-05	0.001	4.7E-06	0.0002
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.1E+01	ug/kg	--	1.2E-06	--	2.2E-07	--	1.0E-01	2.8E-06	0.00003	5.2E-07	0.00001
		Hexachlorobenzene	6.3E-01	ug/kg	1.6E+00	6.9E-08	1.E-07	1.3E-08	2.E-08	8.0E-04	1.6E-07	0.0002	3.0E-08	0.00004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	3.0E+05	pg/g	2.0E+00	3.3E-05	7.E-05	6.0E-06	1.E-05	2.0E-05	7.7E-05	4	1.4E-05	0.7
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	5.9E-01	pg/g	1.3E+05	6.5E-11	9.E-06	1.2E-11	2.E-06	1.0E-09	1.5E-10	0.2	2.8E-11	0.03
		Total PCB TEQ	3.3E+00	pg/g	1.3E+05	3.6E-10	5.E-05	6.6E-11	9.E-06	1.0E-09	8.4E-10	0.8	1.5E-10	0.2

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Pesticides												
		Aldrin	2.2E-01	ug/kg	1.7E+01	2.5E-08	4.E-07	4.5E-09	8.E-08	3.0E-05	5.7E-08	0.002	1.1E-08	0.0004
		Dieldrin	9.4E-01	ug/kg	1.6E+01	1.0E-07	2.E-06	1.9E-08	3.E-07	5.0E-05	2.4E-07	0.005	4.4E-08	0.001
		Endrin	8.2E-03	ug/kg	--	9.0E-10	--	1.6E-10	--	3.0E-04	2.1E-09	0.00001	3.8E-10	0.000001
		gamma-Hexachlorocyclohexane	6.6E-02	ug/kg	1.1E+00	7.3E-09	8.E-09	1.3E-09	1.E-09	3.0E-04	1.7E-08	0.0001	3.1E-09	0.00001
		Heptachlor	1.2E-02	ug/kg	4.5E+00	1.3E-09	6.E-09	2.4E-10	1.E-09	5.0E-04	3.1E-09	0.00001	5.7E-10	0.000001
		Heptachlor epoxide	6.7E-02	ug/kg	9.1E+00	7.4E-09	7.E-08	1.3E-09	1.E-08	1.3E-05	1.7E-08	0.001	3.1E-09	0.0002
		Total Chlordanes	3.5E+00	ug/kg	3.5E-01	3.9E-07	1.E-07	7.1E-08	2.E-08	5.0E-04	9.0E-07	0.002	1.7E-07	0.0003
		Total DDD	1.2E+01	ug/kg	2.4E-01	1.3E-06	3.E-07	2.3E-07	6.E-08	5.0E-04	3.0E-06	0.006	5.5E-07	0.001
		Total DDE	1.5E+01	ug/kg	3.4E-01	1.6E-06	5.E-07	2.9E-07	1.E-07	5.0E-04	3.7E-06	0.007	6.9E-07	0.001
		Total DDT	2.2E+00	ug/kg	3.4E-01	2.5E-07	8.E-08	4.5E-08	2.E-08	5.0E-04	5.7E-07	0.001	1.0E-07	0.0002
		Total Endosulfan	1.1E+00	ug/kg	--	1.2E-07	--	2.3E-08	--	6.0E-03	2.9E-07	0.00005	5.3E-08	0.00001
	Exposure Point Total						2.E-04		3.E-05			5		1
UD	RM 2 West	**Metals**												
		Aluminum	6.5E+01	mg/kg	--	7.1E-03	--	1.3E-03	--	1.0E+00	1.7E-02	0.02	3.1E-03	0.003
		Arsenic, inorganic	1.0E-01	mg/kg	1.5E+00	1.1E-05	2.E-05	2.1E-06	3.E-06	3.0E-04	2.6E-05	0.09	4.9E-06	0.02
		Cadmium	1.0E-01	mg/kg	--	1.1E-05	--	2.1E-06	--	1.0E-03	2.7E-05	0.03	4.9E-06	0.005
		Chromium	6.2E-01	mg/kg	--	6.8E-05	--	1.3E-05	--	1.5E+00	1.6E-04	0.0001	2.9E-05	0.00002
		Copper	9.4E+00	mg/kg	--	1.0E-03	--	1.9E-04	--	4.0E-02	2.4E-03	0.06	4.4E-04	0.01
		Manganese	3.9E+00	mg/kg	--	4.3E-04	--	7.9E-05	--	1.4E-01	1.0E-03	0.007	1.8E-04	0.001
		Mercury	1.0E-02	mg/kg	--	1.1E-06	--	2.1E-07	--	1.0E-04	2.7E-06	0.03	4.9E-07	0.005
		Nickel	2.6E-01	mg/kg	--	2.8E-05	--	5.2E-06	--	2.0E-02	6.6E-05	0.003	1.2E-05	0.001
		Selenium	1.9E-01	mg/kg	--	2.1E-05	--	3.8E-06	--	5.0E-03	4.9E-05	0.01	9.0E-06	0.002
		Silver	5.0E-02	mg/kg	--	5.5E-06	--	1.0E-06	--	5.0E-03	1.3E-05	0.003	2.4E-06	0.0005
		Zinc	3.1E+01	mg/kg	--	3.4E-03	--	6.2E-04	--	3.0E-01	7.8E-03	0.03	1.4E-03	0.005
		Butyltins												
		Butyltin ion	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	3.0E-04	3.6E-07	0.001	6.6E-08	0.0002
		Dibutyltin ion	3.7E+00	ug/kg	--	4.1E-07	--	7.5E-08	--	3.0E-04	9.5E-07	0.003	1.7E-07	0.001
		Tributyltin ion	4.7E+00	ug/kg	--	5.2E-07	--	9.5E-08	--	3.0E-04	1.2E-06	0.004	2.2E-07	0.001
		PAHs												
		1-Methylnaphthalene	1.2E+00	ug/kg	2.9E-02	1.3E-07	4.E-09	2.4E-08	7.E-10	7.0E-02	3.1E-07	0.000004	5.7E-08	0.000001
		2-Methylnaphthalene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	4.0E-03	4.6E-07	0.0001	8.5E-08	0.00002
		Acenaphthene	3.3E+00	ug/kg	--	3.6E-07	--	6.7E-08	--	6.0E-02	8.5E-07	0.00001	1.6E-07	0.000003
		Acenaphthylene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	6.0E-02	4.6E-07	0.00001	8.5E-08	0.000001
		Anthracene	1.7E+01	ug/kg	--	1.9E-06	--	3.4E-07	--	3.0E-01	4.4E-06	0.00001	8.0E-07	0.000003

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Benzo(a)anthracene	6.0E+01	ug/kg	7.3E-01	6.6E-06	5.E-06	1.2E-06	9.E-07	--	1.5E-05	--	2.8E-06	--
		Benzo(a)pyrene	1.3E+01	ug/kg	7.3E+00	1.4E-06	1.E-05	2.6E-07	2.E-06	--	3.3E-06	--	6.1E-07	--
		Benzo(b)fluoranthene	1.5E+01	ug/kg	7.3E-01	1.7E-06	1.E-06	3.0E-07	2.E-07	--	3.9E-06	--	7.1E-07	--
		Benzo(e)pyrene	3.5E+00	ug/kg	--	3.9E-07	--	7.1E-08	--	3.0E-02	9.0E-07	0.00003	1.7E-07	0.00001
		Benzo(g,h,i)perylene	6.1E+00	ug/kg	--	6.7E-07	--	1.2E-07	--	3.0E-02	1.6E-06	0.00005	2.9E-07	0.00001
		Benzo(k)fluoranthene	7.7E+00	ug/kg	7.3E-02	8.5E-07	6.E-08	1.6E-07	1.E-08	--	2.0E-06	--	3.6E-07	--
		Chrysene	6.1E+01	ug/kg	7.3E-03	6.7E-06	5.E-08	1.2E-06	9.E-09	--	1.6E-05	--	2.9E-06	--
		Dibenzothiophene	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	4.0E-02	3.6E-07	0.000009	6.6E-08	0.000002
		Fluoranthene	1.5E+02	ug/kg	--	1.7E-05	--	3.0E-06	--	4.0E-02	3.9E-05	0.001	7.1E-06	0.0002
		Fluorene	3.9E+00	ug/kg	--	4.3E-07	--	7.9E-08	--	4.0E-02	1.0E-06	0.00003	1.8E-07	0.000005
		Indeno(1,2,3-cd)pyrene	3.9E+00	ug/kg	7.3E-01	4.3E-07	3.E-07	7.9E-08	6.E-08	--	1.0E-06	--	1.8E-07	--
		Perylene	6.0E-01	ug/kg	--	6.6E-08	--	1.2E-08	--	3.0E-02	1.5E-07	0.00001	2.8E-08	0.000001
		Phenanthrene	5.9E+01	ug/kg	--	6.5E-06	--	1.2E-06	--	3.0E-02	1.5E-05	0.001	2.8E-06	0.00009
		Pyrene	1.5E+02	ug/kg	--	1.7E-05	--	3.0E-06	--	3.0E-02	3.9E-05	0.001	7.1E-06	0.0002
		Semivolatile Organic Compounds												
		Benzoic acid	1.9E+03	ug/kg	--	2.1E-04	--	3.8E-05	--	4.0E+00	4.9E-04	0.0001	9.0E-05	0.00002
		Benzyl alcohol	1.2E+01	ug/kg	--	1.3E-06	--	2.4E-07	--	1.0E-01	3.1E-06	0.00003	5.7E-07	0.00001
		Dibenzofuran	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	1.0E-03	2.8E-07	0.0003	5.2E-08	0.0001
		Hexachlorobenzene	6.1E-01	ug/kg	1.6E+00	6.7E-08	1.E-07	1.2E-08	2.E-08	8.0E-04	1.6E-07	0.0002	2.9E-08	0.00004
		Nitrobenzene	2.8E+02	ug/kg	--	3.1E-05	--	5.7E-06	--	2.0E-03	7.2E-05	0.04	1.3E-05	0.007
		Phenols												
		4-Nitrophenol	1.9E+01	ug/kg	--	2.1E-06	--	3.8E-07	--	5.0E-03	4.9E-06	0.001	9.0E-07	0.0002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	7.8E+04	pg/g	2.0E+00	8.6E-06	2.E-05	1.6E-06	3.E-06	2.0E-05	2.0E-05	1	3.7E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	5.6E-01	pg/g	1.3E+05	6.2E-11	8.E-06	1.1E-11	1.E-06	1.0E-09	1.4E-10	0.1	2.6E-11	0.03
		Total PCB TEQ	9.0E-01	pg/g	1.3E+05	9.9E-11	1.E-05	1.8E-11	2.E-06	1.0E-09	2.3E-10	0.2	4.2E-11	0.04
		Pesticides												
		Aldrin	2.9E-01	ug/kg	1.7E+01	3.2E-08	5.E-07	5.9E-09	1.E-07	3.0E-05	7.5E-08	0.002	1.4E-08	0.0005
		Dieldrin	6.5E-01	ug/kg	1.6E+01	7.2E-08	1.E-06	1.3E-08	2.E-07	5.0E-05	1.7E-07	0.003	3.1E-08	0.001
		Endrin	5.7E-03	ug/kg	--	6.3E-10	--	1.1E-10	--	3.0E-04	1.5E-09	0.000005	2.7E-10	0.000001
		gamma-Hexachlorocyclohexane	5.5E-02	ug/kg	1.1E+00	6.0E-09	7.E-09	1.1E-09	1.E-09	3.0E-04	1.4E-08	0.00005	2.6E-09	0.00001
		Heptachlor	7.3E-03	ug/kg	4.5E+00	8.0E-10	4.E-09	1.5E-10	7.E-10	5.0E-04	1.9E-09	0.000004	3.4E-10	0.000001
		Heptachlor epoxide	5.0E-02	ug/kg	9.1E+00	5.5E-09	5.E-08	1.0E-09	9.E-09	1.3E-05	1.3E-08	0.001	2.4E-09	0.0002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Total Chlordanes	3.3E+00	ug/kg	3.5E-01	3.6E-07	1.E-07	6.6E-08	2.E-08	5.0E-04	8.4E-07	0.002	1.5E-07	0.0003
		Total DDD	1.2E+01	ug/kg	2.4E-01	1.3E-06	3.E-07	2.4E-07	6.E-08	5.0E-04	3.0E-06	0.006	5.6E-07	0.001
		Total DDE	1.6E+01	ug/kg	3.4E-01	1.8E-06	6.E-07	3.3E-07	1.E-07	5.0E-04	4.2E-06	0.008	7.7E-07	0.002
		Total DDT	1.9E+00	ug/kg	3.4E-01	2.1E-07	7.E-08	3.9E-08	1.E-08	5.0E-04	4.9E-07	0.001	9.0E-08	0.0002
		Total Endosulfan	7.2E-01	ug/kg	--	7.9E-08	--	1.4E-08	--	6.0E-03	1.8E-07	0.00003	3.4E-08	0.00001
	Exposure Point Total						8.E-05		1.E-05			2		0.3
UD	RM 3 East	**Metals**												
		Aluminum	8.0E+01	mg/kg	--	8.8E-03	--	1.6E-03	--	1.0E+00	2.1E-02	0.02	3.8E-03	0.004
		Antimony	2.8E-03	mg/kg	--	3.0E-07	--	5.6E-08	--	4.0E-04	7.1E-07	0.002	1.3E-07	0.0003
		Arsenic, inorganic	9.6E-02	mg/kg	1.5E+00	1.1E-05	2.E-05	1.9E-06	3.E-06	3.0E-04	2.5E-05	0.08	4.5E-06	0.02
		Cadmium	1.7E-01	mg/kg	--	1.9E-05	--	3.4E-06	--	1.0E-03	4.4E-05	0.04	8.0E-06	0.008
		Chromium	1.1E+00	mg/kg	--	1.2E-04	--	2.1E-05	--	1.5E+00	2.7E-04	0.0002	5.0E-05	0.00003
		Copper	1.0E+01	mg/kg	--	1.1E-03	--	2.1E-04	--	4.0E-02	2.7E-03	0.07	4.9E-04	0.01
		Mercury	8.0E-03	mg/kg	--	8.8E-07	--	1.6E-07	--	1.0E-04	2.1E-06	0.02	3.8E-07	0.004
		Nickel	3.1E-01	mg/kg	--	3.4E-05	--	6.3E-06	--	2.0E-02	8.0E-05	0.004	1.5E-05	0.001
		Selenium	1.2E-01	mg/kg	--	1.4E-05	--	2.5E-06	--	5.0E-03	3.2E-05	0.006	5.8E-06	0.001
		Silver	5.6E-02	mg/kg	--	6.1E-06	--	1.1E-06	--	5.0E-03	1.4E-05	0.003	2.6E-06	0.001
		Zinc	4.8E+01	mg/kg	--	5.3E-03	--	9.7E-04	--	3.0E-01	1.2E-02	0.04	2.3E-03	0.008
		Butyltins												
		Butyltin ion	3.7E+00	ug/kg	--	4.0E-07	--	7.4E-08	--	3.0E-04	9.4E-07	0.003	1.7E-07	0.001
		Dibutyltin ion	5.4E+01	ug/kg	--	6.0E-06	--	1.1E-06	--	3.0E-04	1.4E-05	0.05	2.5E-06	0.008
		Tributyltin ion	6.3E+01	ug/kg	--	6.9E-06	--	1.3E-06	--	3.0E-04	1.6E-05	0.05	3.0E-06	0.01
		PAHs												
		2-Methylnaphthalene	2.0E+00	ug/kg	--	2.2E-07	--	4.0E-08	--	4.0E-03	5.1E-07	0.0001	9.4E-08	0.00002
		Acenaphthene	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	6.0E-02	4.4E-07	0.00001	8.0E-08	0.000001
		Acenaphthylene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	6.0E-02	4.6E-07	0.00001	8.5E-08	0.000001
		Anthracene	1.0E+01	ug/kg	--	1.1E-06	--	2.0E-07	--	3.0E-01	2.6E-06	0.00001	4.7E-07	0.000002
		Benzo(a)anthracene	6.7E+01	ug/kg	7.3E-01	7.4E-06	5.E-06	1.4E-06	1.E-06	--	1.7E-05	--	3.2E-06	--
		Benzo(a)pyrene	1.6E+01	ug/kg	7.3E+00	1.8E-06	1.E-05	3.2E-07	2.E-06	--	4.1E-06	--	7.5E-07	--
		Benzo(b)fluoranthene	3.9E+01	ug/kg	7.3E-01	4.2E-06	3.E-06	7.8E-07	6.E-07	--	9.9E-06	--	1.8E-06	--
		Benzo(g,h,i)perylene	9.6E+00	ug/kg	--	1.1E-06	--	1.9E-07	--	3.0E-02	2.5E-06	0.0001	4.5E-07	0.00002
		Benzo(k)fluoranthene	1.5E+01	ug/kg	7.3E-02	1.7E-06	1.E-07	3.0E-07	2.E-08	--	3.9E-06	--	7.1E-07	--
		Chrysene	1.1E+02	ug/kg	7.3E-03	1.2E-05	9.E-08	2.2E-06	2.E-08	--	2.8E-05	--	5.2E-06	--
		Dibenzo(a,h)anthracene	2.8E+00	ug/kg	7.3E+00	3.1E-07	2.E-06	5.7E-08	4.E-07	--	7.2E-07	--	1.3E-07	--
		Fluoranthene	9.3E+01	ug/kg	--	1.0E-05	--	1.9E-06	--	4.0E-02	2.4E-05	0.001	4.4E-06	0.0001
		Fluorene	4.7E+00	ug/kg	--	5.2E-07	--	9.5E-08	--	4.0E-02	1.2E-06	0.00003	2.2E-07	0.00001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Indeno(1,2,3-cd)pyrene	5.7E+00	ug/kg	7.3E-01	6.3E-07	5.E-07	1.2E-07	8.E-08	--	1.5E-06	--	2.7E-07	--
		Phenanthrene	3.0E+01	ug/kg	--	3.3E-06	--	6.1E-07	--	3.0E-02	7.7E-06	0.0003	1.4E-06	0.00005
		Pyrene	1.5E+02	ug/kg	--	1.6E-05	--	2.9E-06	--	3.0E-02	3.7E-05	0.001	6.8E-06	0.0002
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.7E+01	ug/kg	--	1.9E-06	--	3.4E-07	--	1.0E-01	4.4E-06	0.00004	8.0E-07	0.00001
		Dibenzofuran	2.1E+00	ug/kg	--	2.3E-07	--	4.2E-08	--	1.0E-03	5.4E-07	0.001	9.9E-08	0.0001
		Hexachlorobenzene	5.6E-01	ug/kg	1.6E+00	6.2E-08	1.E-07	1.1E-08	2.E-08	8.0E-04	1.5E-07	0.0002	2.7E-08	0.00003
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.7E+05	pg/g	2.0E+00	5.1E-05	1.E-04	9.4E-06	2.E-05	2.0E-05	1.2E-04	6	2.2E-05	1
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	8.4E-01	pg/g	1.3E+05	9.2E-11	1.E-05	1.7E-11	2.E-06	1.0E-09	2.1E-10	0.2	3.9E-11	0.04
		Total PCB TEQ	5.4E+00	pg/g	1.3E+05	6.0E-10	8.E-05	1.1E-10	1.E-05	1.0E-09	1.4E-09	1	2.6E-10	0.3
		Pesticides												
		Aldrin	1.9E-01	ug/kg	1.7E+01	2.1E-08	4.E-07	3.8E-09	6.E-08	3.0E-05	4.8E-08	0.002	8.8E-09	0.0003
		alpha-Hexachlorocyclohexane	5.7E-03	ug/kg	6.3E+00	6.3E-10	4.E-09	1.1E-10	7.E-10	8.0E-03	1.5E-09	0.0000002	2.7E-10	0.00000003
		Dieldrin	8.9E-01	ug/kg	1.6E+01	9.9E-08	2.E-06	1.8E-08	3.E-07	5.0E-05	2.3E-07	0.005	4.2E-08	0.001
		Endrin	1.0E-02	ug/kg	--	1.1E-09	--	2.0E-10	--	3.0E-04	2.6E-09	0.00001	4.8E-10	0.000002
		Endrin ketone	3.0E-03	ug/kg	--	3.4E-10	--	6.1E-11	--	3.0E-04	7.8E-10	0.000003	1.4E-10	0.0000005
		gamma-Hexachlorocyclohexane	5.4E-02	ug/kg	1.1E+00	5.9E-09	6.E-09	1.1E-09	1.E-09	3.0E-04	1.4E-08	0.00005	2.5E-09	0.00001
		Heptachlor	2.0E-02	ug/kg	4.5E+00	2.1E-09	1.E-08	3.9E-10	2.E-09	5.0E-04	5.0E-09	0.00001	9.2E-10	0.000002
		Heptachlor epoxide	6.1E-02	ug/kg	9.1E+00	6.7E-09	6.E-08	1.2E-09	1.E-08	1.3E-05	1.6E-08	0.001	2.9E-09	0.0002
		Total Chlordanes	3.1E+00	ug/kg	3.5E-01	3.5E-07	1.E-07	6.4E-08	2.E-08	5.0E-04	8.1E-07	0.002	1.5E-07	0.0003
		Total DDD	1.1E+01	ug/kg	2.4E-01	1.3E-06	3.E-07	2.3E-07	6.E-08	5.0E-04	2.9E-06	0.006	5.4E-07	0.001
		Total DDE	1.2E+01	ug/kg	3.4E-01	1.4E-06	5.E-07	2.5E-07	8.E-08	5.0E-04	3.2E-06	0.006	5.8E-07	0.001
		Total DDT	3.4E+00	ug/kg	3.4E-01	3.7E-07	1.E-07	6.9E-08	2.E-08	5.0E-04	8.7E-07	0.002	1.6E-07	0.0003
		Total Endosulfan	9.3E-01	ug/kg	--	1.0E-07	--	1.9E-08	--	6.0E-03	2.4E-07	0.00004	4.4E-08	0.00001
	Exposure Point Total						2.E-04		4.E-05			8		1
UD	RM 3 West	**Metals**												
		Aluminum	2.0E+02	mg/kg	--	2.2E-02	--	4.0E-03	--	1.0E+00	5.1E-02	0.05	9.4E-03	0.009
		Arsenic, inorganic	8.9E-02	mg/kg	1.5E+00	9.8E-06	1.E-05	1.8E-06	3.E-06	3.0E-04	2.3E-05	0.08	4.2E-06	0.01
		Cadmium	6.1E-02	mg/kg	--	6.7E-06	--	1.2E-06	--	1.0E-03	1.6E-05	0.02	2.9E-06	0.003
		Chromium	6.0E-01	mg/kg	--	6.6E-05	--	1.2E-05	--	1.5E+00	1.5E-04	0.0001	2.8E-05	0.00002
		Copper	7.7E+00	mg/kg	--	8.5E-04	--	1.6E-04	--	4.0E-02	2.0E-03	0.05	3.6E-04	0.009

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Manganese	7.8E+00	mg/kg	--	8.6E-04	--	1.6E-04	--	1.4E-01	2.0E-03	0.01	3.7E-04	0.003
		Mercury	1.6E-02	mg/kg	--	1.8E-06	--	3.3E-07	--	1.0E-04	4.2E-06	0.04	7.7E-07	0.008
		Nickel	2.5E-01	mg/kg	--	2.8E-05	--	5.1E-06	--	2.0E-02	6.5E-05	0.003	1.2E-05	0.001
		Selenium	2.2E-01	mg/kg	--	2.4E-05	--	4.4E-06	--	5.0E-03	5.7E-05	0.01	1.0E-05	0.002
		Silver	3.5E-02	mg/kg	--	3.9E-06	--	7.1E-07	--	5.0E-03	9.0E-06	0.002	1.7E-06	0.0003
		Zinc	3.3E+01	mg/kg	--	3.6E-03	--	6.7E-04	--	3.0E-01	8.5E-03	0.03	1.6E-03	0.005
		PAHs												
		1-Methylnaphthalene	1.5E+00	ug/kg	2.9E-02	1.7E-07	5.E-09	3.0E-08	9.E-10	7.0E-02	3.9E-07	0.00001	7.1E-08	0.000001
		2-Methylnaphthalene	2.0E+00	ug/kg	--	2.2E-07	--	4.0E-08	--	4.0E-03	5.1E-07	0.0001	9.4E-08	0.00002
		Acenaphthene	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	6.0E-02	3.9E-07	0.00001	7.1E-08	0.000001
		Acenaphthylene	5.5E-01	ug/kg	--	6.1E-08	--	1.1E-08	--	6.0E-02	1.4E-07	0.000002	2.6E-08	0.0000004
		Anthracene	3.2E+00	ug/kg	--	3.5E-07	--	6.5E-08	--	3.0E-01	8.2E-07	0.000003	1.5E-07	0.000001
		Benzo(a)anthracene	1.1E+01	ug/kg	7.3E-01	1.2E-06	9.E-07	2.2E-07	2.E-07	--	2.8E-06	--	5.2E-07	--
		Benzo(a)pyrene	1.5E+00	ug/kg	7.3E+00	1.7E-07	1.E-06	3.0E-08	2.E-07	--	3.9E-07	--	7.1E-08	--
		Benzo(b)fluoranthene	2.5E+00	ug/kg	7.3E-01	2.8E-07	2.E-07	5.1E-08	4.E-08	--	6.4E-07	--	1.2E-07	--
		Benzo(e)pyrene	6.0E+00	ug/kg	--	6.6E-07	--	1.2E-07	--	3.0E-02	1.5E-06	0.0001	2.8E-07	0.00001
		Benzo(g,h,i)perylene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	3.0E-02	4.6E-07	0.00002	8.5E-08	0.000003
		Benzo(k)fluoranthene	9.6E-01	ug/kg	7.3E-02	1.1E-07	8.E-09	1.9E-08	1.E-09	--	2.5E-07	--	4.5E-08	--
		Chrysene	1.8E+01	ug/kg	7.3E-03	2.0E-06	1.E-08	3.6E-07	3.E-09	--	4.6E-06	--	8.5E-07	--
		Dibenzothiophene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	4.0E-02	3.3E-07	0.00001	6.1E-08	0.000002
		Fluoranthene	4.2E+01	ug/kg	--	4.6E-06	--	8.5E-07	--	4.0E-02	1.1E-05	0.0003	2.0E-06	0.00005
		Fluorene	2.5E+00	ug/kg	--	2.8E-07	--	5.1E-08	--	4.0E-02	6.4E-07	0.00002	1.2E-07	0.000003
		Indeno(1,2,3-cd)pyrene	9.0E-01	ug/kg	7.3E-01	9.9E-08	7.E-08	1.8E-08	1.E-08	--	2.3E-07	--	4.2E-08	--
		Perylene	5.9E-01	ug/kg	--	6.5E-08	--	1.2E-08	--	3.0E-02	1.5E-07	0.00001	2.8E-08	0.000001
		Phenanthrene	1.4E+01	ug/kg	--	1.5E-06	--	2.8E-07	--	3.0E-02	3.6E-06	0.0001	6.6E-07	0.00002
		Pyrene	4.7E+01	ug/kg	--	5.2E-06	--	9.5E-07	--	3.0E-02	1.2E-05	0.0004	2.2E-06	0.0001
		Phthalates												
		Bis(2-ethylhexyl) phthalate	9.9E+01	ug/kg	1.4E-02	1.1E-05	2.E-07	2.0E-06	3.E-08	2.0E-02	2.5E-05	0.001	4.7E-06	0.0002
		Semivolatile Organic Compounds												
		Benzoic acid	5.9E+03	ug/kg	--	6.5E-04	--	1.2E-04	--	4.0E+00	1.5E-03	0.0004	2.8E-04	0.0001
		Benzyl alcohol	2.9E+01	ug/kg	--	3.2E-06	--	5.9E-07	--	1.0E-01	7.5E-06	0.0001	1.4E-06	0.00001
		Bis(2-chloroethoxy) methane	4.6E+01	ug/kg	--	5.1E-06	--	9.3E-07	--	3.0E-03	1.2E-05	0.004	2.2E-06	0.001
		Dibenzofuran	1.0E+00	ug/kg	--	1.1E-07	--	2.0E-08	--	1.0E-03	2.6E-07	0.0003	4.7E-08	0.00005
		Hexachlorobenzene	7.9E-01	ug/kg	1.6E+00	8.7E-08	1.E-07	1.6E-08	3.E-08	8.0E-04	2.0E-07	0.0003	3.7E-08	0.00005
		Nitrobenzene	5.2E+02	ug/kg	--	5.7E-05	--	1.1E-05	--	2.0E-03	1.3E-04	0.07	2.5E-05	0.01

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate 18 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 18 g/day: Cancer Risk	Cancer Risk: Consumption Rate 3.3 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate 18 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 18 g/day: Noncancer Hazard Quotient	Noncancer: Consumption Rate 3.3 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 3.3 g/day: Noncancer Hazard Quotient
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	9.4E+04	pg/g	2.0E+00	1.0E-05	2.E-05	1.9E-06	4.E-06	2.0E-05	2.4E-05	1	4.4E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	8.6E-01	pg/g	1.3E+05	9.5E-11	1.E-05	1.7E-11	2.E-06	1.0E-09	2.2E-10	0.2	4.1E-11	0.04
		Total PCB TEQ	9.8E-01	pg/g	1.3E+05	1.1E-10	1.E-05	2.0E-11	3.E-06	1.0E-09	2.5E-10	0.3	4.6E-11	0.05
		Pesticides												
		Aldrin	3.8E-01	ug/kg	1.7E+01	4.2E-08	7.E-07	7.6E-09	1.E-07	3.0E-05	9.7E-08	0.003	1.8E-08	0.001
		Dieldrin	6.7E-01	ug/kg	1.6E+01	7.3E-08	1.E-06	1.3E-08	2.E-07	5.0E-05	1.7E-07	0.003	3.1E-08	0.001
		Total Chlordanes	3.8E+00	ug/kg	3.5E-01	4.1E-07	1.E-07	7.6E-08	3.E-08	5.0E-04	9.7E-07	0.002	1.8E-07	0.0004
		Total DDD	1.7E+01	ug/kg	2.4E-01	1.9E-06	5.E-07	3.5E-07	8.E-08	5.0E-04	4.5E-06	0.009	8.2E-07	0.002
		Total DDE	1.7E+01	ug/kg	3.4E-01	1.9E-06	6.E-07	3.5E-07	1.E-07	5.0E-04	4.4E-06	0.009	8.1E-07	0.002
		Total DDT	3.0E+00	ug/kg	3.4E-01	3.3E-07	1.E-07	6.1E-08	2.E-08	5.0E-04	7.7E-07	0.002	1.4E-07	0.0003
		Total Endosulfan	6.9E-01	ug/kg	--	7.6E-08	--	1.4E-08	--	6.0E-03	1.8E-07	0.00003	3.3E-08	0.00001
	Exposure Point Total						7.E-05		1.E-05			2		0.4
UD	RM 4 East	**Metals**												
		Aluminum	7.3E+01	mg/kg	--	8.1E-03	--	1.5E-03	--	1.0E+00	1.9E-02	0.02	3.5E-03	0.003
		Antimony	2.0E-03	mg/kg	--	2.2E-07	--	4.0E-08	--	4.0E-04	5.1E-07	0.001	9.4E-08	0.0002
		Arsenic, inorganic	9.5E-02	mg/kg	1.5E+00	1.0E-05	2.E-05	1.9E-06	3.E-06	3.0E-04	2.4E-05	0.08	4.5E-06	0.01
		Cadmium	1.5E-01	mg/kg	--	1.7E-05	--	3.1E-06	--	1.0E-03	4.0E-05	0.04	7.3E-06	0.007
		Chromium	7.3E-01	mg/kg	--	8.0E-05	--	1.5E-05	--	1.5E+00	1.9E-04	0.0001	3.4E-05	0.00002
		Copper	1.1E+01	mg/kg	--	1.2E-03	--	2.1E-04	--	4.0E-02	2.7E-03	0.07	5.0E-04	0.01
		Mercury	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-04	2.8E-06	0.03	5.2E-07	0.005
		Nickel	4.6E-01	mg/kg	--	5.1E-05	--	9.4E-06	--	2.0E-02	1.2E-04	0.006	2.2E-05	0.001
		Selenium	9.8E-02	mg/kg	--	1.1E-05	--	2.0E-06	--	5.0E-03	2.5E-05	0.005	4.6E-06	0.001
		Silver	5.8E-02	mg/kg	--	6.3E-06	--	1.2E-06	--	5.0E-03	1.5E-05	0.003	2.7E-06	0.001
		Zinc	3.4E+01	mg/kg	--	3.7E-03	--	6.8E-04	--	3.0E-01	8.6E-03	0.03	1.6E-03	0.005
		Butyltins												
		Butyltin ion	5.7E+00	ug/kg	--	6.3E-07	--	1.2E-07	--	3.0E-04	1.5E-06	0.005	2.7E-07	0.001
		Dibutyltin ion	5.9E+00	ug/kg	--	6.5E-07	--	1.2E-07	--	3.0E-04	1.5E-06	0.005	2.8E-07	0.001
		Tributyltin ion	8.7E+00	ug/kg	--	9.6E-07	--	1.8E-07	--	3.0E-04	2.2E-06	0.007	4.1E-07	0.001
		PAHs												
		2-Methylnaphthalene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	4.0E-03	4.6E-07	0.0001	8.5E-08	0.00002
		Acenaphthene	3.0E+00	ug/kg	--	3.3E-07	--	6.1E-08	--	6.0E-02	7.7E-07	0.00001	1.4E-07	0.000002
		Acenaphthylene	1.9E+00	ug/kg	--	2.1E-07	--	3.8E-08	--	6.0E-02	4.9E-07	0.00001	9.0E-08	0.000001
		Anthracene	8.9E+00	ug/kg	--	9.8E-07	--	1.8E-07	--	3.0E-01	2.3E-06	0.00001	4.2E-07	0.000001
		Benzo(a)anthracene	4.4E+01	ug/kg	7.3E-01	4.8E-06	4.E-06	8.9E-07	6.E-07	--	1.1E-05	--	2.1E-06	--

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Benzo(a)pyrene	9.8E+00	ug/kg	7.3E+00	1.1E-06	8.E-06	2.0E-07	1.E-06	--	2.5E-06	--	4.6E-07	--
		Benzo(b)fluoranthene	2.0E+01	ug/kg	7.3E-01	2.2E-06	2.E-06	4.0E-07	3.E-07	--	5.1E-06	--	9.4E-07	--
		Benzo(g,h,i)perylene	4.1E+00	ug/kg	--	4.5E-07	--	8.3E-08	--	3.0E-02	1.1E-06	0.00004	1.9E-07	0.00001
		Benzo(k)fluoranthene	8.7E+00	ug/kg	7.3E-02	9.6E-07	7.E-08	1.8E-07	1.E-08	--	2.2E-06	--	4.1E-07	--
		Chrysene	5.4E+01	ug/kg	7.3E-03	6.0E-06	4.E-08	1.1E-06	8.E-09	--	1.4E-05	--	2.5E-06	--
		Dibenzo(a,h)anthracene	1.3E+00	ug/kg	7.3E+00	1.4E-07	1.E-06	2.6E-08	2.E-07	--	3.3E-07	--	6.1E-08	--
		Fluoranthene	6.7E+01	ug/kg	--	7.4E-06	--	1.4E-06	--	4.0E-02	1.7E-05	0.0004	3.2E-06	0.0001
		Fluorene	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	4.0E-02	6.2E-07	0.00002	1.1E-07	0.000003
		Indeno(1,2,3-cd)pyrene	3.3E+00	ug/kg	7.3E-01	3.6E-07	3.E-07	6.7E-08	5.E-08	--	8.5E-07	--	1.6E-07	--
		Phenanthrene	2.4E+01	ug/kg	--	2.6E-06	--	4.8E-07	--	3.0E-02	6.2E-06	0.0002	1.1E-06	0.00004
		Pyrene	6.9E+01	ug/kg	--	7.6E-06	--	1.4E-06	--	3.0E-02	1.8E-05	0.0006	3.3E-06	0.0001
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.1E+01	ug/kg	--	1.2E-06	--	2.2E-07	--	1.0E-01	2.8E-06	0.00003	5.2E-07	0.00001
		Dibenzofuran	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	1.0E-03	2.8E-07	0.0003	5.2E-08	0.0001
		Hexachlorobenzene	4.7E-01	ug/kg	1.6E+00	5.1E-08	8.E-08	9.4E-09	2.E-08	8.0E-04	1.2E-07	0.0001	2.2E-08	0.00003
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.0E+05	pg/g	2.0E+00	1.1E-05	2.E-05	2.1E-06	4.E-06	2.0E-05	2.6E-05	1	4.8E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	3.3E+00	pg/g	1.3E+05	3.6E-10	5.E-05	6.7E-11	9.E-06	1.0E-09	8.5E-10	0.9	1.6E-10	0.2
		Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.5E-10	2.E-05	2.8E-11	4.E-06	1.0E-09	3.6E-10	0.4	6.6E-11	0.07
		Pesticides												
		Aldrin	1.7E-01	ug/kg	1.7E+01	1.9E-08	3.E-07	3.4E-09	6.E-08	3.0E-05	4.3E-08	0.001	8.0E-09	0.0003
		alpha-Hexachlorocyclohexane	6.1E-03	ug/kg	6.3E+00	6.7E-10	4.E-09	1.2E-10	8.E-10	8.0E-03	1.6E-09	0.0000002	2.9E-10	0.00000004
		Dieldrin	6.9E-01	ug/kg	1.6E+01	7.5E-08	1.E-06	1.4E-08	2.E-07	5.0E-05	1.8E-07	0.004	3.2E-08	0.001
		Endrin	6.9E-03	ug/kg	--	7.6E-10	--	1.4E-10	--	3.0E-04	1.8E-09	0.00001	3.3E-10	0.000001
		gamma-Hexachlorocyclohexane	6.4E-02	ug/kg	1.1E+00	7.1E-09	8.E-09	1.3E-09	1.E-09	3.0E-04	1.6E-08	0.0001	3.0E-09	0.00001
		Heptachlor epoxide	4.8E-02	ug/kg	9.1E+00	5.3E-09	5.E-08	9.8E-10	9.E-09	1.3E-05	1.2E-08	0.001	2.3E-09	0.0002
		Total Chlordanes	2.7E+00	ug/kg	3.5E-01	2.9E-07	1.E-07	5.4E-08	2.E-08	5.0E-04	6.9E-07	0.001	1.3E-07	0.0003
		Total DDD	7.4E+00	ug/kg	2.4E-01	8.1E-07	2.E-07	1.5E-07	4.E-08	5.0E-04	1.9E-06	0.004	3.5E-07	0.001
		Total DDE	9.7E+00	ug/kg	3.4E-01	1.1E-06	4.E-07	2.0E-07	7.E-08	5.0E-04	2.5E-06	0.005	4.6E-07	0.001
		Total DDT	2.2E+00	ug/kg	3.4E-01	2.4E-07	8.E-08	4.4E-08	2.E-08	5.0E-04	5.6E-07	0.001	1.0E-07	0.0002
		Total Endosulfan	8.0E-01	ug/kg	--	8.8E-08	--	1.6E-08	--	6.0E-03	2.0E-07	0.00003	3.7E-08	0.00001
Exposure Point Total							1.E-04		2.E-05			3		0.5

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
UD	RM 4 West	**Metals**												
		Aluminum	7.2E+01	mg/kg	--	8.0E-03	--	1.5E-03	--	1.0E+00	1.9E-02	0.02	3.4E-03	0.003
		Arsenic, inorganic	1.0E-01	mg/kg	1.5E+00	1.1E-05	2.E-05	2.1E-06	3.E-06	3.0E-04	2.6E-05	0.09	4.8E-06	0.02
		Cadmium	7.6E-02	mg/kg	--	8.4E-06	--	1.5E-06	--	1.0E-03	2.0E-05	0.02	3.6E-06	0.004
		Chromium	6.3E-01	mg/kg	--	6.9E-05	--	1.3E-05	--	1.5E+00	1.6E-04	0.0001	3.0E-05	0.00002
		Copper	9.5E+00	mg/kg	--	1.1E-03	--	1.9E-04	--	4.0E-02	2.5E-03	0.06	4.5E-04	0.01
		Manganese	5.3E+00	mg/kg	--	5.9E-04	--	1.1E-04	--	1.4E-01	1.4E-03	0.01	2.5E-04	0.002
		Mercury	1.3E-02	mg/kg	--	1.4E-06	--	2.5E-07	--	1.0E-04	3.2E-06	0.03	5.9E-07	0.006
		Nickel	2.9E-01	mg/kg	--	3.2E-05	--	5.9E-06	--	2.0E-02	7.6E-05	0.004	1.4E-05	0.001
		Selenium	1.8E-01	mg/kg	--	2.0E-05	--	3.6E-06	--	5.0E-03	4.6E-05	0.009	8.5E-06	0.002
		Silver	6.7E-02	mg/kg	--	7.3E-06	--	1.3E-06	--	5.0E-03	1.7E-05	0.003	3.1E-06	0.001
		Zinc	3.8E+01	mg/kg	--	4.2E-03	--	7.7E-04	--	3.0E-01	9.8E-03	0.03	1.8E-03	0.006
		Butyltins												
		Butyltin ion	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-04	3.3E-07	0.001	6.1E-08	0.0002
		Dibutyltin ion	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	3.0E-04	6.2E-07	0.002	1.1E-07	0.0004
		Tributyltin ion	4.0E+00	ug/kg	--	4.4E-07	--	8.1E-08	--	3.0E-04	1.0E-06	0.003	1.9E-07	0.001
		PAHs												
		1-Methylnaphthalene	1.7E+00	ug/kg	2.9E-02	1.9E-07	5.E-09	3.4E-08	1.E-09	7.0E-02	4.4E-07	0.00001	8.0E-08	0.000001
		2-Methylnaphthalene	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	4.0E-03	6.2E-07	0.0002	1.1E-07	0.00003
		Acenaphthene	4.6E+00	ug/kg	--	5.1E-07	--	9.3E-08	--	6.0E-02	1.2E-06	0.00002	2.2E-07	0.000004
		Acenaphthylene	3.8E+00	ug/kg	--	4.2E-07	--	7.7E-08	--	6.0E-02	9.8E-07	0.00002	1.8E-07	0.000003
		Anthracene	3.0E+01	ug/kg	--	3.3E-06	--	6.1E-07	--	3.0E-01	7.7E-06	0.00003	1.4E-06	0.000005
		Benzo(a)anthracene	1.5E+02	ug/kg	7.3E-01	1.7E-05	1.E-05	3.0E-06	2.E-06	--	3.9E-05	--	7.1E-06	--
		Benzo(a)pyrene	3.9E+01	ug/kg	7.3E+00	4.3E-06	3.E-05	7.9E-07	6.E-06	--	1.0E-05	--	1.8E-06	--
		Benzo(b)fluoranthene	4.3E+01	ug/kg	7.3E-01	4.7E-06	3.E-06	8.7E-07	6.E-07	--	1.1E-05	--	2.0E-06	--
		Benzo(e)pyrene	9.1E+00	ug/kg	--	1.0E-06	--	1.8E-07	--	3.0E-02	2.3E-06	0.00008	4.3E-07	0.00001
		Benzo(g,h,i)perylene	1.6E+01	ug/kg	--	1.8E-06	--	3.2E-07	--	3.0E-02	4.1E-06	0.0001	7.5E-07	0.00003
		Benzo(k)fluoranthene	2.8E+01	ug/kg	7.3E-02	3.1E-06	2.E-07	5.7E-07	4.E-08	--	7.2E-06	--	1.3E-06	--
		Chrysene	1.5E+02	ug/kg	7.3E-03	1.7E-05	1.E-07	3.0E-06	2.E-08	--	3.9E-05	--	7.1E-06	--
		Dibenzo(a,h)anthracene	3.8E+00	ug/kg	7.3E+00	4.2E-07	3.E-06	7.7E-08	6.E-07	--	9.8E-07	--	1.8E-07	--
		Dibenzothiophene	3.2E+00	ug/kg	--	3.5E-07	--	6.5E-08	--	4.0E-02	8.2E-07	0.00002	1.5E-07	0.000004
		Fluoranthene	2.2E+02	ug/kg	--	2.4E-05	--	4.4E-06	--	4.0E-02	5.7E-05	0.001	1.0E-05	0.0003
		Fluorene	9.2E+00	ug/kg	--	1.0E-06	--	1.9E-07	--	4.0E-02	2.4E-06	0.0001	4.3E-07	0.00001
		Indeno(1,2,3-cd)pyrene	9.6E+00	ug/kg	7.3E-01	1.1E-06	8.E-07	1.9E-07	1.E-07	--	2.5E-06	--	4.5E-07	--
		Perylene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-02	3.3E-07	0.00001	6.1E-08	0.000002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Phenanthrene	6.6E+01	ug/kg	--	7.3E-06	--	1.3E-06	--	3.0E-02	1.7E-05	0.001	3.1E-06	0.0001
		Pyrene	2.4E+02	ug/kg	--	2.6E-05	--	4.8E-06	--	3.0E-02	6.2E-05	0.002	1.1E-05	0.0004
		Phthalates												
		Bis(2-ethylhexyl) phthalate	8.5E+01	ug/kg	1.4E-02	9.4E-06	1.E-07	1.7E-06	2.E-08	2.0E-02	2.2E-05	0.001	4.0E-06	0.0002
		Semivolatile Organic Compounds												
		Benzoic acid	3.7E+03	ug/kg	--	4.1E-04	--	7.5E-05	--	4.0E+00	9.5E-04	0.0002	1.7E-04	0.00004
		Benzyl alcohol	1.1E+02	ug/kg	--	1.2E-05	--	2.2E-06	--	1.0E-01	2.8E-05	0.0003	5.2E-06	0.0001
		Dibenzofuran	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	1.0E-03	3.1E-07	0.0003	5.7E-08	0.0001
		Hexachlorobenzene	6.4E-01	ug/kg	1.6E+00	7.1E-08	1.E-07	1.3E-08	2.E-08	8.0E-04	1.6E-07	0.0002	3.0E-08	0.00004
		Nitrobenzene	1.9E+02	ug/kg	--	2.1E-05	--	3.8E-06	--	2.0E-03	4.9E-05	0.024	9.0E-06	0.004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.2E+05	pg/g	2.0E+00	1.3E-05	3.E-05	2.4E-06	5.E-06	2.0E-05	3.1E-05	2	5.6E-06	0.3
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	9.5E-01	pg/g	1.3E+05	1.0E-10	1.E-05	1.9E-11	2.E-06	1.0E-09	2.4E-10	0.2	4.5E-11	0.04
		Total PCB TEQ	1.6E+00	pg/g	1.3E+05	1.7E-10	2.E-05	3.2E-11	4.E-06	1.0E-09	4.0E-10	0.4	7.4E-11	0.07
		Pesticides												
		Aldrin	2.5E-01	ug/kg	1.7E+01	2.8E-08	5.E-07	5.1E-09	9.E-08	3.0E-05	6.4E-08	0.002	1.2E-08	0.0004
		alpha-Hexachlorocyclohexane	1.4E-02	ug/kg	6.3E+00	1.5E-09	9.E-09	2.7E-10	2.E-09	8.0E-03	3.5E-09	0.0000004	6.4E-10	0.0000001
		Dieldrin	9.4E-01	ug/kg	1.6E+01	1.0E-07	2.E-06	1.9E-08	3.E-07	5.0E-05	2.4E-07	0.005	4.4E-08	0.001
		Endrin	1.7E-02	ug/kg	--	1.9E-09	--	3.4E-10	--	3.0E-04	4.4E-09	0.00001	8.0E-10	0.000003
		gamma-Hexachlorocyclohexane	6.8E-02	ug/kg	1.1E+00	7.4E-09	8.E-09	1.4E-09	2.E-09	3.0E-04	1.7E-08	0.0001	3.2E-09	0.00001
		Heptachlor	1.4E-02	ug/kg	4.5E+00	1.5E-09	7.E-09	2.8E-10	1.E-09	5.0E-04	3.6E-09	0.00001	6.6E-10	0.000001
		Heptachlor epoxide	6.7E-02	ug/kg	9.1E+00	7.4E-09	7.E-08	1.4E-09	1.E-08	1.3E-05	1.7E-08	0.001	3.2E-09	0.0002
		Methoxychlor	3.2E-01	ug/kg	--	3.6E-08	--	6.5E-09	--	5.0E-03	8.3E-08	0.000	1.5E-08	0.000003
		Total Chlordanes	3.4E+00	ug/kg	3.5E-01	3.8E-07	1.E-07	6.9E-08	2.E-08	5.0E-04	8.8E-07	0.002	1.6E-07	0.0003
		Total DDD	1.8E+01	ug/kg	2.4E-01	1.9E-06	5.E-07	3.5E-07	9.E-08	5.0E-04	4.5E-06	0.009	8.3E-07	0.002
		Total DDE	1.5E+01	ug/kg	3.4E-01	1.7E-06	6.E-07	3.1E-07	1.E-07	5.0E-04	3.9E-06	0.008	7.2E-07	0.001
		Total DDT	4.1E+00	ug/kg	3.4E-01	4.6E-07	2.E-07	8.3E-08	3.E-08	5.0E-04	1.1E-06	0.002	1.9E-07	0.0004
		Total Endosulfan	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	6.0E-03	3.0E-07	0.00005	5.6E-08	0.00001
	Exposure Point Total						1.E-04		2.E-05			3		0.5
UD	RM 5 East	**Metals**												
		Aluminum	1.2E+02	mg/kg	--	1.3E-02	--	2.4E-03	--	1.0E+00	3.1E-02	0.03	5.6E-03	0.006
		Arsenic, inorganic	8.3E-02	mg/kg	1.5E+00	9.1E-06	1.E-05	1.7E-06	3.E-06	3.0E-04	2.1E-05	0.07	3.9E-06	0.01
		Cadmium	6.9E-02	mg/kg	--	7.5E-06	--	1.4E-06	--	1.0E-03	1.8E-05	0.02	3.2E-06	0.003
		Chromium	5.1E-01	mg/kg	--	5.6E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Copper	9.1E+00	mg/kg	--	1.0E-03	--	1.8E-04	--	4.0E-02	2.4E-03	0.06	4.3E-04	0.01
		Manganese	6.6E+00	mg/kg	--	7.3E-04	--	1.3E-04	--	1.4E-01	1.7E-03	0.01	3.1E-04	0.002
		Mercury	1.9E-02	mg/kg	--	2.1E-06	--	3.8E-07	--	1.0E-04	4.8E-06	0.05	8.9E-07	0.009
		Nickel	3.6E-01	mg/kg	--	3.9E-05	--	7.2E-06	--	2.0E-02	9.2E-05	0.005	1.7E-05	0.001
		Selenium	1.7E-01	mg/kg	--	1.9E-05	--	3.4E-06	--	5.0E-03	4.4E-05	0.009	8.0E-06	0.002
		Silver	6.2E-02	mg/kg	--	6.9E-06	--	1.3E-06	--	5.0E-03	1.6E-05	0.003	2.9E-06	0.001
		Zinc	3.2E+01	mg/kg	--	3.5E-03	--	6.4E-04	--	3.0E-01	8.2E-03	0.03	1.5E-03	0.005
		Butyltins												
		Butyltin ion	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	3.0E-04	6.2E-07	0.002	1.1E-07	0.0004
		Dibutyltin ion	3.6E+00	ug/kg	--	4.0E-07	--	7.3E-08	--	3.0E-04	9.3E-07	0.003	1.7E-07	0.001
		Tributyltin ion	8.9E+00	ug/kg	--	9.8E-07	--	1.8E-07	--	3.0E-04	2.3E-06	0.008	4.2E-07	0.001
		PAHs												
		1-Methylnaphthalene	1.2E+00	ug/kg	2.9E-02	1.3E-07	4.E-09	2.4E-08	7.E-10	7.0E-02	3.1E-07	0.000004	5.7E-08	0.000001
		2-Methylnaphthalene	2.3E+00	ug/kg	--	2.5E-07	--	4.6E-08	--	4.0E-03	5.9E-07	0.0001	1.1E-07	0.00003
		Acenaphthene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	6.0E-02	3.3E-07	0.00001	6.1E-08	0.000001
		Acenaphthylene	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	6.0E-02	3.6E-07	0.00001	6.6E-08	0.000001
		Anthracene	5.6E+00	ug/kg	--	6.2E-07	--	1.1E-07	--	3.0E-01	1.4E-06	0.000005	2.6E-07	0.000001
		Benzo(a)anthracene	2.2E+01	ug/kg	7.3E-01	2.4E-06	2.E-06	4.4E-07	3.E-07	--	5.7E-06	--	1.0E-06	--
		Benzo(a)pyrene	4.6E+00	ug/kg	7.3E+00	5.1E-07	4.E-06	9.3E-08	7.E-07	--	1.2E-06	--	2.2E-07	--
		Benzo(b)fluoranthene	4.7E+00	ug/kg	7.3E-01	5.2E-07	4.E-07	9.5E-08	7.E-08	--	1.2E-06	--	2.2E-07	--
		Benzo(e)pyrene	3.1E+00	ug/kg	--	3.4E-07	--	6.3E-08	--	3.0E-02	8.0E-07	0.00003	1.5E-07	0.000005
		Benzo(g,h,i)perylene	1.6E+00	ug/kg	--	1.8E-07	--	3.2E-08	--	3.0E-02	4.1E-07	0.00001	7.5E-08	0.000003
		Benzo(k)fluoranthene	3.3E+00	ug/kg	7.3E-02	3.6E-07	3.E-08	6.7E-08	5.E-09	--	8.5E-07	--	1.6E-07	--
		Chrysene	2.4E+01	ug/kg	7.3E-03	2.6E-06	2.E-08	4.8E-07	4.E-09	--	6.2E-06	--	1.1E-06	--
		Dibenzo(a,h)anthracene	5.0E-01	ug/kg	7.3E+00	5.5E-08	4.E-07	1.0E-08	7.E-08	--	1.3E-07	--	2.4E-08	--
		Fluoranthene	3.7E+01	ug/kg	--	4.1E-06	--	7.5E-07	--	4.0E-02	9.5E-06	0.0002	1.7E-06	0.00004
		Fluorene	3.0E+00	ug/kg	--	3.3E-07	--	6.1E-08	--	4.0E-02	7.7E-07	0.00002	1.4E-07	0.000004
		Indeno(1,2,3-cd)pyrene	9.5E-01	ug/kg	7.3E-01	1.0E-07	8.E-08	1.9E-08	1.E-08	--	2.4E-07	--	4.5E-08	--
		Perylene	2.6E-01	ug/kg	--	2.9E-08	--	5.3E-09	--	3.0E-02	6.7E-08	0.000002	1.2E-08	0.0000004
		Phenanthrene	1.6E+01	ug/kg	--	1.8E-06	--	3.2E-07	--	3.0E-02	4.1E-06	0.0001	7.5E-07	0.00003
		Pyrene	3.6E+01	ug/kg	--	4.0E-06	--	7.3E-07	--	3.0E-02	9.3E-06	0.0003	1.7E-06	0.00006
		Phthalates												
		Bis(2-ethylhexyl) phthalate	7.7E+01	ug/kg	1.4E-02	8.5E-06	1.E-07	1.6E-06	2.E-08	2.0E-02	2.0E-05	0.001	3.6E-06	0.0002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate 18 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 18 g/day: Cancer Risk	Cancer Risk: Consumption Rate 3.3 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate 18 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 18 g/day: Noncancer Hazard Quotient	Noncancer: Consumption Rate 3.3 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 3.3 g/day: Noncancer Hazard Quotient
		Semivolatile Organic Compounds												
		Benzoic acid	3.9E+03	ug/kg	--	4.3E-04	--	7.9E-05	--	4.0E+00	1.0E-03	0.0003	1.8E-04	0.00005
		Benzyl alcohol	7.2E+01	ug/kg	--	7.9E-06	--	1.5E-06	--	1.0E-01	1.9E-05	0.0002	3.4E-06	0.00003
		Dibenzofuran	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	1.0E-03	3.6E-07	0.0004	6.6E-08	0.00007
		Hexachlorobenzene	7.4E-01	ug/kg	1.6E+00	8.1E-08	1.E-07	1.5E-08	2.E-08	8.0E-04	1.9E-07	0.0002	3.5E-08	0.00004
		Hexachlorobutadiene	5.3E-03	ug/kg	7.8E-02	5.8E-10	5.E-11	1.1E-10	8.E-12	1.0E-03	1.4E-09	0.000	2.5E-10	0.000
		Nitrobenzene	4.1E+02	ug/kg	--	4.5E-05	--	8.3E-06	--	2.0E-03	1.1E-04	0.1	1.9E-05	0.01
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.5E+05	pg/g	2.0E+00	1.6E-05	3.E-05	2.9E-06	6.E-06	2.0E-05	3.7E-05	2	6.9E-06	0.3
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	6.7E-11	9.E-06	1.2E-11	2.E-06	1.0E-09	1.6E-10	0.2	2.9E-11	0.03
		Total PCB TEQ	1.5E+00	pg/g	1.3E+05	1.6E-10	2.E-05	3.0E-11	4.E-06	1.0E-09	3.8E-10	0.4	7.0E-11	0.07
		Pesticides												
		Aldrin	3.8E-01	ug/kg	1.7E+01	4.2E-08	7.E-07	7.7E-09	1.E-07	3.0E-05	9.8E-08	0.003	1.8E-08	0.001
		Dieldrin	7.2E-01	ug/kg	1.6E+01	7.9E-08	1.E-06	1.4E-08	2.E-07	5.0E-05	1.8E-07	0.004	3.4E-08	0.001
		gamma-Hexachlorocyclohexane	3.8E-02	ug/kg	1.1E+00	4.2E-09	5.E-09	7.6E-10	8.E-10	3.0E-04	9.7E-09	0.00003	1.8E-09	0.00001
		Heptachlor	1.1E-02	ug/kg	4.5E+00	1.2E-09	5.E-09	2.1E-10	1.E-09	5.0E-04	2.7E-09	0.00001	5.0E-10	0.000001
		Heptachlor epoxide	5.1E-02	ug/kg	9.1E+00	5.6E-09	5.E-08	1.0E-09	9.E-09	1.3E-05	1.3E-08	0.001	2.4E-09	0.0002
		Total Chlordanes	4.6E+00	ug/kg	3.5E-01	5.0E-07	2.E-07	9.3E-08	3.E-08	5.0E-04	1.2E-06	0.002	2.2E-07	0.0004
		Total DDD	1.1E+01	ug/kg	2.4E-01	1.2E-06	3.E-07	2.3E-07	5.E-08	5.0E-04	2.9E-06	0.006	5.3E-07	0.001
		Total DDE	1.5E+01	ug/kg	3.4E-01	1.7E-06	6.E-07	3.1E-07	1.E-07	5.0E-04	4.0E-06	0.008	7.3E-07	0.001
		Total DDT	2.3E+00	ug/kg	3.4E-01	2.5E-07	9.E-08	4.6E-08	2.E-08	5.0E-04	5.8E-07	0.001	1.1E-07	0.0002
		Total Endosulfan	7.4E-01	ug/kg	--	8.2E-08	--	1.5E-08	--	6.0E-03	1.9E-07	0.00003	3.5E-08	0.00001
Exposure Point Total							9.E-05		2.E-05			3		0.5
UD	RM 5 West	**Metals**												
		Aluminum	1.3E+02	mg/kg	--	1.4E-02	--	2.5E-03	--	1.0E+00	3.2E-02	0.03	5.9E-03	0.006
		Arsenic, inorganic	1.1E-01	mg/kg	1.5E+00	1.2E-05	2.E-05	2.2E-06	3.E-06	3.0E-04	2.8E-05	0.09	5.0E-06	0.02
		Cadmium	7.7E-02	mg/kg	--	8.5E-06	--	1.6E-06	--	1.0E-03	2.0E-05	0.02	3.6E-06	0.004
		Chromium	7.5E-01	mg/kg	--	8.3E-05	--	1.5E-05	--	1.5E+00	1.9E-04	0.0001	3.5E-05	0.00002
		Copper	1.2E+01	mg/kg	--	1.3E-03	--	2.3E-04	--	4.0E-02	3.0E-03	0.07	5.5E-04	0.01
		Manganese	7.4E+00	mg/kg	--	8.1E-04	--	1.5E-04	--	1.4E-01	1.9E-03	0.01	3.5E-04	0.002
		Mercury	2.6E-02	mg/kg	--	2.8E-06	--	5.2E-07	--	1.0E-04	6.6E-06	0.07	1.2E-06	0.01
		Nickel	3.1E-01	mg/kg	--	3.4E-05	--	6.2E-06	--	2.0E-02	7.9E-05	0.004	1.4E-05	0.001
		Selenium	1.9E-01	mg/kg	--	2.1E-05	--	3.8E-06	--	5.0E-03	4.9E-05	0.01	9.0E-06	0.002
		Silver	8.3E-02	mg/kg	--	9.2E-06	--	1.7E-06	--	5.0E-03	2.1E-05	0.004	3.9E-06	0.001
		Zinc	3.1E+01	mg/kg	--	3.4E-03	--	6.2E-04	--	3.0E-01	7.9E-03	0.03	1.5E-03	0.005

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Butyltins												
		Butyltin ion	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	3.0E-04	7.5E-07	0.002	1.4E-07	0.0005
		Dibutyltin ion	2.5E+00	ug/kg	--	2.8E-07	--	5.1E-08	--	3.0E-04	6.4E-07	0.002	1.2E-07	0.0004
		PAHs												
		1-Methylnaphthalene	1.7E+00	ug/kg	2.9E-02	1.9E-07	5.E-09	3.4E-08	1.E-09	7.0E-02	4.4E-07	0.00001	8.0E-08	0.000001
		2-Methylnaphthalene	2.3E+00	ug/kg	--	2.5E-07	--	4.6E-08	--	4.0E-03	5.9E-07	0.0001	1.1E-07	0.00003
		Acenaphthene	2.1E+01	ug/kg	--	2.3E-06	--	4.2E-07	--	6.0E-02	5.4E-06	0.0001	9.9E-07	0.00002
		Acenaphthylene	1.4E+01	ug/kg	--	1.5E-06	--	2.8E-07	--	6.0E-02	3.6E-06	0.0001	6.6E-07	0.00001
		Anthracene	6.5E+01	ug/kg	--	7.2E-06	--	1.3E-06	--	3.0E-01	1.7E-05	0.0001	3.1E-06	0.00001
		Benzo(a)anthracene	6.7E+02	ug/kg	7.3E-01	7.4E-05	5.E-05	1.4E-05	1.E-05	--	1.7E-04	--	3.2E-05	--
		Benzo(a)pyrene	4.6E+02	ug/kg	7.3E+00	5.1E-05	4.E-04	9.3E-06	7.E-05	--	1.2E-04	--	2.2E-05	--
		Benzo(b)fluoranthene	4.3E+02	ug/kg	7.3E-01	4.7E-05	3.E-05	8.7E-06	6.E-06	--	1.1E-04	--	2.0E-05	--
		Benzo(e)pyrene	1.1E+01	ug/kg	--	1.2E-06	--	2.2E-07	--	3.0E-02	2.8E-06	0.0001	5.2E-07	0.00002
		Benzo(g,h,i)perylene	2.3E+02	ug/kg	--	2.5E-05	--	4.6E-06	--	3.0E-02	5.9E-05	0.002	1.1E-05	0.0004
		Benzo(k)fluoranthene	2.8E+02	ug/kg	7.3E-02	3.1E-05	2.E-06	5.7E-06	4.E-07	--	7.2E-05	--	1.3E-05	--
		Chrysene	5.6E+02	ug/kg	7.3E-03	6.2E-05	5.E-07	1.1E-05	8.E-08	--	1.4E-04	--	2.6E-05	--
		Dibenzo(a,h)anthracene	3.7E+01	ug/kg	7.3E+00	4.1E-06	3.E-05	7.5E-07	5.E-06	--	9.5E-06	--	1.7E-06	--
		Dibenzothiophene	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	4.0E-02	6.2E-07	0.00002	1.1E-07	0.000003
		Fluoranthene	7.7E+02	ug/kg	--	8.5E-05	--	1.6E-05	--	4.0E-02	2.0E-04	0.005	3.6E-05	0.001
		Fluorene	1.6E+01	ug/kg	--	1.8E-06	--	3.2E-07	--	4.0E-02	4.1E-06	0.0001	7.5E-07	0.00002
		Indeno(1,2,3-cd)pyrene	1.6E+02	ug/kg	7.3E-01	1.8E-05	1.E-05	3.2E-06	2.E-06	--	4.1E-05	--	7.5E-06	--
		Naphthalene	3.0E+00	ug/kg	--	3.3E-07	--	6.1E-08	--	2.0E-02	7.7E-07	0.00004	1.4E-07	0.00001
		Perylene	1.0E+00	ug/kg	--	1.1E-07	--	2.0E-08	--	3.0E-02	2.6E-07	0.00001	4.7E-08	0.000002
		Phenanthrene	1.9E+02	ug/kg	--	2.1E-05	--	3.8E-06	--	3.0E-02	4.9E-05	0.002	9.0E-06	0.0003
		Pyrene	8.5E+02	ug/kg	--	9.4E-05	--	1.7E-05	--	3.0E-02	2.2E-04	0.007	4.0E-05	0.001
		Phthalates												
		Bis(2-ethylhexyl) phthalate	1.5E+02	ug/kg	1.4E-02	1.7E-05	2.E-07	3.0E-06	4.E-08	2.0E-02	3.9E-05	0.002	7.1E-06	0.0004
		Semivolatile Organic Compounds												
		Benzoic acid	4.7E+03	ug/kg	--	5.2E-04	--	9.5E-05	--	4.0E+00	1.2E-03	0.0003	2.2E-04	0.0001
		Benzyl alcohol	9.4E+00	ug/kg	--	1.0E-06	--	1.9E-07	--	1.0E-01	2.4E-06	0.00002	4.4E-07	0.000004
		Dibenzofuran	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	1.0E-03	3.3E-07	0.0003	6.1E-08	0.0001
		Hexachlorobenzene	6.8E-01	ug/kg	1.6E+00	7.5E-08	1.E-07	1.4E-08	2.E-08	8.0E-04	1.7E-07	0.0002	3.2E-08	0.00004
		Hexachlorobutadiene	2.5E-02	ug/kg	7.8E-02	2.8E-09	2.E-10	5.1E-10	4.E-11	1.0E-03	6.4E-09	0.00001	1.2E-09	0.000001
		Nitrobenzene	1.9E+02	ug/kg	--	2.1E-05	--	3.8E-06	--	2.0E-03	4.9E-05	0.02	9.0E-06	0.004

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	7.5E+04	pg/g	2.0E+00	8.3E-06	2.E-05	1.5E-06	3.E-06	2.0E-05	1.9E-05	1	3.5E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	1.5E+00	pg/g	1.3E+05	1.6E-10	2.E-05	3.0E-11	4.E-06	1.0E-09	3.8E-10	0.4	7.0E-11	0.07
		Total PCB TEQ	9.6E-01	pg/g	1.3E+05	1.1E-10	1.E-05	1.9E-11	3.E-06	1.0E-09	2.5E-10	0.2	4.5E-11	0.05
		Pesticides												
		Aldrin	2.5E-01	ug/kg	1.7E+01	2.7E-08	5.E-07	5.0E-09	8.E-08	3.0E-05	6.3E-08	0.002	1.2E-08	0.0004
		Dieldrin	8.7E-01	ug/kg	1.6E+01	9.6E-08	2.E-06	1.8E-08	3.E-07	5.0E-05	2.2E-07	0.004	4.1E-08	0.001
		gamma-Hexachlorocyclohexane	6.5E-02	ug/kg	1.1E+00	7.1E-09	8.E-09	1.3E-09	1.E-09	3.0E-04	1.7E-08	0.0001	3.0E-09	0.00001
		Heptachlor	3.8E-02	ug/kg	4.5E+00	4.2E-09	2.E-08	7.6E-10	3.E-09	5.0E-04	9.7E-09	0.00002	1.8E-09	0.000004
		Heptachlor epoxide	6.1E-02	ug/kg	9.1E+00	6.7E-09	6.E-08	1.2E-09	1.E-08	1.3E-05	1.6E-08	0.001	2.9E-09	0.0002
		Total Chlordanes	3.3E+00	ug/kg	3.5E-01	3.6E-07	1.E-07	6.6E-08	2.E-08	5.0E-04	8.4E-07	0.002	1.5E-07	0.0003
		Total DDD	2.4E+01	ug/kg	2.4E-01	2.6E-06	6.E-07	4.8E-07	1.E-07	5.0E-04	6.1E-06	0.01	1.1E-06	0.002
		Total DDE	1.7E+01	ug/kg	3.4E-01	1.9E-06	7.E-07	3.5E-07	1.E-07	5.0E-04	4.5E-06	0.009	8.2E-07	0.002
		Total DDT	6.8E+00	ug/kg	3.4E-01	7.5E-07	3.E-07	1.4E-07	5.E-08	5.0E-04	1.8E-06	0.004	3.2E-07	0.001
		Total Endosulfan	8.9E-01	ug/kg	--	9.8E-08	--	1.8E-08	--	6.0E-03	2.3E-07	0.00004	4.2E-08	0.00001
	Exposure Point Total						6.E-04		1.E-04			2		0.4
UD	RM 6 East	**Metals**												
		Aluminum	9.7E+01	mg/kg	--	1.1E-02	--	2.0E-03	--	1.0E+00	2.5E-02	0.03	4.6E-03	0.005
		Antimony	1.0E-03	mg/kg	--	1.1E-07	--	2.0E-08	--	4.0E-04	2.6E-07	0.001	4.7E-08	0.0001
		Arsenic, inorganic	9.7E-02	mg/kg	1.5E+00	1.1E-05	2.E-05	1.9E-06	3.E-06	3.0E-04	2.5E-05	0.08	4.5E-06	0.02
		Cadmium	5.8E-02	mg/kg	--	6.4E-06	--	1.2E-06	--	1.0E-03	1.5E-05	0.01	2.7E-06	0.003
		Chromium	5.9E-01	mg/kg	--	6.5E-05	--	1.2E-05	--	1.5E+00	1.5E-04	0.0001	2.8E-05	0.00002
		Copper	1.1E+01	mg/kg	--	1.2E-03	--	2.2E-04	--	4.0E-02	2.8E-03	0.07	5.2E-04	0.01
		Manganese	4.2E+00	mg/kg	--	4.6E-04	--	8.4E-05	--	1.4E-01	1.1E-03	0.008	2.0E-04	0.001
		Mercury	1.2E-02	mg/kg	--	1.3E-06	--	2.4E-07	--	1.0E-04	3.1E-06	0.03	5.7E-07	0.006
		Nickel	3.0E-01	mg/kg	--	3.4E-05	--	6.1E-06	--	2.0E-02	7.8E-05	0.004	1.4E-05	0.001
		Selenium	1.2E-01	mg/kg	--	1.3E-05	--	2.4E-06	--	5.0E-03	3.1E-05	0.006	5.7E-06	0.001
		Silver	5.0E-02	mg/kg	--	5.5E-06	--	1.0E-06	--	5.0E-03	1.3E-05	0.003	2.3E-06	0.0005
		Zinc	2.7E+01	mg/kg	--	3.0E-03	--	5.4E-04	--	3.0E-01	6.9E-03	0.02	1.3E-03	0.004
		Butyltins												
		Butyltin ion	3.7E+00	ug/kg	--	4.1E-07	--	7.5E-08	--	3.0E-04	9.5E-07	0.003	1.7E-07	0.001
		Dibutyltin ion	7.9E+00	ug/kg	--	8.7E-07	--	1.6E-07	--	3.0E-04	2.0E-06	0.007	3.7E-07	0.001
		Tributyltin ion	7.6E+00	ug/kg	--	8.4E-07	--	1.5E-07	--	3.0E-04	2.0E-06	0.007	3.6E-07	0.001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
						LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		PAHs												
		2-Methylnaphthalene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	4.0E-03	4.6E-07	0.0001	8.5E-08	0.00002
		Acenaphthene	9.7E-01	ug/kg	--	1.1E-07	--	2.0E-08	--	6.0E-02	2.5E-07	0.000004	4.6E-08	0.000001
		Acenaphthylene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	6.0E-02	3.1E-07	0.00001	5.7E-08	0.000001
		Anthracene	5.5E+00	ug/kg	--	6.1E-07	--	1.1E-07	--	3.0E-01	1.4E-06	0.000005	2.6E-07	0.000001
		Benzo(a)anthracene	1.8E+01	ug/kg	7.3E-01	2.0E-06	1.E-06	3.6E-07	3.E-07	--	4.6E-06	--	8.5E-07	--
		Benzo(a)pyrene	3.8E+00	ug/kg	7.3E+00	4.2E-07	3.E-06	7.7E-08	6.E-07	--	9.8E-07	--	1.8E-07	--
		Benzo(b)fluoranthene	4.2E+00	ug/kg	7.3E-01	4.6E-07	3.E-07	8.5E-08	6.E-08	--	1.1E-06	--	2.0E-07	--
		Benzo(g,h,i)perylene	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	3.0E-02	3.9E-07	0.00001	7.1E-08	0.000002
		Benzo(k)fluoranthene	2.8E+00	ug/kg	7.3E-02	3.1E-07	2.E-08	5.7E-08	4.E-09	--	7.2E-07	--	1.3E-07	--
		Chrysene	2.2E+01	ug/kg	7.3E-03	2.4E-06	2.E-08	4.4E-07	3.E-09	--	5.7E-06	--	1.0E-06	--
		Fluoranthene	4.2E+01	ug/kg	--	4.6E-06	--	8.5E-07	--	4.0E-02	1.1E-05	0.0003	2.0E-06	0.00005
		Fluorene	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	4.0E-02	6.2E-07	0.0000	1.1E-07	0.000003
		Indeno(1,2,3-cd)pyrene	1.2E+00	ug/kg	7.3E-01	1.3E-07	1.E-07	2.4E-08	2.E-08	--	3.1E-07	--	5.7E-08	--
		Phenanthrene	1.6E+01	ug/kg	--	1.8E-06	--	3.2E-07	--	3.0E-02	4.1E-06	0.0001	7.5E-07	0.00003
		Pyrene	4.2E+01	ug/kg	--	4.6E-06	--	8.5E-07	--	3.0E-02	1.1E-05	0.0004	2.0E-06	0.0001
		Semivolatile Organic Compounds												
		Benzyl alcohol	2.7E+01	ug/kg	--	3.0E-06	--	5.5E-07	--	1.0E-01	6.9E-06	0.0001	1.3E-06	0.00001
		Dibenzofuran	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	1.0E-03	2.8E-07	0.0003	5.2E-08	0.0001
		Hexachlorobenzene	5.5E-01	ug/kg	1.6E+00	6.0E-08	1.E-07	1.1E-08	2.E-08	8.0E-04	1.4E-07	0.0002	2.6E-08	0.00003
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	2.6E+06	pg/g	2.0E+00	2.9E-04	6.E-04	5.3E-05	1.E-04	2.0E-05	6.7E-04	30	1.2E-04	6
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	7.0E-01	pg/g	1.3E+05	7.8E-11	1.E-05	1.4E-11	2.E-06	1.0E-09	1.8E-10	0.2	3.3E-11	0.03
		Total PCB TEQ	8.6E+00	pg/g	1.3E+05	9.4E-10	1.E-04	1.7E-10	2.E-05	1.0E-09	2.2E-09	2	4.0E-10	0.4
		Pesticides												
		Aldrin	2.1E-01	ug/kg	1.7E+01	2.3E-08	4.E-07	4.2E-09	7.E-08	3.0E-05	5.3E-08	0.002	9.8E-09	0.0003
		alpha-Hexachlorocyclohexane	1.1E-02	ug/kg	6.3E+00	1.2E-09	7.E-09	2.2E-10	1.E-09	8.0E-03	2.8E-09	0.0000003	5.1E-10	0.0000001
		beta-Hexachlorocyclohexane	1.2E+00	ug/kg	1.8E+00	1.3E-07	2.E-07	2.4E-08	4.E-08	6.0E-04	3.1E-07	0.001	5.7E-08	0.0001
		Dieldrin	7.7E-01	ug/kg	1.6E+01	8.4E-08	1.E-06	1.5E-08	2.E-07	5.0E-05	2.0E-07	0.004	3.6E-08	0.001
		gamma-Hexachlorocyclohexane	7.1E-02	ug/kg	1.1E+00	7.8E-09	9.E-09	1.4E-09	2.E-09	3.0E-04	1.8E-08	0.0001	3.3E-09	0.00001
		Heptachlor	8.3E-03	ug/kg	4.5E+00	9.2E-10	4.E-09	1.7E-10	8.E-10	5.0E-04	2.1E-09	0.000004	3.9E-10	0.000001
		Heptachlor epoxide	2.1E+00	ug/kg	9.1E+00	2.3E-07	2.E-06	4.2E-08	4.E-07	1.3E-05	5.4E-07	0.04	9.9E-08	0.008

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Total Chlordanes	6.1E+00	ug/kg	3.5E-01	6.7E-07	2.E-07	1.2E-07	4.E-08	5.0E-04	1.6E-06	0.003	2.9E-07	0.001
		Total DDD	6.4E+00	ug/kg	2.4E-01	7.1E-07	2.E-07	1.3E-07	3.E-08	5.0E-04	1.7E-06	0.003	3.0E-07	0.001
		Total DDE	9.4E+00	ug/kg	3.4E-01	1.0E-06	4.E-07	1.9E-07	6.E-08	5.0E-04	2.4E-06	0.005	4.5E-07	0.001
		Total DDT	1.6E+00	ug/kg	3.4E-01	1.8E-07	6.E-08	3.2E-08	1.E-08	5.0E-04	4.1E-07	0.001	7.6E-08	0.0002
		Total Endosulfan	1.0E+00	ug/kg	--	1.1E-07	--	2.1E-08	--	6.0E-03	2.6E-07	0.00004	4.8E-08	0.00001
	Exposure Point Total						7.E-04		1.E-04			30		7
UD	RM 6 West	**Metals**												
		Aluminum	8.0E+01	mg/kg	--	8.8E-03	--	1.6E-03	--	1.0E+00	2.1E-02	0.02	3.8E-03	0.004
		Arsenic, inorganic	1.1E-01	mg/kg	1.5E+00	1.2E-05	2.E-05	2.1E-06	3.E-06	3.0E-04	2.7E-05	0.09	5.0E-06	0.02
		Cadmium	7.8E-02	mg/kg	--	8.5E-06	--	1.6E-06	--	1.0E-03	2.0E-05	0.02	3.7E-06	0.004
		Chromium	7.3E-01	mg/kg	--	8.0E-05	--	1.5E-05	--	1.5E+00	1.9E-04	0.0001	3.4E-05	0.00002
		Copper	1.2E+01	mg/kg	--	1.3E-03	--	2.3E-04	--	4.0E-02	3.0E-03	0.07	5.5E-04	0.01
		Mercury	1.3E-02	mg/kg	--	1.4E-06	--	2.6E-07	--	1.0E-04	3.3E-06	0.03	6.1E-07	0.006
		Nickel	4.4E-01	mg/kg	--	4.9E-05	--	8.9E-06	--	2.0E-02	1.1E-04	0.006	2.1E-05	0.001
		Selenium	1.4E-01	mg/kg	--	1.5E-05	--	2.8E-06	--	5.0E-03	3.6E-05	0.007	6.6E-06	0.001
		Silver	7.5E-02	mg/kg	--	8.3E-06	--	1.5E-06	--	5.0E-03	1.9E-05	0.004	3.5E-06	0.001
		Zinc	3.8E+01	mg/kg	--	4.2E-03	--	7.7E-04	--	3.0E-01	9.7E-03	0.03	1.8E-03	0.006
		Butyltins												
		Butyltin ion	3.5E+00	ug/kg	--	3.9E-07	--	7.1E-08	--	3.0E-04	9.0E-07	0.003	1.7E-07	0.001
		Dibutyltin ion	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	3.0E-04	7.5E-07	0.002	1.4E-07	0.0005
		PAHs												
		2-Methylnaphthalene	2.0E+01	ug/kg	--	2.2E-06	--	4.0E-07	--	4.0E-03	5.1E-06	0.001	9.4E-07	0.0002
		Acenaphthene	6.1E+01	ug/kg	--	6.7E-06	--	1.2E-06	--	6.0E-02	1.6E-05	0.0003	2.9E-06	0.00005
		Acenaphthylene	1.4E+01	ug/kg	--	1.5E-06	--	2.8E-07	--	6.0E-02	3.6E-06	0.0001	6.6E-07	0.00001
		Anthracene	7.8E+01	ug/kg	--	8.6E-06	--	1.6E-06	--	3.0E-01	2.0E-05	0.0001	3.7E-06	0.00001
		Benzo(a)anthracene	6.3E+02	ug/kg	7.3E-01	6.9E-05	5.E-05	1.3E-05	9.E-06	--	1.6E-04	--	3.0E-05	--
		Benzo(a)pyrene	4.9E+02	ug/kg	7.3E+00	5.4E-05	4.E-04	9.9E-06	7.E-05	--	1.3E-04	--	2.3E-05	--
		Benzo(b)fluoranthene	4.6E+02	ug/kg	7.3E-01	5.1E-05	4.E-05	9.3E-06	7.E-06	--	1.2E-04	--	2.2E-05	--
		Benzo(g,h,i)perylene	2.3E+02	ug/kg	--	2.5E-05	--	4.6E-06	--	3.0E-02	5.9E-05	0.002	1.1E-05	0.0004
		Benzo(k)fluoranthene	3.1E+02	ug/kg	7.3E-02	3.4E-05	2.E-06	6.3E-06	5.E-07	--	8.0E-05	--	1.5E-05	--
		Chrysene	5.6E+02	ug/kg	7.3E-03	6.2E-05	5.E-07	1.1E-05	8.E-08	--	1.4E-04	--	2.6E-05	--
		Dibenzo(a,h)anthracene	4.3E+01	ug/kg	7.3E+00	4.7E-06	3.E-05	8.7E-07	6.E-06	--	1.1E-05	--	2.0E-06	--
		Fluoranthene	7.2E+02	ug/kg	--	7.9E-05	--	1.5E-05	--	4.0E-02	1.9E-04	0.005	3.4E-05	0.001
		Fluorene	3.6E+01	ug/kg	--	4.0E-06	--	7.3E-07	--	4.0E-02	9.3E-06	0.0002	1.7E-06	0.00004

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
						LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Indeno(1,2,3-cd)pyrene	1.7E+02	ug/kg	7.3E-01	1.9E-05	1.E-05	3.4E-06	3.E-06	--	4.4E-05	--	8.0E-06	--
		Naphthalene	3.3E+01	ug/kg	--	3.6E-06	--	6.7E-07	--	2.0E-02	8.5E-06	0.0004	1.6E-06	0.0001
		Phenanthrene	3.0E+02	ug/kg	--	3.3E-05	--	6.1E-06	--	3.0E-02	7.7E-05	0.003	1.4E-05	0.0005
		Pyrene	8.2E+02	ug/kg	--	9.0E-05	--	1.7E-05	--	3.0E-02	2.1E-04	0.007	3.9E-05	0.001
		Semivolatile Organic Compounds												
		Benzyl alcohol	3.5E+01	ug/kg	--	3.9E-06	--	7.1E-07	--	1.0E-01	9.0E-06	0.0001	1.7E-06	0.00002
		Dibenzofuran	5.2E+00	ug/kg	--	5.7E-07	--	1.1E-07	--	1.0E-03	1.3E-06	0.001	2.5E-07	0.0002
		Hexachlorobenzene	1.1E+00	ug/kg	1.6E+00	1.2E-07	2.E-07	2.2E-08	3.E-08	8.0E-04	2.8E-07	0.000	5.0E-08	0.0001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.0E+05	pg/g	2.0E+00	1.1E-05	2.E-05	2.1E-06	4.E-06	2.0E-05	2.7E-05	1	4.9E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	4.0E+00	pg/g	1.3E+05	4.4E-10	6.E-05	8.1E-11	1.E-05	1.0E-09	1.0E-09	1	1.9E-10	0.2
		Total PCB TEQ	1.4E+00	pg/g	1.3E+05	1.6E-10	2.E-05	2.9E-11	4.E-06	1.0E-09	3.7E-10	0.4	6.8E-11	0.07
		Pesticides												
		Aldrin	3.6E-01	ug/kg	1.7E+01	4.0E-08	7.E-07	7.3E-09	1.E-07	3.0E-05	9.3E-08	0.003	1.7E-08	0.001
		alpha-Hexachlorocyclohexane	1.1E-02	ug/kg	6.3E+00	1.2E-09	7.E-09	2.1E-10	1.E-09	8.0E-03	2.7E-09	0.0000003	5.0E-10	0.0000001
		Dieldrin	1.3E+00	ug/kg	1.6E+01	1.4E-07	2.E-06	2.6E-08	4.E-07	5.0E-05	3.3E-07	0.007	6.1E-08	0.001
		Endrin	4.4E-02	ug/kg	--	4.8E-09	--	8.8E-10	--	3.0E-04	1.1E-08	0.00004	2.1E-09	0.00001
		Endrin ketone	8.6E-03	ug/kg	--	9.4E-10	--	1.7E-10	--	3.0E-04	2.2E-09	0.00001	4.0E-10	0.000001
		gamma-Hexachlorocyclohexane	8.4E-02	ug/kg	1.1E+00	9.2E-09	1.E-08	1.7E-09	2.E-09	3.0E-04	2.2E-08	0.0001	3.9E-09	0.00001
		Heptachlor	4.2E-01	ug/kg	4.5E+00	4.6E-08	2.E-07	8.5E-09	4.E-08	5.0E-04	1.1E-07	0.0002	2.0E-08	0.00004
		Heptachlor epoxide	1.1E-01	ug/kg	9.1E+00	1.2E-08	1.E-07	2.2E-09	2.E-08	1.3E-05	2.8E-08	0.002	5.2E-09	0.0004
		Methoxychlor	9.4E-02	ug/kg	--	1.0E-08	--	1.9E-09	--	5.0E-03	2.4E-08	0.000005	4.4E-09	0.000001
		Total Chlordanes	9.9E+00	ug/kg	3.5E-01	1.1E-06	4.E-07	2.0E-07	7.E-08	5.0E-04	2.5E-06	0.005	4.6E-07	0.001
		Total DDD	2.0E+02	ug/kg	2.4E-01	2.2E-05	5.E-06	4.0E-06	1.E-06	5.0E-04	5.0E-05	0.1	9.2E-06	0.02
		Total DDE	6.3E+01	ug/kg	3.4E-01	7.0E-06	2.E-06	1.3E-06	4.E-07	5.0E-04	1.6E-05	0.03	3.0E-06	0.006
		Total DDT	4.4E+01	ug/kg	3.4E-01	4.9E-06	2.E-06	9.0E-07	3.E-07	5.0E-04	1.1E-05	0.02	2.1E-06	0.004
		Total Endosulfan	1.4E+00	ug/kg	--	1.5E-07	--	2.7E-08	--	6.0E-03	3.5E-07	0.0001	6.4E-08	0.00001
	Exposure Point Total						7.E-04		1.E-04			3		0.6
UD	RM 7 East	**Metals**												
		Aluminum	1.1E+02	mg/kg	--	1.2E-02	--	2.2E-03	--	1.0E+00	2.8E-02	0.03	5.2E-03	0.005
		Arsenic, inorganic	9.1E-02	mg/kg	1.5E+00	1.0E-05	2.E-05	1.8E-06	3.E-06	3.0E-04	2.3E-05	0.08	4.3E-06	0.01
		Cadmium	7.5E-02	mg/kg	--	8.2E-06	--	1.5E-06	--	1.0E-03	1.9E-05	0.02	3.5E-06	0.004
		Chromium	9.0E-01	mg/kg	--	9.9E-05	--	1.8E-05	--	1.5E+00	2.3E-04	0.0002	4.2E-05	0.00003
		Copper	1.0E+01	mg/kg	--	1.1E-03	--	2.1E-04	--	4.0E-02	2.6E-03	0.07	4.9E-04	0.01

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Mercury	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-04	2.8E-06	0.03	5.2E-07	0.005
		Nickel	4.4E-01	mg/kg	--	4.8E-05	--	8.8E-06	--	2.0E-02	1.1E-04	0.006	2.1E-05	0.001
		Selenium	1.4E-01	mg/kg	--	1.5E-05	--	2.8E-06	--	5.0E-03	3.6E-05	0.007	6.6E-06	0.001
		Silver	5.9E-02	mg/kg	--	6.5E-06	--	1.2E-06	--	5.0E-03	1.5E-05	0.003	2.8E-06	0.001
		Zinc	2.8E+01	mg/kg	--	3.1E-03	--	5.7E-04	--	3.0E-01	7.3E-03	0.02	1.3E-03	0.004
		Butyltins												
		Butyltin ion	8.4E+00	ug/kg	--	9.3E-07	--	1.7E-07	--	3.0E-04	2.2E-06	0.007	4.0E-07	0.001
		Dibutyltin ion	8.1E+00	ug/kg	--	8.9E-07	--	1.6E-07	--	3.0E-04	2.1E-06	0.007	3.8E-07	0.001
		Tributyltin ion	1.7E+01	ug/kg	--	1.9E-06	--	3.4E-07	--	3.0E-04	4.4E-06	0.01	8.0E-07	0.003
		PAHs												
		2-Methylnaphthalene	2.1E+00	ug/kg	--	2.3E-07	--	4.2E-08	--	4.0E-03	5.4E-07	0.0001	9.9E-08	0.00002
		Acenaphthene	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	6.0E-02	4.4E-07	0.00001	8.0E-08	0.000001
		Acenaphthylene	7.9E-01	ug/kg	--	8.7E-08	--	1.6E-08	--	6.0E-02	2.0E-07	0.000003	3.7E-08	0.000001
		Anthracene	3.4E+00	ug/kg	--	3.7E-07	--	6.9E-08	--	3.0E-01	8.7E-07	0.000003	1.6E-07	0.000001
		Benzo(a)anthracene	1.2E+01	ug/kg	7.3E-01	1.3E-06	1.E-06	2.4E-07	2.E-07	--	3.1E-06	--	5.7E-07	--
		Benzo(a)pyrene	2.4E+00	ug/kg	7.3E+00	2.6E-07	2.E-06	4.8E-08	4.E-07	--	6.2E-07	--	1.1E-07	--
		Benzo(b)fluoranthene	3.6E+00	ug/kg	7.3E-01	4.0E-07	3.E-07	7.3E-08	5.E-08	--	9.3E-07	--	1.7E-07	--
		Benzo(g,h,i)perylene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-02	3.1E-07	0.00001	5.7E-08	0.000002
		Benzo(k)fluoranthene	2.0E+00	ug/kg	7.3E-02	2.2E-07	2.E-08	4.0E-08	3.E-09	--	5.1E-07	--	9.4E-08	--
		Chrysene	1.9E+01	ug/kg	7.3E-03	2.1E-06	2.E-08	3.8E-07	3.E-09	--	4.9E-06	--	9.0E-07	--
		Fluoranthene	4.1E+01	ug/kg	--	4.5E-06	--	8.3E-07	--	4.0E-02	1.1E-05	0.0003	1.9E-06	0.00005
		Fluorene	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	4.0E-02	7.5E-07	0.00002	1.4E-07	0.000003
		Phenanthrene	1.6E+01	ug/kg	--	1.8E-06	--	3.2E-07	--	3.0E-02	4.1E-06	0.0001	7.5E-07	0.00003
		Pyrene	3.3E+01	ug/kg	--	3.6E-06	--	6.7E-07	--	3.0E-02	8.5E-06	0.0003	1.6E-06	0.0001
		Semivolatile Organic Compounds												
		Benzyl alcohol	9.5E+01	ug/kg	--	1.0E-05	--	1.9E-06	--	1.0E-01	2.4E-05	0.0002	4.5E-06	0.00004
		Dibenzofuran	1.9E+00	ug/kg	--	2.1E-07	--	3.8E-08	--	1.0E-03	4.9E-07	0.0005	9.0E-08	0.0001
		Hexachlorobenzene	5.2E-01	ug/kg	1.6E+00	5.7E-08	9.E-08	1.0E-08	2.E-08	8.0E-04	1.3E-07	0.0002	2.4E-08	0.00003
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	9.2E+04	pg/g	2.0E+00	1.0E-05	2.E-05	1.9E-06	4.E-06	2.0E-05	2.4E-05	1	4.3E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	1.0E+00	pg/g	1.3E+05	1.1E-10	1.E-05	2.1E-11	3.E-06	1.0E-09	2.7E-10	0.3	4.9E-11	0.05
		Total PCB TEQ	8.7E-01	pg/g	1.3E+05	9.6E-11	1.E-05	1.8E-11	2.E-06	1.0E-09	2.2E-10	0.2	4.1E-11	0.04

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate 18 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 18 g/day: Cancer Risk	Cancer Risk: Consumption Rate 3.3 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate 18 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 18 g/day: Noncancer Hazard Quotient	Noncancer: Consumption Rate 3.3 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 3.3 g/day: Noncancer Hazard Quotient
		Pesticides												
		Aldrin	1.9E-01	ug/kg	1.7E+01	2.1E-08	4.E-07	3.9E-09	7.E-08	3.0E-05	5.0E-08	0.002	9.1E-09	0.0003
		Dieldrin	7.3E-01	ug/kg	1.6E+01	8.1E-08	1.E-06	1.5E-08	2.E-07	5.0E-05	1.9E-07	0.004	3.5E-08	0.001
		Endrin ketone	2.4E-03	ug/kg	--	2.7E-10	--	4.9E-11	--	3.0E-04	6.2E-10	0.000002	1.1E-10	0.0000004
		gamma-Hexachlorocyclohexane	6.5E-02	ug/kg	1.1E+00	7.2E-09	8.E-09	1.3E-09	1.E-09	3.0E-04	1.7E-08	0.0001	3.1E-09	0.00001
		Heptachlor epoxide	5.2E-02	ug/kg	9.1E+00	5.8E-09	5.E-08	1.1E-09	1.E-08	1.3E-05	1.3E-08	0.001	2.5E-09	0.0002
		Total Chlordanes	2.9E+00	ug/kg	3.5E-01	3.2E-07	1.E-07	6.0E-08	2.E-08	5.0E-04	7.6E-07	0.002	1.4E-07	0.0003
		Total DDD	4.5E+00	ug/kg	2.4E-01	4.9E-07	1.E-07	9.0E-08	2.E-08	5.0E-04	1.1E-06	0.002	2.1E-07	0.0004
		Total DDE	8.5E+00	ug/kg	3.4E-01	9.4E-07	3.E-07	1.7E-07	6.E-08	5.0E-04	2.2E-06	0.004	4.0E-07	0.001
		Total DDT	1.3E+00	ug/kg	3.4E-01	1.4E-07	5.E-08	2.6E-08	9.E-09	5.0E-04	3.3E-07	0.001	6.1E-08	0.0001
		Total Endosulfan	9.5E-01	ug/kg	--	1.1E-07	--	1.9E-08	--	6.0E-03	2.5E-07	0.00004	4.5E-08	0.00001
	Exposure Point Total						7.E-05		1.E-05			2		0.4
UD	RM 7 West	**Metals**												
		Aluminum	1.7E+02	mg/kg	--	1.8E-02	--	3.4E-03	--	1.0E+00	4.3E-02	0.04	7.9E-03	0.008
		Antimony	2.0E-03	mg/kg	--	2.2E-07	--	4.0E-08	--	4.0E-04	5.1E-07	0.001	9.4E-08	0.0002
		Arsenic, inorganic	9.5E-02	mg/kg	1.5E+00	1.0E-05	2.E-05	1.9E-06	3.E-06	3.0E-04	2.4E-05	0.08	4.5E-06	0.01
		Cadmium	7.6E-02	mg/kg	--	8.4E-06	--	1.5E-06	--	1.0E-03	2.0E-05	0.02	3.6E-06	0.004
		Chromium	6.5E-01	mg/kg	--	7.2E-05	--	1.3E-05	--	1.5E+00	1.7E-04	0.0001	3.1E-05	0.00002
		Copper	9.5E+00	mg/kg	--	1.0E-03	--	1.9E-04	--	4.0E-02	2.4E-03	0.06	4.5E-04	0.01
		Manganese	7.6E+00	mg/kg	--	8.3E-04	--	1.5E-04	--	1.4E-01	1.9E-03	0.01	3.6E-04	0.003
		Mercury	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-04	2.8E-06	0.03	5.2E-07	0.005
		Nickel	3.4E-01	mg/kg	--	3.7E-05	--	6.8E-06	--	2.0E-02	8.6E-05	0.004	1.6E-05	0.001
		Selenium	1.7E-01	mg/kg	--	1.9E-05	--	3.4E-06	--	5.0E-03	4.3E-05	0.009	8.0E-06	0.002
		Silver	5.6E-02	mg/kg	--	6.1E-06	--	1.1E-06	--	5.0E-03	1.4E-05	0.003	2.6E-06	0.001
		Zinc	4.0E+01	mg/kg	--	4.4E-03	--	8.1E-04	--	3.0E-01	1.0E-02	0.03	1.9E-03	0.006
		Butyltins												
		Butyltin ion	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	3.0E-04	7.5E-07	0.002	1.4E-07	0.000
		Dibutyltin ion	5.6E+00	ug/kg	--	6.2E-07	--	1.1E-07	--	3.0E-04	1.4E-06	0.005	2.6E-07	0.001
		Tributyltin ion	4.4E+00	ug/kg	--	4.8E-07	--	8.9E-08	--	3.0E-04	1.1E-06	0.004	2.1E-07	0.001
		PAHs												
		2-Methylnaphthalene	3.3E+00	ug/kg	--	3.6E-07	--	6.7E-08	--	4.0E-03	8.5E-07	0.0002	1.6E-07	0.00004
		Acenaphthene	4.7E+00	ug/kg	--	5.2E-07	--	9.5E-08	--	6.0E-02	1.2E-06	0.00002	2.2E-07	0.000004
		Acenaphthylene	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	6.0E-02	6.2E-07	0.00001	1.1E-07	0.000002
		Anthracene	8.6E+00	ug/kg	--	9.5E-07	--	1.7E-07	--	3.0E-01	2.2E-06	0.00001	4.1E-07	0.000001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Benzo(a)anthracene	8.2E+01	ug/kg	7.3E-01	9.0E-06	7.E-06	1.7E-06	1.E-06	--	2.1E-05	--	3.9E-06	--
		Benzo(a)pyrene	1.9E+01	ug/kg	7.3E+00	2.1E-06	2.E-05	3.8E-07	3.E-06	--	4.9E-06	--	9.0E-07	--
		Benzo(b)fluoranthene	3.0E+01	ug/kg	7.3E-01	3.3E-06	2.E-06	6.1E-07	4.E-07	--	7.7E-06	--	1.4E-06	--
		Benzo(g,h,i)perylene	7.3E+00	ug/kg	--	8.0E-07	--	1.5E-07	--	3.0E-02	1.9E-06	0.0001	3.4E-07	0.00001
		Benzo(k)fluoranthene	2.0E+01	ug/kg	7.3E-02	2.2E-06	2.E-07	4.0E-07	3.E-08	--	5.1E-06	--	9.4E-07	--
		Chrysene	6.6E+01	ug/kg	7.3E-03	7.3E-06	5.E-08	1.3E-06	1.E-08	--	1.7E-05	--	3.1E-06	--
		Fluoranthene	1.1E+02	ug/kg	--	1.2E-05	--	2.3E-06	--	4.0E-02	2.9E-05	0.001	5.3E-06	0.0001
		Fluorene	5.2E+00	ug/kg	--	5.7E-07	--	1.1E-07	--	4.0E-02	1.3E-06	0.00003	2.5E-07	0.00001
		Indeno(1,2,3-cd)pyrene	6.8E+00	ug/kg	7.3E-01	7.5E-07	5.E-07	1.4E-07	1.E-07	--	1.7E-06	--	3.2E-07	--
		Naphthalene	2.6E+00	ug/kg	--	2.9E-07	--	5.3E-08	--	2.0E-02	6.7E-07	0.00003	1.2E-07	0.00001
		Phenanthrene	3.6E+01	ug/kg	--	4.0E-06	--	7.3E-07	--	3.0E-02	9.3E-06	0.0003	1.7E-06	0.0001
		Pyrene	1.2E+02	ug/kg	--	1.3E-05	--	2.4E-06	--	3.0E-02	3.0E-05	0.001	5.6E-06	0.0002
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.3E+03	ug/kg	--	1.4E-04	--	2.6E-05	--	1.0E-01	3.3E-04	0.003	6.1E-05	0.001
		Dibenzofuran	2.5E+00	ug/kg	--	2.8E-07	--	5.1E-08	--	1.0E-03	6.4E-07	0.001	1.2E-07	0.0001
		Hexachlorobenzene	7.9E-01	ug/kg	1.6E+00	8.7E-08	1.E-07	1.6E-08	3.E-08	8.0E-04	2.0E-07	0.0003	3.7E-08	0.00005
		Phenols												
		Phenol	2.6E+03	ug/kg	--	2.9E-04	--	5.3E-05	--	3.0E-01	6.7E-04	0.002	1.2E-04	0.0004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	9.3E+04	pg/g	2.0E+00	1.0E-05	2.E-05	1.9E-06	4.E-06	2.0E-05	2.4E-05	1	4.4E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	5.6E+00	pg/g	1.3E+05	6.2E-10	8.E-05	1.1E-10	1.E-05	1.0E-09	1.4E-09	1	2.7E-10	0.3
		Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E-10	2.E-05	2.3E-11	3.E-06	1.0E-09	3.0E-10	0.3	5.4E-11	0.05
		Pesticides												
		Aldrin	4.0E-01	ug/kg	1.7E+01	4.4E-08	7.E-07	8.1E-09	1.E-07	3.0E-05	1.0E-07	0.003	1.9E-08	0.001
		Dieldrin	1.2E+00	ug/kg	1.6E+01	1.3E-07	2.E-06	2.4E-08	4.E-07	5.0E-05	3.1E-07	0.006	5.6E-08	0.001
		Endrin	4.9E-02	ug/kg	--	5.3E-09	--	9.8E-10	--	3.0E-04	1.2E-08	0.00004	2.3E-09	0.0000
		Endrin aldehyde	3.9E-01	ug/kg	--	4.3E-08	--	7.9E-09	--	3.0E-04	1.0E-07	0.0003	1.8E-08	0.0001
		Endrin ketone	1.4E-02	ug/kg	--	1.5E-09	--	2.7E-10	--	3.0E-04	3.5E-09	0.00001	6.4E-10	0.000002
		gamma-Hexachlorocyclohexane	6.4E-02	ug/kg	1.1E+00	7.0E-09	8.E-09	1.3E-09	1.E-09	3.0E-04	1.6E-08	0.0001	3.0E-09	0.00001
		Heptachlor	2.4E-02	ug/kg	4.5E+00	2.7E-09	1.E-08	4.9E-10	2.E-09	5.0E-04	6.2E-09	0.00001	1.1E-09	0.000002
		Heptachlor epoxide	1.3E+00	ug/kg	9.1E+00	1.4E-07	1.E-06	2.6E-08	2.E-07	1.3E-05	3.3E-07	0.03	6.1E-08	0.005

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Total Chlordanes	7.8E+00	ug/kg	3.5E-01	8.6E-07	3.E-07	1.6E-07	5.E-08	5.0E-04	2.0E-06	0.004	3.7E-07	0.001
		Total DDD	1.8E+02	ug/kg	2.4E-01	2.0E-05	5.E-06	3.6E-06	9.E-07	5.0E-04	4.6E-05	0.09	8.4E-06	0.02
		Total DDE	7.8E+01	ug/kg	3.4E-01	8.6E-06	3.E-06	1.6E-06	5.E-07	5.0E-04	2.0E-05	0.04	3.7E-06	0.007
		Total DDT	8.9E+01	ug/kg	3.4E-01	9.8E-06	3.E-06	1.8E-06	6.E-07	5.0E-04	2.3E-05	0.05	4.2E-06	0.008
		Total Endosulfan	1.4E+00	ug/kg	--	1.5E-07	--	2.7E-08	--	6.0E-03	3.5E-07	0.0001	6.4E-08	0.00001
	Exposure Point Total						2.E-04		3.E-05			3		0.6
UD	RM 8 East	**Metals**												
		Aluminum	1.5E+02	mg/kg	--	1.6E-02	--	3.0E-03	--	1.0E+00	3.8E-02	0.04	7.0E-03	0.007
		Antimony	1.0E-03	mg/kg	--	1.1E-07	--	2.0E-08	--	4.0E-04	2.6E-07	0.001	4.7E-08	0.0001
		Arsenic, inorganic	8.7E-02	mg/kg	1.5E+00	9.6E-06	1.E-05	1.8E-06	3.E-06	3.0E-04	2.2E-05	0.07	4.1E-06	0.01
		Cadmium	8.4E-02	mg/kg	--	9.3E-06	--	1.7E-06	--	1.0E-03	2.2E-05	0.02	4.0E-06	0.004
		Chromium	7.1E-01	mg/kg	--	7.8E-05	--	1.4E-05	--	1.5E+00	1.8E-04	0.0001	3.3E-05	0.000
		Copper	1.4E+01	mg/kg	--	1.5E-03	--	2.7E-04	--	4.0E-02	3.5E-03	0.09	6.4E-04	0.02
		Mercury	8.0E-03	mg/kg	--	8.8E-07	--	1.6E-07	--	1.0E-04	2.1E-06	0.02	3.8E-07	0.004
		Nickel	3.9E-01	mg/kg	--	4.3E-05	--	7.9E-06	--	2.0E-02	1.0E-04	0.005	1.8E-05	0.001
		Selenium	1.9E-01	mg/kg	--	2.1E-05	--	3.8E-06	--	5.0E-03	4.9E-05	0.010	9.0E-06	0.002
		Silver	7.9E-02	mg/kg	--	8.7E-06	--	1.6E-06	--	5.0E-03	2.0E-05	0.004	3.7E-06	0.001
		Zinc	5.4E+01	mg/kg	--	6.0E-03	--	1.1E-03	--	3.0E-01	1.4E-02	0.05	2.5E-03	0.008
		Butyltins												
		Butyltin ion	9.7E+01	ug/kg	--	1.1E-05	--	2.0E-06	--	3.0E-04	2.5E-05	0.08	4.6E-06	0.02
		Dibutyltin ion	5.6E+02	ug/kg	--	6.2E-05	--	1.1E-05	--	3.0E-04	1.4E-04	0.5	2.6E-05	0.09
		Tributyltin ion	5.3E+02	ug/kg	--	5.8E-05	--	1.1E-05	--	3.0E-04	1.4E-04	0.5	2.5E-05	0.08
		PAHs												
		2-Methylnaphthalene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	4.0E-03	3.3E-07	0.0001	6.1E-08	0.00002
		Acenaphthene	2.2E-01	ug/kg	--	2.4E-08	--	4.4E-09	--	6.0E-02	5.7E-08	0.000001	1.0E-08	0.0000002
		Acenaphthylene	2.8E-01	ug/kg	--	3.1E-08	--	5.7E-09	--	6.0E-02	7.2E-08	0.000001	1.3E-08	0.0000002
		Anthracene	1.3E+00	ug/kg	--	1.4E-07	--	2.5E-08	--	3.0E-01	3.2E-07	0.000001	5.9E-08	0.0000002
		Benzo(a)anthracene	3.0E+00	ug/kg	7.3E-01	3.3E-07	2.E-07	6.0E-08	4.E-08	--	7.6E-07	--	1.4E-07	--
		Benzo(a)pyrene	1.4E+00	ug/kg	7.3E+00	1.5E-07	1.E-06	2.8E-08	2.E-07	--	3.6E-07	--	6.6E-08	--
		Benzo(b)fluoranthene	9.6E-01	ug/kg	7.3E-01	1.1E-07	8.E-08	1.9E-08	1.E-08	--	2.5E-07	--	4.5E-08	--
		Benzo(g,h,i)perylene	4.9E-01	ug/kg	--	5.3E-08	--	9.8E-09	--	3.0E-02	1.2E-07	0.000004	2.3E-08	0.000001
		Benzo(k)fluoranthene	4.7E-01	ug/kg	7.3E-02	5.2E-08	4.E-09	9.5E-09	7.E-10	--	1.2E-07	--	2.2E-08	--
		Chrysene	5.1E+00	ug/kg	7.3E-03	5.6E-07	4.E-09	1.0E-07	8.E-10	--	1.3E-06	--	2.4E-07	--
		Fluoranthene	7.9E+00	ug/kg	--	8.7E-07	--	1.6E-07	--	4.0E-02	2.0E-06	0.0001	3.7E-07	0.00001
		Fluorene	9.7E-01	ug/kg	--	1.1E-07	--	1.9E-08	--	4.0E-02	2.5E-07	0.00001	4.5E-08	0.000001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Phenanthrene	4.1E+00	ug/kg	--	4.5E-07	--	8.3E-08	--	3.0E-02	1.1E-06	0.00004	1.9E-07	0.00001
		Pyrene	6.9E+00	ug/kg	--	7.6E-07	--	1.4E-07	--	3.0E-02	1.8E-06	0.0001	3.3E-07	0.00001
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.4E+01	ug/kg	--	1.5E-06	--	2.7E-07	--	1.0E-01	3.5E-06	0.00003	6.4E-07	0.00001
		Dibenzofuran	5.0E-01	ug/kg	--	5.5E-08	--	1.0E-08	--	1.0E-03	1.3E-07	0.0001	2.4E-08	0.00002
		Hexachlorobenzene	4.4E-01	ug/kg	1.6E+00	4.8E-08	8.E-08	8.8E-09	1.E-08	8.0E-04	1.1E-07	0.0001	2.1E-08	0.00003
		Hexachlorobutadiene	3.4E-03	ug/kg	7.8E-02	3.8E-10	3.E-11	7.0E-11	5.E-12	1.0E-03	8.8E-10	0.000001	1.6E-10	0.0000002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	8.2E+04	pg/g	2.0E+00	9.0E-06	2.E-05	1.6E-06	3.E-06	2.0E-05	2.1E-05	1	3.8E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	4.3E-01	pg/g	1.3E+05	4.8E-11	6.E-06	8.8E-12	1.E-06	1.0E-09	1.1E-10	0.1	2.0E-11	0.02
		Total PCB TEQ	6.3E-01	pg/g	1.3E+05	7.0E-11	9.E-06	1.3E-11	2.E-06	1.0E-09	1.6E-10	0.2	3.0E-11	0.03
		Pesticides												
		Aldrin	1.4E-01	ug/kg	1.7E+01	1.5E-08	3.E-07	2.7E-09	5.E-08	3.0E-05	3.5E-08	0.001	6.4E-09	0.0002
		alpha-Hexachlorocyclohexane	6.8E-03	ug/kg	6.3E+00	7.5E-10	5.E-09	1.4E-10	9.E-10	8.0E-03	1.8E-09	0.0000002	3.2E-10	0.00000004
		Dieldrin	6.2E-01	ug/kg	1.6E+01	6.8E-08	1.E-06	1.2E-08	2.E-07	5.0E-05	1.6E-07	0.003	2.9E-08	0.001
		Endrin	6.5E-03	ug/kg	--	7.1E-10	--	1.3E-10	--	3.0E-04	1.7E-09	0.00001	3.0E-10	0.000001
		Endrin ketone	1.8E-03	ug/kg	--	2.0E-10	--	3.7E-11	--	3.0E-04	4.7E-10	0.000002	8.6E-11	0.0000003
		gamma-Hexachlorocyclohexane	5.0E-02	ug/kg	1.1E+00	5.5E-09	6.E-09	1.0E-09	1.E-09	3.0E-04	1.3E-08	0.00004	2.3E-09	0.00001
		Heptachlor	9.3E-03	ug/kg	4.5E+00	1.0E-09	5.E-09	1.9E-10	8.E-10	5.0E-04	2.4E-09	0.000005	4.4E-10	0.000001
		Heptachlor epoxide	4.5E-02	ug/kg	9.1E+00	4.9E-09	4.E-08	9.0E-10	8.E-09	1.3E-05	1.1E-08	0.001	2.1E-09	0.0002
		Total Chlordanes	2.5E+00	ug/kg	3.5E-01	2.7E-07	1.E-07	5.0E-08	2.E-08	5.0E-04	6.3E-07	0.001	1.2E-07	0.0002
		Total DDD	2.7E+00	ug/kg	2.4E-01	3.0E-07	7.E-08	5.5E-08	1.E-08	5.0E-04	7.0E-07	0.001	1.3E-07	0.0003
		Total DDE	6.3E+00	ug/kg	3.4E-01	6.9E-07	2.E-07	1.3E-07	4.E-08	5.0E-04	1.6E-06	0.003	3.0E-07	0.001
		Total DDT	8.1E-01	ug/kg	3.4E-01	8.9E-08	3.E-08	1.6E-08	6.E-09	5.0E-04	2.1E-07	0.0004	3.8E-08	0.0001
		Total Endosulfan	8.3E-01	ug/kg	--	9.1E-08	--	1.7E-08	--	6.0E-03	2.1E-07	0.00004	3.9E-08	0.00001
	Exposure Point Total						5.E-05		9.E-06			3		0.5
UD	RM 8 West	**Metals**												
		Aluminum	1.2E+02	mg/kg	--	1.3E-02	--	2.4E-03	--	1.0E+00	3.1E-02	0.03	5.7E-03	0.006
		Antimony	3.0E-03	mg/kg	--	3.3E-07	--	6.1E-08	--	4.0E-04	7.7E-07	0.002	1.4E-07	0.0004
		Arsenic, inorganic	9.6E-02	mg/kg	1.5E+00	1.1E-05	2.E-05	1.9E-06	3.E-06	3.0E-04	2.5E-05	0.08	4.5E-06	0.02
		Cadmium	1.1E-01	mg/kg	--	1.2E-05	--	2.3E-06	--	1.0E-03	2.9E-05	0.03	5.3E-06	0.005
		Chromium	6.7E-01	mg/kg	--	7.4E-05	--	1.4E-05	--	1.5E+00	1.7E-04	0.0001	3.2E-05	0.00002
		Copper	9.3E+00	mg/kg	--	1.0E-03	--	1.9E-04	--	4.0E-02	2.4E-03	0.06	4.4E-04	0.01

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Mercury	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-04	2.8E-06	0.03	5.2E-07	0.005
		Nickel	3.0E-01	mg/kg	--	3.3E-05	--	6.1E-06	--	2.0E-02	7.8E-05	0.004	1.4E-05	0.001
		Selenium	1.5E-01	mg/kg	--	1.6E-05	--	2.9E-06	--	5.0E-03	3.8E-05	0.008	6.9E-06	0.001
		Silver	7.8E-02	mg/kg	--	8.6E-06	--	1.6E-06	--	5.0E-03	2.0E-05	0.004	3.7E-06	0.001
		Zinc	4.7E+01	mg/kg	--	5.2E-03	--	9.5E-04	--	3.0E-01	1.2E-02	0.04	2.2E-03	0.007
		Butyltins												
		Butyltin ion	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	3.0E-04	3.6E-07	0.001	6.6E-08	0.0002
		Dibutyltin ion	2.3E+00	ug/kg	--	2.5E-07	--	4.6E-08	--	3.0E-04	5.9E-07	0.002	1.1E-07	0.0004
		Tributyltin ion	3.1E+00	ug/kg	--	3.4E-07	--	6.3E-08	--	3.0E-04	8.0E-07	0.003	1.5E-07	0.0005
		PAHs												
		2-Methylnaphthalene	2.2E+01	ug/kg	--	2.4E-06	--	4.4E-07	--	4.0E-03	5.7E-06	0.001	1.0E-06	0.0003
		Acenaphthene	2.1E+01	ug/kg	--	2.3E-06	--	4.2E-07	--	6.0E-02	5.4E-06	0.0001	9.9E-07	0.00002
		Acenaphthylene	3.1E+00	ug/kg	--	3.4E-07	--	6.3E-08	--	6.0E-02	8.0E-07	0.00001	1.5E-07	0.000002
		Anthracene	5.0E+00	ug/kg	--	5.5E-07	--	1.0E-07	--	3.0E-01	1.3E-06	0.000004	2.4E-07	0.000001
		Benzo(a)anthracene	1.7E+01	ug/kg	7.3E-01	1.9E-06	1.E-06	3.4E-07	3.E-07	--	4.4E-06	--	8.0E-07	--
		Benzo(a)pyrene	5.0E+00	ug/kg	7.3E+00	5.5E-07	4.E-06	1.0E-07	7.E-07	--	1.3E-06	--	2.4E-07	--
		Benzo(b)fluoranthene	1.8E+01	ug/kg	7.3E-01	2.0E-06	1.E-06	3.6E-07	3.E-07	--	4.6E-06	--	8.5E-07	--
		Benzo(g,h,i)perylene	3.3E+00	ug/kg	--	3.6E-07	--	6.7E-08	--	3.0E-02	8.5E-07	0.00003	1.6E-07	0.00001
		Benzo(k)fluoranthene	1.3E+01	ug/kg	7.3E-02	1.4E-06	1.E-07	2.6E-07	2.E-08	--	3.3E-06	--	6.1E-07	--
		Chrysene	4.7E+01	ug/kg	7.3E-03	5.2E-06	4.E-08	9.5E-07	7.E-09	--	1.2E-05	--	2.2E-06	--
		Fluoranthene	2.4E+02	ug/kg	--	2.6E-05	--	4.8E-06	--	4.0E-02	6.2E-05	0.002	1.1E-05	0.0003
		Fluorene	2.0E+01	ug/kg	--	2.2E-06	--	4.0E-07	--	4.0E-02	5.1E-06	0.0001	9.4E-07	0.00002
		Indeno(1,2,3-cd)pyrene	6.8E+00	ug/kg	7.3E-01	7.5E-07	5.E-07	1.4E-07	1.E-07	--	1.7E-06	--	3.2E-07	--
		Naphthalene	9.0E+00	ug/kg	--	9.9E-07	--	1.8E-07	--	2.0E-02	2.3E-06	0.0001	4.2E-07	0.00002
		Phenanthrene	1.6E+02	ug/kg	--	1.8E-05	--	3.2E-06	--	3.0E-02	4.1E-05	0.001	7.5E-06	0.0003
		Pyrene	1.3E+02	ug/kg	--	1.4E-05	--	2.6E-06	--	3.0E-02	3.3E-05	0.001	6.1E-06	0.0002
		Semivolatile Organic Compounds												
		Benzyl alcohol	2.3E+01	ug/kg	--	2.5E-06	--	4.6E-07	--	1.0E-01	5.9E-06	0.0001	1.1E-06	0.00001
		Dibenzofuran	1.7E+01	ug/kg	--	1.9E-06	--	3.4E-07	--	1.0E-03	4.4E-06	0.004	8.0E-07	0.001
		Hexachlorobenzene	8.4E-01	ug/kg	1.6E+00	9.3E-08	1.E-07	1.7E-08	3.E-08	8.0E-04	2.2E-07	0.0003	4.0E-08	0.00005
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.0E+05	pg/g	2.0E+00	4.4E-05	9.E-05	8.0E-06	2.E-05	2.0E-05	1.0E-04	5	1.9E-05	0.9
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	1.4E+00	pg/g	1.3E+05	1.5E-10	2.E-05	2.8E-11	4.E-06	1.0E-09	3.6E-10	0.4	6.6E-11	0.07
		Total PCB TEQ	3.6E+00	pg/g	1.3E+05	4.0E-10	5.E-05	7.3E-11	9.E-06	1.0E-09	9.3E-10	0.9	1.7E-10	0.2

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Pesticides												
		Aldrin	5.1E+00	ug/kg	1.7E+01	5.6E-07	9.E-06	1.0E-07	2.E-06	3.0E-05	1.3E-06	0.04	2.4E-07	0.008
		alpha-Hexachlorocyclohexane	1.8E-02	ug/kg	6.3E+00	2.0E-09	1.E-08	3.6E-10	2.E-09	8.0E-03	4.6E-09	0.000001	8.5E-10	0.0000001
		Dieldrin	2.6E+00	ug/kg	1.6E+01	2.9E-07	5.E-06	5.3E-08	8.E-07	5.0E-05	6.7E-07	0.01	1.2E-07	0.002
		Endrin	6.4E-02	ug/kg	--	7.0E-09	--	1.3E-09	--	3.0E-04	1.6E-08	0.0001	3.0E-09	0.00001
		Endrin ketone	4.6E-03	ug/kg	--	5.1E-10	--	9.4E-11	--	3.0E-04	1.2E-09	0.000004	2.2E-10	0.000001
		gamma-Hexachlorocyclohexane	8.1E-02	ug/kg	1.1E+00	8.9E-09	1.E-08	1.6E-09	2.E-09	3.0E-04	2.1E-08	0.0001	3.8E-09	0.00001
		Heptachlor	5.3E-02	ug/kg	4.5E+00	5.9E-09	3.E-08	1.1E-09	5.E-09	5.0E-04	1.4E-08	0.00003	2.5E-09	0.00001
		Heptachlor epoxide	8.6E-02	ug/kg	9.1E+00	9.5E-09	9.E-08	1.7E-09	2.E-08	1.3E-05	2.2E-08	0.002	4.0E-09	0.0003
		Total Chlordanes	1.6E+01	ug/kg	3.5E-01	1.8E-06	6.E-07	3.2E-07	1.E-07	5.0E-04	4.1E-06	0.008	7.6E-07	0.002
		Total DDD	3.0E+01	ug/kg	2.4E-01	3.3E-06	8.E-07	6.0E-07	1.E-07	5.0E-04	7.6E-06	0.02	1.4E-06	0.003
		Total DDE	6.7E+01	ug/kg	3.4E-01	7.4E-06	3.E-06	1.3E-06	5.E-07	5.0E-04	1.7E-05	0.03	3.1E-06	0.006
		Total DDT	2.1E+00	ug/kg	3.4E-01	2.3E-07	8.E-08	4.1E-08	1.E-08	5.0E-04	5.3E-07	0.001	9.7E-08	0.0002
		Total Endosulfan	1.5E+00	ug/kg	--	1.6E-07	--	3.0E-08	--	6.0E-03	3.8E-07	0.00006	6.9E-08	0.00001
	Exposure Point Total						2.E-04		4.E-05			7		1
UD	RM 8 SIL	**Metals**												
		Aluminum	2.0E+02	mg/kg	--	2.2E-02	--	4.1E-03	--	1.0E+00	5.2E-02	0.05	9.5E-03	0.01
		Antimony	4.0E-03	mg/kg	--	4.4E-07	--	8.1E-08	--	4.0E-04	1.0E-06	0.003	1.9E-07	0.0005
		Arsenic, inorganic	9.2E-02	mg/kg	1.5E+00	1.0E-05	2.E-05	1.9E-06	3.E-06	3.0E-04	2.4E-05	0.08	4.3E-06	0.01
		Cadmium	1.4E-01	mg/kg	--	1.6E-05	--	2.9E-06	--	1.0E-03	3.7E-05	0.04	6.8E-06	0.007
		Chromium	5.7E-01	mg/kg	--	6.3E-05	--	1.2E-05	--	1.5E+00	1.5E-04	0.0001	2.7E-05	0.00002
		Copper	9.4E+00	mg/kg	--	1.0E-03	--	1.9E-04	--	4.0E-02	2.4E-03	0.06	4.4E-04	0.01
		Mercury	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-04	2.8E-06	0.03	5.2E-07	0.005
		Nickel	3.9E-01	mg/kg	--	4.3E-05	--	7.8E-06	--	2.0E-02	9.9E-05	0.005	1.8E-05	0.001
		Selenium	2.1E-01	mg/kg	--	2.3E-05	--	4.2E-06	--	5.0E-03	5.4E-05	0.01	9.9E-06	0.002
		Silver	4.4E-02	mg/kg	--	4.8E-06	--	8.8E-07	--	5.0E-03	1.1E-05	0.002	2.1E-06	0.000
		Zinc	4.2E+01	mg/kg	--	4.7E-03	--	8.6E-04	--	3.0E-01	1.1E-02	0.04	2.0E-03	0.007
		Butyltins												
		Butyltin ion	7.3E+00	ug/kg	--	8.0E-07	--	1.5E-07	--	3.0E-04	1.9E-06	0.006	3.4E-07	0.001
		Dibutyltin ion	1.2E+01	ug/kg	--	1.3E-06	--	2.4E-07	--	3.0E-04	3.1E-06	0.01	5.7E-07	0.002
		Tributyltin ion	3.3E+01	ug/kg	--	3.6E-06	--	6.7E-07	--	3.0E-04	8.5E-06	0.03	1.6E-06	0.005
		PAHs												
		2-Methylnaphthalene	3.0E+00	ug/kg	--	3.3E-07	--	6.1E-08	--	4.0E-03	7.7E-07	0.0002	1.4E-07	0.00004
		Acenaphthene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	6.0E-02	3.1E-07	0.00001	5.7E-08	0.000001
		Acenaphthylene	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	6.0E-02	3.6E-07	0.00001	6.6E-08	0.000001
		Anthracene	6.8E+00	ug/kg	--	7.5E-07	--	1.4E-07	--	3.0E-01	1.7E-06	0.00001	3.2E-07	0.000001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Benzo(a)anthracene	2.0E+01	ug/kg	7.3E-01	2.2E-06	2.E-06	4.0E-07	3.E-07	--	5.1E-06	--	9.4E-07	--
		Benzo(a)pyrene	3.9E+00	ug/kg	7.3E+00	4.3E-07	3.E-06	7.9E-08	6.E-07	--	1.0E-06	--	1.8E-07	--
		Benzo(b)fluoranthene	8.8E+00	ug/kg	7.3E-01	9.7E-07	7.E-07	1.8E-07	1.E-07	--	2.3E-06	--	4.1E-07	--
		Benzo(g,h,i)perylene	2.7E+00	ug/kg	--	3.0E-07	--	5.5E-08	--	3.0E-02	6.9E-07	0.00002	1.3E-07	0.000004
		Benzo(k)fluoranthene	4.2E+00	ug/kg	7.3E-02	4.6E-07	3.E-08	8.5E-08	6.E-09	--	1.1E-06	--	2.0E-07	--
		Chrysene	4.5E+01	ug/kg	7.3E-03	5.0E-06	4.E-08	9.1E-07	7.E-09	--	1.2E-05	--	2.1E-06	--
		Fluoranthene	5.6E+01	ug/kg	--	6.2E-06	--	1.1E-06	--	4.0E-02	1.4E-05	0.0004	2.6E-06	0.0001
		Fluorene	3.6E+00	ug/kg	--	4.0E-07	--	7.3E-08	--	4.0E-02	9.3E-07	0.00002	1.7E-07	0.000004
		Indeno(1,2,3-cd)pyrene	3.1E+00	ug/kg	7.3E-01	3.4E-07	2.E-07	6.3E-08	5.E-08	--	8.0E-07	--	1.5E-07	--
		Phenanthrene	1.6E+01	ug/kg	--	1.8E-06	--	3.2E-07	--	3.0E-02	4.1E-06	0.0001	7.5E-07	0.00003
		Pyrene	7.1E+01	ug/kg	--	7.8E-06	--	1.4E-06	--	3.0E-02	1.8E-05	0.001	3.3E-06	0.0001
		Phthalates												
		Bis(2-ethylhexyl) phthalate	1.4E+02	ug/kg	1.4E-02	1.5E-05	2.E-07	2.8E-06	4.E-08	2.0E-02	3.6E-05	0.002	6.6E-06	0.0003
		Dibutyl phthalate	1.3E+03	ug/kg	--	1.4E-04	--	2.6E-05	--	1.0E-01	3.3E-04	0.003	6.1E-05	0.001
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.2E+02	ug/kg	--	1.3E-05	--	2.4E-06	--	1.0E-01	3.1E-05	0.0003	5.7E-06	0.0001
		Dibenzofuran	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	1.0E-03	3.9E-07	0.0004	7.1E-08	0.0001
		Hexachlorobenzene	7.6E-01	ug/kg	1.6E+00	8.4E-08	1.E-07	1.5E-08	2.E-08	8.0E-04	1.9E-07	0.0002	3.6E-08	0.00004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	3.7E+05	pg/g	2.0E+00	4.1E-05	8.E-05	7.5E-06	2.E-05	2.0E-05	9.6E-05	5	1.8E-05	0.9
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	1.3E+00	pg/g	1.3E+05	1.4E-10	2.E-05	2.6E-11	3.E-06	1.0E-09	3.3E-10	0.3	6.1E-11	0.06
		Total PCB TEQ	3.4E+00	pg/g	1.3E+05	3.7E-10	5.E-05	6.8E-11	9.E-06	1.0E-09	8.7E-10	0.9	1.6E-10	0.2
		Pesticides												
		Aldrin	3.8E-01	ug/kg	1.7E+01	4.2E-08	7.E-07	7.6E-09	1.E-07	3.0E-05	9.7E-08	0.003	1.8E-08	0.001
		alpha-Hexachlorocyclohexane	2.1E-02	ug/kg	6.3E+00	2.3E-09	1.E-08	4.1E-10	3.E-09	8.0E-03	5.3E-09	0.000001	9.7E-10	0.0000001
		Dieldrin	1.1E+00	ug/kg	1.6E+01	1.2E-07	2.E-06	2.2E-08	4.E-07	5.0E-05	2.9E-07	0.006	5.2E-08	0.001
		Endrin	2.0E-02	ug/kg	--	2.1E-09	--	3.9E-10	--	3.0E-04	5.0E-09	0.00002	9.2E-10	0.000003
		Endrin ketone	3.9E-03	ug/kg	--	4.3E-10	--	7.8E-11	--	3.0E-04	9.9E-10	0.000003	1.8E-10	0.000001
		gamma-Hexachlorocyclohexane	7.8E-02	ug/kg	1.1E+00	8.6E-09	1.E-08	1.6E-09	2.E-09	3.0E-04	2.0E-08	0.0001	3.7E-09	0.00001
		Heptachlor epoxide	8.2E-02	ug/kg	9.1E+00	9.0E-09	8.E-08	1.7E-09	2.E-08	1.3E-05	2.1E-08	0.002	3.9E-09	0.0003
		Total Chlordanes	6.3E+00	ug/kg	3.5E-01	7.0E-07	2.E-07	1.3E-07	4.E-08	5.0E-04	1.6E-06	0.003	3.0E-07	0.001
		Total DDD	8.1E+00	ug/kg	2.4E-01	8.9E-07	2.E-07	1.6E-07	4.E-08	5.0E-04	2.1E-06	0.004	3.8E-07	0.001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Total DDE	1.3E+01	ug/kg	3.4E-01	1.5E-06	5.E-07	2.7E-07	9.E-08	5.0E-04	3.4E-06	0.007	6.3E-07	0.001
		Total DDT	2.4E+00	ug/kg	3.4E-01	2.7E-07	9.E-08	4.9E-08	2.E-08	5.0E-04	6.2E-07	0.001	1.1E-07	0.0002
		Total Endosulfan	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	6.0E-03	3.6E-07	0.0001	6.6E-08	0.00001
Exposure Point Total							2.E-04		3.E-05			6		1
UD	RM 9 East	**Metals**												
		Aluminum	1.4E+02	mg/kg	--	1.6E-02	--	2.9E-03	--	1.0E+00	3.7E-02	0.04	6.7E-03	0.007
		Antimony	2.0E-03	mg/kg	--	2.2E-07	--	4.0E-08	--	4.0E-04	5.1E-07	0.001	9.4E-08	0.000
		Arsenic, inorganic	1.0E-01	mg/kg	1.5E+00	1.1E-05	2.E-05	2.1E-06	3.E-06	3.0E-04	2.6E-05	0.09	4.8E-06	0.02
		Cadmium	6.6E-02	mg/kg	--	7.3E-06	--	1.3E-06	--	1.0E-03	1.7E-05	0.02	3.1E-06	0.003
		Chromium	9.4E-01	mg/kg	--	1.0E-04	--	1.9E-05	--	1.5E+00	2.4E-04	0.0002	4.4E-05	0.00003
		Copper	9.5E+00	mg/kg	--	1.0E-03	--	1.9E-04	--	4.0E-02	2.4E-03	0.06	4.5E-04	0.01
		Mercury	1.2E-02	mg/kg	--	1.3E-06	--	2.4E-07	--	1.0E-04	3.1E-06	0.03	5.7E-07	0.006
		Nickel	3.4E-01	mg/kg	--	3.7E-05	--	6.8E-06	--	2.0E-02	8.6E-05	0.004	1.6E-05	0.001
		Selenium	8.8E-02	mg/kg	--	9.7E-06	--	1.8E-06	--	5.0E-03	2.3E-05	0.005	4.1E-06	0.001
		Silver	1.0E-01	mg/kg	--	1.1E-05	--	2.0E-06	--	5.0E-03	2.6E-05	0.005	4.8E-06	0.001
		Zinc	3.8E+01	mg/kg	--	4.2E-03	--	7.7E-04	--	3.0E-01	9.8E-03	0.03	1.8E-03	0.006
		Butyltins												
		Dibutyltin ion	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	3.0E-04	3.9E-07	0.001	7.1E-08	0.0002
		PAHs												
		2-Methylnaphthalene	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	4.0E-03	4.4E-07	0.0001	8.0E-08	0.00002
		Acenaphthene	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	6.0E-02	2.8E-07	0.000005	5.2E-08	0.000001
		Anthracene	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	3.0E-01	4.4E-07	0.000001	8.0E-08	0.0000003
		Benzo(a)anthracene	5.9E+00	ug/kg	7.3E-01	6.5E-07	5.E-07	1.2E-07	9.E-08	--	1.5E-06	--	2.8E-07	--
		Benzo(a)pyrene	1.8E+00	ug/kg	7.3E+00	2.0E-07	1.E-06	3.6E-08	3.E-07	--	4.6E-07	--	8.5E-08	--
		Benzo(b)fluoranthene	2.3E+00	ug/kg	7.3E-01	2.5E-07	2.E-07	4.6E-08	3.E-08	--	5.9E-07	--	1.1E-07	--
		Benzo(g,h,i)perylene	8.0E-01	ug/kg	--	8.8E-08	--	1.6E-08	--	3.0E-02	2.1E-07	0.00001	3.8E-08	0.000001
		Benzo(k)fluoranthene	1.3E+00	ug/kg	7.3E-02	1.4E-07	1.E-08	2.6E-08	2.E-09	--	3.3E-07	--	6.1E-08	--
		Chrysene	1.0E+01	ug/kg	7.3E-03	1.1E-06	8.E-09	2.0E-07	1.E-09	--	2.6E-06	--	4.7E-07	--
		Fluoranthene	1.3E+01	ug/kg	--	1.4E-06	--	2.6E-07	--	4.0E-02	3.3E-06	0.0001	6.1E-07	0.00002
		Fluorene	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	4.0E-02	4.4E-07	0.00001	8.0E-08	0.000002
		Phenanthrene	6.0E+00	ug/kg	--	6.6E-07	--	1.2E-07	--	3.0E-02	1.5E-06	0.0001	2.8E-07	0.00001
		Pyrene	1.2E+01	ug/kg	--	1.3E-06	--	2.4E-07	--	3.0E-02	3.1E-06	0.0001	5.7E-07	0.00002
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.8E+01	ug/kg	--	2.0E-06	--	3.6E-07	--	1.0E-01	4.6E-06	0.00005	8.5E-07	0.00001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
						LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Dibenzofuran	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	1.0E-03	3.1E-07	0.0003	5.7E-08	0.0001
		Hexachlorobenzene	6.0E-01	ug/kg	1.6E+00	6.6E-08	1.E-07	1.2E-08	2.E-08	8.0E-04	1.5E-07	0.0002	2.8E-08	0.00004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	5.7E+04	pg/g	2.0E+00	6.3E-06	1.E-05	1.2E-06	2.E-06	2.0E-05	1.5E-05	0.7	2.7E-06	0.1
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	5.4E-01	pg/g	1.3E+05	5.9E-11	8.E-06	1.1E-11	1.E-06	1.0E-09	1.4E-10	0.1	2.5E-11	0.03
		Total PCB TEQ	7.8E-01	pg/g	1.3E+05	8.6E-11	1.E-05	1.6E-11	2.E-06	1.0E-09	2.0E-10	0.2	3.7E-11	0.04
		Pesticides												
		Aldrin	1.7E-01	ug/kg	1.7E+01	1.9E-08	3.E-07	3.5E-09	6.E-08	3.0E-05	4.4E-08	0.001	8.1E-09	0.0003
		alpha-Hexachlorocyclohexane	7.4E-03	ug/kg	6.3E+00	8.2E-10	5.E-09	1.5E-10	9.E-10	8.0E-03	1.9E-09	0.0000002	3.5E-10	0.00000004
		Dieldrin	8.8E-01	ug/kg	1.6E+01	9.6E-08	2.E-06	1.8E-08	3.E-07	5.0E-05	2.3E-07	0.005	4.1E-08	0.001
		Endrin	8.2E-03	ug/kg	--	9.0E-10	--	1.7E-10	--	3.0E-04	2.1E-09	0.00001	3.9E-10	0.000001
		gamma-Hexachlorocyclohexane	7.5E-02	ug/kg	1.1E+00	8.2E-09	9.E-09	1.5E-09	2.E-09	3.0E-04	1.9E-08	0.00006	3.5E-09	0.00001
		Heptachlor epoxide	6.1E-02	ug/kg	9.1E+00	6.7E-09	6.E-08	1.2E-09	1.E-08	1.3E-05	1.6E-08	0.001	2.9E-09	0.0002
		Total Chlordanes	3.2E+00	ug/kg	3.5E-01	3.5E-07	1.E-07	6.4E-08	2.E-08	5.0E-04	8.2E-07	0.002	1.5E-07	0.0003
		Total DDD	3.0E+00	ug/kg	2.4E-01	3.3E-07	8.E-08	6.0E-08	1.E-08	5.0E-04	7.7E-07	0.002	1.4E-07	0.0003
		Total DDE	8.0E+00	ug/kg	3.4E-01	8.8E-07	3.E-07	1.6E-07	5.E-08	5.0E-04	2.1E-06	0.004	3.8E-07	0.001
		Total DDT	1.3E+00	ug/kg	3.4E-01	1.4E-07	5.E-08	2.5E-08	9.E-09	5.0E-04	3.2E-07	0.001	5.9E-08	0.0001
		Total Endosulfan	1.1E+00	ug/kg	--	1.3E-07	--	2.3E-08	--	6.0E-03	2.9E-07	0.00005	5.4E-08	0.00001
Exposure Point Total							5.E-05		1.E-05			1		0.3
UD	RM 9 West	**Metals**												
		Aluminum	1.7E+02	mg/kg	--	1.9E-02	--	3.5E-03	--	1.0E+00	4.4E-02	0.04	8.1E-03	0.008
		Antimony	3.0E-03	mg/kg	--	3.3E-07	--	6.1E-08	--	4.0E-04	7.7E-07	0.002	1.4E-07	0.0004
		Arsenic, inorganic	9.0E-02	mg/kg	1.5E+00	9.9E-06	1.E-05	1.8E-06	3.E-06	3.0E-04	2.3E-05	0.08	4.3E-06	0.01
		Cadmium	6.4E-02	mg/kg	--	7.1E-06	--	1.3E-06	--	1.0E-03	1.6E-05	0.02	3.0E-06	0.003
		Chromium	9.2E-01	mg/kg	--	1.0E-04	--	1.9E-05	--	1.5E+00	2.4E-04	0.0002	4.3E-05	0.00003
		Copper	9.0E+00	mg/kg	--	1.0E-03	--	1.8E-04	--	4.0E-02	2.3E-03	0.06	4.3E-04	0.01
		Mercury	9.0E-03	mg/kg	--	9.9E-07	--	1.8E-07	--	1.0E-04	2.3E-06	0.02	4.2E-07	0.004
		Nickel	4.9E-01	mg/kg	--	5.3E-05	--	9.8E-06	--	2.0E-02	1.2E-04	0.006	2.3E-05	0.001
		Selenium	1.1E-01	mg/kg	--	1.2E-05	--	2.2E-06	--	5.0E-03	2.8E-05	0.006	5.2E-06	0.001
		Silver	6.8E-02	mg/kg	--	7.5E-06	--	1.4E-06	--	5.0E-03	1.8E-05	0.004	3.2E-06	0.001
		Zinc	4.0E+01	mg/kg	--	4.4E-03	--	8.0E-04	--	3.0E-01	1.0E-02	0.03	1.9E-03	0.006
		Butyltins												
		Dibutyltin ion	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	3.0E-04	2.8E-07	0.001	5.2E-08	0.0002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		PAHs												
		2-Methylnaphthalene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	4.0E-03	4.6E-07	0.0001	8.5E-08	0.00002
		Acenaphthene	3.4E+00	ug/kg	--	3.7E-07	--	6.9E-08	--	6.0E-02	8.7E-07	0.00001	1.6E-07	0.000003
		Acenaphthylene	8.9E-01	ug/kg	--	9.8E-08	--	1.8E-08	--	6.0E-02	2.3E-07	0.000004	4.2E-08	0.000001
		Anthracene	4.1E+00	ug/kg	--	4.5E-07	--	8.3E-08	--	3.0E-01	1.1E-06	0.000004	1.9E-07	0.000001
		Benzo(a)anthracene	8.4E+00	ug/kg	7.3E-01	9.3E-07	7.E-07	1.7E-07	1.E-07	--	2.2E-06	--	4.0E-07	--
		Benzo(a)pyrene	1.9E+00	ug/kg	7.3E+00	2.1E-07	2.E-06	3.8E-08	3.E-07	--	4.9E-07	--	9.0E-08	--
		Benzo(b)fluoranthene	2.0E+00	ug/kg	7.3E-01	2.2E-07	2.E-07	4.0E-08	3.E-08	--	5.1E-07	--	9.4E-08	--
		Benzo(g,h,i)perylene	7.1E-01	ug/kg	--	7.8E-08	--	1.4E-08	--	3.0E-02	1.8E-07	0.00001	3.3E-08	0.000001
		Benzo(k)fluoranthene	1.0E+00	ug/kg	7.3E-02	1.1E-07	8.E-09	2.0E-08	1.E-09	--	2.6E-07	--	4.7E-08	--
		Chrysene	1.2E+01	ug/kg	7.3E-03	1.3E-06	1.E-08	2.4E-07	2.E-09	--	3.1E-06	--	5.7E-07	--
		Fluoranthene	2.9E+01	ug/kg	--	3.2E-06	--	5.9E-07	--	4.0E-02	7.5E-06	0.0002	1.4E-06	0.00003
		Fluorene	5.2E+00	ug/kg	--	5.7E-07	--	1.1E-07	--	4.0E-02	1.3E-06	0.00003	2.5E-07	0.00001
		Phenanthrene	1.9E+01	ug/kg	--	2.1E-06	--	3.8E-07	--	3.0E-02	4.9E-06	0.0002	9.0E-07	0.00003
		Pyrene	2.1E+01	ug/kg	--	2.3E-06	--	4.2E-07	--	3.0E-02	5.4E-06	0.0002	9.9E-07	0.00003
		Semivolatile Organic Compounds												
		Benzyl alcohol	1.8E+01	ug/kg	--	2.0E-06	--	3.6E-07	--	1.0E-01	4.6E-06	0.00005	8.5E-07	0.00001
		Dibenzofuran	2.5E+00	ug/kg	--	2.8E-07	--	5.1E-08	--	1.0E-03	6.4E-07	0.001	1.2E-07	0.0001
		Hexachlorobenzene	8.4E-01	ug/kg	1.6E+00	9.2E-08	1.E-07	1.7E-08	3.E-08	8.0E-04	2.2E-07	0.000	4.0E-08	0.00005
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.5E+05	pg/g	2.0E+00	4.9E-05	1.E-04	9.0E-06	2.E-05	2.0E-05	1.2E-04	6	2.1E-05	1
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	2.7E+00	pg/g	1.3E+05	3.0E-10	4.E-05	5.5E-11	7.E-06	1.0E-09	7.0E-10	0.7	1.3E-10	0.1
		Total PCB TEQ	3.9E+00	pg/g	1.3E+05	4.3E-10	6.E-05	7.8E-11	1.E-05	1.0E-09	9.9E-10	1	1.8E-10	0.2
		Pesticides												
		Aldrin	3.7E-01	ug/kg	1.7E+01	4.1E-08	7.E-07	7.5E-09	1.E-07	3.0E-05	9.5E-08	0.003	1.7E-08	0.001
		alpha-Hexachlorocyclohexane	1.5E-02	ug/kg	6.3E+00	1.7E-09	1.E-08	3.1E-10	2.E-09	8.0E-03	3.9E-09	0.0000005	7.2E-10	0.0000001
		Dieldrin	1.1E+00	ug/kg	1.6E+01	1.2E-07	2.E-06	2.3E-08	4.E-07	5.0E-05	2.9E-07	0.006	5.3E-08	0.001
		Endrin	5.5E-02	ug/kg	--	6.0E-09	--	1.1E-09	--	3.0E-04	1.4E-08	0.0000	2.6E-09	0.00001
		gamma-Hexachlorocyclohexane	6.6E-02	ug/kg	1.1E+00	7.3E-09	8.E-09	1.3E-09	1.E-09	3.0E-04	1.7E-08	0.0001	3.1E-09	0.00001
		Heptachlor	1.6E-02	ug/kg	4.5E+00	1.8E-09	8.E-09	3.3E-10	1.E-09	5.0E-04	4.2E-09	0.000008	7.6E-10	0.000002
		Heptachlor epoxide	8.9E-02	ug/kg	9.1E+00	9.8E-09	9.E-08	1.8E-09	2.E-08	1.3E-05	2.3E-08	0.002	4.2E-09	0.0003
		Total Chlordanes	6.3E+00	ug/kg	3.5E-01	7.0E-07	2.E-07	1.3E-07	4.E-08	5.0E-04	1.6E-06	0.003	3.0E-07	0.001
		Total DDD	5.8E+00	ug/kg	2.4E-01	6.4E-07	2.E-07	1.2E-07	3.E-08	5.0E-04	1.5E-06	0.003	2.8E-07	0.001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Total DDE	1.3E+01	ug/kg	3.4E-01	1.4E-06	5.E-07	2.6E-07	9.E-08	5.0E-04	3.3E-06	0.007	6.0E-07	0.001
		Total DDT	2.3E+00	ug/kg	3.4E-01	2.5E-07	8.E-08	4.6E-08	2.E-08	5.0E-04	5.8E-07	0.001	1.1E-07	0.0002
		Total Endosulfan	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	6.0E-03	3.6E-07	0.00006	6.6E-08	0.00001
Exposure Point Total							2.E-04		4.E-05			8		1
UD	RM 10 West	**Metals**												
		Aluminum	5.3E+01	mg/kg	--	5.8E-03	--	1.1E-03	--	1.0E+00	1.4E-02	0.01	2.5E-03	0.002
		Arsenic, inorganic	6.5E-02	mg/kg	1.5E+00	7.2E-06	1.E-05	1.3E-06	2.E-06	3.0E-04	1.7E-05	0.06	3.1E-06	0.01
		Cadmium	4.0E-02	mg/kg	--	4.4E-06	--	8.1E-07	--	1.0E-03	1.0E-05	0.01	1.9E-06	0.002
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.00007	1.9E-05	0.00001
		Copper	6.3E+00	mg/kg	--	6.9E-04	--	1.3E-04	--	4.0E-02	1.6E-03	0.04	3.0E-04	0.007
		Manganese	4.0E+00	mg/kg	--	4.4E-04	--	8.0E-05	--	1.4E-01	1.0E-03	0.007	1.9E-04	0.001
		Mercury	2.0E-02	mg/kg	--	2.2E-06	--	4.1E-07	--	1.0E-04	5.2E-06	0.052	9.6E-07	0.01
		Nickel	1.5E-01	mg/kg	--	1.7E-05	--	3.1E-06	--	2.0E-02	3.9E-05	0.002	7.1E-06	0.0004
		Selenium	1.0E-01	mg/kg	--	1.1E-05	--	2.0E-06	--	5.0E-03	2.6E-05	0.005	4.7E-06	0.001
		Silver	4.4E-02	mg/kg	--	4.8E-06	--	8.8E-07	--	5.0E-03	1.1E-05	0.002	2.1E-06	0.000
		Zinc	2.0E+01	mg/kg	--	2.2E-03	--	4.0E-04	--	3.0E-01	5.0E-03	0.02	9.2E-04	0.003
		PAHs												
		1-Methylnaphthalene	9.0E-01	ug/kg	2.9E-02	9.9E-08	3.E-09	1.8E-08	5.E-10	7.0E-02	2.3E-07	0.000003	4.2E-08	0.000001
		2-Methylnaphthalene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	4.0E-03	3.3E-07	0.0001	6.1E-08	0.00002
		Acenaphthene	5.1E-01	ug/kg	--	5.6E-08	--	1.0E-08	--	6.0E-02	1.3E-07	0.000002	2.4E-08	0.0000004
		Anthracene	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	3.0E-01	2.8E-07	0.000001	5.2E-08	0.0000002
		Benzo(a)anthracene	2.5E+00	ug/kg	7.3E-01	2.8E-07	2.E-07	5.1E-08	4.E-08	--	6.4E-07	--	1.2E-07	--
		Benzo(e)pyrene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-02	3.3E-07	0.00001	6.1E-08	0.000002
		Chrysene	4.1E+00	ug/kg	7.3E-03	4.5E-07	3.E-09	8.3E-08	6.E-10	--	1.1E-06	--	1.9E-07	--
		Fluoranthene	8.5E+00	ug/kg	--	9.4E-07	--	1.7E-07	--	4.0E-02	2.2E-06	0.0001	4.0E-07	0.00001
		Fluorene	7.6E-01	ug/kg	--	8.4E-08	--	1.5E-08	--	4.0E-02	2.0E-07	0.000005	3.6E-08	0.000001
		Indeno(1,2,3-cd)pyrene	1.9E-01	ug/kg	7.3E-01	2.1E-08	2.E-08	3.8E-09	3.E-09	--	4.9E-08	--	9.0E-09	--
		Phenanthrene	3.8E+00	ug/kg	--	4.2E-07	--	7.7E-08	--	3.0E-02	9.8E-07	0.00003	1.8E-07	0.00001
		Pyrene	7.4E+00	ug/kg	--	8.2E-07	--	1.5E-07	--	3.0E-02	1.9E-06	0.0001	3.5E-07	0.00001
		Semivolatile Organic Compounds												
		Benzoic acid	2.5E+03	ug/kg	--	2.8E-04	--	5.1E-05	--	4.0E+00	6.4E-04	0.0002	1.2E-04	0.00003
		Dibenzofuran	5.5E-01	ug/kg	--	6.1E-08	--	1.1E-08	--	1.0E-03	1.4E-07	0.0001	2.6E-08	0.00003
		Hexachlorobenzene	4.4E-01	ug/kg	1.6E+00	4.8E-08	8.E-08	8.8E-09	1.E-08	8.0E-04	1.1E-07	0.0001	2.1E-08	0.00003
		Nitrobenzene	8.3E+01	ug/kg	--	9.1E-06	--	1.7E-06	--	2.0E-03	2.1E-05	0.01	3.9E-06	0.002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	7.8E+04	pg/g	2.0E+00	8.6E-06	2.E-05	1.6E-06	3.E-06	2.0E-05	2.0E-05	1	3.7E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	3.9E-01	pg/g	1.3E+05	4.3E-11	6.E-06	7.8E-12	1.E-06	1.0E-09	9.9E-11	0.1	1.8E-11	0.02
		Total PCB TEQ	6.9E-01	pg/g	1.3E+05	7.6E-11	1.E-05	1.4E-11	2.E-06	1.0E-09	1.8E-10	0.2	3.3E-11	0.03
		Pesticides												
		Aldrin	1.3E-01	ug/kg	1.7E+01	1.5E-08	2.E-07	2.7E-09	5.E-08	3.0E-05	3.4E-08	0.001	6.2E-09	0.0002
		Dieldrin	3.4E-01	ug/kg	1.6E+01	3.7E-08	6.E-07	6.8E-09	1.E-07	5.0E-05	8.7E-08	0.002	1.6E-08	0.0003
		Total Chlordanes	1.6E+00	ug/kg	3.5E-01	1.8E-07	6.E-08	3.3E-08	1.E-08	5.0E-04	4.1E-07	0.001	7.6E-08	0.0002
		Total DDD	1.7E+00	ug/kg	2.4E-01	1.9E-07	5.E-08	3.5E-08	8.E-09	5.0E-04	4.4E-07	0.001	8.2E-08	0.0002
		Total DDE	5.3E+00	ug/kg	3.4E-01	5.8E-07	2.E-07	1.1E-07	4.E-08	5.0E-04	1.4E-06	0.003	2.5E-07	0.0005
		Total DDT	4.6E-01	ug/kg	3.4E-01	5.1E-08	2.E-08	9.4E-09	3.E-09	5.0E-04	1.2E-07	0.0002	2.2E-08	0.00004
	Exposure Point Total						4.E-05		8.E-06			2		0.3
UD	RM 11 East	**Metals**												
		Aluminum	2.0E+02	mg/kg	--	2.1E-02	--	3.9E-03	--	1.0E+00	5.0E-02	0.05	9.2E-03	0.009
		Arsenic, inorganic	7.7E-02	mg/kg	1.5E+00	8.5E-06	1.E-05	1.6E-06	2.E-06	3.0E-04	2.0E-05	0.07	3.6E-06	0.01
		Cadmium	7.8E-02	mg/kg	--	8.6E-06	--	1.6E-06	--	1.0E-03	2.0E-05	0.02	3.7E-06	0.004
		Chromium	7.0E-01	mg/kg	--	7.7E-05	--	1.4E-05	--	1.5E+00	1.8E-04	0.0001	3.3E-05	0.00002
		Copper	6.6E+00	mg/kg	--	7.2E-04	--	1.3E-04	--	4.0E-02	1.7E-03	0.04	3.1E-04	0.008
		Manganese	7.5E+00	mg/kg	--	8.3E-04	--	1.5E-04	--	1.4E-01	1.9E-03	0.01	3.5E-04	0.003
		Mercury	2.6E-02	mg/kg	--	2.9E-06	--	5.3E-07	--	1.0E-04	6.8E-06	0.07	1.2E-06	0.01
		Nickel	3.2E-01	mg/kg	--	3.6E-05	--	6.5E-06	--	2.0E-02	8.3E-05	0.004	1.5E-05	0.001
		Selenium	1.4E-01	mg/kg	--	1.5E-05	--	2.8E-06	--	5.0E-03	3.6E-05	0.007	6.6E-06	0.001
		Silver	5.6E-02	mg/kg	--	6.2E-06	--	1.1E-06	--	5.0E-03	1.5E-05	0.003	2.7E-06	0.001
		Zinc	2.6E+01	mg/kg	--	2.8E-03	--	5.2E-04	--	3.0E-01	6.6E-03	0.02	1.2E-03	0.004
		Butyltins												
		Butyltin ion	2.1E+00	ug/kg	--	2.3E-07	--	4.2E-08	--	3.0E-04	5.4E-07	0.002	9.9E-08	0.0003
		PAHs												
		1-Methylnaphthalene	9.3E-01	ug/kg	2.9E-02	1.0E-07	3.E-09	1.9E-08	5.E-10	7.0E-02	2.4E-07	0.000003	4.4E-08	0.000001
		2-Methylnaphthalene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	4.0E-03	3.3E-07	0.0001	6.1E-08	0.00002
		Acenaphthene	3.0E-01	ug/kg	--	3.3E-08	--	6.1E-09	--	6.0E-02	7.7E-08	0.000001	1.4E-08	0.0000002
		Anthracene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-01	3.1E-07	0.000001	5.7E-08	0.0000002
		Benzo(a)anthracene	1.9E+00	ug/kg	7.3E-01	2.1E-07	2.E-07	3.8E-08	3.E-08	--	4.9E-07	--	9.0E-08	--
		Benzo(e)pyrene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-02	3.1E-07	0.00001	5.7E-08	0.000002
		Chrysene	3.8E+00	ug/kg	7.3E-03	4.2E-07	3.E-09	7.7E-08	6.E-10	--	9.8E-07	--	1.8E-07	--
		Fluoranthene	5.5E+00	ug/kg	--	6.1E-07	--	1.1E-07	--	4.0E-02	1.4E-06	0.00004	2.6E-07	0.00001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Fluorene	6.3E-01	ug/kg	--	6.9E-08	--	1.3E-08	--	4.0E-02	1.6E-07	0.000004	3.0E-08	0.000001
		Phenanthrene	2.7E+00	ug/kg	--	3.0E-07	--	5.5E-08	--	3.0E-02	6.9E-07	0.00002	1.3E-07	0.000004
		Pyrene	5.5E+00	ug/kg	--	6.1E-07	--	1.1E-07	--	3.0E-02	1.4E-06	0.00005	2.6E-07	0.00001
		Semivolatile Organic Compounds												
		Benzoic acid	4.0E+03	ug/kg	--	4.4E-04	--	8.1E-05	--	4.0E+00	1.0E-03	0.0003	1.9E-04	0.00005
		Benzyl alcohol	2.3E+01	ug/kg	--	2.5E-06	--	4.6E-07	--	1.0E-01	5.9E-06	0.0001	1.1E-06	0.00001
		Dibenzofuran	5.1E-01	ug/kg	--	5.6E-08	--	1.0E-08	--	1.0E-03	1.3E-07	0.0001	2.4E-08	0.00002
		Hexachlorobenzene	5.5E-01	ug/kg	1.6E+00	6.0E-08	1.E-07	1.1E-08	2.E-08	8.0E-04	1.4E-07	0.0002	2.6E-08	0.00003
		Nitrobenzene	7.8E+01	ug/kg	--	8.6E-06	--	1.6E-06	--	2.0E-03	2.0E-05	0.01	3.7E-06	0.002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	8.4E+05	pg/g	2.0E+00	9.2E-05	2.E-04	1.7E-05	3.E-05	2.0E-05	2.2E-04	10	4.0E-05	2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	5.3E-01	pg/g	1.3E+05	5.8E-11	8.E-06	1.1E-11	1.E-06	1.0E-09	1.4E-10	0.1	2.5E-11	0.02
		Total PCB TEQ	1.7E+00	pg/g	1.3E+05	1.9E-10	2.E-05	3.5E-11	5.E-06	1.0E-09	4.4E-10	0.4	8.1E-11	0.08
		Pesticides												
		Dieldrin	4.5E-01	ug/kg	1.6E+01	5.0E-08	8.E-07	9.1E-09	1.E-07	5.0E-05	1.2E-07	0.002	2.1E-08	0.0004
		gamma-Hexachlorocyclohexane	2.6E-02	ug/kg	1.1E+00	2.8E-09	3.E-09	5.2E-10	6.E-10	3.0E-04	6.6E-09	0.00002	1.2E-09	0.000004
		Heptachlor epoxide	3.3E-02	ug/kg	9.1E+00	3.6E-09	3.E-08	6.7E-10	6.E-09	1.3E-05	8.5E-09	0.001	1.6E-09	0.0001
		Total Chlordanes	1.8E+00	ug/kg	3.5E-01	2.0E-07	7.E-08	3.7E-08	1.E-08	5.0E-04	4.7E-07	0.001	8.7E-08	0.0002
		Total DDD	1.7E+00	ug/kg	2.4E-01	1.9E-07	5.E-08	3.5E-08	8.E-09	5.0E-04	4.4E-07	0.001	8.1E-08	0.0002
		Total DDE	5.4E+00	ug/kg	3.4E-01	5.9E-07	2.E-07	1.1E-07	4.E-08	5.0E-04	1.4E-06	0.003	2.5E-07	0.001
		Total DDT	7.6E-01	ug/kg	3.4E-01	8.4E-08	3.E-08	1.5E-08	5.E-09	5.0E-04	2.0E-07	0.0004	3.6E-08	0.0001
		Total Endosulfan	4.5E-01	ug/kg	--	5.0E-08	--	9.2E-09	--	6.0E-03	1.2E-07	0.00002	2.1E-08	0.000004
Exposure Point Total							2.E-04		4.E-05			10		2
UD	RM 11 West	**Metals**												
		Aluminum	1.5E+02	mg/kg	--	1.6E-02	--	3.0E-03	--	1.0E+00	3.8E-02	0.04	6.9E-03	0.007
		Arsenic, inorganic	6.2E-02	mg/kg	1.5E+00	6.8E-06	1.E-05	1.2E-06	2.E-06	3.0E-04	1.6E-05	0.05	2.9E-06	0.01
		Cadmium	3.5E-02	mg/kg	--	3.9E-06	--	7.1E-07	--	1.0E-03	9.0E-06	0.009	1.7E-06	0.002
		Chromium	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.000	2.4E-05	0.000
		Copper	4.6E+00	mg/kg	--	5.0E-04	--	9.2E-05	--	4.0E-02	1.2E-03	0.03	2.2E-04	0.005
		Manganese	7.8E+00	mg/kg	--	8.6E-04	--	1.6E-04	--	1.4E-01	2.0E-03	0.01	3.7E-04	0.003
		Mercury	2.0E-02	mg/kg	--	2.2E-06	--	4.0E-07	--	1.0E-04	5.1E-06	0.05	9.4E-07	0.009
		Nickel	2.5E-01	mg/kg	--	2.8E-05	--	5.1E-06	--	2.0E-02	6.4E-05	0.003	1.2E-05	0.001
		Selenium	1.4E-01	mg/kg	--	1.5E-05	--	2.8E-06	--	5.0E-03	3.6E-05	0.007	6.6E-06	0.001
		Silver	4.4E-02	mg/kg	--	4.8E-06	--	8.8E-07	--	5.0E-03	1.1E-05	0.002	2.1E-06	0.0004
		Zinc	2.8E+01	mg/kg	--	3.1E-03	--	5.6E-04	--	3.0E-01	7.1E-03	0.02	1.3E-03	0.004

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		PAHs												
		Acenaphthene	4.0E-01	ug/kg	--	4.4E-08	--	8.1E-09	--	6.0E-02	1.0E-07	0.000002	1.9E-08	0.0000003
		Anthracene	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	3.0E-01	3.6E-07	0.000001	6.6E-08	0.0000002
		Benzo(a)anthracene	2.1E+00	ug/kg	7.3E-01	2.3E-07	2.E-07	4.2E-08	3.E-08	--	5.4E-07	--	9.9E-08	--
		Benzo(a)pyrene	3.2E-01	ug/kg	7.3E+00	3.5E-08	3.E-07	6.5E-09	5.E-08	--	8.2E-08	--	1.5E-08	--
		Benzo(e)pyrene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-02	3.1E-07	0.00001	5.7E-08	0.000002
		Chrysene	3.2E+00	ug/kg	7.3E-03	3.5E-07	3.E-09	6.5E-08	5.E-10	--	8.2E-07	--	1.5E-07	--
		Fluoranthene	5.6E+00	ug/kg	--	6.2E-07	--	1.1E-07	--	4.0E-02	1.4E-06	0.00004	2.6E-07	0.00001
		Fluorene	8.2E-01	ug/kg	--	9.0E-08	--	1.7E-08	--	4.0E-02	2.1E-07	0.00001	3.9E-08	0.000001
		Indeno(1,2,3-cd)pyrene	1.5E-01	ug/kg	7.3E-01	1.7E-08	1.E-08	3.0E-09	2.E-09	--	3.9E-08	--	7.1E-09	--
		Phenanthrene	3.6E+00	ug/kg	--	4.0E-07	--	7.3E-08	--	3.0E-02	9.3E-07	0.00003	1.7E-07	0.00001
		Pyrene	4.9E+00	ug/kg	--	5.4E-07	--	9.9E-08	--	3.0E-02	1.3E-06	0.00004	2.3E-07	0.00001
		Semivolatile Organic Compounds												
		Benzoic acid	5.2E+03	ug/kg	--	5.7E-04	--	1.1E-04	--	4.0E+00	1.3E-03	0.0003	2.5E-04	0.0001
		Benzyl alcohol	2.3E+01	ug/kg	--	2.5E-06	--	4.6E-07	--	1.0E-01	5.9E-06	0.0001	1.1E-06	0.00001
		Dibenzofuran	6.1E-01	ug/kg	--	6.7E-08	--	1.2E-08	--	1.0E-03	1.6E-07	0.0002	2.9E-08	0.00003
		Hexachlorobenzene	6.7E-01	ug/kg	1.6E+00	7.4E-08	1.E-07	1.4E-08	2.E-08	8.0E-04	1.7E-07	0.0002	3.2E-08	0.00004
		Nitrobenzene	2.3E+02	ug/kg	--	2.5E-05	--	4.6E-06	--	2.0E-03	5.9E-05	0.03	1.1E-05	0.005
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	3.6E+04	pg/g	2.0E+00	3.9E-06	8.E-06	7.2E-07	1.E-06	2.0E-05	9.1E-06	0.5	1.7E-06	0.08
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	5.8E-01	pg/g	1.3E+05	6.4E-11	8.E-06	1.2E-11	2.E-06	1.0E-09	1.5E-10	0.1	2.7E-11	0.03
		Total PCB TEQ	4.9E-01	pg/g	1.3E+05	5.4E-11	7.E-06	9.9E-12	1.E-06	1.0E-09	1.3E-10	0.1	2.3E-11	0.02
		Pesticides												
		Aldrin	1.3E-01	ug/kg	1.7E+01	1.4E-08	2.E-07	2.6E-09	4.E-08	3.0E-05	3.3E-08	0.001	6.1E-09	0.0002
		Dieldrin	5.0E-01	ug/kg	1.6E+01	5.5E-08	9.E-07	1.0E-08	2.E-07	5.0E-05	1.3E-07	0.003	2.3E-08	0.0005
		gamma-Hexachlorocyclohexane	1.8E-02	ug/kg	1.1E+00	2.0E-09	2.E-09	3.6E-10	4.E-10	3.0E-04	4.6E-09	0.00002	8.5E-10	0.000003
		Heptachlor epoxide	4.7E-02	ug/kg	9.1E+00	5.2E-09	5.E-08	9.5E-10	9.E-09	1.3E-05	1.2E-08	0.001	2.2E-09	0.0002
		Total Chlordanes	2.0E+00	ug/kg	3.5E-01	2.2E-07	8.E-08	4.0E-08	1.E-08	5.0E-04	5.1E-07	0.001	9.4E-08	0.0002
		Total DDD	1.6E+00	ug/kg	2.4E-01	1.8E-07	4.E-08	3.3E-08	8.E-09	5.0E-04	4.2E-07	0.001	7.7E-08	0.0002
		Total DDE	6.0E+00	ug/kg	3.4E-01	6.7E-07	2.E-07	1.2E-07	4.E-08	5.0E-04	1.6E-06	0.003	2.8E-07	0.001
		Total DDT	9.8E-01	ug/kg	3.4E-01	1.1E-07	4.E-08	2.0E-08	7.E-09	5.0E-04	2.5E-07	0.001	4.6E-08	0.0001
		Total Endosulfan	2.4E-01	ug/kg	--	2.7E-08	--	4.9E-09	--	6.0E-03	6.3E-08	0.00001	1.2E-08	0.000002
	Exposure Point Total						4.E-05		6.E-06			1		0.2

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
UD	RM 12 East	**Metals**												
		Aluminum	1.1E+02	mg/kg	--	1.2E-02	--	2.2E-03	--	1.0E+00	2.8E-02	0.03	5.1E-03	0.005
		Arsenic, inorganic	8.0E-02	mg/kg	1.5E+00	8.8E-06	1.E-05	1.6E-06	2.E-06	3.0E-04	2.1E-05	0.07	3.8E-06	0.01
		Cadmium	5.3E-02	mg/kg	--	5.8E-06	--	1.1E-06	--	1.0E-03	1.4E-05	0.01	2.5E-06	0.002
		Chromium	7.0E-01	mg/kg	--	7.7E-05	--	1.4E-05	--	1.5E+00	1.8E-04	0.0001	3.3E-05	0.00002
		Copper	7.0E+00	mg/kg	--	7.7E-04	--	1.4E-04	--	4.0E-02	1.8E-03	0.04	3.3E-04	0.008
		Manganese	6.5E+00	mg/kg	--	7.2E-04	--	1.3E-04	--	1.4E-01	1.7E-03	0.01	3.1E-04	0.002
		Mercury	2.5E-02	mg/kg	--	2.7E-06	--	5.0E-07	--	1.0E-04	6.3E-06	0.06	1.2E-06	0.01
		Nickel	2.2E-01	mg/kg	--	2.4E-05	--	4.4E-06	--	2.0E-02	5.6E-05	0.003	1.0E-05	0.001
		Selenium	1.4E-01	mg/kg	--	1.5E-05	--	2.8E-06	--	5.0E-03	3.6E-05	0.007	6.6E-06	0.001
		Silver	6.4E-02	mg/kg	--	7.0E-06	--	1.3E-06	--	5.0E-03	1.6E-05	0.003	3.0E-06	0.001
		Zinc	3.0E+01	mg/kg	--	3.4E-03	--	6.1E-04	--	3.0E-01	7.8E-03	0.03	1.4E-03	0.005
		PAHs												
		1-Methylnaphthalene	8.1E-01	ug/kg	2.9E-02	8.9E-08	3.E-09	1.6E-08	5.E-10	7.0E-02	2.1E-07	0.000003	3.8E-08	0.000001
		2-Methylnaphthalene	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	4.0E-03	4.4E-07	0.0001	8.0E-08	0.00002
		Acenaphthene	7.3E-01	ug/kg	--	8.0E-08	--	1.5E-08	--	6.0E-02	1.9E-07	0.000003	3.4E-08	0.000001
		Anthracene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	3.0E-01	4.6E-07	0.000002	8.5E-08	0.0000003
		Benzo(a)anthracene	2.6E+00	ug/kg	7.3E-01	2.9E-07	2.E-07	5.3E-08	4.E-08	--	6.7E-07	--	1.2E-07	--
		Benzo(e)pyrene	2.3E+00	ug/kg	--	2.5E-07	--	4.6E-08	--	3.0E-02	5.9E-07	0.00002	1.1E-07	0.000004
		Chrysene	6.3E+00	ug/kg	7.3E-03	6.9E-07	5.E-09	1.3E-07	9.E-10	--	1.6E-06	--	3.0E-07	--
		Fluoranthene	7.8E+00	ug/kg	--	8.6E-07	--	1.6E-07	--	4.0E-02	2.0E-06	0.0001	3.7E-07	0.00001
		Fluorene	9.6E-01	ug/kg	--	1.1E-07	--	1.9E-08	--	4.0E-02	2.5E-07	0.00001	4.5E-08	0.000001
		Naphthalene	7.8E+01	ug/kg	--	8.6E-06	--	1.6E-06	--	2.0E-02	2.0E-05	0.001	3.7E-06	0.0002
		Phenanthrene	4.2E+00	ug/kg	--	4.6E-07	--	8.5E-08	--	3.0E-02	1.1E-06	0.00004	2.0E-07	0.00001
		Pyrene	8.9E+00	ug/kg	--	9.8E-07	--	1.8E-07	--	3.0E-02	2.3E-06	0.0001	4.2E-07	0.00001
		Phthalates												
		Bis(2-ethylhexyl) phthalate	1.5E+02	ug/kg	1.4E-02	1.7E-05	2.E-07	3.0E-06	4.E-08	2.0E-02	3.9E-05	0.002	7.1E-06	0.0004
		Semivolatile Organic Compounds												
		Benzoic acid	3.4E+03	ug/kg	--	3.7E-04	--	6.9E-05	--	4.0E+00	8.7E-04	0.0002	1.6E-04	0.00004
		Dibenzofuran	6.3E-01	ug/kg	--	6.9E-08	--	1.3E-08	--	1.0E-03	1.6E-07	0.0002	3.0E-08	0.00003
		Hexachlorobenzene	7.8E-01	ug/kg	1.6E+00	8.6E-08	1.E-07	1.6E-08	3.E-08	8.0E-04	2.0E-07	0.0003	3.7E-08	0.00005
		Hexachlorobutadiene	4.0E-03	ug/kg	7.8E-02	4.4E-10	3.E-11	8.1E-11	6.E-12	1.0E-03	1.0E-09	0.000001	1.9E-10	0.0000002
		Nitrobenzene	1.7E+02	ug/kg	--	1.9E-05	--	3.4E-06	--	2.0E-03	4.4E-05	0.02	8.0E-06	0.004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.4E+05	pg/g	2.0E+00	1.5E-05	3.E-05	2.7E-06	5.E-06	2.0E-05	3.5E-05	2	6.4E-06	0.3

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	6.8E-01	pg/g	1.3E+05	7.4E-11	1.E-05	1.4E-11	2.E-06	1.0E-09	1.7E-10	0.2	3.2E-11	0.03
		Total PCB TEQ	9.2E-01	pg/g	1.3E+05	1.0E-10	1.E-05	1.9E-11	2.E-06	1.0E-09	2.4E-10	0.2	4.3E-11	0.04
		Pesticides												
		Aldrin	1.1E-01	ug/kg	1.7E+01	1.2E-08	2.E-07	2.2E-09	4.E-08	3.0E-05	2.8E-08	0.001	5.2E-09	0.0002
		Dieldrin	6.1E-01	ug/kg	1.6E+01	6.7E-08	1.E-06	1.2E-08	2.E-07	5.0E-05	1.6E-07	0.003	2.9E-08	0.001
		gamma-Hexachlorocyclohexane	3.6E-02	ug/kg	1.1E+00	3.9E-09	4.E-09	7.2E-10	8.E-10	3.0E-04	9.2E-09	0.00003	1.7E-09	0.00001
		Total Chlordanes	2.5E+00	ug/kg	3.5E-01	2.8E-07	1.E-07	5.1E-08	2.E-08	5.0E-04	6.5E-07	0.001	1.2E-07	0.0002
		Total DDD	2.0E+00	ug/kg	2.4E-01	2.2E-07	5.E-08	4.0E-08	1.E-08	5.0E-04	5.2E-07	0.001	9.4E-08	0.0002
		Total DDE	6.3E+00	ug/kg	3.4E-01	6.9E-07	2.E-07	1.3E-07	4.E-08	5.0E-04	1.6E-06	0.003	3.0E-07	0.001
		Total DDT	1.1E+00	ug/kg	3.4E-01	1.2E-07	4.E-08	2.1E-08	7.E-09	5.0E-04	2.7E-07	0.001	5.0E-08	0.0001
		Total Endosulfan	4.4E-01	ug/kg	--	4.8E-08	--	8.8E-09	--	6.0E-03	1.1E-07	0.00002	2.1E-08	0.000003
	Exposure Point Total						7.E-05		1.E-05			2		0.4
UD	Study Area-wide	**Metals**												
		Aluminum	1.0E+02	mg/kg	--	1.1E-02	--	2.1E-03	--	1.0E+00	2.7E-02	0.03	4.9E-03	0.005
		Antimony	1.7E-03	mg/kg	--	1.9E-07	--	3.4E-08	--	4.0E-04	4.3E-07	0.001	7.9E-08	0.0002
		Arsenic, inorganic	9.4E-02	mg/kg	1.5E+00	1.0E-05	2.E-05	1.9E-06	3.E-06	3.0E-04	2.4E-05	0.08	4.4E-06	0.01
		Cadmium	1.1E-01	mg/kg	--	1.3E-05	--	2.3E-06	--	1.0E-03	2.9E-05	0.03	5.4E-06	0.005
		Chromium	6.6E-01	mg/kg	--	7.3E-05	--	1.3E-05	--	1.5E+00	1.7E-04	0.0001	3.1E-05	0.00002
		Copper	9.6E+00	mg/kg	--	1.1E-03	--	1.9E-04	--	4.0E-02	2.5E-03	0.06	4.5E-04	0.01
		Manganese	6.9E+00	mg/kg	--	7.6E-04	--	1.4E-04	--	1.4E-01	1.8E-03	0.01	3.2E-04	0.002
		Mercury	1.5E-02	mg/kg	--	1.6E-06	--	3.0E-07	--	1.0E-04	3.8E-06	0.04	7.0E-07	0.007
		Nickel	3.2E-01	mg/kg	--	3.6E-05	--	6.5E-06	--	2.0E-02	8.3E-05	0.004	1.5E-05	0.001
		Selenium	1.6E-01	mg/kg	--	1.7E-05	--	3.1E-06	--	5.0E-03	4.0E-05	0.008	7.3E-06	0.001
		Silver	5.7E-02	mg/kg	--	6.3E-06	--	1.1E-06	--	5.0E-03	1.5E-05	0.003	2.7E-06	0.001
		Zinc	3.6E+01	mg/kg	--	3.9E-03	--	7.2E-04	--	3.0E-01	9.2E-03	0.03	1.7E-03	0.006
		Butyltins												
		Butyltin ion	1.1E+01	ug/kg	--	1.2E-06	--	2.2E-07	--	3.0E-04	2.8E-06	0.009	5.2E-07	0.002
		Dibutyltin ion	1.2E+02	ug/kg	--	1.4E-05	--	2.5E-06	--	3.0E-04	3.2E-05	0.1	5.9E-06	0.02
		Tributyltin ion	1.2E+02	ug/kg	--	1.3E-05	--	2.4E-06	--	3.0E-04	3.1E-05	0.1	5.7E-06	0.02
		PAHs												
		1-Methylnaphthalene	1.6E+00	ug/kg	2.9E-02	1.7E-07	5.E-09	3.1E-08	9.E-10	7.0E-02	4.0E-07	0.00001	7.3E-08	0.000001
		2-Methylnaphthalene	6.2E+00	ug/kg	--	6.8E-07	--	1.2E-07	--	4.0E-03	1.6E-06	0.0004	2.9E-07	0.0001
		Acenaphthene	1.5E+01	ug/kg	--	1.6E-06	--	3.0E-07	--	6.0E-02	3.8E-06	0.0001	6.9E-07	0.00001
		Acenaphthylene	4.3E+00	ug/kg	--	4.8E-07	--	8.8E-08	--	6.0E-02	1.1E-06	0.00002	2.0E-07	0.000003
		Anthracene	2.1E+01	ug/kg	--	2.3E-06	--	4.2E-07	--	3.0E-01	5.4E-06	0.00002	9.9E-07	0.000003

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Benzo(a)anthracene	2.1E+02	ug/kg	7.3E-01	2.3E-05	2.E-05	4.2E-06	3.E-06	--	5.3E-05	--	9.7E-06	--
		Benzo(a)pyrene	1.4E+02	ug/kg	7.3E+00	1.5E-05	1.E-04	2.8E-06	2.E-05	--	3.5E-05	--	6.5E-06	--
		Benzo(b)fluoranthene	1.3E+02	ug/kg	7.3E-01	1.4E-05	1.E-05	2.7E-06	2.E-06	--	3.4E-05	--	6.2E-06	--
		Benzo(e)pyrene	7.8E+00	ug/kg	--	8.6E-07	--	1.6E-07	--	3.0E-02	2.0E-06	0.0001	3.7E-07	0.00001
		Benzo(g,h,i)perylene	6.6E+01	ug/kg	--	7.3E-06	--	1.3E-06	--	3.0E-02	1.7E-05	0.001	3.1E-06	0.0001
		Benzo(k)fluoranthene	1.3E+02	ug/kg	7.3E-02	1.4E-05	1.E-06	2.5E-06	2.E-07	--	3.2E-05	--	5.9E-06	--
		Chrysene	1.9E+02	ug/kg	7.3E-03	2.1E-05	2.E-07	3.8E-06	3.E-08	--	4.8E-05	--	8.8E-06	--
		Dibenzo(a,h)anthracene	5.4E+00	ug/kg	7.3E+00	5.9E-07	4.E-06	1.1E-07	8.E-07	--	1.4E-06	--	2.5E-07	--
		Dibenzothiophene	3.2E+00	ug/kg	--	3.5E-07	--	6.5E-08	--	4.0E-02	8.2E-07	0.00002	1.5E-07	0.000004
		Fluoranthene	2.6E+02	ug/kg	--	2.9E-05	--	5.3E-06	--	4.0E-02	6.8E-05	0.002	1.2E-05	0.0003
		Fluorene	9.3E+00	ug/kg	--	1.0E-06	--	1.9E-07	--	4.0E-02	2.4E-06	0.0001	4.4E-07	0.00001
		Indeno(1,2,3-cd)pyrene	6.9E+01	ug/kg	7.3E-01	7.6E-06	6.E-06	1.4E-06	1.E-06	--	1.8E-05	--	3.3E-06	--
		Naphthalene	3.3E+01	ug/kg	--	3.6E-06	--	6.7E-07	--	2.0E-02	8.5E-06	0.0004	1.6E-06	0.00008
		Perylene	9.2E-01	ug/kg	--	1.0E-07	--	1.9E-08	--	3.0E-02	2.4E-07	0.00001	4.3E-08	0.000001
		Phenanthrene	9.4E+01	ug/kg	--	1.0E-05	--	1.9E-06	--	3.0E-02	2.4E-05	0.001	4.4E-06	0.0001
		Pyrene	2.9E+02	ug/kg	--	3.2E-05	--	5.9E-06	--	3.0E-02	7.5E-05	0.002	1.4E-05	0.0005
		Phthalates												
		Bis(2-ethylhexyl) phthalate	8.8E+01	ug/kg	1.4E-02	9.7E-06	1.E-07	1.8E-06	3.E-08	2.0E-02	2.3E-05	0.001	4.2E-06	0.0002
		Dibutyl phthalate	1.3E+03	ug/kg	--	1.4E-04	--	2.6E-05	--	1.0E-01	3.3E-04	0.003	6.1E-05	0.001
		Semivolatile Organic Compounds												
		Benzoic acid	4.8E+03	ug/kg	--	5.3E-04	--	9.6E-05	--	4.0E+00	1.2E-03	0.0003	2.3E-04	0.0001
		Benzyl alcohol	2.7E+02	ug/kg	--	3.0E-05	--	5.5E-06	--	1.0E-01	7.0E-05	0.001	1.3E-05	0.0001
		Bis(2-chloroethoxy) methane	4.6E+01	ug/kg	--	5.1E-06	--	9.3E-07	--	3.0E-03	1.2E-05	0.004	2.2E-06	0.001
		Dibenzofuran	3.7E+00	ug/kg	--	4.1E-07	--	7.4E-08	--	1.0E-03	9.5E-07	0.001	1.7E-07	0.0002
		Hexachlorobenzene	6.5E-01	ug/kg	1.6E+00	7.1E-08	1.E-07	1.3E-08	2.E-08	8.0E-04	1.7E-07	0.0002	3.1E-08	0.00004
		Hexachlorobutadiene	2.5E-02	ug/kg	7.8E-02	2.8E-09	2.E-10	5.1E-10	4.E-11	1.0E-03	6.4E-09	0.00001	1.2E-09	0.000001
		Nitrobenzene	2.9E+02	ug/kg	--	3.2E-05	--	5.9E-06	--	2.0E-03	7.5E-05	0.04	1.4E-05	0.007
		Phenols												
		4-Nitrophenol	1.9E+01	ug/kg	--	2.1E-06	--	3.8E-07	--	5.0E-03	4.9E-06	0.001	9.0E-07	0.0002
		Phenol	2.6E+03	ug/kg	--	2.9E-04	--	5.3E-05	--	3.0E-01	6.7E-04	0.002	1.2E-04	0.0004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	5.4E+05	pg/g	2.0E+00	5.9E-05	1.E-04	1.1E-05	2.E-05	2.0E-05	1.4E-04	7	2.5E-05	1
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	1.9E+00	pg/g	1.3E+05	2.1E-10	3.E-05	3.9E-11	5.E-06	1.0E-09	5.0E-10	0.5	9.2E-11	0.09
		Total PCB TEQ	2.9E+00	pg/g	1.3E+05	3.2E-10	4.E-05	5.8E-11	8.E-06	1.0E-09	7.4E-10	0.7	1.3E-10	0.1

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Pesticides												
		Aldrin	8.8E-01	ug/kg	1.7E+01	9.7E-08	2.E-06	1.8E-08	3.E-07	3.0E-05	2.3E-07	0.008	4.1E-08	0.001
		alpha-Hexachlorocyclohexane	1.0E-02	ug/kg	6.3E+00	1.1E-09	7.E-09	2.1E-10	1.E-09	8.0E-03	2.6E-09	0.0000003	4.8E-10	0.0000001
		beta-Hexachlorocyclohexane	1.2E+00	ug/kg	1.8E+00	1.3E-07	2.E-07	2.4E-08	4.E-08	6.0E-04	3.1E-07	0.001	5.7E-08	0.0001
		Dieldrin	1.1E+00	ug/kg	1.6E+01	1.2E-07	2.E-06	2.2E-08	3.E-07	5.0E-05	2.8E-07	0.006	5.1E-08	0.001
		Endrin	1.7E-02	ug/kg	--	1.9E-09	--	3.4E-10	--	3.0E-04	4.3E-09	0.0000	7.9E-10	0.0000
		Endrin aldehyde	3.9E-01	ug/kg	--	4.3E-08	--	7.9E-09	--	3.0E-04	1.0E-07	0.0003	1.8E-08	0.0001
		Endrin ketone	4.0E-03	ug/kg	--	4.4E-10	--	8.1E-11	--	3.0E-04	1.0E-09	0.000003	1.9E-10	0.000001
		gamma-Hexachlorocyclohexane	6.9E-02	ug/kg	1.1E+00	7.6E-09	8.E-09	1.4E-09	2.E-09	3.0E-04	1.8E-08	0.0001	3.2E-09	0.00001
		Heptachlor	4.3E-02	ug/kg	4.5E+00	4.8E-09	2.E-08	8.7E-10	4.E-09	5.0E-04	1.1E-08	0.00002	2.0E-09	0.000004
		Heptachlor epoxide	4.0E-01	ug/kg	9.1E+00	4.4E-08	4.E-07	8.0E-09	7.E-08	1.3E-05	1.0E-07	0.008	1.9E-08	0.001
		Methoxychlor	3.2E-01	ug/kg	--	3.6E-08	--	6.5E-09	--	5.0E-03	8.3E-08	0.00002	1.5E-08	0.000003
		Total Chlordanes	5.9E+00	ug/kg	3.5E-01	6.5E-07	2.E-07	1.2E-07	4.E-08	5.0E-04	1.5E-06	0.003	2.8E-07	0.001
		Total DDD	5.8E+01	ug/kg	2.4E-01	6.4E-06	2.E-06	1.2E-06	3.E-07	5.0E-04	1.5E-05	0.03	2.7E-06	0.005
		Total DDE	3.1E+01	ug/kg	3.4E-01	3.4E-06	1.E-06	6.3E-07	2.E-07	5.0E-04	8.0E-06	0.02	1.5E-06	0.003
		Total DDT	2.3E+01	ug/kg	3.4E-01	2.5E-06	9.E-07	4.6E-07	2.E-07	5.0E-04	5.9E-06	0.01	1.1E-06	0.002
		Total Endosulfan	1.0E+00	ug/kg	--	1.1E-07	--	2.0E-08	--	6.0E-03	2.6E-07	0.00004	4.7E-08	0.00001
	Exposure Point Total						4.E-04		7.E-05			9		2
D	RM 1 East	**Metals**												
		Aluminum	2.1E+01	mg/kg	--	2.3E-03	--	4.3E-04	--	1.0E+00	5.5E-03	0.005	1.0E-03	0.001
		Arsenic, inorganic	1.0E-01	mg/kg	1.5E+00	1.1E-05	2.E-05	2.1E-06	3.E-06	3.0E-04	2.6E-05	0.09	4.8E-06	0.02
		Cadmium	1.0E-01	mg/kg	--	1.1E-05	--	2.1E-06	--	1.0E-03	2.7E-05	0.03	4.9E-06	0.005
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.00007	1.9E-05	0.00001
		Copper	7.6E+00	mg/kg	--	8.4E-04	--	1.5E-04	--	4.0E-02	2.0E-03	0.05	3.6E-04	0.009
		Manganese	4.1E+00	mg/kg	--	4.5E-04	--	8.2E-05	--	1.4E-01	1.0E-03	0.007	1.9E-04	0.001
		Mercury	1.6E-02	mg/kg	--	1.7E-06	--	3.2E-07	--	1.0E-04	4.0E-06	0.04	7.4E-07	0.007
		Nickel	1.2E-01	mg/kg	--	1.3E-05	--	2.4E-06	--	2.0E-02	3.1E-05	0.002	5.7E-06	0.0003
		Selenium	1.6E-01	mg/kg	--	1.8E-05	--	3.2E-06	--	5.0E-03	4.1E-05	0.008	7.5E-06	0.002
		Silver	2.1E-02	mg/kg	--	2.3E-06	--	4.3E-07	--	5.0E-03	5.4E-06	0.001	9.9E-07	0.0002
		Zinc	2.1E+01	mg/kg	--	2.3E-03	--	4.3E-04	--	3.0E-01	5.5E-03	0.02	1.0E-03	0.003
		Butyltins												
		Butyltin ion	2.8E+00	ug/kg	--	3.1E-07	--	5.7E-08	--	3.0E-04	7.2E-07	0.002	1.3E-07	0.0004
		PAHs												
		2-Methylnaphthalene	9.7E-01	ug/kg	--	1.1E-07	--	2.0E-08	--	4.0E-03	2.5E-07	0.0001	4.6E-08	0.00001
		Acenaphthene	6.8E-01	ug/kg	--	7.5E-08	--	1.4E-08	--	6.0E-02	1.7E-07	0.000003	3.2E-08	0.000001
		Anthracene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	3.0E-01	4.6E-07	0.000002	8.5E-08	0.0000003

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Benzo(a)anthracene	4.3E+00	ug/kg	7.3E-01	4.7E-07	3.E-07	8.7E-08	6.E-08	--	1.1E-06	--	2.0E-07	--
		Benzo(a)pyrene	4.3E-01	ug/kg	7.3E+00	4.7E-08	3.E-07	8.7E-09	6.E-08	--	1.1E-07	--	2.0E-08	--
		Benzo(b)fluoranthene	9.0E-01	ug/kg	7.3E-01	9.9E-08	7.E-08	1.8E-08	1.E-08	--	2.3E-07	--	4.2E-08	--
		Benzo(e)pyrene	2.4E+00	ug/kg	--	2.6E-07	--	4.8E-08	--	3.0E-02	6.2E-07	0.00002	1.1E-07	0.000004
		Chrysene	8.2E+00	ug/kg	7.3E-03	9.0E-07	7.E-09	1.7E-07	1.E-09	--	2.1E-06	--	3.9E-07	--
		Fluoranthene	2.8E+01	ug/kg	--	3.1E-06	--	5.7E-07	--	4.0E-02	7.2E-06	0.0002	1.3E-06	0.00003
		Fluorene	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	4.0E-02	3.9E-07	0.00001	7.1E-08	0.000002
		Phenanthrene	7.6E+00	ug/kg	--	8.4E-07	--	1.5E-07	--	3.0E-02	2.0E-06	0.0001	3.6E-07	0.00001
		Pyrene	2.2E+01	ug/kg	--	2.4E-06	--	4.4E-07	--	3.0E-02	5.7E-06	0.0002	1.0E-06	0.00003
		Semivolatile Organic Compounds												
		Benzoic acid	3.0E+03	ug/kg	--	3.3E-04	--	6.1E-05	--	4.0E+00	7.7E-04	0.0002	1.4E-04	0.00004
		Dibenzofuran	6.6E-01	ug/kg	--	7.3E-08	--	1.3E-08	--	1.0E-03	1.7E-07	0.0002	3.1E-08	0.00003
		Hexachlorobenzene	4.8E-01	ug/kg	1.6E+00	5.3E-08	8.E-08	9.7E-09	2.E-08	8.0E-04	1.2E-07	0.0002	2.3E-08	0.00003
		Nitrobenzene	2.9E+02	ug/kg	--	3.2E-05	--	5.9E-06	--	2.0E-03	7.5E-05	0.04	1.4E-05	0.007
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.0E+05	pg/g	2.0E+00	1.1E-05	2.E-05	2.1E-06	4.E-06	2.0E-05	2.6E-05	1	4.8E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	2.9E-01	pg/g	1.3E+05	3.2E-11	4.E-06	5.8E-12	8.E-07	1.0E-09	7.4E-11	0.07	1.4E-11	0.01
		Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E-10	2.E-05	2.4E-11	3.E-06	1.0E-09	3.1E-10	0.3	5.7E-11	0.06
		Pesticides												
		Aldrin	1.9E-01	ug/kg	1.7E+01	2.1E-08	4.E-07	3.8E-09	6.E-08	3.0E-05	4.8E-08	0.002	8.8E-09	0.0003
		Dieldrin	5.0E-01	ug/kg	1.6E+01	5.6E-08	9.E-07	1.0E-08	2.E-07	5.0E-05	1.3E-07	0.003	2.4E-08	0.0005
		gamma-Hexachlorocyclohexane	2.9E-02	ug/kg	1.1E+00	3.2E-09	4.E-09	5.9E-10	7.E-10	3.0E-04	7.5E-09	0.00003	1.4E-09	0.000005
		Heptachlor epoxide	4.3E-02	ug/kg	9.1E+00	4.7E-09	4.E-08	8.7E-10	8.E-09	1.3E-05	1.1E-08	0.001	2.0E-09	0.0002
		Total Chlordanes	2.5E+00	ug/kg	3.5E-01	2.7E-07	9.E-08	5.0E-08	2.E-08	5.0E-04	6.3E-07	0.001	1.2E-07	0.0002
		Total DDD	8.2E+00	ug/kg	2.4E-01	9.0E-07	2.E-07	1.7E-07	4.E-08	5.0E-04	2.1E-06	0.004	3.9E-07	0.001
		Total DDE	1.4E+01	ug/kg	3.4E-01	1.5E-06	5.E-07	2.7E-07	9.E-08	5.0E-04	3.5E-06	0.007	6.4E-07	0.001
		Total DDT	1.4E+00	ug/kg	3.4E-01	1.6E-07	5.E-08	2.9E-08	1.E-08	5.0E-04	3.7E-07	0.001	6.7E-08	0.0001
		Total Endosulfan	4.3E-01	ug/kg	--	4.8E-08	--	8.8E-09	--	6.0E-03	1.1E-07	0.00002	2.0E-08	0.000003
	Exposure Point Total						6.E-05		1.E-05			2		0.4
D	RM 2 West	**Metals**												
		Aluminum	2.1E+01	mg/kg	--	2.4E-03	--	4.3E-04	--	1.0E+00	5.5E-03	0.006	1.0E-03	0.001
		Arsenic, inorganic	1.4E-01	mg/kg	1.5E+00	1.5E-05	2.E-05	2.7E-06	4.E-06	3.0E-04	3.5E-05	0.1	6.4E-06	0.02
		Cadmium	9.0E-02	mg/kg	--	9.9E-06	--	1.8E-06	--	1.0E-03	2.3E-05	0.02	4.2E-06	0.004
		Chromium	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Copper	9.0E+00	mg/kg	--	1.0E-03	--	1.8E-04	--	4.0E-02	2.3E-03	0.06	4.3E-04	0.01
		Manganese	4.3E+00	mg/kg	--	4.7E-04	--	8.6E-05	--	1.4E-01	1.1E-03	0.008	2.0E-04	0.001
		Mercury	2.2E-02	mg/kg	--	2.5E-06	--	4.5E-07	--	1.0E-04	5.7E-06	0.06	1.1E-06	0.01
		Nickel	1.8E-01	mg/kg	--	2.0E-05	--	3.6E-06	--	2.0E-02	4.6E-05	0.002	8.4E-06	0.0004
		Selenium	1.5E-01	mg/kg	--	1.7E-05	--	3.0E-06	--	5.0E-03	3.9E-05	0.008	7.1E-06	0.001
		Silver	2.5E-02	mg/kg	--	2.8E-06	--	5.1E-07	--	5.0E-03	6.5E-06	0.001	1.2E-06	0.0002
		Zinc	2.2E+01	mg/kg	--	2.5E-03	--	4.5E-04	--	3.0E-01	5.8E-03	0.02	1.1E-03	0.004
		PAHs												
		1-Methylnaphthalene	1.0E+00	ug/kg	2.9E-02	1.1E-07	3.E-09	2.0E-08	6.E-10	7.0E-02	2.6E-07	0.000004	4.7E-08	0.000001
		2-Methylnaphthalene	1.6E+00	ug/kg	--	1.8E-07	--	3.2E-08	--	4.0E-03	4.1E-07	0.0001	7.5E-08	0.00002
		Acenaphthene	4.8E+00	ug/kg	--	5.3E-07	--	9.7E-08	--	6.0E-02	1.2E-06	0.00002	2.3E-07	0.000004
		Acenaphthylene	6.2E-01	ug/kg	--	6.8E-08	--	1.3E-08	--	6.0E-02	1.6E-07	0.000003	2.9E-08	0.0000005
		Anthracene	4.4E+00	ug/kg	--	4.8E-07	--	8.9E-08	--	3.0E-01	1.1E-06	0.000004	2.1E-07	0.000001
		Benzo(a)anthracene	8.2E+00	ug/kg	7.3E-01	9.0E-07	7.E-07	1.7E-07	1.E-07	--	2.1E-06	--	3.9E-07	--
		Benzo(b)fluoranthene	1.8E+00	ug/kg	7.3E-01	2.0E-07	1.E-07	3.6E-08	3.E-08	--	4.6E-07	--	8.5E-08	--
		Benzo(e)pyrene	4.6E+00	ug/kg	--	5.1E-07	--	9.3E-08	--	3.0E-02	1.2E-06	0.00004	2.2E-07	0.00001
		Benzo(g,h,i)perylene	8.6E-01	ug/kg	--	9.5E-08	--	1.7E-08	--	3.0E-02	2.2E-07	0.00001	4.1E-08	0.000001
		Chrysene	1.6E+01	ug/kg	7.3E-03	1.8E-06	1.E-08	3.2E-07	2.E-09	--	4.1E-06	--	7.5E-07	--
		Dibenzothiophene	2.1E+00	ug/kg	--	2.3E-07	--	4.2E-08	--	4.0E-02	5.4E-07	0.00001	9.9E-08	0.000002
		Fluoranthene	8.4E+01	ug/kg	--	9.3E-06	--	1.7E-06	--	4.0E-02	2.2E-05	0.0005	4.0E-06	0.0001
		Fluorene	4.7E+00	ug/kg	--	5.2E-07	--	9.5E-08	--	4.0E-02	1.2E-06	0.00003	2.2E-07	0.00001
		Indeno(1,2,3-cd)pyrene	3.0E-01	ug/kg	7.3E-01	3.3E-08	2.E-08	6.1E-09	4.E-09	--	7.7E-08	--	1.4E-08	--
		Perylene	9.1E-01	ug/kg	--	1.0E-07	--	1.8E-08	--	3.0E-02	2.3E-07	0.00001	4.3E-08	0.000001
		Phenanthrene	2.5E+01	ug/kg	--	2.8E-06	--	5.1E-07	--	3.0E-02	6.4E-06	0.0002	1.2E-06	0.00004
		Pyrene	6.8E+01	ug/kg	--	7.5E-06	--	1.4E-06	--	3.0E-02	1.7E-05	0.001	3.2E-06	0.0001
		Semivolatile Organic Compounds												
		Benzoic acid	3.2E+03	ug/kg	--	3.5E-04	--	6.5E-05	--	4.0E+00	8.2E-04	0.0002	1.5E-04	0.00004
		Dibenzofuran	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	1.0E-03	3.3E-07	0.0003	6.1E-08	0.0001
		Hexachlorobenzene	5.5E-01	ug/kg	1.6E+00	6.1E-08	1.E-07	1.1E-08	2.E-08	8.0E-04	1.4E-07	0.0002	2.6E-08	0.00003
		Hexachlorobutadiene	9.8E-03	ug/kg	7.8E-02	1.1E-09	8.E-11	2.0E-10	2.E-11	1.0E-03	2.5E-09	0.000003	4.6E-10	0.0000005
		Nitrobenzene	6.0E+01	ug/kg	--	6.6E-06	--	1.2E-06	--	2.0E-03	1.5E-05	0.008	2.8E-06	0.001
		Phenols												
		2-Methylphenol	9.7E+00	ug/kg	--	1.1E-06	--	2.0E-07	--	5.0E-02	2.5E-06	0.00005	4.6E-07	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	7.7E+04	pg/g	2.0E+00	8.5E-06	2.E-05	1.6E-06	3.E-06	2.0E-05	2.0E-05	1	3.6E-06	0.2

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	3.7E-01	pg/g	1.3E+05	4.1E-11	5.E-06	7.5E-12	1.E-06	1.0E-09	9.6E-11	0.1	1.8E-11	0.02
		Total PCB TEQ	8.6E-01	pg/g	1.3E+05	9.4E-11	1.E-05	1.7E-11	2.E-06	1.0E-09	2.2E-10	0.2	4.0E-11	0.04
		Pesticides												
		Aldrin	2.8E-01	ug/kg	1.7E+01	3.1E-08	5.E-07	5.6E-09	1.E-07	3.0E-05	7.1E-08	0.002	1.3E-08	0.0004
		Dieldrin	5.9E-01	ug/kg	1.6E+01	6.5E-08	1.E-06	1.2E-08	2.E-07	5.0E-05	1.5E-07	0.003	2.8E-08	0.001
		gamma-Hexachlorocyclohexane	3.3E-02	ug/kg	1.1E+00	3.6E-09	4.E-09	6.6E-10	7.E-10	3.0E-04	8.4E-09	0.00003	1.5E-09	0.00001
		Heptachlor epoxide	4.5E-02	ug/kg	9.1E+00	5.0E-09	5.E-08	9.1E-10	8.E-09	1.3E-05	1.2E-08	0.001	2.1E-09	0.0002
		Total Chlordanes	3.1E+00	ug/kg	3.5E-01	3.4E-07	1.E-07	6.3E-08	2.E-08	5.0E-04	8.0E-07	0.002	1.5E-07	0.0003
		Total DDD	1.1E+01	ug/kg	2.4E-01	1.2E-06	3.E-07	2.2E-07	5.E-08	5.0E-04	2.8E-06	0.006	5.1E-07	0.001
		Total DDE	1.5E+01	ug/kg	3.4E-01	1.7E-06	6.E-07	3.1E-07	1.E-07	5.0E-04	3.9E-06	0.008	7.2E-07	0.001
		Total DDT	1.7E+00	ug/kg	3.4E-01	1.9E-07	6.E-08	3.4E-08	1.E-08	5.0E-04	4.4E-07	0.001	8.0E-08	0.0002
		Total Endosulfan	5.1E-01	ug/kg	--	5.7E-08	--	1.0E-08	--	6.0E-03	1.3E-07	0.00002	2.4E-08	0.000004
	Exposure Point Total						6.E-05		1.E-05			2		0.3
D	RM 10 West	**Metals**												
		Aluminum	4.7E+01	mg/kg	--	5.2E-03	--	9.6E-04	--	1.0E+00	1.2E-02	0.01	2.2E-03	0.002
		Arsenic, inorganic	8.0E-02	mg/kg	1.5E+00	8.8E-06	1.E-05	1.6E-06	2.E-06	3.0E-04	2.1E-05	0.07	3.8E-06	0.01
		Cadmium	5.2E-02	mg/kg	--	5.7E-06	--	1.1E-06	--	1.0E-03	1.3E-05	0.01	2.5E-06	0.002
		Chromium	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002
		Copper	6.9E+00	mg/kg	--	7.5E-04	--	1.4E-04	--	4.0E-02	1.8E-03	0.04	3.2E-04	0.008
		Manganese	5.1E+00	mg/kg	--	5.6E-04	--	1.0E-04	--	1.4E-01	1.3E-03	0.009	2.4E-04	0.002
		Nickel	2.0E-01	mg/kg	--	2.2E-05	--	4.1E-06	--	2.0E-02	5.2E-05	0.003	9.6E-06	0.0005
		Selenium	1.8E-01	mg/kg	--	2.0E-05	--	3.6E-06	--	5.0E-03	4.6E-05	0.009	8.5E-06	0.002
		Silver	5.6E-02	mg/kg	--	6.2E-06	--	1.1E-06	--	5.0E-03	1.4E-05	0.003	2.6E-06	0.001
		Zinc	2.8E+01	mg/kg	--	3.1E-03	--	5.6E-04	--	3.0E-01	7.2E-03	0.02	1.3E-03	0.004
		PAHs												
		1-Methylnaphthalene	7.7E-01	ug/kg	2.9E-02	8.5E-08	2.E-09	1.6E-08	5.E-10	7.0E-02	2.0E-07	0.000003	3.6E-08	0.000001
		2-Methylnaphthalene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	4.0E-03	3.1E-07	0.0001	5.7E-08	0.00001
		Acenaphthene	4.3E-01	ug/kg	--	4.7E-08	--	8.7E-09	--	6.0E-02	1.1E-07	0.000002	2.0E-08	0.0000003
		Acenaphthylene	1.7E-01	ug/kg	--	1.9E-08	--	3.4E-09	--	6.0E-02	4.4E-08	0.000001	8.0E-09	0.0000001
		Anthracene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-01	3.1E-07	0.000001	5.7E-08	0.0000002
		Benzo(a)anthracene	2.9E+00	ug/kg	7.3E-01	3.2E-07	2.E-07	5.9E-08	4.E-08	--	7.5E-07	--	1.4E-07	--
		Benzo(e)pyrene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-02	3.3E-07	0.00001	6.1E-08	0.000002
		Chrysene	4.2E+00	ug/kg	7.3E-03	4.6E-07	3.E-09	8.5E-08	6.E-10	--	1.1E-06	--	2.0E-07	--
		Dibenzothiophene	3.4E-01	ug/kg	--	3.7E-08	--	6.9E-09	--	4.0E-02	8.7E-08	0.000002	1.6E-08	0.0000004
		Fluoranthene	8.4E+00	ug/kg	--	9.3E-07	--	1.7E-07	--	4.0E-02	2.2E-06	0.0001	4.0E-07	0.00001
		Fluorene	8.0E-01	ug/kg	--	8.8E-08	--	1.6E-08	--	4.0E-02	2.1E-07	0.00001	3.8E-08	0.000001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Phenanthrene	4.2E+00	ug/kg	--	4.6E-07	--	8.5E-08	--	3.0E-02	1.1E-06	0.00004	2.0E-07	0.00001
		Pyrene	6.9E+00	ug/kg	--	7.6E-07	--	1.4E-07	--	3.0E-02	1.8E-06	0.0001	3.3E-07	0.00001
		Semivolatile Organic Compounds												
		Dibenzofuran	5.7E-01	ug/kg	--	6.3E-08	--	1.2E-08	--	1.0E-03	1.5E-07	0.0001	2.7E-08	0.00003
		Hexachlorobenzene	6.6E-01	ug/kg	1.6E+00	7.3E-08	1.E-07	1.3E-08	2.E-08	8.0E-04	1.7E-07	0.0002	3.1E-08	0.00004
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.4E+05	pg/g	2.0E+00	1.6E-05	3.E-05	2.9E-06	6.E-06	2.0E-05	3.7E-05	2	6.7E-06	0.3
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	3.1E-01	pg/g	1.3E+05	3.4E-11	4.E-06	6.2E-12	8.E-07	1.0E-09	7.9E-11	0.08	1.4E-11	0.01
		Total PCB TEQ	7.1E-01	pg/g	1.3E+05	7.8E-11	1.E-05	1.4E-11	2.E-06	1.0E-09	1.8E-10	0.2	3.3E-11	0.03
		Pesticides												
		Aldrin	1.7E-01	ug/kg	1.7E+01	1.9E-08	3.E-07	3.5E-09	6.E-08	3.0E-05	4.4E-08	0.001	8.2E-09	0.000
		Dieldrin	5.9E-01	ug/kg	1.6E+01	6.5E-08	1.E-06	1.2E-08	2.E-07	5.0E-05	1.5E-07	0.003	2.8E-08	0.001
		gamma-Hexachlorocyclohexane	3.7E-02	ug/kg	1.1E+00	4.0E-09	4.E-09	7.4E-10	8.E-10	3.0E-04	9.4E-09	0.00003	1.7E-09	0.00001
		Heptachlor epoxide	3.5E-02	ug/kg	9.1E+00	3.9E-09	4.E-08	7.1E-10	6.E-09	1.3E-05	9.0E-09	0.001	1.7E-09	0.0001
		Total Chlordanes	2.5E+00	ug/kg	3.5E-01	2.7E-07	1.E-07	5.0E-08	2.E-08	5.0E-04	6.3E-07	0.001	1.2E-07	0.0002
		Total DDD	2.5E+00	ug/kg	2.4E-01	2.8E-07	7.E-08	5.1E-08	1.E-08	5.0E-04	6.5E-07	0.001	1.2E-07	0.0002
		Total DDE	8.2E+00	ug/kg	3.4E-01	9.0E-07	3.E-07	1.7E-07	6.E-08	5.0E-04	2.1E-06	0.004	3.9E-07	0.001
		Total DDT	7.3E-01	ug/kg	3.4E-01	8.1E-08	3.E-08	1.5E-08	5.E-09	5.0E-04	1.9E-07	0.0004	3.5E-08	0.0001
		Total Endosulfan	3.4E-01	ug/kg	--	3.8E-08	--	7.0E-09	--	6.0E-03	8.8E-08	0.00001	1.6E-08	0.000003
	Exposure Point Total						6.E-05		1.E-05			2		0.4
D	RM 11 East	**Metals**												
		Aluminum	3.2E+01	mg/kg	--	3.6E-03	--	6.5E-04	--	1.0E+00	8.3E-03	0.008	1.5E-03	0.002
		Arsenic, inorganic	8.2E-02	mg/kg	1.5E+00	9.0E-06	1.E-05	1.7E-06	2.E-06	3.0E-04	2.1E-05	0.07	3.9E-06	0.01
		Cadmium	1.0E-01	mg/kg	--	1.1E-05	--	2.0E-06	--	1.0E-03	2.6E-05	0.03	4.8E-06	0.005
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	7.1E+00	mg/kg	--	7.8E-04	--	1.4E-04	--	4.0E-02	1.8E-03	0.05	3.3E-04	0.008
		Manganese	4.5E+00	mg/kg	--	4.9E-04	--	9.1E-05	--	1.4E-01	1.2E-03	0.008	2.1E-04	0.002
		Mercury	2.0E-02	mg/kg	--	2.1E-06	--	3.9E-07	--	1.0E-04	5.0E-06	0.05	9.2E-07	0.009
		Nickel	2.0E-01	mg/kg	--	2.1E-05	--	3.9E-06	--	2.0E-02	5.0E-05	0.003	9.2E-06	0.0005
		Selenium	1.2E-01	mg/kg	--	1.3E-05	--	2.4E-06	--	5.0E-03	3.1E-05	0.006	5.7E-06	0.001
		Silver	6.2E-02	mg/kg	--	6.8E-06	--	1.3E-06	--	5.0E-03	1.6E-05	0.003	2.9E-06	0.001
		Zinc	1.9E+01	mg/kg	--	2.1E-03	--	3.9E-04	--	3.0E-01	5.0E-03	0.017	9.1E-04	0.003

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 18 g/day: Cancer Risk	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Cancer Risk Calculations[b]: Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: CDI mg/kg-day	Noncancer Hazard Quotient Calculations[b]: Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Butyltins												
		Butyltin ion	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	3.0E-04	3.9E-07	0.001	7.1E-08	0.0002
		PAHs												
		Acenaphthene	3.6E-01	ug/kg	--	4.0E-08	--	7.3E-09	--	6.0E-02	9.3E-08	0.000002	1.7E-08	0.0000003
		Anthracene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-01	3.3E-07	0.000001	6.1E-08	0.0000002
		Benzo(a)anthracene	1.6E+00	ug/kg	7.3E-01	1.8E-07	1.E-07	3.2E-08	2.E-08	--	4.1E-07	--	7.5E-08	--
		Benzo(a)pyrene	4.3E-01	ug/kg	7.3E+00	4.7E-08	3.E-07	8.7E-09	6.E-08	--	1.1E-07	--	2.0E-08	--
		Benzo(b)fluoranthene	9.7E-01	ug/kg	7.3E-01	1.1E-07	8.E-08	2.0E-08	1.E-08	--	2.5E-07	--	4.6E-08	--
		Benzo(e)pyrene	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-02	3.3E-07	0.00001	6.1E-08	0.000002
		Chrysene	3.7E+00	ug/kg	7.3E-03	4.1E-07	3.E-09	7.5E-08	5.E-10	--	9.5E-07	--	1.7E-07	--
		Dibenzothiophene	3.6E-01	ug/kg	--	4.0E-08	--	7.3E-09	--	4.0E-02	9.3E-08	0.000002	1.7E-08	0.0000004
		Fluoranthene	9.9E+00	ug/kg	--	1.1E-06	--	2.0E-07	--	4.0E-02	2.5E-06	0.0001	4.7E-07	0.00001
		Fluorene	8.2E-01	ug/kg	--	9.0E-08	--	1.7E-08	--	4.0E-02	2.1E-07	0.00001	3.9E-08	0.000001
		Phenanthrene	4.2E+00	ug/kg	--	4.6E-07	--	8.5E-08	--	3.0E-02	1.1E-06	0.00004	2.0E-07	0.00001
		Pyrene	7.0E+00	ug/kg	--	7.7E-07	--	1.4E-07	--	3.0E-02	1.8E-06	0.0001	3.3E-07	0.00001
		Semivolatile Organic Compounds												
		Benzoic acid	1.9E+03	ug/kg	--	2.1E-04	--	3.8E-05	--	4.0E+00	4.9E-04	0.0001	9.0E-05	0.00002
		Dibenzofuran	4.3E-01	ug/kg	--	4.7E-08	--	8.7E-09	--	1.0E-03	1.1E-07	0.0001	2.0E-08	0.00002
		Hexachlorobenzene	4.3E-01	ug/kg	1.6E+00	4.7E-08	8.E-08	8.6E-09	1.E-08	8.0E-04	1.1E-07	0.0001	2.0E-08	0.00003
		Nitrobenzene	8.6E+01	ug/kg	--	9.5E-06	--	1.7E-06	--	2.0E-03	2.2E-05	0.01	4.1E-06	0.002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.7E+05	pg/g	2.0E+00	5.2E-05	1.E-04	9.5E-06	2.E-05	2.0E-05	1.2E-04	6	2.2E-05	1
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	2.0E-01	pg/g	1.3E+05	2.2E-11	3.E-06	4.1E-12	5.E-07	1.0E-09	5.2E-11	0.05	9.5E-12	0.009
		Total PCB TEQ	6.5E-01	pg/g	1.3E+05	7.1E-11	9.E-06	1.3E-11	2.E-06	1.0E-09	1.7E-10	0.2	3.1E-11	0.03
		Pesticides												
		Dieldrin	3.4E-01	ug/kg	1.6E+01	3.7E-08	6.E-07	6.8E-09	1.E-07	5.0E-05	8.7E-08	0.002	1.6E-08	0.0003
		Heptachlor epoxide	2.5E-02	ug/kg	9.1E+00	2.8E-09	3.E-08	5.1E-10	5.E-09	1.3E-05	6.4E-09	0.0005	1.2E-09	0.0001
		Total Chlordanes	1.4E+00	ug/kg	3.5E-01	1.5E-07	5.E-08	2.8E-08	1.E-08	5.0E-04	3.5E-07	0.001	6.4E-08	0.0001
		Total DDD	1.3E+00	ug/kg	2.4E-01	1.4E-07	3.E-08	2.6E-08	6.E-09	5.0E-04	3.3E-07	0.001	6.0E-08	0.0001
		Total DDE	4.1E+00	ug/kg	3.4E-01	4.6E-07	2.E-07	8.4E-08	3.E-08	5.0E-04	1.1E-06	0.002	2.0E-07	0.0004
		Total DDT	6.3E-01	ug/kg	3.4E-01	7.0E-08	2.E-08	1.3E-08	4.E-09	5.0E-04	1.6E-07	0.0003	3.0E-08	0.0001
		Total Endosulfan	3.6E-01	ug/kg	--	4.0E-08	--	7.3E-09	--	6.0E-03	9.2E-08	0.00002	1.7E-08	0.000003
Exposure Point Total							1.E-04		2.E-05			7		1

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
D	RM 12 East	**Metals**												
		Aluminum	6.2E+01	mg/kg	--	6.8E-03	--	1.2E-03	--	1.0E+00	1.6E-02	0.02	2.9E-03	0.003
		Arsenic, inorganic	7.6E-02	mg/kg	1.5E+00	8.4E-06	1.E-05	1.5E-06	2.E-06	3.0E-04	2.0E-05	0.07	3.6E-06	0.01
		Cadmium	5.8E-02	mg/kg	--	6.4E-06	--	1.2E-06	--	1.0E-03	1.5E-05	0.01	2.7E-06	0.003
		Chromium	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002
		Copper	7.6E+00	mg/kg	--	8.4E-04	--	1.5E-04	--	4.0E-02	2.0E-03	0.05	3.6E-04	0.009
		Manganese	5.0E+00	mg/kg	--	5.5E-04	--	1.0E-04	--	1.4E-01	1.3E-03	0.009	2.4E-04	0.002
		Mercury	2.2E-02	mg/kg	--	2.5E-06	--	4.5E-07	--	1.0E-04	5.7E-06	0.06	1.1E-06	0.01
		Nickel	1.9E-01	mg/kg	--	2.1E-05	--	3.9E-06	--	2.0E-02	5.0E-05	0.002	9.1E-06	0.0005
		Selenium	1.2E-01	mg/kg	--	1.3E-05	--	2.4E-06	--	5.0E-03	3.1E-05	0.006	5.7E-06	0.001
		Silver	7.5E-02	mg/kg	--	8.3E-06	--	1.5E-06	--	5.0E-03	1.9E-05	0.004	3.5E-06	0.001
		Zinc	2.4E+01	mg/kg	--	2.6E-03	--	4.8E-04	--	3.0E-01	6.1E-03	0.02	1.1E-03	0.004
		PAHs												
		Acenaphthylene	2.3E-01	ug/kg	--	2.5E-08	--	4.6E-09	--	6.0E-02	5.9E-08	0.000001	1.1E-08	0.0000002
		Anthracene	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-01	3.1E-07	0.000001	5.7E-08	0.0000002
		Benzo(a)anthracene	1.7E+00	ug/kg	7.3E-01	1.9E-07	1.E-07	3.4E-08	3.E-08	--	4.4E-07	--	8.0E-08	--
		Benzo(a)pyrene	3.1E-01	ug/kg	7.3E+00	3.4E-08	2.E-07	6.3E-09	5.E-08	--	8.0E-08	--	1.5E-08	--
		Benzo(e)pyrene	1.6E+00	ug/kg	--	1.8E-07	--	3.2E-08	--	3.0E-02	4.1E-07	0.00001	7.5E-08	0.000003
		Chrysene	4.2E+00	ug/kg	7.3E-03	4.6E-07	3.E-09	8.5E-08	6.E-10	--	1.1E-06	--	2.0E-07	--
		Fluoranthene	5.9E+00	ug/kg	--	6.5E-07	--	1.2E-07	--	4.0E-02	1.5E-06	0.00004	2.8E-07	0.00001
		Fluorene	6.0E-01	ug/kg	--	6.6E-08	--	1.2E-08	--	4.0E-02	1.5E-07	0.000004	2.8E-08	0.000001
		Phenanthrene	2.6E+00	ug/kg	--	2.9E-07	--	5.3E-08	--	3.0E-02	6.7E-07	0.00002	1.2E-07	0.000004
		Pyrene	5.9E+00	ug/kg	--	6.5E-07	--	1.2E-07	--	3.0E-02	1.5E-06	0.0001	2.8E-07	0.00001
		Semivolatile Organic Compounds												
		Benzoic acid	2.7E+03	ug/kg	--	3.0E-04	--	5.5E-05	--	4.0E+00	6.9E-04	0.0002	1.3E-04	0.00003
		Dibenzofuran	4.6E-01	ug/kg	--	5.1E-08	--	9.3E-09	--	1.0E-03	1.2E-07	0.0001	2.2E-08	0.00002
		Hexachlorobenzene	5.5E-01	ug/kg	1.6E+00	6.0E-08	1.E-07	1.1E-08	2.E-08	8.0E-04	1.4E-07	0.0002	2.6E-08	0.00003
		Nitrobenzene	9.6E+01	ug/kg	--	1.1E-05	--	1.9E-06	--	2.0E-03	2.5E-05	0.01	4.5E-06	0.002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	8.3E+04	pg/g	2.0E+00	9.2E-06	2.E-05	1.7E-06	3.E-06	2.0E-05	2.1E-05	1	3.9E-06	0.2
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	2.6E-01	pg/g	1.3E+05	2.8E-11	4.E-06	5.2E-12	7.E-07	1.0E-09	6.6E-11	0.07	1.2E-11	0.01
		Total PCB TEQ	5.2E-01	pg/g	1.3E+05	5.7E-11	7.E-06	1.1E-11	1.E-06	1.0E-09	1.3E-10	0.1	2.5E-11	0.02

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate 18 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 18 g/day: Cancer Risk	Cancer Risk: Consumption Rate 3.3 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate 18 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 18 g/day: Noncancer Hazard Quotient	Noncancer: Consumption Rate 3.3 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 3.3 g/day: Noncancer Hazard Quotient
		Pesticides												
		Dieldrin	4.3E-01	ug/kg	1.6E+01	4.7E-08	7.E-07	8.6E-09	1.E-07	5.0E-05	1.1E-07	0.002	2.0E-08	0.0004
		gamma-Hexachlorocyclohexane	2.2E-02	ug/kg	1.1E+00	2.5E-09	3.E-09	4.5E-10	5.E-10	3.0E-04	5.8E-09	0.00002	1.1E-09	0.000004
		Heptachlor epoxide	3.7E-02	ug/kg	9.1E+00	4.1E-09	4.E-08	7.5E-10	7.E-09	1.3E-05	9.5E-09	0.001	1.7E-09	0.0001
		Total Chlordanes	1.9E+00	ug/kg	3.5E-01	2.1E-07	7.E-08	3.8E-08	1.E-08	5.0E-04	4.9E-07	0.001	9.0E-08	0.0002
		Total DDD	1.5E+00	ug/kg	2.4E-01	1.6E-07	4.E-08	3.0E-08	7.E-09	5.0E-04	3.8E-07	0.001	6.9E-08	0.0001
		Total DDE	4.8E+00	ug/kg	3.4E-01	5.2E-07	2.E-07	9.6E-08	3.E-08	5.0E-04	1.2E-06	0.002	2.2E-07	0.0004
		Total DDT	7.9E-01	ug/kg	3.4E-01	8.7E-08	3.E-08	1.6E-08	5.E-09	5.0E-04	2.0E-07	0.0004	3.7E-08	0.0001
		Total Endosulfan	5.0E-01	ug/kg	--	5.5E-08	--	1.0E-08	--	6.0E-03	1.3E-07	0.00002	2.4E-08	0.000004
	Exposure Point Total						4.E-05		8.E-06			2		0.3
D	Study Area-wide	**Metals**												
		Aluminum	4.7E+01	mg/kg	--	5.2E-03	--	9.6E-04	--	1.0E+00	1.2E-02	0.01	2.2E-03	0.002
		Arsenic, inorganic	1.4E-01	mg/kg	1.5E+00	1.5E-05	2.E-05	2.7E-06	4.E-06	3.0E-04	3.5E-05	0.1	6.4E-06	0.02
		Cadmium	1.0E-01	mg/kg	--	1.1E-05	--	2.0E-06	--	1.0E-03	2.6E-05	0.03	4.8E-06	0.005
		Chromium	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002
		Copper	9.0E+00	mg/kg	--	1.0E-03	--	1.8E-04	--	4.0E-02	2.3E-03	0.06	4.3E-04	0.01
		Manganese	5.1E+00	mg/kg	--	5.6E-04	--	1.0E-04	--	1.4E-01	1.3E-03	0.009	2.4E-04	0.002
		Mercury	2.2E-02	mg/kg	--	2.5E-06	--	4.5E-07	--	1.0E-04	5.7E-06	0.06	1.1E-06	0.01
		Nickel	2.0E-01	mg/kg	--	2.2E-05	--	4.1E-06	--	2.0E-02	5.2E-05	0.003	9.6E-06	0.0005
		Selenium	1.8E-01	mg/kg	--	2.0E-05	--	3.6E-06	--	5.0E-03	4.6E-05	0.009	8.5E-06	0.002
		Silver	6.2E-02	mg/kg	--	6.8E-06	--	1.3E-06	--	5.0E-03	1.6E-05	0.003	2.9E-06	0.001
		Zinc	2.8E+01	mg/kg	--	3.1E-03	--	5.6E-04	--	3.0E-01	7.2E-03	0.02	1.3E-03	0.004
		Butyltins												
		Butyltin ion	1.5E+00	ug/kg	--	1.7E-07	--	3.0E-08	--	3.0E-04	3.9E-07	0.001	7.1E-08	0.0002
		PAHs												
		1-Methylnaphthalene	1.0E+00	ug/kg	2.9E-02	1.1E-07	3.E-09	2.0E-08	6.E-10	7.0E-02	2.6E-07	0.000004	4.7E-08	0.000001
		2-Methylnaphthalene	1.6E+00	ug/kg	--	1.8E-07	--	3.2E-08	--	4.0E-03	4.1E-07	0.0001	7.5E-08	0.00002
		Acenaphthene	4.8E+00	ug/kg	--	5.3E-07	--	9.7E-08	--	6.0E-02	1.2E-06	0.00002	2.3E-07	0.000004
		Acenaphthylene	6.2E-01	ug/kg	--	6.8E-08	--	1.3E-08	--	6.0E-02	1.6E-07	0.000003	2.9E-08	0.0000005
		Anthracene	4.4E+00	ug/kg	--	4.8E-07	--	8.9E-08	--	3.0E-01	1.1E-06	0.000004	2.1E-07	0.000001
		Benzo(a)anthracene	8.2E+00	ug/kg	7.3E-01	9.0E-07	7.E-07	1.7E-07	1.E-07	--	2.1E-06	--	3.9E-07	--
		Benzo(a)pyrene	4.3E-01	ug/kg	7.3E+00	4.7E-08	3.E-07	8.7E-09	6.E-08	--	1.1E-07	--	2.0E-08	--
		Benzo(b)fluoranthene	1.8E+00	ug/kg	7.3E-01	2.0E-07	1.E-07	3.6E-08	3.E-08	--	4.6E-07	--	8.5E-08	--

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC		Cancer Risk Calculations[b]					Noncancer Hazard Quotient Calculations[b]				
					Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day		Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
			Value	Units		LADI (mg/kg-day)	Cancer Risk	LADI (mg/kg-day)	Cancer Risk		CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
		Benzo(e)pyrene	4.6E+00	ug/kg	--	5.1E-07	--	9.3E-08	--	3.0E-02	1.2E-06	0.00004	2.2E-07	0.00001
		Benzo(g,h,i)perylene	8.6E-01	ug/kg	--	9.5E-08	--	1.7E-08	--	3.0E-02	2.2E-07	0.00001	4.1E-08	0.000001
		Chrysene	1.6E+01	ug/kg	7.3E-03	1.8E-06	1.E-08	3.2E-07	2.E-09	--	4.1E-06	--	7.5E-07	--
		Dibenzothiophene	2.1E+00	ug/kg	--	2.3E-07	--	4.2E-08	--	4.0E-02	5.4E-07	0.00001	9.9E-08	0.000002
		Fluoranthene	8.4E+01	ug/kg	--	9.3E-06	--	1.7E-06	--	4.0E-02	2.2E-05	0.001	4.0E-06	0.0001
		Fluorene	4.7E+00	ug/kg	--	5.2E-07	--	9.5E-08	--	4.0E-02	1.2E-06	0.00003	2.2E-07	0.00001
		Indeno(1,2,3-cd)pyrene	3.0E-01	ug/kg	7.3E-01	3.3E-08	2.E-08	6.1E-09	4.E-09	--	7.7E-08	--	1.4E-08	--
		Perylene	9.1E-01	ug/kg	--	1.0E-07	--	1.8E-08	--	3.0E-02	2.3E-07	0.00001	4.3E-08	0.000001
		Phenanthrene	2.5E+01	ug/kg	--	2.8E-06	--	5.1E-07	--	3.0E-02	6.4E-06	0.0002	1.2E-06	0.00004
		Pyrene	6.8E+01	ug/kg	--	7.5E-06	--	1.4E-06	--	3.0E-02	1.7E-05	0.001	3.2E-06	0.0001
		Semivolatile Organic Compounds												
		Benzoic acid	3.2E+03	ug/kg	--	3.5E-04	--	6.5E-05	--	4.0E+00	8.2E-04	0.0002	1.5E-04	0.00004
		Dibenzofuran	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	1.0E-03	3.3E-07	0.0003	6.1E-08	0.0001
		Hexachlorobenzene	6.6E-01	ug/kg	1.6E+00	7.3E-08	1.E-07	1.3E-08	2.E-08	8.0E-04	1.7E-07	0.0002	3.1E-08	0.00004
		Hexachlorobutadiene	9.8E-03	ug/kg	7.8E-02	1.1E-09	8.E-11	2.0E-10	2.E-11	1.0E-03	2.5E-09	0.000003	4.6E-10	0.0000005
		Nitrobenzene	8.6E+01	ug/kg	--	9.5E-06	--	1.7E-06	--	2.0E-03	2.2E-05	0.01	4.1E-06	0.002
		Phenols												
		2-Methylphenol	9.7E+00	ug/kg	--	1.1E-06	--	2.0E-07	--	5.0E-02	2.5E-06	0.00005	4.6E-07	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.7E+05	pg/g	2.0E+00	5.2E-05	1.E-04	9.5E-06	2.E-05	2.0E-05	1.2E-04	6	2.2E-05	1
		Dioxin/Furan												
		Total Dioxin/Furan TEQ	3.7E-01	pg/g	1.3E+05	4.1E-11	5.E-06	7.5E-12	1.E-06	1.0E-09	9.6E-11	0.1	1.8E-11	0.02
		Total PCB TEQ	8.6E-01	pg/g	1.3E+05	9.4E-11	1.E-05	1.7E-11	2.E-06	1.0E-09	2.2E-10	0.2	4.0E-11	0.04
		Pesticides												
		Aldrin	2.8E-01	ug/kg	1.7E+01	3.1E-08	5.E-07	5.6E-09	1.E-07	3.0E-05	7.1E-08	0.002	1.3E-08	0.0004
		Dieldrin	5.9E-01	ug/kg	1.6E+01	6.5E-08	1.E-06	1.2E-08	2.E-07	5.0E-05	1.5E-07	0.003	2.8E-08	0.001
		gamma-Hexachlorocyclohexane	3.7E-02	ug/kg	1.1E+00	4.0E-09	4.E-09	7.4E-10	8.E-10	3.0E-04	9.4E-09	0.00003	1.7E-09	0.00001
		Heptachlor epoxide	4.5E-02	ug/kg	9.1E+00	5.0E-09	5.E-08	9.1E-10	8.E-09	1.3E-05	1.2E-08	0.001	2.1E-09	0.0002
		Total Chlordanes	3.1E+00	ug/kg	3.5E-01	3.4E-07	1.E-07	6.3E-08	2.E-08	5.0E-04	8.0E-07	0.002	1.5E-07	0.0003
		Total DDD	1.1E+01	ug/kg	2.4E-01	1.2E-06	3.E-07	2.2E-07	5.E-08	5.0E-04	2.8E-06	0.006	5.1E-07	0.001

TABLE 5-78.
Calculation of Cancer Risks and Noncancer Hazards - Clam Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate 18 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 18 g/day: Cancer Risk	Cancer Risk: Consumption Rate 3.3 g/day: LADI (mg/kg-day)	Cancer Risk: Consumption Rate 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate 18 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 18 g/day: Noncancer Hazard Quotient	Noncancer: Consumption Rate 3.3 g/day: CDI mg/kg-day	Noncancer: Consumption Rate 3.3 g/day: Noncancer Hazard Quotient
		Total DDE	1.5E+01	ug/kg	3.4E-01	1.7E-06	6.E-07	3.1E-07	1.E-07	5.0E-04	3.9E-06	0.008	7.2E-07	0.001
		Total DDT	1.7E+00	ug/kg	3.4E-01	1.9E-07	6.E-08	3.4E-08	1.E-08	5.0E-04	4.4E-07	0.001	8.0E-08	0.0002
		Total Endosulfan	5.1E-01	ug/kg	--	5.7E-08	--	1.0E-08	--	6.0E-03	1.3E-07	0.00002	2.4E-08	0.000004
Exposure Point Total							1.E-04		3.E-05			7		1

Notes:

a Chemicals listed are anaytes detected in clam tissue at least once within the study area (RM 1.9-11.8).

b Numbers presented are rounded values. Sums calculated before rounding.

c Toxicity values for trivalent chromium used to assess total chromium.

d Total PCBs, Adjusted equal Total PCB Congeners minus Total dioxin-like PCBs.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
D = Depurated clam.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
pg/g = picograms per gram.
RfD = Reference Dose.
RM = River mile.
TEQ = Toxic Equivalents.
UD = Undepurated clam.
ug/kg = micrograms per kilogram.

TABLE 5-79.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Central Tendancy Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
UD	RM 6 East	**Metals**																
		Aluminum	0.005					0.005										
		Antimony	0.0001	0.0001														
		Arsenic, inorganic	0.02	0.02	0.02													
		Cadmium	0.003			0.003												
		Copper	0.01				0.01											
		Manganese	0.001					0.001										
		Mercury	0.01					0.01										
		Nickel	0.001						0.001									
		Selenium	0.001						0.001									
		Silver	0.0005		0.0005													
		Zinc	0.004	0.004														
		Butyltins																
		Butyltin ion	0.001								0.001							
		Dibutyltin ion	0.001								0.001							
		Tributyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.00002									0.00002						
		Acenaphthene	0.000001							0.000001								
		Acenaphthylene	0.000001							0.000001								
		Benzo(g,h,i)perylene	0.000002			0.000002												
		Fluoranthene	0.00005	0.00005		0.00005				0.00005								
		Fluorene	0.000003	0.000003														
		Phenanthrene	0.00003			0.00003												
		Pyrene	0.0001			0.0001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00001				0.00001											
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.00003							0.00003								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	6		6						6							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.03											0.03				
		Total PCB TEQ	0.4											0.4				

TABLE 5-79.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Central Tendancy Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Aldrin	0.0003							0.0003								
		alpha-Hexachlorocyclohexane	0.0000001							0.0000001								
		beta-Hexachlorocyclohexane	0.0001							0.0001								
		Dieldrin	0.001							0.001								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor	0.000001							0.000001								
		Heptachlor epoxide	0.01							0.01								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.001							0.001								
		Total DDT	0.0002							0.0002								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
Exposure Point Total				0.02	6	0.003	0.01	0.01	0.002	0.01	6	0.00002		0.4				
UD	RM 11 East	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.01	0.01	0.01													
		Cadmium	0.004			0.004												
		Copper	0.01				0.01											
		Manganese	0.003					0.003										
		Mercury	0.01					0.01										
		Nickel	0.001						0.001									
		Selenium	0.001						0.001									
		Silver	0.001		0.001													
		Zinc	0.004	0.004														
		Butyltins																
		Butyltin ion	0.0003								0.0003							
		PAHs																
		2-Methylnaphthalene	0.00002									0.00002						
		Acenaphthene	0.0000002							0.0000002								
		Benzo(e)pyrene	0.000002			0.000002												
		Fluoranthene	0.00001	0.00001		0.00001				0.00001								
		Fluorene	0.000001	0.000001														
		Phenanthrene	0.000004			0.000004												

TABLE 5-79.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Central Tendancy Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pyrene	0.00001			0.00001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00001				0.00001											
		Dibenzofuran	0.00002	0.00002														
		Hexachlorobenzene	0.00003							0.00003								
		Nitrobenzene	0.002	0.002														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.02											0.02				
		Total PCB TEQ	0.08											0.08				
		Pesticides																
		Dieldrin	0.0004							0.0004								
		gamma-Hexachlorocyclohexane	0.000004			0.000004				0.000004								
		Heptachlor epoxide	0.0001							0.0001								
		Total Chlordanes	0.0002							0.0002								
		Total DDD	0.0002							0.0002								
		Total DDE	0.001							0.001								
		Total DDT	0.0001							0.0001								
		Total Endosulfan	0.000004	0.000004				0.000004	0.000004									
Exposure Point Total				0.02	2	0.004	0.01	0.02	0.002	0.002	2	0.00002		0.1				
UD	Study Area-wide	**Metals**																
		Aluminum	0.005					0.005										
		Antimony	0.0002	0.0002														
		Arsenic, inorganic	0.01	0.01	0.01													
		Cadmium	0.01			0.01												
		Copper	0.01				0.01											
		Manganese	0.002					0.002										
		Mercury	0.01					0.01										
		Nickel	0.001						0.001									
		Selenium	0.001						0.001									
		Silver	0.001		0.001													
		Zinc	0.01	0.01														

TABLE 5-79.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Central Tendancy Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Butyltins																
		Butyltin ion	0.002								0.002							
		Dibutyltin ion	0.02								0.02							
		Tributyltin ion	0.02								0.02							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.000003							0.000003								
		Benzo(e)pyrene	0.00001			0.00001												
		Benzo(g,h,i)perylene	0.0001			0.0001												
		Dibenzothiophene	0.000004	0.000004														
		Fluoranthene	0.0003	0.0003		0.0003				0.0003								
		Fluorene	0.00001	0.00001														
		Naphthalene	0.0001						0.0001						0.0001			
		Perylene	0.000001			0.000001												
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0005			0.0005												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.0002							0.0002								
		Dibutyl phthalate	0.001						0.001									
		Semivolatile Organic Compounds																
		Benzoic acid	0.0001															
		Benzyl alcohol	0.0001				0.0001											
		Bis(2-chloroethoxy) methane	0.001							0.001								
		Dibenzofuran	0.0002	0.0002														
		Hexachlorobenzene	0.00004							0.00004								
		Hexachlorobutadiene	0.000001			0.000001												
		Nitrobenzene	0.007	0.007														
		Phenols																
		4-Nitrophenol	0.0002					0.0002	0.0002									
		Phenol	0.0004						0.0004									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							

TABLE 5-79.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Central Tendancy Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.09											0.09				
		Total PCB TEQ	0.1											0.1				
		Pesticides																
		Aldrin	0.001							0.001								
		alpha-Hexachlorocyclohexane	0.0000001							0.0000001								
		beta-Hexachlorocyclohexane	0.0001							0.0001								
		Dieldrin	0.001							0.001								
		Endrin	0.000003							0.000003								
		Endrin aldehyde	0.0001							0.0001								
		Endrin ketone	0.000001							0.000001								
		gamma-Hexachlorocyclohexane	0.00001			0.00001				0.00001								
		Heptachlor	0.000004							0.000004								
		Heptachlor epoxide	0.001							0.001								
		Methoxychlor	0.000003											0.000003				0.000003
		Total Chlordanes	0.001							0.001								
		Total DDD	0.005							0.005								
		Total DDE	0.003							0.003								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
	Exposure Point Total			0.03	1	0.01	0.01	0.01	0.00	0.02	1	0.0001		0.2	0.0001			0.000003

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Endpoint-specific hazard indices only calculated for those exposure areas where the cumulative hazard index is greater than 1.

Abbreviations:

D = Depurated clam.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RM = River mile.
TEQ = Toxic Equivalents.
UD = Undepurated clam.

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
UD	RM 1 East	**Metals**																
		Aluminum	0.02					0.02										
		Arsenic, inorganic	0.09	0.09	0.09													
		Cadmium	0.03			0.03												
		Copper	0.05				0.05											
		Manganese	0.01					0.01										
		Mercury	0.03					0.03										
		Nickel	0.002						0.002									
		Selenium	0.01						0.01									
		Silver	0.001		0.001													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.002								0.002							
		Dibutyltin ion	0.003								0.003							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000003							0.000003								
		Acenaphthylene	0.000001							0.000001								
		Anthracene	0.000002															
		Benzo(e)pyrene	0.00002			0.00002												
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Dibenzothiophene	0.000005	0.000005														
		Fluoranthene	0.0002	0.0002		0.0002				0.0002								
		Fluorene	0.00001	0.00001														
		Perylene	0.000002			0.000002												
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0002			0.0002												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Dibenzofuran	0.0002	0.0002														
		Hexachlorobenzene	0.0002							0.0002								
		Hexachlorobutadiene	0.000002			0.000002												
		Nitrobenzene	0.04	0.04														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.4											0.4				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.003							0.003								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.0009							0.0009								
		Total Endosulfan	0.00003	0.00003				0.00003	0.00003									
Exposure Point Total[a]				0.2	2	0.03	0.05	0.06	0.01	0.02	2	0.0001		0.5				
UD	RM 2 East	**Metals**																
		Aluminum	0.01					0.01										
		Antimony	0.001	0.001														
		Arsenic, inorganic	0.1	0.1	0.1													
		Cadmium	0.06			0.06												
		Copper	0.07				0.07											
		Mercury	0.02					0.02										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.03	0.03														
		Butyltins																
		Butyltin ion	0.004								0.004							
		Dibutyltin ion	0.005								0.005							
		Tributyltin ion	0.01								0.01							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00003			0.00003												
		Fluoranthene	0.001	0.001		0.001				0.001								

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Fluorene	0.00002	0.00002														
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.001			0.001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00003				0.00003											
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	4		4						4							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.8											0.8				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.005							0.005								
		Endrin	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00005	0.00005				0.00005	0.00005									
Exposure Point Total				0.1	4	0.06	0.07	0.03	0.01	0.03	4	0.0001		1				
UD	RM 2 West	**Metals**																
		Aluminum	0.02					0.02										
		Arsenic, inorganic	0.09	0.09	0.09													
		Cadmium	0.03			0.03												
		Copper	0.06				0.06											
		Manganese	0.01					0.01										
		Mercury	0.03					0.03										
		Nickel	0.003						0.003									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.03	0.03														

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Butyltins																
		Butyltin ion	0.001								0.001							
		Dibutyltin ion	0.003								0.003							
		Tributyltin ion	0.004								0.004							
		PAHs																
		1-Methylnaphthalene	0.000004															
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(e)pyrene	0.00003			0.00003												
		Benzo(g,h,i)perylene	0.0001			0.0001												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.00003	0.00003														
		Perylene	0.00001			0.00001												
		Phenanthrene	0.001			0.001												
		Pyrene	0.001			0.001												
		Semivolatile Organic Compounds																
		Benzoic acid	0.0001															
		Benzyl alcohol	0.00003				0.00003											
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0002							0.0002								
		Nitrobenzene	0.04	0.04														
		Phenols																
		4-Nitrophenol	0.001					0.001	0.001									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.003							0.003								
		Endrin	0.000005							0.000005								
		gamma-Hexachlorocyclohexane	0.00005			0.00005				0.00005								

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Heptachlor	0.000004							0.000004								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00003	0.00003				0.00003	0.00003									
Exposure Point Total				0.2	1	0.03	0.06	0.05	0.01	0.03	1	0.0001		0.4				
UD	RM 3 East	**Metals**																
		Aluminum	0.02					0.02										
		Antimony	0.002	0.002														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.04			0.04												
		Copper	0.07				0.07											
		Mercury	0.02					0.02										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.04	0.04														
		Butyltins																
		Butyltin ion	0.003								0.003							
		Dibutyltin ion	0.05								0.05							
		Tributyltin ion	0.05								0.05							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.0001			0.0001												
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.00003	0.00003														
		Phenanthrene	0.0003			0.0003												
		Pyrene	0.001			0.001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00004				0.00004											

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Dibenzofuran	0.001	0.001														
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	6		6						6							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	1											1				
		Pesticides																
		Aldrin	0.002							0.002								
		alpha-Hexachlorocyclohexane	0.0000002							0.0000002								
		Dieldrin	0.005							0.005								
		Endrin	0.00001							0.00001								
		Endrin ketone	0.000003							0.000003								
		gamma-Hexachlorocyclohexane	0.00005			0.00005				0.00005								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.00004	0.00004				0.00004	0.00004									
Exposure Point Total				0.1	6	0.05	0.07	0.04	0.01	0.02	6	0.0001		2				
UD	RM 3 West	**Metals**																
		Aluminum	0.05					0.05										
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.02			0.02												
		Copper	0.05				0.05											
		Manganese	0.01					0.01										
		Mercury	0.04					0.04										
		Nickel	0.003						0.003									
		Selenium	0.01						0.01									
		Silver	0.002		0.002													
		Zinc	0.03	0.03														

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.000002							0.000002								
		Benzo(e)pyrene	0.0001			0.0001												
		Benzo(g,h,i)perylene	0.00002			0.00002												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.0003	0.0003		0.0003				0.0003								
		Fluorene	0.00002	0.00002														
		Perylene	0.00001			0.00001												
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0004			0.0004												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.001							0.001								
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Bis(2-chloroethoxy) methane	0.004							0.004								
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0003							0.0003								
		Nitrobenzene	0.07	0.07														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.3											0.3				
		Pesticides																
		Aldrin	0.003							0.003								
		Dieldrin	0.003							0.003								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.00003	0.00003				0.00003	0.00003									
Exposure Point Total				0.2	1	0.02	0.05	0.1	0.01	0.03	1	0.0001		0.5				

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
UD	RM 4 East	**Metals**																
		Aluminum	0.02					0.02										
		Antimony	0.00	0.00														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.04			0.04												
		Copper	0.07				0.07											
		Mercury	0.03					0.03										
		Nickel	0.01						0.01									
		Selenium	0.01						0.01									
		Silver	0.00		0.00													
		Zinc	0.03	0.03														
		Butyltins																
		Butyltin ion	0.005								0.005							
		Dibutyltin ion	0.01								0.01							
		Tributyltin ion	0.01								0.01							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00004			0.00004												
		Fluoranthene	0.0004	0.0004		0.0004				0.0004								
		Fluorene	0.00002	0.00002														
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.001			0.001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00003				0.00003											
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0001							0.0001								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.9											0.9				
		Total PCB TEQ	0.4											0.4				

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Aldrin	0.001							0.001								
		alpha-Hexachlorocyclohexane	0.0000002							0.0000002								
		Dieldrin	0.004							0.004								
		Endrin	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.004							0.004								
		Total DDE	0.005							0.005								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00003	0.00003				0.00003	0.00003									
Exposure Point Total				0.1	1	0.04	0.07	0.05	0.01	0.02	1	0.0001		1				
UD	RM 4 West	**Metals**																
		Aluminum	0.02					0.02										
		Arsenic, inorganic	0.09	0.09	0.09													
		Cadmium	0.02			0.02												
		Copper	0.06				0.06											
		Manganese	0.01					0.01										
		Mercury	0.03					0.03										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.00		0.00													
		Zinc	0.03	0.03														
		Butyltins																
		Butyltin ion	0.001								0.001							
		Dibutyltin ion	0.002								0.002							
		Tributyltin ion	0.003								0.003							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthene	0.00002							0.00002								
		Acenaphthylene	0.00002							0.00002								
		Benzo(e)pyrene	0.0001			0.0001												
		Benzo(g,h,i)perylene	0.0001			0.0001												

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.00006	0.00006														
		Perylene	0.00001			0.00001												
		Phenanthrene	0.001			0.001												
		Pyrene	0.002			0.002												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.001							0.001								
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0003				0.0003											
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0002							0.0002								
		Nitrobenzene	0.02	0.02														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.4											0.4				
		Pesticides																
		Aldrin	0.002							0.002								
		alpha-Hexachlorocyclohexane	0.0000004							0.0000004								
		Dieldrin	0.005							0.005								
		Endrin	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.001							0.001								
		Methoxychlor	0.00002											0.00002				0.00002
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.002							0.002								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Point Total				0.1	2	0.02	0.06	0.06	0.01	0.03	2	0.0002		0.6				0.00002

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
UD	RM 5 East	**Metals**																
		Aluminum	0.03					0.03										
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.02			0.02												
		Copper	0.06				0.06											
		Manganese	0.01					0.01										
		Mercury	0.05					0.05										
		Nickel	0.005						0.005									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.03	0.03														
		Butyltins																
		Butyltin ion	0.002								0.002							
		Dibutyltin ion	0.003								0.003							
		Tributyltin ion	0.01								0.01							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(e)pyrene	0.00003			0.00003												
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Fluoranthene	0.0002	0.0002		0.0002				0.0002								
		Fluorene	0.00002	0.00002														
		Perylene	0.000002			0.000002												
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0003			0.0003												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.001							0.001								
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0002				0.0002											
		Dibenzofuran	0.0004	0.0004														
		Hexachlorobenzene	0.0002							0.0002								
		Hexachlorobutadiene	0.0000			0.0000												
		Nitrobenzene	0.05	0.05														

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.4											0.4				
		Pesticides																
		Aldrin	0.003							0.003								
		Dieldrin	0.004							0.004								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00003	0.00003				0.00003	0.00003									
Exposure Point Total				0.2	2	0.02	0.06	0.09	0.01	0.03	2	0.0001		0.5				
UD	RM 5 West	**Metals**																
		Aluminum	0.03					0.03										
		Arsenic, inorganic	0.09	0.09	0.09													
		Cadmium	0.02			0.02												
		Copper	0.07				0.07											
		Manganese	0.01					0.01										
		Mercury	0.07					0.07										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.004		0.004													
		Zinc	0.03	0.03														
		Butyltins																
		Butyltin ion	0.002								0.002							
		Dibutyltin ion	0.002								0.002							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.0001							0.0001								
		Acenaphthylene	0.0001							0.0001								

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Benzo(e)pyrene	0.0001			0.0001												
		Benzo(g,h,i)perylene	0.002			0.002												
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.005	0.005		0.005				0.005								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.00004						0.00004						0.00004			
		Perylene	0.00001			0.00001												
		Phenanthrene	0.002			0.002												
		Pyrene	0.01			0.01												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.002							0.002								
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00002				0.00002											
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0002							0.0002								
		Hexachlorobutadiene	0.00001			0.00001												
		Nitrobenzene	0.02	0.02														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.4											0.4				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.004							0.004								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00002							0.00002								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.004							0.004								
		Total Endosulfan	0.00004	0.00004				0.00004	0.00004									
Exposure Point Total				0.1	1	0.04	0.07	0.1	0.01	0.04	1	0.0001		0.6	0.00004			

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
UD	RM 6 East	**Metals**																
		Aluminum	0.03					0.03										
		Antimony	0.001	0.001														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.01			0.01												
		Copper	0.07				0.07											
		Manganese	0.01					0.01										
		Mercury	0.03					0.03										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.003								0.003							
		Dibutyltin ion	0.01								0.01							
		Tributyltin ion	0.01								0.01							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000004							0.000004								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Fluoranthene	0.0003	0.0003		0.0003				0.0003								
		Fluorene	0.00002	0.00002														
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0004			0.0004												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	34		34						34							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	2											2				

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Aldrin	0.002							0.002								
		alpha-Hexachlorocyclohexane	0.0000003							0.0000003								
		beta-Hexachlorocyclohexane	0.001							0.001								
		Dieldrin	0.004							0.004								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.000004							0.000004								
		Heptachlor epoxide	0.04							0.04								
		Total Chlordanes	0.003							0.003								
		Total DDD	0.003							0.003								
		Total DDE	0.005							0.005								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00004	0.00004				0.00004	0.00004									
Exposure Point Total				0.1	34	0.02	0.07	0.06	0.01	0.06	34	0.0001		2				
UD	RM 6 West	**Metals**																
		Aluminum	0.02					0.02										
		Arsenic, inorganic	0.09	0.09	0.09													
		Cadmium	0.02			0.02												
		Copper	0.07				0.07											
		Mercury	0.03					0.03										
		Nickel	0.01						0.01									
		Selenium	0.01						0.01									
		Silver	0.004		0.004													
		Zinc	0.03	0.03														
		Butyltins																
		Butyltin ion	0.003								0.003							
		Dibutyltin ion	0.002								0.002							
		PAHs																
		2-Methylnaphthalene	0.001									0.001						
		Acenaphthene	0.0003							0.0003								
		Acenaphthylene	0.0001							0.0001								
		Benzo(g,h,i)perylene	0.002			0.002												
		Fluoranthene	0.005	0.005		0.005				0.005								
		Fluorene	0.0002	0.0002														
		Naphthalene	0.0004						0.0004						0.0004			

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Phenanthrene	0.003			0.003												
		Pyrene	0.01			0.01												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Dibenzofuran	0.001	0.001														
		Hexachlorobenzene	0.0003							0.0003								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	1											1				
		Total PCB TEQ	0.4											0.4				
		Pesticides																
		Aldrin	0.003							0.003								
		alpha-Hexachlorocyclohexane	0.0000003							0.0000003								
		Dieldrin	0.01							0.01								
		Endrin	0.00004							0.00004								
		Endrin ketone	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.0002							0.0002								
		Heptachlor epoxide	0.002							0.002								
		Methoxychlor	0.000005											0.000005				0.000005
		Total Chlordanes	0.01							0.01								
		Total DDD	0.1							0.1								
		Total DDE	0.03							0.03								
		Total DDT	0.02							0.02								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Point Total				0.1	1	0.04	0.07	0.05	0.01	0.2	1	0.001		1	0.0004			0.000005
UD	RM 7 East	**Metals**																
		Aluminum	0.03					0.03										
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.02			0.02												
		Copper	0.07				0.07											
		Mercury	0.03					0.03										
		Nickel	0.01						0.01									
		Selenium	0.01						0.01									

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Silver	0.003		0.003													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.01								0.01							
		Dibutyltin ion	0.01								0.01							
		Tributyltin ion	0.01								0.01							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.000003							0.000003								
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Fluoranthene	0.0003	0.0003		0.0003				0.0003								
		Fluorene	0.00002	0.00002														
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0003			0.0003												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0002				0.0002											
		Dibenzofuran	0.0005	0.0005														
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.3											0.3				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.004							0.004								
		Endrin ketone	0.000002							0.000002								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.002							0.002								
		Total DDE	0.004							0.004								

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00004	0.00004				0.00004	0.00004									
Exposure Point Total				0.1	1	0.02	0.07	0.06	0.01	0.02	1	0.0001		0.5				
UD	RM 7 West	**Metals**																
		Aluminum	0.04					0.04										
		Antimony	0.001	0.001														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.02			0.02												
		Copper	0.06				0.06											
		Manganese	0.01					0.01										
		Mercury	0.03					0.03										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.03	0.03														
		Butyltins																
		Butyltin ion	0.002								0.002							
		Dibutyltin ion	0.005								0.005							
		Tributyltin ion	0.004								0.004							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthene	0.00002							0.00002								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.0001			0.0001												
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.00003	0.00003														
		Naphthalene	0.00003						0.00003						0.00003			
		Phenanthrene	0.0003			0.0003												
		Pyrene	0.001			0.001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.003				0.003											
		Dibenzofuran	0.001	0.001														
		Hexachlorobenzene	0.0003							0.0003								
		Phenols																
		Phenol	0.002						0.002									

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	1											1				
		Total PCB TEQ	0.3											0.3				
		Pesticides																
		Aldrin	0.003							0.003								
		Dieldrin	0.01							0.01								
		Endrin	0.00004							0.00004								
		Endrin aldehyde	0.0003							0.0003								
		Endrin ketone	0.00001							0.00001								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.03							0.03								
		Total Chlordanes	0.004							0.004								
		Total DDD	0.09							0.09								
		Total DDE	0.04							0.04								
		Total DDT	0.05							0.05								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Point Total				0.1	1	0.02	0.06	0.09	0.02	0.2	1	0.0002		2	0.00003			
UD	RM 8 East	**Metals**																
		Aluminum	0.04					0.04										
		Antimony	0.001	0.001														
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.02			0.02												
		Copper	0.09				0.09											
		Mercury	0.02					0.02										
		Nickel	0.01						0.01									
		Selenium	0.01						0.01									
		Silver	0.004		0.004													
		Zinc	0.05	0.05														
		Butyltins																
		Butyltin ion	0.08								0.08							
		Dibutyltin ion	0.5								0.5							
		Tributyltin ion	0.5								0.5							

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000001							0.000001								
		Acenaphthylene	0.000001							0.000001								
		Benzo(g,h,i)perylene	0.000004			0.000004												
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.000006	0.000006														
		Phenanthrene	0.00004			0.00004												
		Pyrene	0.0001			0.0001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00003				0.00003											
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.0001							0.0001								
		Hexachlorobutadiene	0.000001			0.000001												
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.001							0.001								
		alpha-Hexachlorocyclohexane	0.0000002							0.0000002								
		Dieldrin	0.003							0.003								
		Endrin	0.00001							0.00001								
		Endrin ketone	0.000002							0.000002								
		gamma-Hexachlorocyclohexane	0.00004			0.00004				0.00004								
		Heptachlor	0.000005							0.000005								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.003							0.003								
		Total DDT	0.0004							0.0004								
		Total Endosulfan	0.00004	0.00004				0.00004	0.00004									
Exposure Point Total				0.1	1	0.02	0.09	0.06	0.01	0.01	2	0.0001		0.3				

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
UD	RM 8 West	**Metals**																
		Aluminum	0.03					0.03										
		Antimony	0.002	0.002														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.03			0.03												
		Copper	0.06				0.06											
		Mercury	0.03					0.03										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.004		0.004													
		Zinc	0.04	0.04														
		Butyltins																
		Butyltin ion	0.001								0.001							
		Dibutyltin ion	0.002								0.002							
		Tributyltin ion	0.003								0.003							
		PAHs																
		2-Methylnaphthalene	0.001									0.001						
		Acenaphthene	0.0001							0.0001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00003			0.00003												
		Fluoranthene	0.002	0.002		0.002				0.002								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.0001						0.0001						0.0001			
		Phenanthrene	0.001			0.001												
		Pyrene	0.001			0.001												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.000				0.000											
		Dibenzofuran	0.004	0.004														
		Hexachlorobenzene	0.0003							0.0003								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	5		5						5							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.4											0.4				
		Total PCB TEQ	0.9											0.9				

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Aldrin	0.04							0.04								
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		Dieldrin	0.01							0.01								
		Endrin	0.0001							0.0001								
		Endrin ketone	0.000004							0.000004								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00003							0.00003								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.01							0.01								
		Total DDD	0.02							0.02								
		Total DDE	0.03							0.03								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Point Total				0.1	5	0.03	0.06	0.06	0.01	0.1	5	0.001		1	0.0001			
UD	RM 8 SIL	**Metals**																
		Aluminum	0.05					0.05										
		Antimony	0.003	0.003														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.04			0.04												
		Copper	0.06				0.06											
		Mercury	0.03					0.03										
		Nickel	0.005						0.005									
		Selenium	0.01						0.01									
		Silver	0.002		0.002													
		Zinc	0.04	0.04														
		Butyltins																
		Butyltin ion	0.01								0.01							
		Dibutyltin ion	0.01								0.01							
		Tributyltin ion	0.03								0.03							
		PAHs																
		2-Methylnaphthalene	0.0002									0.0002						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.00001							0.00001								
		Benzo(g,h,i)perylene	0.00002			0.00002												

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Fluoranthene	0.0004	0.0004		0.0004				0.0004								
		Fluorene	0.00002	0.00002														
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.001			0.001												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.002							0.002								
		Dibutyl phthalate	0.003						0.003									
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0003				0.0003											
		Dibenzofuran	0.0004	0.0004														
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	5		5						5							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.3											0.3				
		Total PCB TEQ	0.9											0.9				
		Pesticides																
		Aldrin	0.003							0.003								
		alpha-Hexachlorocyclohexane	0.000001							0.000001								
		Dieldrin	0.01							0.01								
		Endrin	0.00002							0.00002								
		Endrin ketone	0.000003							0.000003								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.003							0.003								
		Total DDD	0.004							0.004								
		Total DDE	0.01							0.01								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Point Total				0.1	5	0.04	0.06	0.08	0.02	0.03	5	0.0002		1				
UD	RM 9 West	**Metals**																
		Aluminum	0.04					0.04										
		Antimony	0.002	0.002														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.02			0.02												

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Copper	0.06				0.06											
		Mercury	0.02					0.02										
		Nickel	0.01						0.01									
		Selenium	0.01						0.01									
		Silver	0.004		0.004													
		Zinc	0.03	0.03														
		Butyltins																
		Dibutyltin ion	0.001								0.001							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00001							0.00001								
		Acenaphthylene	0.000004							0.000004								
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Fluoranthene	0.0002	0.0002		0.0002				0.0002								
		Fluorene	0.00003	0.00003														
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.0002			0.0002												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.00005				0.00005											
		Dibenzofuran	0.001	0.001														
		Hexachlorobenzene	0.0003							0.0003								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	6		6						6							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	1											1				
		Total PCB TEQ	1											1				
		Pesticides																
		Aldrin	0.003							0.003								
		alpha-Hexachlorocyclohexane	0.0000005							0.0000005								
		Dieldrin	0.01							0.01								
		Endrin	0.00005							0.00005								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00001							0.00001								
		Heptachlor epoxide	0.002							0.002								
		Total Chlordanes	0.003							0.003								

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total DDD	0.003							0.003								
		Total DDE	0.01							0.01								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
Exposure Point Total				0.1	6	0.02	0.06	0.07	0.01	0.03	6	0.0001		2				
UD	RM 10 West	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.06	0.06	0.06													
		Cadmium	0.01			0.01												
		Copper	0.04				0.04											
		Manganese	0.01					0.01										
		Mercury	0.05					0.05										
		Nickel	0.002						0.002									
		Selenium	0.01						0.01									
		Silver	0.002		0.002													
		Zinc	0.02	0.02														
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000002							0.000002								
		Benzo(e)pyrene	0.00001			0.00001												
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.000005	0.000005														
		Phenanthrene	0.00003			0.00003												
		Pyrene	0.0001			0.0001												
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.0001							0.0001								
		Nitrobenzene	0.01	0.01														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.2											0.2				

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Aldrin	0.001							0.001								
		Dieldrin	0.002							0.002								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.003							0.003								
		Total DDT	0.0002							0.0002								
Exposure Point Total				0.08	1	0.01	0.04	0.07	0.01	0.01	1	0.00		0.3				
UD	RM 11 East	**Metals**																
		Aluminum	0.05					0.05										
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.02			0.02												
		Copper	0.04				0.04											
		Manganese	0.01					0.01										
		Mercury	0.07					0.07										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.002								0.002							
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000001							0.000001								
		Benzo(e)pyrene	0.00001			0.00001												
		Fluoranthene	0.00004	0.00004		0.00004				0.00004								
		Fluorene	0.000004	0.000004														
		Phenanthrene	0.00002			0.00002												
		Pyrene	0.00005			0.00005												
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.0001				0.0001											
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.0002							0.0002								
		Nitrobenzene	0.01	0.01														

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	10		10						10							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.4											0.4				
		Pesticides																
		Dieldrin	0.002							0.002								
		gamma-Hexachlorocyclohexane	0.00002			0.00002				0.00002								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.003							0.003								
		Total DDT	0.0004							0.0004								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	10	0.02	0.04	0.1	0.01	0.01	10	0.0001		0.6				
UD	RM 12 East	**Metals**																
		Aluminum	0.03					0.03										
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.01			0.01												
		Copper	0.04				0.04											
		Manganese	0.01					0.01										
		Mercury	0.06					0.06										
		Nickel	0.003						0.003									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.03	0.03														
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000003							0.000003								
		Benzo(e)pyrene	0.00002			0.00002												
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.00001	0.00001														
		Naphthalene	0.001						0.001						0.001			
		Phenanthrene	0.00004			0.00004												
		Pyrene	0.0001			0.0001												

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.002							0.002								
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0002	0.0002														
		Hexachlorobenzene	0.0003							0.0003								
		Hexachlorobutadiene	0.000001			0.000001												
		Nitrobenzene	0.02	0.02														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.001							0.001								
		Dieldrin	0.003							0.003								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.003							0.003								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	2	0.01	0.04	0.1	0.01	0.01	2	0.0001		0.4	0.001			
UD	Study Area-wide	**Metals**																
		Aluminum	0.03					0.03										
		Antimony	0.001	0.001														
		Arsenic, inorganic	0.08	0.08	0.08													
		Cadmium	0.03			0.03												
		Copper	0.06				0.06											
		Manganese	0.01					0.01										
		Mercury	0.04					0.04										
		Nickel	0.004						0.004									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.03	0.03														

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Butyltins																
		Butyltin ion	0.01								0.01							
		Dibutyltin ion	0.1								0.1							
		Tributyltin ion	0.1								0.1							
		PAHs																
		2-Methylnaphthalene	0.0004									0.0004						
		Acenaphthene	0.0001							0.0001								
		Acenaphthylene	0.00002							0.00002								
		Benzo(e)pyrene	0.0001			0.0001												
		Benzo(g,h,i)perylene	0.001			0.001												
		Dibenzothiophene	0.00002	0.00002														
		Fluoranthene	0.002	0.002		0.002				0.002								
		Fluorene	0.0001	0.0001														
		Naphthalene	0.0004						0.0004						0.000			
		Perylene	0.000			0.000												
		Phenanthrene	0.001			0.001												
		Pyrene	0.002			0.002												
		Phthalates																
		Bis(2-ethylhexyl) phthalate	0.001							0.001								
		Dibutyl phthalate	0.003						0.003									
		Semivolatile Organic Compounds																
		Benzyl alcohol	0.001				0.001											
		Bis(2-chloroethoxy) methane	0.004							0.004								
		Dibenzofuran	0.001	0.001														
		Hexachlorobenzene	0.0002							0.0002								
		Hexachlorobutadiene	0.00001			0.00001												
		Nitrobenzene	0.04	0.04														
		Phenols																
		4-Nitrophenol	0.00					0.00	0.00									
		Phenol	0.00						0.00									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	7		7						7							

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.5											0.5				
		Total PCB TEQ	0.7											0.7				
		Pesticides																
		Aldrin	0.01							0.01								
		alpha-Hexachlorocyclohexane	0.0000003							0.0000003								
		beta-Hexachlorocyclohexane	0.001							0.001								
		Dieldrin	0.01							0.01								
		Endrin	0.00001							0.00001								
		Endrin aldehyde	0.0003							0.0003								
		Endrin ketone	0.000003							0.000003								
		gamma-Hexachlorocyclohexane	0.0001			0.0001				0.0001								
		Heptachlor	0.00002							0.00002								
		Heptachlor epoxide	0.01							0.01								
		Methoxychlor	0.00002											0.00002				0.00002
		Total Chlordanes	0.003							0.003								
		Total DDD	0.03							0.03								
		Total DDE	0.02							0.02								
		Total DDT	0.01							0.01								
		Total Endosulfan	0.00004	0.00004				0.00004	0.00004									
Exposure Point Total				0.2	7	0.04	0.06	0.08	0.02	0.09	7	0.0004		1	0.0004			0.00002
D	RM 1 East	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.09	0.09	0.09													
		Cadmium	0.03			0.03												
		Copper	0.05				0.05											
		Manganese	0.01					0.01										
		Mercury	0.04					0.04										
		Nickel	0.002						0.002									
		Selenium	0.01						0.01									
		Silver	0.001		0.001													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.002								0.002							

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000003							0.000003								
		Benzo(e)pyrene	0.00002			0.00002												
		Fluoranthene	0.0002	0.0002		0.0002				0.0002								
		Fluorene	0.00001	0.00001														
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0002			0.0002												
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0002	0.0002														
		Hexachlorobenzene	0.0002							0.0002								
		Nitrobenzene	0.04	0.04														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.07											0.07				
		Total PCB TEQ	0.3											0.3				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.003							0.003								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.004							0.004								
		Total DDE	0.01							0.01								
		Total DDT	0.0007							0.0007								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	1	0.03	0.05	0.05	0.01	0.02	1	0.0001		0.4				
D	RM 2 West	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.1	0.1	0.1													
		Cadmium	0.02			0.02												
		Copper	0.06				0.06											
		Manganese	0.01					0.01										
		Mercury	0.06					0.06										

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Nickel	0.002						0.002									
		Selenium	0.01						0.01									
		Silver	0.001		0.001													
		Zinc	0.02	0.02														
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00002							0.00002								
		Acenaphthylene	0.000003							0.000003								
		Benzo(e)pyrene	0.00004			0.00004												
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.0005	0.0005		0.0005				0.0005								
		Fluorene	0.00003	0.00003														
		Perylene	0.00001			0.00001												
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.0006			0.0006												
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0002							0.0002								
		Hexachlorobutadiene	0.000003			0.000003												
		Nitrobenzene	0.01	0.01														
		Phenols																
		2-Methylphenol	0.00005					0.00005							0.00005			
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.003							0.003								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								
		Total DDT	0.001							0.001								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	1	0.02	0.06	0.07	0.01	0.02	1	0.0001		0.3	0.00005			
D	RM 10 West	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.01			0.01												
		Copper	0.04				0.04											
		Manganese	0.01					0.01										
		Nickel	0.003						0.003									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.02	0.02														
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.000002							0.000002								
		Acenaphthylene	0.000001							0.000001								
		Benzo(e)pyrene	0.00001			0.00001												
		Dibenzothiophene	0.000002	0.000002														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.00001	0.00001														
		Phenanthrene	0.00004			0.0000												
		Pyrene	0.0001			0.0001												
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.0002							0.0002								
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.08											0.08				
		Total PCB TEQ	0.2											0.2				

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Aldrin	0.001							0.001								
		Dieldrin	0.003							0.003								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.004							0.004								
		Total DDT	0.0004							0.0004								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
	Exposure Point Total			0.09	2	0.01	0.04	0.02	0.01	0.01	2	0.0001		0.3				
D	RM 11 East	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.03			0.03												
		Copper	0.05				0.05											
		Manganese	0.01					0.01										
		Mercury	0.05					0.05										
		Nickel	0.003						0.003									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.001								0.001							
		PAHs																
		Acenaphthene	0.000002							0.000002								
		Benzo(e)pyrene	0.00001			0.00001												
		Dibenzothiophene	0.000002	0.000002														
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.00001	0.00001														
		Phenanthrene	0.00004			0.00004												
		Pyrene	0.0001			0.0001												

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.0001							0.0001								
		Nitrobenzene	0.01	0.01														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	6		6						6							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.05											0.05				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Dieldrin	0.002							0.002								
		Heptachlor epoxide	0.0005							0.0005								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.002							0.002								
		Total DDT	0.0003							0.0003								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	6	0.03	0.05	0.07	0.01	0.01	6			0.2				
D	RM 12 East	**Metals**																
		Aluminum	0.02					0.02										
		Arsenic, inorganic	0.07	0.07	0.07													
		Cadmium	0.01			0.01												
		Copper	0.05				0.05											
		Manganese	0.01					0.01										
		Mercury	0.06					0.06										
		Nickel	0.002						0.002									
		Selenium	0.01						0.01									
		Silver	0.004		0.004													
		Zinc	0.02	0.02														
		PAHs																
		Acenaphthylene	0.000001							0.000001								
		Benzo(e)pyrene	0.00001			0.00001												
		Fluoranthene	0.00004	0.00004		0.00004				0.00004								
		Fluorene	0.000004	0.000004														

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Phenanthrene	0.00002			0.00002												
		Pyrene	0.0001			0.0001												
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.0002							0.0002								
		Nitrobenzene	0.01	0.01														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.07											0.07				
		Total PCB TEQ	0.1											0.1				
		Pesticides																
		Dieldrin	0.002							0.002								
		gamma-Hexachlorocyclohexane	0.00002			0.00002				0.00002								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.001							0.001								
		Total DDD	0.001							0.001								
		Total DDE	0.002							0.002								
		Total DDT	0.0004							0.0004								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.1	1	0.02	0.05	0.08	0.01	0.01	1			0.2				
D	Study Area-wide	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.1	0.1	0.1													
		Cadmium	0.03			0.03												
		Copper	0.06				0.06											
		Manganese	0.01					0.01										
		Mercury	0.06					0.06										
		Nickel	0.003						0.003									
		Selenium	0.01						0.01									
		Silver	0.003		0.003													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.001								0.001							

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		PAHs																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00002							0.00002								
		Acenaphthylene	0.000003							0.000003								
		Benzo(e)pyrene	0.00004			0.00004												
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Dibenzothiophene	0.00001	0.00001														
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.00003	0.00003														
		Perylene	0.00001			0.00001												
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.001			0.001												
		Semivolatile Organic Compounds																
		Dibenzofuran	0.0003	0.0003														
		Hexachlorobenzene	0.0002							0.0002								
		Hexachlorobutadiene	0.000003			0.000003												
		Nitrobenzene	0.01	0.01														
		Phenols																
		2-Methylphenol	0.00005					0.00005							0.00005			
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	6		6						6							
		Dioxin/Furan																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Aldrin	0.002							0.002								
		Dieldrin	0.003							0.003								
		gamma-Hexachlorocyclohexane	0.00003			0.00003				0.00003								
		Heptachlor epoxide	0.001							0.001								
		Total Chlordanes	0.002							0.002								
		Total DDD	0.01							0.01								
		Total DDE	0.01							0.01								

TABLE 5-80.
Calculation of Endpoint-Specific Hazard Indices - Clam Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Clam Tissue (Whole Body, without shell, Depurated and Undepurated)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total DDT	0.0009							0.0009								
		Total Endosulfan	0.00002	0.00002				0.00002	0.00002									
Exposure Point Total				0.2	6	0.03	0.06	0.08	0.01	0.02	6	0.0001		0.3	0.00005			

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Endpoint-specific hazard indices only calculated for those exposure areas where the cumulative hazard index is greater than 1.

Abbreviations:

D = Depurated clam.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RM = River mile.
TEQ = Toxic Equivalents.
UD = Undepurated clam.

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate: 18 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 18 g/day Cancer Risk	Cancer Risk: Consumption Rate: 3.3 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 3.3 g/day Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate: 18 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 18 g/day Noncancer Hazard Quotient	Noncancer: Consumption Rate: 3.3 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 3.3 g/day Noncancer Hazard Quotient
Body Without Shell	RM 1, Station: CR01EA	**Metals**												
		Aluminum	5.0E+01	mg/kg	--	5.5E-03	--	1.0E-03	--	1.0E+00	1.3E-02	0.01	2.4E-03	0.002
		Arsenic, inorganic	3.4E-02	mg/kg	1.5E+00	3.7E-06	6.E-06	6.9E-07	1.E-06	3.0E-04	8.7E-06	0.03	1.6E-06	0.01
		Cadmium	2.4E-02	mg/kg	--	2.6E-06	--	4.8E-07	--	1.0E-03	6.2E-06	0.01	1.1E-06	0.001
		Chromium[c]	2.0E-01	mg/kg	--	2.2E-05	--	4.0E-06	--	1.5E+00	5.1E-05	0.00003	9.4E-06	0.00001
		Copper	1.6E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	4.0E-02	4.0E-03	0.1	7.3E-04	0.02
		Manganese	2.5E+01	mg/kg	--	2.7E-03	--	5.0E-04	--	1.4E-01	6.4E-03	0.05	1.2E-03	0.01
		Mercury	1.9E-02	mg/kg	--	2.1E-06	--	3.8E-07	--	1.0E-04	4.9E-06	0.05	8.9E-07	0.01
		Nickel	2.4E-01	mg/kg	--	2.6E-05	--	4.8E-06	--	2.0E-02	6.1E-05	0.003	1.1E-05	0.001
		Zinc	1.5E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	3.0E-01	3.9E-03	0.01	7.2E-04	0.002
		Butyltins												
		Butyltin ion	2.8E-01	ug/kg	--	3.1E-08	--	5.7E-09	--	3.0E-04	7.2E-08	0.0002	1.3E-08	0.0000
		Dibutyltin ion	9.2E-01	ug/kg	--	1.0E-07	--	1.9E-08	--	3.0E-04	2.4E-07	0.001	4.3E-08	0.0001
		Tributyltin ion	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-04	3.3E-07	0.001	6.1E-08	0.0002
		Polynuclear Aromatic Hydrocarbons												
		2-Methylnaphthalene	5.0E-01	ug/kg	--	5.5E-08	--	1.0E-08	--	4.0E-03	1.3E-07	0.00003	2.4E-08	0.00001
		Acenaphthene	9.4E-01	ug/kg	--	1.0E-07	--	1.9E-08	--	6.0E-02	2.4E-07	0.000004	4.4E-08	0.000001
		Acenaphthylene	1.4E-01	ug/kg	--	1.5E-08	--	2.8E-09	--	6.0E-02	3.6E-08	0.000001	6.6E-09	0.0000001
		Anthracene	2.9E-01	ug/kg	--	3.2E-08	--	5.9E-09	--	3.0E-01	7.5E-08	0.0000002	1.4E-08	0.00000005
		Benzo(a)pyrene	3.2E-01	ug/kg	7.3E+00	3.5E-08	3.E-07	6.5E-09	5.E-08	--	8.2E-08	--	1.5E-08	--
		Fluorene	6.7E-01	ug/kg	--	7.4E-08	--	1.4E-08	--	4.0E-02	1.7E-07	0.000004	3.2E-08	0.000001
		Naphthalene	6.4E-01	ug/kg	--	7.1E-08	--	1.3E-08	--	2.0E-02	1.6E-07	0.00001	3.0E-08	0.000002
		Semi-Volatile Organic Compounds												
		Dibenzofuran	3.8E-01	ug/kg	--	4.2E-08	--	7.7E-09	--	1.0E-03	9.8E-08	0.0001	1.8E-08	0.00002
		Hexachlorobenzene	3.6E-02	ug/kg	1.6E+00	3.9E-09	6.E-09	7.2E-10	1.E-09	8.0E-04	9.2E-09	0.00001	1.7E-09	0.000002
		Hexachlorobutadiene	2.1E-03	ug/kg	7.8E-02	2.3E-10	2.E-11	4.2E-11	3.E-12	1.0E-03	5.4E-10	0.000001	9.9E-11	0.0000001
		Phenols												
		Phenol	5.0E+01	ug/kg	--	5.5E-06	--	1.0E-06	--	3.0E-01	1.3E-05	0.00004	2.4E-06	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted[d]	6.2E+03	pg/g	2.0E+00	6.8E-07	1.E-06	1.3E-07	3.E-07	2.0E-05	1.6E-06	0.08	2.9E-07	0.01
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	2.5E-01	pg/g	1.3E+05	2.7E-11	4.E-06	5.0E-12	7.E-07	1.0E-09	6.4E-11	0.06	1.2E-11	0.01
		Total PCB TEQ	3.1E-01	pg/g	1.3E+05	3.4E-11	4.E-06	6.3E-12	8.E-07	1.0E-09	8.0E-11	0.08	1.5E-11	0.01
		Pesticides												
		Heptachlor epoxide	8.4E-04	ug/kg	9.1E+00	9.3E-11	8.E-10	1.7E-11	2.E-10	1.3E-05	2.2E-10	0.00002	4.0E-11	0.000003
		Total DDD	1.7E-01	ug/kg	2.4E-01	1.9E-08	5.E-09	3.5E-09	8.E-10	5.0E-04	4.4E-08	0.0001	8.1E-09	0.00002
		Total DDE	3.0E+00	ug/kg	3.4E-01	3.3E-07	1.E-07	6.1E-08	2.E-08	5.0E-04	7.7E-07	0.002	1.4E-07	0.0003
		Total Chlordane	2.1E-01	ug/kg	3.5E-01	2.3E-08	8.E-09	4.2E-09	1.E-09	5.0E-04	5.4E-08	0.0001	9.8E-09	0.00002
	Exposure Point Total[e]						2.E-05		3.E-06			0.5		0.09
Body Without Shell	RM 1, Station: CR01W	**Metals**												
		Aluminum	8.0E+01	mg/kg	--	8.9E-03	--	1.6E-03	--	1.0E+00	2.1E-02	0.02	3.8E-03	0.004
		Arsenic, inorganic	4.0E-02	mg/kg	1.5E+00	4.4E-06	7.E-06	8.1E-07	1.E-06	3.0E-04	1.0E-05	0.03	1.9E-06	0.01
		Cadmium	1.8E-02	mg/kg	--	1.9E-06	--	3.5E-07	--	1.0E-03	4.5E-06	0.005	8.3E-07	0.001
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	1.4E+01	mg/kg	--	1.6E-03	--	2.9E-04	--	4.0E-02	3.7E-03	0.09	6.7E-04	0.02

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Manganese	3.1E+01	mg/kg	--	3.4E-03	--	6.3E-04	--	1.4E-01	8.0E-03	0.06	1.5E-03	0.01
		Mercury	2.1E-02	mg/kg	--	2.3E-06	--	4.2E-07	--	1.0E-04	5.4E-06	0.05	9.9E-07	0.01
		Nickel	3.4E-01	mg/kg	--	3.8E-05	--	6.9E-06	--	2.0E-02	8.8E-05	0.00	1.6E-05	0.001
		Zinc	1.6E+01	mg/kg	--	1.8E-03	--	3.2E-04	--	3.0E-01	4.1E-03	0.01	7.5E-04	0.002
		Polynuclear Aromatic Hydrocarbons												
		Anthracene	9.5E-02	ug/kg	--	1.0E-08	--	1.9E-09	--	3.0E-01	2.4E-08	0.0000001	4.5E-09	0.00000001
		Benzo(a)pyrene	1.2E-01	ug/kg	7.3E+00	1.3E-08	1.E-07	2.4E-09	2.E-08	--	3.1E-08	--	5.7E-09	--
		Fluorene	1.6E-01	ug/kg	--	1.8E-08	--	3.2E-09	--	4.0E-02	4.1E-08	0.000001	7.5E-09	0.0000002
		Naphthalene	6.1E-01	ug/kg	--	6.7E-08	--	1.2E-08	--	2.0E-02	1.6E-07	0.00001	2.9E-08	0.000001
		Semi-Volatile Organic Compounds												
		Dibenzofuran	1.5E-01	ug/kg	--	1.7E-08	--	3.0E-09	--	1.0E-03	3.9E-08	0.00004	7.1E-09	0.00001
		Hexachlorobenzene	4.9E-02	ug/kg	1.6E+00	5.4E-09	9.E-09	9.9E-10	2.E-09	8.0E-04	1.3E-08	0.00002	2.3E-09	0.000003
		Phenols												
		Phenol	7.4E+01	ug/kg	--	8.2E-06	--	1.5E-06	--	3.0E-01	1.9E-05	0.00006	3.5E-06	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	6.1E+03	pg/g	2.0E+00	6.7E-07	1.E-06	1.2E-07	2.E-07	2.0E-05	1.6E-06	0.08	2.9E-07	0.01
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	3.3E-01	pg/g	1.3E+05	3.6E-11	5.E-06	6.6E-12	9.E-07	1.0E-09	8.4E-11	0.08	1.5E-11	0.02
		Total PCB TEQ	1.8E-01	pg/g	1.3E+05	2.0E-11	3.E-06	3.7E-12	5.E-07	1.0E-09	4.7E-11	0.05	8.6E-12	0.01
		Pesticides												
		Dieldrin	1.3E-02	ug/kg	1.6E+01	1.5E-09	2.E-08	2.7E-10	4.E-09	5.0E-05	3.4E-09	0.0001	6.3E-10	0.00001
		Total DDD	1.8E-01	ug/kg	2.4E-01	2.0E-08	5.E-09	3.6E-09	9.E-10	5.0E-04	4.6E-08	0.0001	8.4E-09	0.00002
		Total DDE	2.4E+00	ug/kg	3.4E-01	2.7E-07	9.E-08	4.9E-08	2.E-08	5.0E-04	6.3E-07	0.001	1.2E-07	0.0002
		Total Chlordane	2.1E-01	ug/kg	3.5E-01	2.3E-08	8.E-09	4.3E-09	1.E-09	5.0E-04	5.5E-08	0.0001	1.0E-08	0.00002
		Total Endosulfan	1.4E-01	ug/kg	--	1.5E-08	--	2.8E-09	--	6.0E-03	3.6E-08	0.00001	6.6E-09	0.000001
	Exposure Point Total						2.E-05		3.E-06			0.5		0.09
Body Without Shell	RM 2, Station: 02R001	**Metals**												
		Aluminum	1.0E+02	mg/kg	--	1.1E-02	--	2.0E-03	--	1.0E+00	2.6E-02	0.03	4.8E-03	0.005
		Antimony	7.0E-03	mg/kg	--	7.7E-07	--	1.4E-07	--	4.0E-04	1.8E-06	0.005	3.3E-07	0.001
		Arsenic, inorganic	3.7E-02	mg/kg	1.5E+00	4.1E-06	6.E-06	7.5E-07	1.E-06	3.0E-04	9.5E-06	0.03	1.7E-06	0.01
		Cadmium	2.8E-02	mg/kg	--	3.1E-06	--	5.7E-07	--	1.0E-03	7.2E-06	0.01	1.3E-06	0.001
		Chromium	9.0E-01	mg/kg	--	9.9E-05	--	1.8E-05	--	1.5E+00	2.3E-04	0.0002	4.2E-05	0.00003
		Copper	1.3E+01	mg/kg	--	1.4E-03	--	2.5E-04	--	4.0E-02	3.2E-03	0.08	5.9E-04	0.01
		Manganese	1.5E+02	mg/kg	--	1.7E-02	--	3.1E-03	--	1.4E-01	4.0E-02	0.3	7.3E-03	0.05
		Mercury	2.4E-02	mg/kg	--	2.6E-06	--	4.8E-07	--	1.0E-04	6.2E-06	0.06	1.1E-06	0.01
		Nickel	5.4E-01	mg/kg	--	6.0E-05	--	1.1E-05	--	2.0E-02	1.4E-04	0.01	2.5E-05	0.001
		Silver	2.7E-02	mg/kg	--	3.0E-06	--	5.5E-07	--	5.0E-03	7.0E-06	0.001	1.3E-06	0.0003
		Zinc	1.7E+01	mg/kg	--	1.8E-03	--	3.4E-04	--	3.0E-01	4.3E-03	0.01	7.8E-04	0.003
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.6E+04	pg/g	2.0E+00	5.0E-06	1.E-05	9.2E-07	2.E-06	2.0E-05	1.2E-05	0.6	2.2E-06	0.1
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	4.2E-01	pg/g	1.3E+05	4.7E-11	6.E-06	8.5E-12	1.E-06	1.0E-09	1.1E-10	0.1	2.0E-11	0.02
		Total PCB TEQ	3.1E+00	pg/g	1.3E+05	3.4E-10	4.E-05	6.3E-11	8.E-06	1.0E-09	8.0E-10	0.8	1.5E-10	0.1
		Pesticides												
		Total DDE	3.4E+00	ug/kg	3.4E-01	3.7E-07	1.E-07	6.9E-08	2.E-08	5.0E-04	8.7E-07	0.002	1.6E-07	0.0003

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Total DDT	8.2E+00	ug/kg	3.4E-01	9.0E-07	3.E-07	1.6E-07	6.E-08	5.0E-04	2.1E-06	0.004	3.8E-07	0.001
		Total Chlordane	3.1E+00	ug/kg	3.5E-01	3.4E-07	1.E-07	6.3E-08	2.E-08	5.0E-04	8.0E-07	0.002	1.5E-07	0.0003
	Exposure Point Total						7.E-05		1.E-05			2		0.4
Body Without Shell	RM 2, Station: 02R015	**Metals**												
		Aluminum	9.0E+01	mg/kg	--	9.9E-03	--	1.8E-03	--	1.0E+00	2.3E-02	0.02	4.2E-03	0.004
		Antimony	9.0E-03	mg/kg	--	9.9E-07	--	1.8E-07	--	4.0E-04	2.3E-06	0.01	4.2E-07	0.001
		Arsenic, inorganic	4.0E-02	mg/kg	1.5E+00	4.4E-06	7.E-06	8.1E-07	1.E-06	3.0E-04	1.0E-05	0.03	1.9E-06	0.01
		Cadmium	1.7E-02	mg/kg	--	1.9E-06	--	3.4E-07	--	1.0E-03	4.4E-06	0.004	8.0E-07	0.001
		Chromium	7.0E-01	mg/kg	--	7.7E-05	--	1.4E-05	--	1.5E+00	1.8E-04	0.0001	3.3E-05	0.00002
		Copper	1.1E+01	mg/kg	--	1.2E-03	--	2.3E-04	--	4.0E-02	2.9E-03	0.07	5.3E-04	0.01
		Manganese	1.8E+02	mg/kg	--	2.0E-02	--	3.7E-03	--	1.4E-01	4.7E-02	0.3	8.6E-03	0.06
		Mercury	2.3E-02	mg/kg	--	2.5E-06	--	4.6E-07	--	1.0E-04	5.9E-06	0.06	1.1E-06	0.01
		Nickel	4.7E-01	mg/kg	--	5.2E-05	--	9.5E-06	--	2.0E-02	1.2E-04	0.01	2.2E-05	0.001
		Silver	2.6E-02	mg/kg	--	2.9E-06	--	5.3E-07	--	5.0E-03	6.8E-06	0.001	1.2E-06	0.0002
		Zinc	1.6E+01	mg/kg	--	1.8E-03	--	3.2E-04	--	3.0E-01	4.1E-03	0.01	7.5E-04	0.002
		Polychlorinated Biphenyls												
		Total Aroclors	2.8E+01	ug/kg	2.0E+00	3.1E-06	6.E-06	5.7E-07	1.E-06	2.0E-05	7.2E-06	0.4	1.3E-06	0.07
		Pesticides												
		Endrin	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	3.0E-04	4.6E-07	0.002	8.5E-08	0.0003
		Total DDE	4.6E+00	ug/kg	3.4E-01	5.1E-07	2.E-07	9.3E-08	3.E-08	5.0E-04	1.2E-06	0.002	2.2E-07	0.0004
		Total DDT	1.0E+01	ug/kg	3.4E-01	1.1E-06	4.E-07	2.0E-07	7.E-08	5.0E-04	2.6E-06	0.01	4.7E-07	0.001
		Total Chlordane	3.3E+00	ug/kg	3.5E-01	3.6E-07	1.E-07	6.7E-08	2.E-08	5.0E-04	8.5E-07	0.002	1.6E-07	0.0003
	Exposure Point Total						1.E-05		2.E-06			0.9		0.2
Body Without Shell	RM: 3, Station: 03R001	**Metals**												
		Aluminum	1.0E+02	mg/kg	--	1.1E-02	--	2.1E-03	--	1.0E+00	2.6E-02	0.03	4.8E-03	0.005
		Antimony	7.0E-03	mg/kg	--	7.7E-07	--	1.4E-07	--	4.0E-04	1.8E-06	0.005	3.3E-07	0.001
		Arsenic, inorganic	3.5E-02	mg/kg	1.5E+00	3.9E-06	6.E-06	7.1E-07	1.E-06	3.0E-04	9.0E-06	0.03	1.7E-06	0.01
		Cadmium	1.6E-02	mg/kg	--	1.8E-06	--	3.2E-07	--	1.0E-03	4.1E-06	0.004	7.5E-07	0.001
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	1.2E+01	mg/kg	--	1.4E-03	--	2.5E-04	--	4.0E-02	3.2E-03	0.08	5.8E-04	0.01
		Manganese	1.4E+02	mg/kg	--	1.5E-02	--	2.8E-03	--	1.4E-01	3.5E-02	0.3	6.5E-03	0.05
		Mercury	2.4E-02	mg/kg	--	2.6E-06	--	4.8E-07	--	1.0E-04	6.2E-06	0.06	1.1E-06	0.01
		Nickel	3.0E-01	mg/kg	--	3.3E-05	--	6.1E-06	--	2.0E-02	7.7E-05	0.004	1.4E-05	0.001
		Silver	2.9E-02	mg/kg	--	3.2E-06	--	5.9E-07	--	5.0E-03	7.5E-06	0.001	1.4E-06	0.0003
		Zinc	1.8E+01	mg/kg	--	1.9E-03	--	3.6E-04	--	3.0E-01	4.5E-03	0.02	8.3E-04	0.003
		Pesticides												
		Total DDE	5.3E+00	ug/kg	3.4E-01	5.8E-07	2.E-07	1.1E-07	4.E-08	5.0E-04	1.4E-06	0.003	2.5E-07	0.0005
		Total DDT	2.7E+00	ug/kg	3.4E-01	3.0E-07	1.E-07	5.5E-08	2.E-08	5.0E-04	6.9E-07	0.001	1.3E-07	0.0003
		Total Endosulfan	1.0E+00	ug/kg	--	1.1E-07	--	2.0E-08	--	6.0E-03	2.6E-07	0.00004	4.7E-08	0.00001
	Exposure Point Total						6.E-06		1.E-06			0.5		0.09
Body Without Shell	RM: 3, Station: 03R002	**Metals**												
		Aluminum	9.3E+01	mg/kg	--	1.0E-02	--	1.9E-03	--	1.0E+00	2.4E-02	0.02	4.4E-03	0.004
		Antimony	6.0E-03	mg/kg	--	6.6E-07	--	1.2E-07	--	4.0E-04	1.5E-06	0.00	2.8E-07	0.001
		Arsenic, inorganic	4.1E-02	mg/kg	1.5E+00	4.5E-06	7.E-06	8.3E-07	1.E-06	3.0E-04	1.1E-05	0.04	1.9E-06	0.01
		Cadmium	1.8E-02	mg/kg	--	2.0E-06	--	3.6E-07	--	1.0E-03	4.6E-06	0.00	8.5E-07	0.001
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.00	1.9E-05	0.00001
		Copper	1.5E+01	mg/kg	--	1.6E-03	--	3.0E-04	--	4.0E-02	3.8E-03	0.09	6.9E-04	0.02

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate: 18 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 18 g/day Cancer Risk	Cancer Risk: Consumption Rate: 3.3 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 3.3 g/day Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate: 18 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 18 g/day Noncancer Hazard Quotient	Noncancer: Consumption Rate: 3.3 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 3.3 g/day Noncancer Hazard Quotient
		Manganese	1.6E+02	mg/kg	--	1.7E-02	--	3.2E-03	--	1.4E-01	4.0E-02	0.3	7.4E-03	0.05
		Mercury	2.7E-02	mg/kg	--	3.0E-06	--	5.5E-07	--	1.0E-04	6.9E-06	0.07	1.3E-06	0.01
		Nickel	3.6E-01	mg/kg	--	4.0E-05	--	7.3E-06	--	2.0E-02	9.3E-05	0.005	1.7E-05	0.001
		Silver	2.9E-02	mg/kg	--	3.2E-06	--	5.9E-07	--	5.0E-03	7.5E-06	0.002	1.4E-06	0.0003
		Zinc	1.8E+01	mg/kg	--	1.9E-03	--	3.5E-04	--	3.0E-01	4.5E-03	0.02	8.3E-04	0.003
		Pesticides												
		Endrin	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	3.0E-04	3.3E-07	0.001	6.1E-08	0.0002
		Total DDE	4.3E+00	ug/kg	3.4E-01	4.7E-07	2.E-07	8.7E-08	3.E-08	5.0E-04	1.1E-06	0.002	2.0E-07	0.0004
		Total DDT	2.6E+00	ug/kg	3.4E-01	2.9E-07	1.E-07	5.3E-08	2.E-08	5.0E-04	6.7E-07	0.001	1.2E-07	0.0002
		Total Endosulfan	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	6.0E-03	3.6E-07	0.0001	6.6E-08	0.00001
	Exposure Point Total						7.E-06		1.E-06			0.5		0.1
Body Without Shell	RM: 3, Station: 03R003	**Metals**												
		Aluminum	1.5E+02	mg/kg	--	1.7E-02	--	3.1E-03	--	1.0E+00	3.9E-02	0.04	7.1E-03	0.01
		Antimony	6.0E-03	mg/kg	--	6.6E-07	--	1.2E-07	--	4.0E-04	1.5E-06	0.004	2.8E-07	0.001
		Arsenic, inorganic	3.8E-02	mg/kg	1.5E+00	4.2E-06	6.E-06	7.7E-07	1.E-06	3.0E-04	9.8E-06	0.03	1.8E-06	0.01
		Cadmium	2.9E-02	mg/kg	--	3.2E-06	--	5.9E-07	--	1.0E-03	7.5E-06	0.01	1.4E-06	0.001
		Chromium	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002
		Copper	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	4.0E-02	4.4E-03	0.1	8.0E-04	0.02
		Manganese	1.6E+02	mg/kg	--	1.7E-02	--	3.2E-03	--	1.4E-01	4.1E-02	0.3	7.4E-03	0.05
		Mercury	2.9E-02	mg/kg	--	3.2E-06	--	5.9E-07	--	1.0E-04	7.5E-06	0.07	1.4E-06	0.01
		Nickel	4.2E-01	mg/kg	--	4.6E-05	--	8.5E-06	--	2.0E-02	1.1E-04	0.01	2.0E-05	0.001
		Silver	4.2E-02	mg/kg	--	4.7E-06	--	8.5E-07	--	5.0E-03	1.1E-05	0.002	2.0E-06	0.0004
		Zinc	2.0E+01	mg/kg	--	2.2E-03	--	4.0E-04	--	3.0E-01	5.1E-03	0.02	9.3E-04	0.003
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	7.0E+04	pg/g	2.0E+00	7.7E-06	2.E-05	1.4E-06	3.E-06	2.0E-05	1.8E-05	0.9	3.3E-06	0.2
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	6.8E-11	9.E-06	1.2E-11	2.E-06	1.0E-09	1.6E-10	0.2	2.9E-11	0.03
		Total PCB TEQ	1.2E+00	pg/g	1.3E+05	1.3E-10	2.E-05	2.4E-11	3.E-06	1.0E-09	3.0E-10	0.3	5.6E-11	0.06
		Pesticides												
		Endrin	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	3.0E-04	2.8E-07	0.001	5.2E-08	0.0002
		Total DDE	4.0E+00	ug/kg	3.4E-01	4.4E-07	1.E-07	8.1E-08	3.E-08	5.0E-04	1.0E-06	0.002	1.9E-07	0.0004
		Total DDT	6.9E+00	ug/kg	3.4E-01	7.6E-07	3.E-07	1.4E-07	5.E-08	5.0E-04	1.8E-06	0.004	3.3E-07	0.001
		Total Endosulfan	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	6.0E-03	2.8E-07	0.00005	5.2E-08	0.00001
	Exposure Point Total						5.E-05		9.E-06			2		0.4
Body Without Shell	RM: 3, Station: 03R004	**Metals**												
		Aluminum	1.1E+02	mg/kg	--	1.2E-02	--	2.2E-03	--	1.0E+00	2.8E-02	0.03	5.1E-03	0.01
		Antimony	1.4E-02	mg/kg	--	1.5E-06	--	2.8E-07	--	4.0E-04	3.6E-06	0.01	6.6E-07	0.002
		Arsenic, inorganic	3.6E-02	mg/kg	1.5E+00	4.0E-06	6.E-06	7.3E-07	1.E-06	3.0E-04	9.3E-06	0.03	1.7E-06	0.01
		Cadmium	2.0E-02	mg/kg	--	2.2E-06	--	4.0E-07	--	1.0E-03	5.1E-06	0.01	9.4E-07	0.001
		Chromium	6.0E-01	mg/kg	--	6.6E-05	--	1.2E-05	--	1.5E+00	1.5E-04	0.0001	2.8E-05	0.00002
		Copper	1.6E+01	mg/kg	--	1.7E-03	--	3.2E-04	--	4.0E-02	4.1E-03	0.1	7.4E-04	0.02
		Manganese	9.0E+01	mg/kg	--	9.9E-03	--	1.8E-03	--	1.4E-01	2.3E-02	0.2	4.2E-03	0.03
		Mercury	2.5E-02	mg/kg	--	2.8E-06	--	5.1E-07	--	1.0E-04	6.4E-06	0.06	1.2E-06	0.01
		Nickel	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	2.0E-02	1.0E-04	0.01	1.9E-05	0.001
		Silver	4.6E-02	mg/kg	--	5.0E-06	--	9.2E-07	--	5.0E-03	1.2E-05	0.002	2.1E-06	0.0004
		Zinc	1.8E+01	mg/kg	--	2.0E-03	--	3.7E-04	--	3.0E-01	4.7E-03	0.02	8.6E-04	0.003

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Phenols												
		4-Methylphenol	1.9E+02	ug/kg	--	2.1E-05	--	3.8E-06	--	5.0E-03	4.9E-05	0.01	9.0E-06	0.002
		Phenol	5.2E+02	ug/kg	--	5.7E-05	--	1.1E-05	--	3.0E-01	1.3E-04	0.0004	2.5E-05	0.0001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	2.7E+04	pg/g	2.0E+00	2.9E-06	6.E-06	5.4E-07	1.E-06	2.0E-05	6.9E-06	0.3	1.3E-06	0.06
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	6.7E-11	9.E-06	1.2E-11	2.E-06	1.0E-09	1.6E-10	0.2	2.9E-11	0.03
		Total PCB TEQ	1.1E+00	pg/g	1.3E+05	1.2E-10	2.E-05	2.2E-11	3.E-06	1.0E-09	2.8E-10	0.3	5.1E-11	0.05
		Pesticides												
		Total DDE	4.2E+00	ug/kg	3.4E-01	4.6E-07	2.E-07	8.5E-08	3.E-08	5.0E-04	1.1E-06	0.002	2.0E-07	0.0004
		Total DDT	5.2E+00	ug/kg	3.4E-01	5.7E-07	2.E-07	1.1E-07	4.E-08	5.0E-04	1.3E-06	0.003	2.5E-07	0.0005
		Total Endosulfan	3.1E+00	ug/kg	--	3.4E-07	--	6.3E-08	--	6.0E-03	8.0E-07	0.0001	1.5E-07	0.00002
	Exposure Point Total						4.E-05		7.E-06			1		0.2
Body Without Shell	RM: 3, Station: 03R005	**Metals**												
		Aluminum	6.6E+01	mg/kg	--	7.3E-03	--	1.3E-03	--	1.0E+00	1.7E-02	0.02	3.1E-03	0.003
		Antimony	1.5E-02	mg/kg	--	1.7E-06	--	3.0E-07	--	4.0E-04	3.9E-06	0.01	7.1E-07	0.002
		Arsenic, inorganic	3.0E-02	mg/kg	1.5E+00	3.3E-06	5.E-06	6.1E-07	9.E-07	3.0E-04	7.7E-06	0.03	1.4E-06	0.005
		Cadmium	3.0E-02	mg/kg	--	3.3E-06	--	6.1E-07	--	1.0E-03	7.7E-06	0.01	1.4E-06	0.001
		Chromium	3.0E-01	mg/kg	--	3.3E-05	--	6.1E-06	--	1.5E+00	7.7E-05	0.0001	1.4E-05	0.00001
		Copper	1.2E+01	mg/kg	--	1.3E-03	--	2.4E-04	--	4.0E-02	3.0E-03	0.08	5.6E-04	0.01
		Manganese	1.9E+02	mg/kg	--	2.1E-02	--	3.8E-03	--	1.4E-01	4.9E-02	0.3	9.0E-03	0.06
		Mercury	2.2E-02	mg/kg	--	2.4E-06	--	4.4E-07	--	1.0E-04	5.7E-06	0.06	1.0E-06	0.01
		Nickel	3.0E-01	mg/kg	--	3.3E-05	--	6.1E-06	--	2.0E-02	7.7E-05	0.004	1.4E-05	0.001
		Silver	1.5E-02	mg/kg	--	1.7E-06	--	3.1E-07	--	5.0E-03	4.0E-06	0.001	7.3E-07	0.0001
		Zinc	1.5E+01	mg/kg	--	1.6E-03	--	3.0E-04	--	3.0E-01	3.8E-03	0.01	7.0E-04	0.002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.9E+05	pg/g	2.0E+00	2.1E-05	4.E-05	3.9E-06	8.E-06	2.0E-05	5.0E-05	2	9.1E-06	0.5
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	5.9E-01	pg/g	1.3E+05	6.5E-11	8.E-06	1.2E-11	2.E-06	1.0E-09	1.5E-10	0.2	2.8E-11	0.03
		Total PCB TEQ	2.7E+00	pg/g	1.3E+05	3.0E-10	4.E-05	5.5E-11	7.E-06	1.0E-09	7.0E-10	0.7	1.3E-10	0.1
		Pesticides												
		Endrin	2.8E+00	ug/kg	--	3.1E-07	--	5.7E-08	--	3.0E-04	7.2E-07	0.002	1.3E-07	0.0004
		Total DDE	4.0E+00	ug/kg	3.4E-01	4.4E-07	1.E-07	8.1E-08	3.E-08	5.0E-04	1.0E-06	0.002	1.9E-07	0.0004
		Total Chlordane	3.0E+00	ug/kg	3.5E-01	3.3E-07	1.E-07	6.1E-08	2.E-08	5.0E-04	7.7E-07	0.002	1.4E-07	0.0003
		Total Endosulfan	1.6E+00	ug/kg	--	1.8E-07	--	3.2E-08	--	6.0E-03	4.1E-07	0.0001	7.5E-08	0.00001
	Exposure Point Total						9.E-05		2.E-05			4		0.7
Body Without Shell	RM: 3, Station: 03R032	**Metals**												
		Aluminum	5.9E+01	mg/kg	--	6.5E-03	--	1.2E-03	--	1.0E+00	1.5E-02	0.02	2.8E-03	0.003
		Antimony	6.0E-03	mg/kg	--	6.6E-07	--	1.2E-07	--	4.0E-04	1.5E-06	0.004	2.8E-07	0.001
		Arsenic, inorganic	4.5E-02	mg/kg	1.5E+00	5.0E-06	7.E-06	9.1E-07	1.E-06	3.0E-04	1.2E-05	0.04	2.1E-06	0.01
		Cadmium	1.2E-02	mg/kg	--	1.3E-06	--	2.4E-07	--	1.0E-03	3.1E-06	0.003	5.7E-07	0.001
		Chromium	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	1.5E+00	1.3E-04	0.0001	2.4E-05	0.00002
		Copper	1.3E+01	mg/kg	--	1.4E-03	--	2.6E-04	--	4.0E-02	3.4E-03	0.08	6.2E-04	0.02
		Manganese	1.3E+02	mg/kg	--	1.5E-02	--	2.7E-03	--	1.4E-01	3.4E-02	0.2	6.2E-03	0.04
		Mercury	2.8E-02	mg/kg	--	3.1E-06	--	5.7E-07	--	1.0E-04	7.2E-06	0.07	1.3E-06	0.01
		Nickel	3.8E-01	mg/kg	--	4.2E-05	--	7.7E-06	--	2.0E-02	9.8E-05	0.005	1.8E-05	0.001
		Silver	3.5E-02	mg/kg	--	3.8E-06	--	7.0E-07	--	5.0E-03	8.9E-06	0.002	1.6E-06	0.0003
		Zinc	1.7E+01	mg/kg	--	1.9E-03	--	3.5E-04	--	3.0E-01	4.5E-03	0.01	8.2E-04	0.003

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Pesticides												
		Total DDE	3.9E+00	ug/kg	3.4E-01	4.3E-07	1.E-07	7.9E-08	3.E-08	5.0E-04	1.0E-06	0.002	1.8E-07	0.0004
		Total DDT	3.6E+00	ug/kg	3.4E-01	4.0E-07	1.E-07	7.3E-08	2.E-08	5.0E-04	9.3E-07	0.002	1.7E-07	0.0003
	Exposure Point Total						8.E-06		1.E-06			0.5		0.09
Body Without Shell	RM: 4, Station: 04R002	**Metals**												
		Aluminum	8.6E+01	mg/kg	--	9.5E-03	--	1.7E-03	--	1.0E+00	2.2E-02	0.02	4.1E-03	0.004
		Antimony	9.0E-03	mg/kg	--	9.9E-07	--	1.8E-07	--	4.0E-04	2.3E-06	0.01	4.2E-07	0.001
		Arsenic, inorganic	3.9E-02	mg/kg	1.5E+00	4.3E-06	6.E-06	7.9E-07	1.E-06	3.0E-04	1.0E-05	0.03	1.8E-06	0.01
		Cadmium	2.2E-02	mg/kg	--	2.4E-06	--	4.4E-07	--	1.0E-03	5.7E-06	0.01	1.0E-06	0.001
		Chromium	2.0E-01	mg/kg	--	2.2E-05	--	4.0E-06	--	1.5E+00	5.1E-05	0.00003	9.4E-06	0.00001
		Copper	1.5E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	4.0E-02	4.0E-03	0.1	7.3E-04	0.02
		Manganese	1.2E+02	mg/kg	--	1.3E-02	--	2.4E-03	--	1.4E-01	3.0E-02	0.2	5.6E-03	0.04
		Mercury	3.5E-02	mg/kg	--	3.8E-06	--	7.0E-07	--	1.0E-04	8.9E-06	0.09	1.6E-06	0.02
		Nickel	2.8E-01	mg/kg	--	3.0E-05	--	5.6E-06	--	2.0E-02	7.1E-05	0.004	1.3E-05	0.001
		Silver	4.3E-02	mg/kg	--	4.8E-06	--	8.8E-07	--	5.0E-03	1.1E-05	0.002	2.0E-06	0.0004
		Zinc	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	3.0E-01	4.4E-03	0.01	8.0E-04	0.003
		Pesticides												
		Total DDE	4.5E+00	ug/kg	3.4E-01	5.0E-07	2.E-07	9.1E-08	3.E-08	5.0E-04	1.2E-06	0.002	2.1E-07	0.0004
		Total DDT	2.4E+00	ug/kg	3.4E-01	2.6E-07	9.E-08	4.8E-08	2.E-08	5.0E-04	6.2E-07	0.001	1.1E-07	0.0002
	Exposure Point Total						7.E-06		1.E-06			0.5		0.09
Body Without Shell	RM: 4, Station: 04R003	**Metals**												
		Aluminum	6.3E+01	mg/kg	--	6.9E-03	--	1.3E-03	--	1.0E+00	1.6E-02	0.02	3.0E-03	0.003
		Antimony	1.0E-02	mg/kg	--	1.1E-06	--	2.0E-07	--	4.0E-04	2.6E-06	0.01	4.7E-07	0.001
		Arsenic, inorganic	3.7E-02	mg/kg	1.5E+00	4.1E-06	6.E-06	7.5E-07	1.E-06	3.0E-04	9.5E-06	0.03	1.7E-06	0.01
		Cadmium	2.5E-02	mg/kg	--	2.8E-06	--	5.1E-07	--	1.0E-03	6.4E-06	0.01	1.2E-06	0.001
		Chromium	2.0E-01	mg/kg	--	2.2E-05	--	4.0E-06	--	1.5E+00	5.1E-05	0.00003	9.4E-06	0.00001
		Copper	1.5E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	4.0E-02	4.0E-03	0.1	7.3E-04	0.02
		Manganese	1.1E+02	mg/kg	--	1.2E-02	--	2.3E-03	--	1.4E-01	2.9E-02	0.2	5.3E-03	0.04
		Mercury	2.2E-02	mg/kg	--	2.4E-06	--	4.4E-07	--	1.0E-04	5.7E-06	0.06	1.0E-06	0.01
		Silver	4.7E-02	mg/kg	--	5.2E-06	--	9.5E-07	--	5.0E-03	1.2E-05	0.002	2.2E-06	0.0004
		Zinc	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	3.0E-01	4.4E-03	0.01	8.0E-04	0.003
		Polynuclear Aromatic Hydrocarbons												
		Fluoranthene	9.3E+01	ug/kg	--	1.0E-05	--	1.9E-06	--	4.0E-02	2.4E-05	0.001	4.4E-06	0.0001
		Pesticides												
		Total DDD	1.7E+00	ug/kg	2.4E-01	1.9E-07	4.E-08	3.4E-08	8.E-09	5.0E-04	4.4E-07	0.001	8.0E-08	0.0002
		Total DDE	7.2E+00	ug/kg	3.4E-01	7.9E-07	3.E-07	1.5E-07	5.E-08	5.0E-04	1.9E-06	0.004	3.4E-07	0.001
		Total DDT	1.2E+01	ug/kg	3.4E-01	1.4E-06	5.E-07	2.5E-07	8.E-08	5.0E-04	3.2E-06	0.01	5.8E-07	0.001
		Total Endosulfan	1.6E+00	ug/kg	--	1.8E-07	--	3.2E-08	--	6.0E-03	4.1E-07	0.0001	7.5E-08	0.00001
	Exposure Point Total						7.E-06		1.E-06			0.5		0.08
Body Without Shell	RM: 4, Station: 04R004	**Metals**												
		Aluminum	1.3E+02	mg/kg	--	1.4E-02	--	2.6E-03	--	1.0E+00	3.4E-02	0.03	6.2E-03	0.01
		Antimony	1.0E-02	mg/kg	--	1.1E-06	--	2.0E-07	--	4.0E-04	2.6E-06	0.01	4.7E-07	0.001
		Arsenic, inorganic	3.9E-02	mg/kg	1.5E+00	4.3E-06	6.E-06	7.9E-07	1.E-06	3.0E-04	1.0E-05	0.03	1.8E-06	0.01
		Cadmium	1.3E-02	mg/kg	--	1.4E-06	--	2.6E-07	--	1.0E-03	3.3E-06	0.003	6.1E-07	0.001
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	1.2E+01	mg/kg	--	1.3E-03	--	2.4E-04	--	4.0E-02	3.1E-03	0.08	5.6E-04	0.01
		Manganese	1.7E+02	mg/kg	--	1.8E-02	--	3.3E-03	--	1.4E-01	4.2E-02	0.3	7.8E-03	0.06

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Mercury	3.7E-02	mg/kg	--	4.1E-06	--	7.5E-07	--	1.0E-04	9.5E-06	0.1	1.7E-06	0.02
		Nickel	3.9E-01	mg/kg	--	4.3E-05	--	7.9E-06	--	2.0E-02	1.0E-04	0.01	1.8E-05	0.001
		Silver	3.2E-02	mg/kg	--	3.5E-06	--	6.4E-07	--	5.0E-03	8.1E-06	0.002	1.5E-06	0.0003
		Zinc	1.6E+01	mg/kg	--	1.7E-03	--	3.2E-04	--	3.0E-01	4.0E-03	0.01	7.4E-04	0.002
		Polynuclear Aromatic Hydrocarbons												
		Fluoranthene	1.1E+02	ug/kg	--	1.2E-05	--	2.2E-06	--	4.0E-02	2.8E-05	0.001	5.2E-06	0.0001
		Pyrene	6.0E+01	ug/kg	--	6.6E-06	--	1.2E-06	--	3.0E-02	1.5E-05	0.001	2.8E-06	0.0001
		Pesticides												
		Total DDE	7.4E+00	ug/kg	3.4E-01	8.2E-07	3.E-07	1.5E-07	5.E-08	5.0E-04	1.9E-06	0.004	3.5E-07	0.001
		Total DDT	2.6E+00	ug/kg	3.4E-01	2.9E-07	1.E-07	5.3E-08	2.E-08	5.0E-04	6.7E-07	0.001	1.2E-07	0.0002
		Total Chlordane	4.7E+00	ug/kg	3.5E-01	5.2E-07	2.E-07	9.5E-08	3.E-08	5.0E-04	1.2E-06	0.002	2.2E-07	0.0004
	Exposure Point Total						7.E-06		1.E-06			0.6		0.1
Body Without Shell	RM: 5, Station: 05R001	**Metals**												
		Aluminum	8.9E+01	mg/kg	--	9.8E-03	--	1.8E-03	--	1.0E+00	2.3E-02	0.02	4.2E-03	0.004
		Antimony	6.0E-03	mg/kg	--	6.6E-07	--	1.2E-07	--	4.0E-04	1.5E-06	0.004	2.8E-07	0.001
		Arsenic, inorganic	3.5E-02	mg/kg	1.5E+00	3.9E-06	6.E-06	7.1E-07	1.E-06	3.0E-04	9.0E-06	0.03	1.7E-06	0.01
		Cadmium	9.0E-03	mg/kg	--	9.9E-07	--	1.8E-07	--	1.0E-03	2.3E-06	0.002	4.2E-07	0.0004
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	1.3E+01	mg/kg	--	1.4E-03	--	2.6E-04	--	4.0E-02	3.4E-03	0.08	6.2E-04	0.02
		Lead	8.3E-02	mg/kg	NL	9.1E-06	--	1.7E-06	--	--	2.1E-05	--	3.9E-06	--
		Manganese	1.1E+02	mg/kg	--	1.2E-02	--	2.2E-03	--	1.4E-01	2.8E-02	0.2	5.2E-03	0.04
		Mercury	3.1E-02	mg/kg	--	3.4E-06	--	6.3E-07	--	1.0E-04	8.0E-06	0.08	1.5E-06	0.01
		Nickel	2.9E-01	mg/kg	--	3.2E-05	--	5.9E-06	--	2.0E-02	7.5E-05	0.004	1.4E-05	0.001
		Silver	2.8E-02	mg/kg	--	3.1E-06	--	5.7E-07	--	5.0E-03	7.2E-06	0.001	1.3E-06	0.0003
		Thallium	2.5E-03	mg/kg	NL	2.8E-07	--	5.1E-08	--	NL	6.4E-07	--	1.2E-07	--
		Zinc	1.6E+01	mg/kg	--	1.8E-03	--	3.2E-04	--	3.0E-01	4.1E-03	0.01	7.5E-04	0.002
		Pesticides												
		Total DDE	5.7E+00	ug/kg	3.4E-01	6.3E-07	2.E-07	1.2E-07	4.E-08	5.0E-04	1.5E-06	0.003	2.7E-07	0.001
		Total DDT	2.2E+00	ug/kg	3.4E-01	2.4E-07	8.E-08	4.4E-08	2.E-08	5.0E-04	5.7E-07	0.001	1.0E-07	0.0002
		Total Chlordane	3.9E+00	ug/kg	3.5E-01	4.3E-07	2.E-07	7.9E-08	3.E-08	5.0E-04	1.0E-06	0.002	1.8E-07	0.0004
		Total Endosulfan	1.7E+00	ug/kg	--	1.9E-07	--	3.4E-08	--	6.0E-03	4.4E-07	0.0001	8.0E-08	0.00001
	Exposure Point Total						6.E-06		1.E-06			0.5		0.08
Body Without Shell	RM: 5, Station: 05R003	**Metals**												
		Aluminum	9.7E+01	mg/kg	--	1.1E-02	--	2.0E-03	--	1.0E+00	2.5E-02	0.02	4.6E-03	0.005
		Antimony	2.0E-02	mg/kg	--	2.2E-06	--	4.0E-07	--	4.0E-04	5.1E-06	0.01	9.4E-07	0.002
		Arsenic, inorganic	3.5E-02	mg/kg	1.5E+00	3.9E-06	6.E-06	7.1E-07	1.E-06	3.0E-04	9.0E-06	0.03	1.7E-06	0.01
		Cadmium	3.6E-02	mg/kg	--	4.0E-06	--	7.3E-07	--	1.0E-03	9.3E-06	0.01	1.7E-06	0.002
		Chromium	9.0E-01	mg/kg	--	9.9E-05	--	1.8E-05	--	1.5E+00	2.3E-04	0.0002	4.2E-05	0.00003
		Copper	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	4.0E-02	4.3E-03	0.1	8.0E-04	0.02
		Manganese	1.1E+02	mg/kg	--	1.2E-02	--	2.3E-03	--	1.4E-01	2.9E-02	0.2	5.3E-03	0.04
		Mercury	3.9E-02	mg/kg	--	4.3E-06	--	7.9E-07	--	1.0E-04	1.0E-05	0.1	1.8E-06	0.02
		Nickel	5.9E-01	mg/kg	--	6.5E-05	--	1.2E-05	--	2.0E-02	1.5E-04	0.01	2.8E-05	0.001
		Silver	2.4E-02	mg/kg	--	2.6E-06	--	4.8E-07	--	5.0E-03	6.1E-06	0.001	1.1E-06	0.0002
		Zinc	1.9E+01	mg/kg	--	2.1E-03	--	3.8E-04	--	3.0E-01	4.9E-03	0.02	8.9E-04	0.003
		Polychlorinated Biphenyls												
		Total Aroclors	2.7E+01	ug/kg	2.0E+00	3.0E-06	6.E-06	5.5E-07	1.E-06	2.0E-05	6.9E-06	0.3	1.3E-06	0.06

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Pesticides												
		Endrin	1.2E+00	ug/kg	--	1.3E-07	--	2.4E-08	--	3.0E-04	3.1E-07	0.001	5.7E-08	0.0002
		Total DDE	8.0E+00	ug/kg	3.4E-01	8.8E-07	3.E-07	1.6E-07	5.E-08	5.0E-04	2.1E-06	0.004	3.8E-07	0.001
		Total Endosulfan	1.3E+00	ug/kg	--	1.4E-07	--	2.6E-08	--	6.0E-03	3.3E-07	0.0001	6.1E-08	0.00001
	Exposure Point Total						1.E-05		2.E-06			0.9		0.2
Body Without Shell	RM: 5, Station: CR05W	**Metals**												
		Aluminum	8.1E+01	mg/kg	--	9.0E-03	--	1.6E-03	--	1.0E+00	2.1E-02	0.02	3.8E-03	0.004
		Arsenic, inorganic	3.0E-02	mg/kg	1.5E+00	3.3E-06	5.E-06	6.1E-07	9.E-07	3.0E-04	7.7E-06	0.03	1.4E-06	0.005
		Cadmium	1.9E-02	mg/kg	--	2.1E-06	--	3.8E-07	--	1.0E-03	4.9E-06	0.005	9.0E-07	0.001
		Chromium	2.0E-01	mg/kg	--	2.2E-05	--	4.0E-06	--	1.5E+00	5.1E-05	0.00003	9.4E-06	0.00001
		Copper	1.8E+01	mg/kg	--	2.0E-03	--	3.6E-04	--	4.0E-02	4.6E-03	0.1	8.4E-04	0.02
		Manganese	9.3E+01	mg/kg	--	1.0E-02	--	1.9E-03	--	1.4E-01	2.4E-02	0.2	4.4E-03	0.03
		Mercury	3.4E-02	mg/kg	--	3.7E-06	--	6.9E-07	--	1.0E-04	8.7E-06	0.09	1.6E-06	0.02
		Nickel	2.9E-01	mg/kg	--	3.2E-05	--	5.9E-06	--	2.0E-02	7.5E-05	0.00	1.4E-05	0.001
		Selenium	2.1E-01	mg/kg	--	2.3E-05	--	4.2E-06	--	5.0E-03	5.4E-05	0.01	9.9E-06	0.002
		Zinc	1.8E+01	mg/kg	--	2.0E-03	--	3.7E-04	--	3.0E-01	4.7E-03	0.02	8.5E-04	0.003
		Butyltins												
		Butyltin ion	3.6E-01	ug/kg	--	4.0E-08	--	7.3E-09	--	3.0E-04	9.3E-08	0.0003	1.7E-08	0.0001
		Dibutyltin ion	3.9E-01	ug/kg	--	4.3E-08	--	7.9E-09	--	3.0E-04	1.0E-07	0.0003	1.8E-08	0.0001
		Tributyltin ion	7.0E-01	ug/kg	--	7.7E-08	--	1.4E-08	--	3.0E-04	1.8E-07	0.001	3.3E-08	0.0001
		Polynuclear Aromatic Hydrocarbons												
		Acenaphthene	3.2E-01	ug/kg	--	3.5E-08	--	6.5E-09	--	6.0E-02	8.2E-08	0.000001	1.5E-08	0.0000003
		Anthracene	1.8E-01	ug/kg	--	2.0E-08	--	3.6E-09	--	3.0E-01	4.6E-08	0.0000002	8.5E-09	0.0000000
		Benzo(a)pyrene	5.4E-01	ug/kg	7.3E+00	6.0E-08	4.E-07	1.1E-08	8.E-08	--	1.4E-07	--	2.5E-08	--
		Fluorene	2.1E-01	ug/kg	--	2.3E-08	--	4.2E-09	--	4.0E-02	5.4E-08	0.000001	9.9E-09	0.0000002
		Naphthalene	6.0E-01	ug/kg	--	6.6E-08	--	1.2E-08	--	2.0E-02	1.5E-07	0.00001	2.8E-08	0.000001
		Phthalates												
		Butylbenzyl phthalate	1.5E+01	ug/kg	1.9E-03	1.7E-06	3.E-09	3.0E-07	6.E-10	2.0E-01	3.9E-06	0.00002	7.1E-07	0.000004
		Semi-Volatile Organic Compounds												
		Dibenzofuran	1.3E-01	ug/kg	--	1.4E-08	--	2.6E-09	--	1.0E-03	3.3E-08	0.00003	6.1E-09	0.00001
		Hexachlorobenzene	4.2E-02	ug/kg	1.6E+00	4.7E-09	7.E-09	8.5E-10	1.E-09	8.0E-04	1.1E-08	0.00001	2.0E-09	0.000002
		Phenols												
		Phenol	4.5E+01	ug/kg	--	5.0E-06	--	9.1E-07	--	3.0E-01	1.2E-05	0.00004	2.1E-06	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	7.4E+03	pg/g	2.0E+00	8.2E-07	2.E-06	1.5E-07	3.E-07	2.0E-05	1.9E-06	0.1	3.5E-07	0.02
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	2.1E-01	pg/g	1.3E+05	2.3E-11	3.E-06	4.2E-12	5.E-07	1.0E-09	5.3E-11	0.05	9.8E-12	0.01
		Total PCB TEQ	3.3E-01	pg/g	1.3E+05	3.6E-11	5.E-06	6.7E-12	9.E-07	1.0E-09	8.5E-11	0.08	1.6E-11	0.02
		Pesticides												
		Dieldrin	1.4E-02	ug/kg	1.6E+01	1.6E-09	3.E-08	2.9E-10	5.E-09	5.0E-05	3.7E-09	0.0001	6.7E-10	0.00001
		Total DDD	2.9E-01	ug/kg	2.4E-01	3.2E-08	8.E-09	5.8E-09	1.E-09	5.0E-04	7.4E-08	0.0001	1.4E-08	0.00003
		Total DDE	1.6E+00	ug/kg	3.4E-01	1.8E-07	6.E-08	3.3E-08	1.E-08	5.0E-04	4.2E-07	0.001	7.8E-08	0.0002
		Total Chlordane	2.6E-01	ug/kg	3.5E-01	2.8E-08	1.E-08	5.2E-09	2.E-09	5.0E-04	6.6E-08	0.0001	1.2E-08	0.00002
	Exposure Point Total						1.E-05		3.E-06			0.7		0.1
Body Without Shell	RM: 6, Station: 06R001	**Metals**												
		Aluminum	1.1E+02	mg/kg	--	1.2E-02	--	2.2E-03	--	1.0E+00	2.8E-02	0.03	5.0E-03	0.01
		Arsenic, inorganic	3.2E-02	mg/kg	1.5E+00	3.5E-06	5.E-06	6.5E-07	1.E-06	3.0E-04	8.2E-06	0.03	1.5E-06	0.01
		Cadmium	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-03	2.8E-06	0.003	5.2E-07	0.001

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Chromium	9.0E-01	mg/kg	--	9.9E-05	--	1.8E-05	--	1.5E+00	2.3E-04	0.0002	4.2E-05	0.00003
		Copper	1.5E+01	mg/kg	--	1.6E-03	--	3.0E-04	--	4.0E-02	3.8E-03	0.1	7.0E-04	0.02
		Manganese	1.2E+02	mg/kg	--	1.3E-02	--	2.3E-03	--	1.4E-01	3.0E-02	0.2	5.4E-03	0.04
		Mercury	4.1E-02	mg/kg	--	4.5E-06	--	8.3E-07	--	1.0E-04	1.1E-05	0.1	1.9E-06	0.02
		Nickel	5.1E-01	mg/kg	--	5.6E-05	--	1.0E-05	--	2.0E-02	1.3E-04	0.01	2.4E-05	0.001
		Silver	3.2E-02	mg/kg	--	3.5E-06	--	6.4E-07	--	5.0E-03	8.2E-06	0.002	1.5E-06	0.0003
		Zinc	1.5E+01	mg/kg	--	1.7E-03	--	3.0E-04	--	3.0E-01	3.9E-03	0.01	7.1E-04	0.002
		Pesticides												
		Total DDE	5.1E+00	ug/kg	3.4E-01	5.6E-07	2.E-07	1.0E-07	4.E-08	5.0E-04	1.3E-06	0.003	2.4E-07	0.0005
		Total DDT	1.8E+00	ug/kg	3.4E-01	1.9E-07	7.E-08	3.5E-08	1.E-08	5.0E-04	4.5E-07	0.001	8.3E-08	0.0002
		Total Endosulfan	2.1E+00	ug/kg	--	2.3E-07	--	4.2E-08	--	6.0E-03	5.4E-07	0.00009	9.9E-08	0.00002
	Exposure Point Total						6.E-06		1.E-06			0.5		0.09
Body Without Shell	RM: 6, Station: 06R004	**Metals**												
		Aluminum	1.5E+02	mg/kg	--	1.6E-02	--	2.9E-03	--	1.0E+00	3.7E-02	0.04	6.8E-03	0.01
		Antimony	6.0E-03	mg/kg	--	6.6E-07	--	1.2E-07	--	4.0E-04	1.5E-06	0.004	2.8E-07	0.001
		Arsenic, inorganic	3.8E-02	mg/kg	1.5E+00	4.2E-06	6.E-06	7.7E-07	1.E-06	3.0E-04	9.8E-06	0.03	1.8E-06	0.01
		Cadmium	2.0E-02	mg/kg	--	2.2E-06	--	4.0E-07	--	1.0E-03	5.1E-06	0.01	9.4E-07	0.001
		Chromium	8.0E-01	mg/kg	--	8.8E-05	--	1.6E-05	--	1.5E+00	2.1E-04	0.0001	3.8E-05	0.00003
		Copper	1.6E+01	mg/kg	--	1.8E-03	--	3.3E-04	--	4.0E-02	4.2E-03	0.1	7.7E-04	0.02
		Manganese	2.1E+02	mg/kg	--	2.3E-02	--	4.3E-03	--	1.4E-01	5.5E-02	0.4	1.0E-02	0.07
		Mercury	3.4E-02	mg/kg	--	3.7E-06	--	6.9E-07	--	1.0E-04	8.7E-06	0.09	1.6E-06	0.02
		Nickel	5.0E-01	mg/kg	--	5.5E-05	--	1.0E-05	--	2.0E-02	1.3E-04	0.01	2.4E-05	0.001
		Silver	3.1E-02	mg/kg	--	3.4E-06	--	6.2E-07	--	5.0E-03	7.9E-06	0.002	1.4E-06	0.0003
		Zinc	2.0E+01	mg/kg	--	2.2E-03	--	4.1E-04	--	3.0E-01	5.2E-03	0.02	9.6E-04	0.003
		Polynuclear Aromatic Hydrocarbons												
		Benzo(a)anthracene	8.0E+01	ug/kg	7.3E-01	8.8E-06	6.E-06	1.6E-06	1.E-06	--	2.1E-05	--	3.8E-06	--
		Chrysene	8.7E+01	ug/kg	7.3E-03	9.6E-06	7.E-08	1.8E-06	1.E-08	--	2.2E-05	--	4.1E-06	--
		Fluoranthene	1.3E+02	ug/kg	--	1.4E-05	--	2.6E-06	--	4.0E-02	3.3E-05	0.001	6.1E-06	0.0002
		Phenanthrene	9.7E+01	ug/kg	--	1.1E-05	--	2.0E-06	--	3.0E-02	2.5E-05	0.001	4.6E-06	0.0002
		Pyrene	8.3E+01	ug/kg	--	9.1E-06	--	1.7E-06	--	3.0E-02	2.1E-05	0.001	3.9E-06	0.0001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.5E+04	pg/g	2.0E+00	1.7E-06	3.E-06	3.1E-07	6.E-07	2.0E-05	3.9E-06	0.2	7.2E-07	0.04
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	1.4E+00	pg/g	1.3E+05	1.6E-10	2.E-05	2.9E-11	4.E-06	1.0E-09	3.6E-10	0.4	6.7E-11	0.07
		Total PCB TEQ	3.5E-01	pg/g	1.3E+05	3.9E-11	5.E-06	7.2E-12	9.E-07	1.0E-09	9.1E-11	0.09	1.7E-11	0.02
		Pesticides												
		Total DDD	1.0E+01	ug/kg	2.4E-01	1.1E-06	3.E-07	2.0E-07	5.E-08	5.0E-04	2.6E-06	0.01	4.8E-07	0.001
		Total DDE	9.3E+00	ug/kg	3.4E-01	1.0E-06	3.E-07	1.9E-07	6.E-08	5.0E-04	2.4E-06	0.005	4.4E-07	0.001
		Total DDT	3.1E+00	ug/kg	3.4E-01	3.4E-07	1.E-07	6.3E-08	2.E-08	5.0E-04	8.0E-07	0.002	1.5E-07	0.0003
	Exposure Point Total						4.E-05		8.E-06			1		0.2
Body Without Shell	RM: 6, Station: CR06W	**Metals**												
		Aluminum	1.4E+02	mg/kg	--	1.5E-02	--	2.8E-03	--	1.0E+00	3.6E-02	0.04	6.6E-03	0.01
		Arsenic, inorganic	3.4E-02	mg/kg	1.5E+00	3.7E-06	6.E-06	6.9E-07	1.E-06	3.0E-04	8.7E-06	0.03	1.6E-06	0.01
		Cadmium	9.0E-03	mg/kg	--	9.9E-07	--	1.8E-07	--	1.0E-03	2.3E-06	0.002	4.2E-07	0.0004
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	1.5E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	4.0E-02	4.0E-03	0.1	7.3E-04	0.02

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate: 18 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 18 g/day Cancer Risk	Cancer Risk: Consumption Rate: 3.3 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 3.3 g/day Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate: 18 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 18 g/day Noncancer Hazard Quotient	Noncancer: Consumption Rate: 3.3 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 3.3 g/day Noncancer Hazard Quotient
		Manganese	1.7E+02	mg/kg	--	1.8E-02	--	3.4E-03	--	1.4E-01	4.3E-02	0.3	7.9E-03	0.06
		Mercury	3.9E-02	mg/kg	--	4.3E-06	--	7.9E-07	--	1.0E-04	1.0E-05	0.1	1.9E-06	0.02
		Nickel	4.8E-01	mg/kg	--	5.2E-05	--	9.6E-06	--	2.0E-02	1.2E-04	0.01	2.2E-05	0.001
		Zinc	1.8E+01	mg/kg	--	2.0E-03	--	3.6E-04	--	3.0E-01	4.6E-03	0.02	8.5E-04	0.003
		Butyltins												
		Butyltin ion	4.6E+00	ug/kg	--	5.1E-07	--	9.3E-08	--	3.0E-04	1.2E-06	0.004	2.2E-07	0.001
		Dibutyltin ion	3.3E+02	ug/kg	--	3.6E-05	--	6.7E-06	--	3.0E-04	8.5E-05	0.3	1.6E-05	0.05
		Tributyltin ion	2.3E+00	ug/kg	--	2.5E-07	--	4.6E-08	--	3.0E-04	5.9E-07	0.002	1.1E-07	0.0004
		Polynuclear Aromatic Hydrocarbons												
		2-Methylnaphthalene	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	4.0E-03	2.8E-07	0.0001	5.2E-08	0.00001
		Acenaphthene	4.2E+00	ug/kg	--	4.6E-07	--	8.5E-08	--	6.0E-02	1.1E-06	0.00002	2.0E-07	0.000003
		Acenaphthylene	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	6.0E-02	2.8E-07	0.000005	5.2E-08	0.000001
		Anthracene	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	3.0E-01	7.5E-07	0.000002	1.4E-07	0.0000005
		Benzo(a)anthracene	7.5E+00	ug/kg	7.3E-01	8.3E-07	6.E-07	1.5E-07	1.E-07	--	1.9E-06	--	3.5E-07	--
		Benzo(a)pyrene	7.5E+00	ug/kg	7.3E+00	8.3E-07	6.E-06	1.5E-07	1.E-06	--	1.9E-06	--	3.5E-07	--
		Benzo(b)fluoranthene	5.3E+00	ug/kg	7.3E-01	5.8E-07	4.E-07	1.1E-07	8.E-08	--	1.4E-06	--	2.5E-07	--
		Benzo(g,h,i)perylene	5.6E+00	ug/kg	--	6.2E-07	--	1.1E-07	--	3.0E-02	1.4E-06	0.00005	2.6E-07	0.00001
		Benzo(k)fluoranthene	5.0E+00	ug/kg	7.3E-02	5.5E-07	4.E-08	1.0E-07	7.E-09	--	1.3E-06	--	2.4E-07	--
		Chrysene	1.2E+01	ug/kg	7.3E-03	1.3E-06	1.E-08	2.4E-07	2.E-09	--	3.1E-06	--	5.7E-07	--
		Dibenzo(a,h)anthracene	7.1E-01	ug/kg	7.3E+00	7.8E-08	6.E-07	1.4E-08	1.E-07	--	1.8E-07	--	3.3E-08	--
		Fluoranthene	1.2E+01	ug/kg	--	1.3E-06	--	2.4E-07	--	4.0E-02	3.1E-06	0.0001	5.7E-07	0.00001
		Fluorene	1.8E+00	ug/kg	--	2.0E-07	--	3.6E-08	--	4.0E-02	4.6E-07	0.00001	8.5E-08	0.000002
		Indeno(1,2,3-cd)pyrene	5.3E+00	ug/kg	7.3E-01	5.8E-07	4.E-07	1.1E-07	8.E-08	--	1.4E-06	--	2.5E-07	--
		Naphthalene	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	2.0E-02	7.5E-07	0.00004	1.4E-07	0.00001
		Phenanthrene	7.6E+00	ug/kg	--	8.4E-07	--	1.5E-07	--	3.0E-02	2.0E-06	0.0001	3.6E-07	0.00001
		Pyrene	1.5E+01	ug/kg	--	1.7E-06	--	3.0E-07	--	3.0E-02	3.9E-06	0.0001	7.1E-07	0.00002
		Semi-Volatile Organic Compounds												
		Dibenzofuran	3.5E-01	ug/kg	--	3.9E-08	--	7.1E-09	--	1.0E-03	9.0E-08	0.0001	1.7E-08	0.00002
		Hexachlorobenzene	5.1E-02	ug/kg	1.6E+00	5.6E-09	9.E-09	1.0E-09	2.E-09	8.0E-04	1.3E-08	0.00002	2.4E-09	0.000003
		Phenols												
		Phenol	6.1E+01	ug/kg	--	6.7E-06	--	1.2E-06	--	3.0E-01	1.6E-05	0.0001	2.9E-06	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.2E+04	pg/g	2.0E+00	4.7E-06	9.E-06	8.6E-07	2.E-06	2.0E-05	1.1E-05	0.5	2.0E-06	0.1
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	5.5E-01	pg/g	1.3E+05	6.1E-11	8.E-06	1.1E-11	1.E-06	1.0E-09	1.4E-10	0.1	2.6E-11	0.03
		Total PCB TEQ	3.2E-01	pg/g	1.3E+05	3.5E-11	5.E-06	6.4E-12	8.E-07	1.0E-09	8.2E-11	0.08	1.5E-11	0.01
		Pesticides												
		Dieldrin	1.5E-02	ug/kg	1.6E+01	1.6E-09	3.E-08	3.0E-10	5.E-09	5.0E-05	3.8E-09	0.0001	7.0E-10	0.00001
		Total DDD	7.4E-01	ug/kg	2.4E-01	8.2E-08	2.E-08	1.5E-08	4.E-09	5.0E-04	1.9E-07	0.0004	3.5E-08	0.0001
		Total DDE	2.1E+00	ug/kg	3.4E-01	2.3E-07	8.E-08	4.2E-08	1.E-08	5.0E-04	5.3E-07	0.001	9.8E-08	0.0002
		Total DDT	1.2E-01	ug/kg	3.4E-01	1.3E-08	4.E-09	2.3E-09	8.E-10	5.0E-04	3.0E-08	0.0001	5.4E-09	0.00001
		Total Chlordane	1.7E-01	ug/kg	3.5E-01	1.9E-08	7.E-09	3.4E-09	1.E-09	5.0E-04	4.4E-08	0.0001	8.0E-09	0.00002
	Exposure Point Total						4.E-05		7.E-06			2		0.3
Body Without Shell	RM: 7, Station: 07R003	**Metals**												
		Aluminum	9.8E+01	mg/kg	--	1.1E-02	--	2.0E-03	--	1.0E+00	2.5E-02	0.03	4.6E-03	0.005
		Arsenic, inorganic	3.0E-02	mg/kg	1.5E+00	3.3E-06	5.E-06	6.1E-07	9.E-07	3.0E-04	7.7E-06	0.03	1.4E-06	0.005
		Cadmium	1.5E-02	mg/kg	--	1.7E-06	--	3.0E-07	--	1.0E-03	3.9E-06	0.004	7.1E-07	0.001

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Chromium	3.0E-01	mg/kg	--	3.3E-05	--	6.1E-06	--	1.5E+00	7.7E-05	0.0001	1.4E-05	0.00001
		Copper	1.4E+01	mg/kg	--	1.5E-03	--	2.8E-04	--	4.0E-02	3.5E-03	0.09	6.5E-04	0.02
		Manganese	1.2E+02	mg/kg	--	1.3E-02	--	2.4E-03	--	1.4E-01	3.0E-02	0.2	5.5E-03	0.04
		Mercury	3.0E-02	mg/kg	--	3.3E-06	--	6.1E-07	--	1.0E-04	7.7E-06	0.08	1.4E-06	0.01
		Nickel	3.0E-01	mg/kg	--	3.3E-05	--	6.1E-06	--	2.0E-02	7.7E-05	0.004	1.4E-05	0.001
		Silver	1.9E-02	mg/kg	--	2.1E-06	--	3.8E-07	--	5.0E-03	4.9E-06	0.001	9.0E-07	0.0002
		Zinc	1.6E+01	mg/kg	--	1.8E-03	--	3.2E-04	--	3.0E-01	4.1E-03	0.01	7.5E-04	0.003
		Polychlorinated Biphenyls												
		Total Aroclors	3.9E+01	ug/kg	2.0E+00	4.3E-06	9.E-06	7.9E-07	2.E-06	2.0E-05	1.0E-05	0.5	1.8E-06	0.09
		Pesticides												
		Total DDD	4.1E+00	ug/kg	2.4E-01	4.5E-07	1.E-07	8.3E-08	2.E-08	5.0E-04	1.1E-06	0.002	1.9E-07	0.0004
		Total DDE	1.6E+01	ug/kg	3.4E-01	1.8E-06	6.E-07	3.2E-07	1.E-07	5.0E-04	4.1E-06	0.01	7.5E-07	0.002
		Total DDT	1.8E+01	ug/kg	3.4E-01	1.9E-06	7.E-07	3.5E-07	1.E-07	5.0E-04	4.5E-06	0.01	8.3E-07	0.002
	Exposure Point Total						1.E-05		3.E-06			1		0.2
Body Without Shell	RM: 7, Station: 07R004	**Metals**												
		Aluminum	2.0E+02	mg/kg	--	2.2E-02	--	4.1E-03	--	1.0E+00	5.2E-02	0.05	9.6E-03	0.01
		Antimony	9.0E-03	mg/kg	--	9.9E-07	--	1.8E-07	--	4.0E-04	2.3E-06	0.01	4.2E-07	0.001
		Arsenic, inorganic	5.0E-02	mg/kg	1.5E+00	5.5E-06	8.E-06	1.0E-06	2.E-06	3.0E-04	1.3E-05	0.04	2.4E-06	0.01
		Cadmium	1.6E-02	mg/kg	--	1.8E-06	--	3.2E-07	--	1.0E-03	4.1E-06	0.004	7.5E-07	0.001
		Chromium	9.0E-01	mg/kg	--	9.9E-05	--	1.8E-05	--	1.5E+00	2.3E-04	0.0002	4.2E-05	0.00003
		Copper	1.8E+01	mg/kg	--	1.9E-03	--	3.6E-04	--	4.0E-02	4.5E-03	0.1	8.3E-04	0.02
		Manganese	1.7E+02	mg/kg	--	1.9E-02	--	3.5E-03	--	1.4E-01	4.4E-02	0.3	8.1E-03	0.06
		Mercury	3.6E-02	mg/kg	--	4.0E-06	--	7.3E-07	--	1.0E-04	9.3E-06	0.09	1.7E-06	0.02
		Nickel	5.5E-01	mg/kg	--	6.1E-05	--	1.1E-05	--	2.0E-02	1.4E-04	0.01	2.6E-05	0.001
		Silver	3.9E-02	mg/kg	--	4.3E-06	--	7.9E-07	--	5.0E-03	1.0E-05	0.002	1.8E-06	0.0004
		Zinc	1.9E+01	mg/kg	--	2.1E-03	--	3.9E-04	--	3.0E-01	4.9E-03	0.02	9.0E-04	0.003
		Pesticides												
		Total DDE	6.9E+00	ug/kg	3.4E-01	7.6E-07	3.E-07	1.4E-07	5.E-08	5.0E-04	1.8E-06	0.004	3.3E-07	0.001
		Total DDT	2.0E+00	ug/kg	3.4E-01	2.2E-07	7.E-08	4.0E-08	1.E-08	5.0E-04	5.1E-07	0.001	9.4E-08	0.0002
		Total Endosulfan	2.2E+00	ug/kg	--	2.4E-07	--	4.4E-08	--	6.0E-03	5.7E-07	0.0001	1.0E-07	0.00002
	Exposure Point Total						9.E-06		2.E-06			0.7		0.1
Body Without Shell	RM: 7, Station: 07R006	**Metals**												
		Aluminum	5.9E+01	mg/kg	--	6.5E-03	--	1.2E-03	--	1.0E+00	1.5E-02	0.02	2.8E-03	0.003
		Antimony	6.0E-03	mg/kg	--	6.6E-07	--	1.2E-07	--	4.0E-04	1.5E-06	0.004	2.8E-07	0.001
		Arsenic, inorganic	3.2E-02	mg/kg	1.5E+00	3.5E-06	5.E-06	6.5E-07	1.E-06	3.0E-04	8.2E-06	0.03	1.5E-06	0.01
		Cadmium	9.0E-03	mg/kg	--	9.9E-07	--	1.8E-07	--	1.0E-03	2.3E-06	0.002	4.2E-07	0.0004
		Chromium	5.4E-01	mg/kg	--	6.0E-05	--	1.1E-05	--	1.5E+00	1.4E-04	0.0001	2.5E-05	0.00002
		Copper	1.3E+01	mg/kg	--	1.4E-03	--	2.6E-04	--	4.0E-02	3.3E-03	0.08	6.0E-04	0.02
		Manganese	1.3E+02	mg/kg	--	1.4E-02	--	2.6E-03	--	1.4E-01	3.3E-02	0.2	6.1E-03	0.04
		Mercury	2.4E-02	mg/kg	--	2.6E-06	--	4.8E-07	--	1.0E-04	6.2E-06	0.06	1.1E-06	0.01
		Nickel	8.3E-01	mg/kg	--	9.1E-05	--	1.7E-05	--	2.0E-02	2.1E-04	0.01	3.9E-05	0.002
		Silver	3.2E-02	mg/kg	--	3.5E-06	--	6.4E-07	--	5.0E-03	8.1E-06	0.002	1.5E-06	0.0003
		Zinc	1.6E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	3.0E-01	4.0E-03	0.01	7.3E-04	0.002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	2.5E+04	pg/g	2.0E+00	2.7E-06	5.E-06	5.0E-07	1.E-06	2.0E-05	6.3E-06	0.3	1.2E-06	0.06
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	1.8E+01	pg/g	1.3E+05	2.0E-09	3.E-04	3.7E-10	5.E-05	1.0E-09	4.7E-09	5	8.6E-10	0.9
		Total PCB TEQ	7.5E-01	pg/g	1.3E+05	8.3E-11	1.E-05	1.5E-11	2.E-06	1.0E-09	1.9E-10	0.2	3.5E-11	0.04

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Cancer Risk: Consumption Rate: 18 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 18 g/day Cancer Risk	Cancer Risk: Consumption Rate: 3.3 g/day LADI (mg/kg-day)	Cancer Risk: Consumption Rate: 3.3 g/day Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Noncancer: Consumption Rate: 18 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 18 g/day Noncancer Hazard Quotient	Noncancer: Consumption Rate: 3.3 g/day CDI mg/kg-day	Noncancer: Consumption Rate: 3.3 g/day Noncancer Hazard Quotient
		Pesticides												
		Total DDD	2.1E+01	ug/kg	2.4E-01	2.3E-06	6.E-07	4.3E-07	1.E-07	5.0E-04	5.5E-06	0.01	1.0E-06	0.002
		Total DDE	5.2E+01	ug/kg	3.4E-01	5.7E-06	2.E-06	1.0E-06	4.E-07	5.0E-04	1.3E-05	0.03	2.4E-06	0.005
		Total DDT	1.3E+01	ug/kg	3.4E-01	1.4E-06	5.E-07	2.5E-07	9.E-08	5.0E-04	3.2E-06	0.01	5.9E-07	0.001
	Exposure Point Total						3.E-04		5.E-05			6		1
Body Without Shell	RM: 8, Station: 08R001	**Metals**												
		Aluminum	6.8E+01	mg/kg	--	7.5E-03	--	1.4E-03	--	1.0E+00	1.8E-02	0.02	3.2E-03	0.003
		Antimony	7.0E-03	mg/kg	--	7.7E-07	--	1.4E-07	--	4.0E-04	1.8E-06	0.00	3.3E-07	0.001
		Arsenic, inorganic	3.5E-02	mg/kg	1.5E+00	3.9E-06	6.E-06	7.1E-07	1.E-06	3.0E-04	9.0E-06	0.03	1.7E-06	0.01
		Cadmium	1.3E-02	mg/kg	--	1.4E-06	--	2.6E-07	--	1.0E-03	3.3E-06	0.003	6.1E-07	0.001
		Chromium	2.8E-01	mg/kg	--	3.1E-05	--	5.7E-06	--	1.5E+00	7.2E-05	0.00005	1.3E-05	0.00001
		Copper	1.5E+01	mg/kg	--	1.7E-03	--	3.0E-04	--	4.0E-02	3.9E-03	0.1	7.1E-04	0.02
		Manganese	1.2E+02	mg/kg	--	1.4E-02	--	2.5E-03	--	1.4E-01	3.2E-02	0.2	5.8E-03	0.04
		Mercury	2.2E-02	mg/kg	--	2.4E-06	--	4.4E-07	--	1.0E-04	5.7E-06	0.06	1.0E-06	0.01
		Nickel	2.8E-01	mg/kg	--	3.1E-05	--	5.7E-06	--	2.0E-02	7.2E-05	0.004	1.3E-05	0.001
		Silver	2.4E-02	mg/kg	--	2.7E-06	--	4.9E-07	--	5.0E-03	6.2E-06	0.001	1.1E-06	0.0002
		Zinc	1.5E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	3.0E-01	3.9E-03	0.01	7.2E-04	0.002
		Phenols												
		4-Methylphenol	3.3E+01	ug/kg	--	3.6E-06	--	6.7E-07	--	5.0E-03	8.5E-06	0.002	1.6E-06	0.0003
		Polychlorinated Biphenyls												
		Total Aroclors	5.9E+01	ug/kg	2.0E+00	6.5E-06	1.E-05	1.2E-06	2.E-06	2.0E-05	1.5E-05	0.8	2.8E-06	0.1
		Pesticides												
		Total DDE	6.8E+00	ug/kg	3.4E-01	7.5E-07	3.E-07	1.4E-07	5.E-08	5.0E-04	1.7E-06	0.003	3.2E-07	0.001
		Total DDT	8.7E+00	ug/kg	3.4E-01	9.5E-07	3.E-07	1.7E-07	6.E-08	5.0E-04	2.2E-06	0.004	4.1E-07	0.001
	Exposure Point Total						2.E-05		4.E-06			1		0.2
Body Without Shell	RM: 8, Station: 08R002	**Metals**												
		Aluminum	8.7E+01	mg/kg	--	9.6E-03	--	1.8E-03	--	1.0E+00	2.2E-02	0.02	4.1E-03	0.004
		Antimony	5.0E-03	mg/kg	--	5.5E-07	--	1.0E-07	--	4.0E-04	1.3E-06	0.003	2.4E-07	0.001
		Arsenic, inorganic	2.8E-02	mg/kg	1.5E+00	3.1E-06	5.E-06	5.7E-07	8.E-07	3.0E-04	7.2E-06	0.02	1.3E-06	0.004
		Cadmium	1.3E-02	mg/kg	--	1.4E-06	--	2.6E-07	--	1.0E-03	3.3E-06	0.003	6.1E-07	0.001
		Chromium	3.8E-01	mg/kg	--	4.2E-05	--	7.7E-06	--	1.5E+00	9.8E-05	0.0001	1.8E-05	0.00001
		Copper	1.0E+01	mg/kg	--	1.1E-03	--	2.1E-04	--	4.0E-02	2.7E-03	0.07	4.9E-04	0.01
		Manganese	1.6E+02	mg/kg	--	1.8E-02	--	3.2E-03	--	1.4E-01	4.1E-02	0.3	7.5E-03	0.05
		Mercury	3.3E-02	mg/kg	--	3.6E-06	--	6.7E-07	--	1.0E-04	8.5E-06	0.08	1.6E-06	0.02
		Nickel	3.2E-01	mg/kg	--	3.5E-05	--	6.5E-06	--	2.0E-02	8.2E-05	0.004	1.5E-05	0.001
		Zinc	1.4E+01	mg/kg	--	1.5E-03	--	2.8E-04	--	3.0E-01	3.6E-03	0.01	6.6E-04	0.002
		Polychlorinated Biphenyls												
		Total Aroclors	1.6E+01	ug/kg	2.0E+00	1.8E-06	4.E-06	3.2E-07	6.E-07	2.0E-05	4.1E-06	0.2	7.5E-07	0.04
		Pesticides												
		Total DDE	3.5E+00	ug/kg	3.4E-01	3.9E-07	1.E-07	7.1E-08	2.E-08	5.0E-04	9.0E-07	0.002	1.7E-07	0.0003
		Total DDT	3.4E+00	ug/kg	3.4E-01	3.7E-07	1.E-07	6.9E-08	2.E-08	5.0E-04	8.7E-07	0.002	1.6E-07	0.0003
	Exposure Point Total						8.E-06		2.E-06			0.7		0.1
Body Without Shell	RM: 8, Station: 08R003	**Metals**												
		Aluminum	6.7E+01	mg/kg	--	7.4E-03	--	1.4E-03	--	1.0E+00	1.7E-02	0.02	3.2E-03	0.003
		Antimony	5.0E-03	mg/kg	--	5.5E-07	--	1.0E-07	--	4.0E-04	1.3E-06	0.003	2.4E-07	0.001
		Arsenic, inorganic	2.8E-02	mg/kg	1.5E+00	3.1E-06	5.E-06	5.7E-07	8.E-07	3.0E-04	7.2E-06	0.02	1.3E-06	0.004
		Cadmium	1.6E-02	mg/kg	--	1.8E-06	--	3.2E-07	--	1.0E-03	4.1E-06	0.004	7.5E-07	0.001
		Chromium	4.1E-01	mg/kg	--	4.5E-05	--	8.3E-06	--	1.5E+00	1.1E-04	0.0001	1.9E-05	0.00001

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Copper	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	4.0E-02	4.4E-03	0.1	8.0E-04	0.02
		Manganese	7.2E+01	mg/kg	--	7.9E-03	--	1.5E-03	--	1.4E-01	1.8E-02	0.1	3.4E-03	0.02
		Mercury	2.2E-02	mg/kg	--	2.4E-06	--	4.4E-07	--	1.0E-04	5.7E-06	0.06	1.0E-06	0.01
		Nickel	2.7E-01	mg/kg	--	3.0E-05	--	5.5E-06	--	2.0E-02	6.9E-05	0.003	1.3E-05	0.001
		Silver	2.2E-02	mg/kg	--	2.4E-06	--	4.4E-07	--	5.0E-03	5.6E-06	0.001	1.0E-06	0.0002
		Zinc	1.6E+01	mg/kg	--	1.7E-03	--	3.2E-04	--	3.0E-01	4.0E-03	0.01	7.4E-04	0.002
		Phenols												
		Pentachlorophenol	1.3E+02	ug/kg	4.0E-01	1.4E-05	6.E-06	2.6E-06	1.E-06	5.0E-03	3.3E-05	0.01	6.1E-06	0.001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	3.6E+04	pg/g	2.0E+00	3.9E-06	8.E-06	7.2E-07	1.E-06	2.0E-05	9.2E-06	0.5	1.7E-06	0.08
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	9.6E-01	pg/g	1.3E+05	1.1E-10	1.E-05	1.9E-11	3.E-06	1.0E-09	2.5E-10	0.2	4.5E-11	0.05
		Total PCB TEQ	6.9E-01	pg/g	1.3E+05	7.6E-11	1.E-05	1.4E-11	2.E-06	1.0E-09	1.8E-10	0.2	3.2E-11	0.03
		Pesticides												
		Total DDE	3.9E+00	ug/kg	3.4E-01	4.3E-07	1.E-07	7.9E-08	3.E-08	5.0E-04	1.0E-06	0.002	1.8E-07	0.0004
	Exposure Point Total						4.E-05		8.E-06			1		0.2
Body Without Shell	RM: 8, Station: CR08W	**Metals**												
		Aluminum	1.4E+02	mg/kg	--	1.6E-02	--	2.9E-03	--	1.0E+00	3.7E-02	0.04	6.8E-03	0.01
		Antimony	6.0E-03	mg/kg	--	6.6E-07	--	1.2E-07	--	4.0E-04	1.5E-06	0.004	2.8E-07	0.001
		Cadmium	1.2E-02	mg/kg	--	1.3E-06	--	2.4E-07	--	1.0E-03	3.1E-06	0.003	5.7E-07	0.001
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	1.6E+01	mg/kg	--	1.8E-03	--	3.3E-04	--	4.0E-02	4.2E-03	0.1	7.6E-04	0.02
		Manganese	1.4E+02	mg/kg	--	1.6E-02	--	2.9E-03	--	1.4E-01	3.7E-02	0.3	6.8E-03	0.05
		Mercury	2.4E-02	mg/kg	--	2.7E-06	--	4.9E-07	--	1.0E-04	6.2E-06	0.06	1.1E-06	0.01
		Nickel	3.7E-01	mg/kg	--	4.1E-05	--	7.5E-06	--	2.0E-02	9.5E-05	0.005	1.7E-05	0.001
		Selenium	3.9E-01	mg/kg	--	4.3E-05	--	7.9E-06	--	5.0E-03	1.0E-04	0.02	1.8E-05	0.004
		Zinc	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	3.0E-01	4.4E-03	0.01	8.0E-04	0.003
		Butyltins												
		Butyltin ion	2.8E-01	ug/kg	--	3.1E-08	--	5.7E-09	--	3.0E-04	7.2E-08	0.0002	1.3E-08	0.00004
		Dibutyltin ion	3.3E-01	ug/kg	--	3.6E-08	--	6.7E-09	--	3.0E-04	8.5E-08	0.0003	1.6E-08	0.0001
		Tributyltin ion	5.6E-01	ug/kg	--	6.2E-08	--	1.1E-08	--	3.0E-04	1.4E-07	0.0005	2.6E-08	0.0001
		Polynuclear Aromatic Hydrocarbons												
		2-Methylnaphthalene	4.7E-01	ug/kg	--	5.2E-08	--	9.5E-09	--	4.0E-03	1.2E-07	0.00003	2.2E-08	0.00001
		Acenaphthene	9.9E-01	ug/kg	--	1.1E-07	--	2.0E-08	--	6.0E-02	2.5E-07	0.000004	4.7E-08	0.000001
		Acenaphthylene	2.0E-01	ug/kg	--	2.2E-08	--	4.0E-09	--	6.0E-02	5.1E-08	0.000001	9.4E-09	0.0000002
		Anthracene	4.3E-01	ug/kg	--	4.7E-08	--	8.7E-09	--	3.0E-01	1.1E-07	0.0000004	2.0E-08	0.0000001
		Benzo(a)pyrene	2.8E-01	ug/kg	7.3E+00	3.1E-08	2.E-07	5.7E-09	4.E-08	--	7.2E-08	--	1.3E-08	--
		Fluorene	8.1E-01	ug/kg	--	8.9E-08	--	1.6E-08	--	4.0E-02	2.1E-07	0.00001	3.8E-08	0.000001
		Naphthalene	6.1E-01	ug/kg	--	6.7E-08	--	1.2E-08	--	2.0E-02	1.6E-07	0.00001	2.9E-08	0.000001
		Semi-Volatile Organic Compounds												
		Dibenzofuran	4.8E-01	ug/kg	--	5.3E-08	--	9.7E-09	--	1.0E-03	1.2E-07	0.0001	2.3E-08	0.00002
		Hexachlorobenzene	6.6E-02	ug/kg	1.6E+00	7.2E-09	1.E-08	1.3E-09	2.E-09	8.0E-04	1.7E-08	0.0000	3.1E-09	0.000004
		Phenols												
		Phenol	9.4E+01	ug/kg	--	1.0E-05	--	1.9E-06	--	3.0E-01	2.4E-05	0.0001	4.4E-06	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	2.7E+04	pg/g	2.0E+00	3.0E-06	6.E-06	5.5E-07	1.E-06	2.0E-05	7.0E-06	0.3	1.3E-06	0.06

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	4.9E-01	pg/g	1.3E+05	5.4E-11	7.E-06	1.0E-11	1.E-06	1.0E-09	1.3E-10	0.1	2.3E-11	0.02
		Total PCB TEQ	4.6E-01	pg/g	1.3E+05	5.1E-11	7.E-06	9.4E-12	1.E-06	1.0E-09	1.2E-10	0.1	2.2E-11	0.02
		Pesticides												
		Aldrin	3.7E-02	ug/kg	1.7E+01	4.1E-09	7.E-08	7.5E-10	1.E-08	3.0E-05	9.5E-09	0.0003	1.7E-09	0.0001
		alpha-Hexachlorocyclohexane	2.5E-03	ug/kg	6.3E+00	2.8E-10	2.E-09	5.1E-11	3.E-10	8.0E-03	6.5E-10	0.0000001	1.2E-10	0.00000001
		Dieldrin	4.7E-02	ug/kg	1.6E+01	5.2E-09	8.E-08	9.5E-10	2.E-08	5.0E-05	1.2E-08	0.0002	2.2E-09	0.00004
		Endrin	1.2E-03	ug/kg	--	1.3E-10	--	2.4E-11	--	3.0E-04	3.1E-10	0.000001	5.7E-11	0.0000002
		Heptachlor epoxide	1.8E-03	ug/kg	9.1E+00	1.9E-10	2.E-09	3.6E-11	3.E-10	1.3E-05	4.5E-10	0.00003	8.3E-11	0.00001
		Total DDD	2.8E-01	ug/kg	2.4E-01	3.1E-08	7.E-09	5.6E-09	1.E-09	5.0E-04	7.1E-08	0.0001	1.3E-08	0.00003
		Total DDE	4.4E+00	ug/kg	3.4E-01	4.9E-07	2.E-07	8.9E-08	3.E-08	5.0E-04	1.1E-06	0.002	2.1E-07	0.0004
		Total Chlordane	5.6E-01	ug/kg	3.5E-01	6.2E-08	2.E-08	1.1E-08	4.E-09	5.0E-04	1.4E-07	0.0003	2.6E-08	0.0001
	Exposure Point Total						2.E-05		4.E-06			1		0.2
Body Without Shell	RM: 9, Station: 09R001	**Metals**												
		Aluminum	6.8E+01	mg/kg	--	7.5E-03	--	1.4E-03	--	1.0E+00	1.7E-02	0.02	3.2E-03	0.003
		Antimony	7.0E-03	mg/kg	--	7.7E-07	--	1.4E-07	--	4.0E-04	1.8E-06	0.005	3.3E-07	0.001
		Arsenic, inorganic	3.4E-02	mg/kg	1.5E+00	3.7E-06	6.E-06	6.9E-07	1.E-06	3.0E-04	8.7E-06	0.03	1.6E-06	0.01
		Cadmium	2.3E-02	mg/kg	--	2.5E-06	--	4.6E-07	--	1.0E-03	5.9E-06	0.01	1.1E-06	0.001
		Chromium	1.6E-01	mg/kg	--	1.8E-05	--	3.2E-06	--	1.5E+00	4.1E-05	0.00003	7.5E-06	0.00001
		Copper	1.8E+01	mg/kg	--	1.9E-03	--	3.6E-04	--	4.0E-02	4.5E-03	0.1	8.3E-04	0.02
		Manganese	6.1E+01	mg/kg	--	6.7E-03	--	1.2E-03	--	1.4E-01	1.6E-02	0.1	2.9E-03	0.02
		Mercury	2.3E-02	mg/kg	--	2.5E-06	--	4.6E-07	--	1.0E-04	5.9E-06	0.06	1.1E-06	0.01
		Nickel	2.2E-01	mg/kg	--	2.4E-05	--	4.4E-06	--	2.0E-02	5.7E-05	0.003	1.0E-05	0.001
		Silver	3.1E-02	mg/kg	--	3.4E-06	--	6.3E-07	--	5.0E-03	8.0E-06	0.002	1.5E-06	0.0003
		Zinc	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	3.0E-01	4.4E-03	0.01	8.0E-04	0.003
		Polychlorinated Biphenyls												
		Total Aroclors	4.9E+01	ug/kg	2.0E+00	5.4E-06	1.E-05	9.9E-07	2.E-06	2.0E-05	1.3E-05	0.6	2.3E-06	0.1
		Pesticides												
		Total DDE	2.4E+00	ug/kg	3.4E-01	2.6E-07	9.E-08	4.8E-08	2.E-08	5.0E-04	6.2E-07	0.001	1.1E-07	0.0002
	Exposure Point Total						2.E-05		3.E-06			1		0.2
Body Without Shell	RM: 9, Station: 09R002	**Metals**												
		Aluminum	6.6E+01	mg/kg	--	7.3E-03	--	1.3E-03	--	1.0E+00	1.7E-02	0.02	3.1E-03	0.003
		Antimony	8.0E-03	mg/kg	--	8.8E-07	--	1.6E-07	--	4.0E-04	2.1E-06	0.01	3.8E-07	0.001
		Arsenic, inorganic	3.5E-02	mg/kg	1.5E+00	3.9E-06	6.E-06	7.1E-07	1.E-06	3.0E-04	9.0E-06	0.03	1.7E-06	0.01
		Cadmium	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-03	2.8E-06	0.003	5.2E-07	0.001
		Chromium	2.6E-01	mg/kg	--	2.9E-05	--	5.3E-06	--	1.5E+00	6.7E-05	0.00004	1.2E-05	0.00001
		Copper	1.4E+01	mg/kg	--	1.5E-03	--	2.7E-04	--	4.0E-02	3.5E-03	0.09	6.4E-04	0.02
		Manganese	1.5E+02	mg/kg	--	1.7E-02	--	3.1E-03	--	1.4E-01	3.9E-02	0.3	7.1E-03	0.05
		Mercury	3.0E-02	mg/kg	--	3.3E-06	--	6.1E-07	--	1.0E-04	7.7E-06	0.08	1.4E-06	0.01
		Nickel	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	2.0E-02	1.0E-04	0.01	1.9E-05	0.001
		Silver	3.5E-02	mg/kg	--	3.8E-06	--	7.1E-07	--	5.0E-03	9.0E-06	0.002	1.6E-06	0.0003
		Zinc	1.9E+01	mg/kg	--	2.1E-03	--	3.8E-04	--	3.0E-01	4.9E-03	0.02	9.0E-04	0.003
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	7.9E+04	pg/g	2.0E+00	8.7E-06	2.E-05	1.6E-06	3.E-06	2.0E-05	2.0E-05	1	3.7E-06	0.2
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	7.5E-01	pg/g	1.3E+05	8.2E-11	1.E-05	1.5E-11	2.E-06	1.0E-09	1.9E-10	0.2	3.5E-11	0.04
		Total PCB TEQ	9.1E-01	pg/g	1.3E+05	1.0E-10	1.E-05	1.8E-11	2.E-06	1.0E-09	2.3E-10	0.2	4.3E-11	0.04

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Pesticides												
		Total DDE	3.0E+00	ug/kg	3.4E-01	3.3E-07	1.E-07	6.1E-08	2.E-08	5.0E-04	7.7E-07	0.002	1.4E-07	0.0003
	Exposure Point Total						5.E-05		9.E-06			2		0.4
Body Without Shell	RM: 10, Station: CR10W	**Metals**												
		Aluminum	7.2E+01	mg/kg	--	8.0E-03	--	1.5E-03	--	1.0E+00	1.9E-02	0.02	3.4E-03	0.003
		Arsenic, inorganic	3.4E-02	mg/kg	1.5E+00	3.7E-06	6.E-06	6.9E-07	1.E-06	3.0E-04	8.7E-06	0.03	1.6E-06	0.01
		Cadmium	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-03	2.8E-06	0.003	5.2E-07	0.001
		Chromium	2.0E-01	mg/kg	--	2.2E-05	--	4.0E-06	--	1.5E+00	5.1E-05	0.00003	9.4E-06	0.00001
		Copper	1.7E+01	mg/kg	--	1.9E-03	--	3.5E-04	--	4.0E-02	4.4E-03	0.1	8.2E-04	0.02
		Manganese	9.9E+01	mg/kg	--	1.1E-02	--	2.0E-03	--	1.4E-01	2.5E-02	0.2	4.7E-03	0.03
		Mercury	3.3E-02	mg/kg	--	3.6E-06	--	6.7E-07	--	1.0E-04	8.5E-06	0.09	1.6E-06	0.02
		Nickel	3.1E-01	mg/kg	--	3.4E-05	--	6.2E-06	--	2.0E-02	7.8E-05	0.00	1.4E-05	0.001
		Zinc	2.0E+01	mg/kg	--	2.2E-03	--	4.0E-04	--	3.0E-01	5.1E-03	0.02	9.3E-04	0.003
		Butyltins												
		Butyltin ion	2.1E-01	ug/kg	--	2.3E-08	--	4.2E-09	--	3.0E-04	5.4E-08	0.0002	9.9E-09	0.00003
		Polynuclear Aromatic Hydrocarbons												
		Acenaphthene	3.5E-01	ug/kg	--	3.9E-08	--	7.1E-09	--	6.0E-02	9.0E-08	0.000002	1.7E-08	0.0000003
		Anthracene	1.5E-01	ug/kg	--	1.7E-08	--	3.0E-09	--	3.0E-01	3.9E-08	0.0000001	7.1E-09	0.00000002
		Benzo(a)pyrene	2.5E-01	ug/kg	7.3E+00	2.8E-08	2.E-07	5.1E-09	4.E-08	--	6.4E-08	--	1.2E-08	--
		Fluorene	3.6E-01	ug/kg	--	4.0E-08	--	7.3E-09	--	4.0E-02	9.3E-08	0.000002	1.7E-08	0.0000004
		Naphthalene	5.0E-01	ug/kg	--	5.5E-08	--	1.0E-08	--	2.0E-02	1.3E-07	0.00001	2.4E-08	0.000001
		Semi-Volatile Organic Compounds												
		Dibenzofuran	1.9E-01	ug/kg	--	2.1E-08	--	3.8E-09	--	1.0E-03	4.9E-08	0.00005	9.0E-09	0.00001
		Hexachlorobenzene	3.6E-02	ug/kg	1.6E+00	3.9E-09	6.E-09	7.2E-10	1.E-09	8.0E-04	9.2E-09	0.00001	1.7E-09	0.000002
		Hexachlorobutadiene	1.9E-03	ug/kg	7.8E-02	2.1E-10	2.E-11	3.8E-11	3.E-12	1.0E-03	4.9E-10	0.0000005	8.9E-11	0.0000001
		Phenols												
		Phenol	5.6E+01	ug/kg	--	6.2E-06	--	1.1E-06	--	3.0E-01	1.4E-05	0.00005	2.6E-06	0.000009
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	4.2E+04	pg/g	2.0E+00	4.7E-06	9.E-06	8.6E-07	2.E-06	2.0E-05	1.1E-05	0.5	2.0E-06	0.1
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	2.3E-01	pg/g	1.3E+05	2.5E-11	3.E-06	4.7E-12	6.E-07	1.0E-09	5.9E-11	0.06	1.1E-11	0.01
		Total PCB TEQ	7.1E-01	pg/g	1.3E+05	7.8E-11	1.E-05	1.4E-11	2.E-06	1.0E-09	1.8E-10	0.2	3.3E-11	0.03
		Pesticides												
		alpha-Hexachlorocyclohexane	2.8E-03	ug/kg	6.3E+00	3.1E-10	2.E-09	5.7E-11	4.E-10	8.0E-03	7.3E-10	0.0000001	1.3E-10	0.00000002
		Dieldrin	1.5E-02	ug/kg	1.6E+01	1.7E-09	3.E-08	3.1E-10	5.E-09	5.0E-05	3.9E-09	0.0001	7.2E-10	0.00001
		Total DDD	6.5E-02	ug/kg	2.4E-01	7.1E-09	2.E-09	1.3E-09	3.E-10	5.0E-04	1.7E-08	0.00003	3.0E-09	0.00001
		Total DDE	1.1E+00	ug/kg	3.4E-01	1.2E-07	4.E-08	2.1E-08	7.E-09	5.0E-04	2.7E-07	0.001	5.0E-08	0.0001
		Total Chlordane	1.7E-01	ug/kg	3.5E-01	1.9E-08	6.E-09	3.4E-09	1.E-09	5.0E-04	4.3E-08	0.0001	7.9E-09	0.00002
	Exposure Point Total						3.E-05		5.E-06			1		0.2
Body Without Shell	RM: 11, Station: CR11E	**Metals**												
		Aluminum	4.1E+01	mg/kg	--	4.5E-03	--	8.2E-04	--	1.0E+00	1.0E-02	0.01	1.9E-03	0.002
		Arsenic, inorganic	2.4E-02	mg/kg	1.5E+00	2.6E-06	4.E-06	4.7E-07	7.E-07	3.0E-04	6.0E-06	0.02	1.1E-06	0.004
		Cadmium	2.2E-02	mg/kg	--	2.4E-06	--	4.4E-07	--	1.0E-03	5.7E-06	0.01	1.0E-06	0.001
		Chromium	1.5E-01	mg/kg	--	1.7E-05	--	3.0E-06	--	1.5E+00	3.9E-05	0.00003	7.1E-06	0.000005
		Copper	2.0E+01	mg/kg	--	2.2E-03	--	4.1E-04	--	4.0E-02	5.2E-03	0.1	9.5E-04	0.02
		Manganese	3.9E+01	mg/kg	--	4.2E-03	--	7.8E-04	--	1.4E-01	9.9E-03	0.07	1.8E-03	0.01

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Mercury	2.4E-02	mg/kg	--	2.6E-06	--	4.8E-07	--	1.0E-04	6.1E-06	0.06	1.1E-06	0.01
		Nickel	2.4E-01	mg/kg	--	2.6E-05	--	4.8E-06	--	2.0E-02	6.1E-05	0.003	1.1E-05	0.001
		Zinc	2.0E+01	mg/kg	--	2.2E-03	--	4.0E-04	--	3.0E-01	5.1E-03	0.02	9.4E-04	0.003
		Butyltins												
		Butyltin ion	2.2E-01	ug/kg	--	2.4E-08	--	4.4E-09	--	3.0E-04	5.7E-08	0.0002	1.0E-08	0.00003
		Dibutyltin ion	3.5E-01	ug/kg	--	3.9E-08	--	7.1E-09	--	3.0E-04	9.0E-08	0.0003	1.7E-08	0.0001
		Polynuclear Aromatic Hydrocarbons												
		Acenaphthene	1.5E-01	ug/kg	--	1.7E-08	--	3.0E-09	--	6.0E-02	3.9E-08	0.000001	7.1E-09	0.0000001
		Anthracene	1.1E-01	ug/kg	--	1.2E-08	--	2.2E-09	--	3.0E-01	2.8E-08	0.0000001	5.2E-09	0.00000002
		Benzo(a)pyrene	2.2E-01	ug/kg	7.3E+00	2.4E-08	2.E-07	4.4E-09	3.E-08	--	5.7E-08	--	1.0E-08	--
		Fluorene	2.3E-01	ug/kg	--	2.5E-08	--	4.6E-09	--	4.0E-02	5.9E-08	0.000001	1.1E-08	0.0000003
		Naphthalene	4.7E-01	ug/kg	--	5.2E-08	--	9.5E-09	--	2.0E-02	1.2E-07	0.00001	2.2E-08	0.000001
		Phthalates												
		Butylbenzyl phthalate	7.1E+01	ug/kg	1.9E-03	7.8E-06	1.E-08	1.4E-06	3.E-09	2.0E-01	1.8E-05	0.0001	3.3E-06	0.00002
		Semi-Volatile Organic Compounds												
		Dibenzofuran	2.2E-01	ug/kg	--	2.4E-08	--	4.4E-09	--	1.0E-03	5.7E-08	0.0001	1.0E-08	0.00001
		Hexachlorobenzene	5.7E-02	ug/kg	1.6E+00	6.2E-09	1.E-08	1.1E-09	2.E-09	8.0E-04	1.5E-08	0.00002	2.7E-09	0.000003
		Phenols												
		Phenol	4.7E+01	ug/kg	--	5.2E-06	--	9.5E-07	--	3.0E-01	1.2E-05	0.00004	2.2E-06	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.1E+06	pg/g	2.0E+00	1.3E-04	3.E-04	2.3E-05	5.E-05	2.0E-05	2.9E-04	10	5.4E-05	3
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	1.3E+05	6.7E-11	9.E-06	1.2E-11	2.E-06	1.0E-09	1.6E-10	0.2	2.9E-11	0.03
		Total PCB TEQ	5.1E+00	pg/g	1.3E+05	5.6E-10	7.E-05	1.0E-10	1.E-05	1.0E-09	1.3E-09	1	2.4E-10	0.2
		Pesticides												
		Dieldrin	9.4E-03	ug/kg	1.6E+01	1.0E-09	2.E-08	1.9E-10	3.E-09	5.0E-05	2.4E-09	0.00005	4.4E-10	0.00001
		Heptachlor epoxide	5.9E-04	ug/kg	9.1E+00	6.5E-11	6.E-10	1.2E-11	1.E-10	1.3E-05	1.5E-10	0.00001	2.8E-11	0.000002
		Total DDD	3.7E-02	ug/kg	2.4E-01	4.0E-09	1.E-09	7.4E-10	2.E-10	5.0E-04	9.4E-09	0.00002	1.7E-09	0.000003
		Total DDE	1.8E+00	ug/kg	3.4E-01	2.0E-07	7.E-08	3.7E-08	1.E-08	5.0E-04	4.7E-07	0.001	8.6E-08	0.0002
		Total Chlordane	3.4E-01	ug/kg	3.5E-01	3.7E-08	1.E-08	6.8E-09	2.E-09	5.0E-04	8.6E-08	0.0002	1.6E-08	0.00003
	Exposure Point Total						3.E-04		6.E-05			10		3
Body Without Shell	RM: 12, Station: CR12W	**Metals**												
		Aluminum	6.9E+01	mg/kg	--	7.6E-03	--	1.4E-03	--	1.0E+00	1.8E-02	0.02	3.2E-03	0.003
		Arsenic, inorganic	2.9E-02	mg/kg	1.5E+00	3.2E-06	5.E-06	5.9E-07	9.E-07	3.0E-04	7.5E-06	0.02	1.4E-06	0.005
		Cadmium	1.0E-02	mg/kg	--	1.1E-06	--	2.0E-07	--	1.0E-03	2.6E-06	0.003	4.7E-07	0.0005
		Chromium	3.0E-01	mg/kg	--	3.3E-05	--	6.1E-06	--	1.5E+00	7.7E-05	0.0001	1.4E-05	0.00001
		Copper	1.8E+01	mg/kg	--	2.0E-03	--	3.6E-04	--	4.0E-02	4.6E-03	0.1	8.5E-04	0.02
		Lead	7.9E-02	mg/kg	NL	8.7E-06	--	1.6E-06	--	--	2.0E-05	--	3.7E-06	--
		Manganese	6.9E+01	mg/kg	--	7.6E-03	--	1.4E-03	--	1.4E-01	1.8E-02	0.1	3.2E-03	0.02
		Mercury	2.7E-02	mg/kg	--	3.0E-06	--	5.4E-07	--	1.0E-04	6.9E-06	0.07	1.3E-06	0.01
		Nickel	2.7E-01	mg/kg	--	3.0E-05	--	5.5E-06	--	2.0E-02	7.0E-05	0.003	1.3E-05	0.001
		Zinc	1.9E+01	mg/kg	--	2.1E-03	--	3.9E-04	--	3.0E-01	5.0E-03	0.02	9.1E-04	0.003
		Butyltins												
		Butyltin ion	5.5E-01	ug/kg	--	6.1E-08	--	1.1E-08	--	3.0E-04	1.4E-07	0.0005	2.6E-08	0.0001
		Dibutyltin ion	5.6E-01	ug/kg	--	6.2E-08	--	1.1E-08	--	3.0E-04	1.4E-07	0.0005	2.6E-08	0.0001
		Tributyltin ion	1.6E+00	ug/kg	--	1.8E-07	--	3.2E-08	--	3.0E-04	4.1E-07	0.001	7.5E-08	0.0003

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Polynuclear Aromatic Hydrocarbons												
		Acenaphthene	2.3E-01	ug/kg	--	2.5E-08	--	4.6E-09	--	6.0E-02	5.9E-08	0.000001	1.1E-08	0.0000002
		Anthracene	1.7E-01	ug/kg	--	1.9E-08	--	3.4E-09	--	3.0E-01	4.4E-08	0.0000001	8.0E-09	0.00000003
		Benzo(a)pyrene	1.4E-01	ug/kg	7.3E+00	1.5E-08	1.E-07	2.8E-09	2.E-08	--	3.6E-08	--	6.6E-09	--
		Fluorene	1.9E-01	ug/kg	--	2.1E-08	--	3.8E-09	--	4.0E-02	4.9E-08	0.000001	9.0E-09	0.0000002
		Naphthalene	5.4E-01	ug/kg	--	6.0E-08	--	1.1E-08	--	2.0E-02	1.4E-07	0.00001	2.5E-08	0.000001
		Semi-Volatile Organic Compounds												
		Dibenzofuran	1.3E-01	ug/kg	--	1.4E-08	--	2.6E-09	--	1.0E-03	3.3E-08	0.00003	6.1E-09	0.00001
		Hexachlorobenzene	9.1E-02	ug/kg	1.6E+00	1.0E-08	2.E-08	1.8E-09	3.E-09	8.0E-04	2.3E-08	0.00003	4.3E-09	0.00001
		Hexachlorobutadiene	1.7E-03	ug/kg	7.8E-02	1.9E-10	1.E-11	3.4E-11	3.E-12	1.0E-03	4.4E-10	0.0000004	8.0E-11	0.0000001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	6.5E+03	pg/g	2.0E+00	7.1E-07	1.E-06	1.3E-07	3.E-07	2.0E-05	1.7E-06	0.08	3.1E-07	0.02
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	2.9E-01	pg/g	1.3E+05	3.2E-11	4.E-06	5.8E-12	8.E-07	1.0E-09	7.4E-11	0.07	1.4E-11	0.01
		Total PCB TEQ	2.0E-01	pg/g	1.3E+05	2.2E-11	3.E-06	4.1E-12	5.E-07	1.0E-09	5.2E-11	0.05	9.5E-12	0.01
		Pesticides												
		alpha-Hexachlorocyclohexane	2.0E-03	ug/kg	6.3E+00	2.2E-10	1.E-09	4.1E-11	3.E-10	8.0E-03	5.2E-10	0.0000001	9.5E-11	0.00000001
		Dieldrin	1.6E-02	ug/kg	1.6E+01	1.8E-09	3.E-08	3.3E-10	5.E-09	5.0E-05	4.2E-09	0.0001	7.7E-10	0.00002
		Heptachlor epoxide	1.5E-03	ug/kg	9.1E+00	1.6E-10	1.E-09	2.9E-11	3.E-10	1.3E-05	3.8E-10	0.00003	6.9E-11	0.00001
		Total DDD	6.3E-02	ug/kg	2.4E-01	6.9E-09	2.E-09	1.3E-09	3.E-10	5.0E-04	1.6E-08	0.00003	3.0E-09	0.00001
		Total DDE	1.7E+00	ug/kg	3.4E-01	1.9E-07	6.E-08	3.4E-08	1.E-08	5.0E-04	4.3E-07	0.0009	7.9E-08	0.0002
		Total Chlordane	2.4E-01	ug/kg	3.5E-01	2.6E-08	9.E-09	4.8E-09	2.E-09	5.0E-04	6.1E-08	0.0001	1.1E-08	0.00002
	Exposure Point Total						1.E-05		2.E-06			0.6		0.1
Body Without Shell	RM: 12, Station: CR12E	**Metals**												
		Aluminum	5.6E+01	mg/kg	--	6.1E-03	--	1.1E-03	--	1.0E+00	1.4E-02	0.01	2.6E-03	0.003
		Arsenic, inorganic	2.9E-02	mg/kg	1.5E+00	3.2E-06	5.E-06	5.9E-07	9.E-07	3.0E-04	7.5E-06	0.02	1.4E-06	0.005
		Cadmium	1.1E-02	mg/kg	--	1.2E-06	--	2.2E-07	--	1.0E-03	2.8E-06	0.003	5.2E-07	0.001
		Chromium	4.0E-01	mg/kg	--	4.4E-05	--	8.1E-06	--	1.5E+00	1.0E-04	0.0001	1.9E-05	0.00001
		Copper	1.7E+01	mg/kg	--	1.9E-03	--	3.4E-04	--	4.0E-02	4.4E-03	0.1	8.0E-04	0.02
		Lead	1.4E-01	mg/kg	NL	1.5E-05	--	2.7E-06	--	--	3.5E-05	--	6.4E-06	--
		Manganese	8.2E+01	mg/kg	--	9.1E-03	--	1.7E-03	--	1.4E-01	2.1E-02	0.2	3.9E-03	0.03
		Mercury	2.7E-02	mg/kg	--	3.0E-06	--	5.4E-07	--	1.0E-04	6.9E-06	0.07	1.3E-06	0.01
		Nickel	3.2E-01	mg/kg	--	3.5E-05	--	6.4E-06	--	2.0E-02	8.2E-05	0.004	1.5E-05	0.001
		Zinc	1.9E+01	mg/kg	--	2.1E-03	--	3.8E-04	--	3.0E-01	4.9E-03	0.02	8.9E-04	0.003
		Butyltins												
		Butyltin ion	2.0E-01	ug/kg	--	2.2E-08	--	4.0E-09	--	3.0E-04	5.1E-08	0.0002	9.4E-09	0.00003
		Polynuclear Aromatic Hydrocarbons												
		Anthracene	1.2E-01	ug/kg	--	1.3E-08	--	2.4E-09	--	3.0E-01	3.1E-08	0.0000001	5.7E-09	0.00000002
		Benzo(a)pyrene	3.0E-01	ug/kg	7.3E+00	3.3E-08	2.E-07	6.1E-09	4.E-08	--	7.7E-08	--	1.4E-08	--
		Benzo(k)fluoranthene	5.7E-01	ug/kg	7.3E-02	6.3E-08	5.E-09	1.2E-08	8.E-10	--	1.5E-07	--	2.7E-08	--
		Fluorene	1.6E-01	ug/kg	--	1.8E-08	--	3.2E-09	--	4.0E-02	4.1E-08	0.000001	7.5E-09	0.0000002
		Naphthalene	5.2E-01	ug/kg	--	5.7E-08	--	1.1E-08	--	2.0E-02	1.3E-07	0.00001	2.5E-08	0.000001
		Phthalates												
		Butylbenzyl phthalate	2.7E+01	ug/kg	1.9E-03	3.0E-06	6.E-09	5.5E-07	1.E-09	2.0E-01	6.9E-06	0.00003	1.3E-06	0.00001
		Semi-Volatile Organic Compounds												
		Hexachlorobenzene	8.5E-02	ug/kg	1.6E+00	9.3E-09	1.E-08	1.7E-09	3.E-09	8.0E-04	2.2E-08	0.00003	4.0E-09	0.000005

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Phenols												
		Phenol	7.4E+01	ug/kg	--	8.2E-06	--	1.5E-06	--	3.0E-01	1.9E-05	0.0001	3.5E-06	0.00001
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	1.8E+04	pg/g	2.0E+00	1.9E-06	4.E-06	3.6E-07	7.E-07	2.0E-05	4.5E-06	0.2	8.3E-07	0.04
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	4.9E-01	pg/g	1.3E+05	5.3E-11	7.E-06	9.8E-12	1.E-06	1.0E-09	1.2E-10	0.1	2.3E-11	0.02
		Total PCB TEQ	5.1E-01	pg/g	1.3E+05	5.6E-11	7.E-06	1.0E-11	1.E-06	1.0E-09	1.3E-10	0.1	2.4E-11	0.02
		Pesticides												
		Dieldrin	1.1E-02	ug/kg	1.6E+01	1.2E-09	2.E-08	2.1E-10	3.E-09	5.0E-05	2.7E-09	0.0001	5.0E-10	0.00001
		Total DDD	5.5E-02	ug/kg	2.4E-01	6.1E-09	1.E-09	1.1E-09	3.E-10	5.0E-04	1.4E-08	0.00003	2.6E-09	0.00001
		Total DDE	2.4E+00	ug/kg	3.4E-01	2.7E-07	9.E-08	4.9E-08	2.E-08	5.0E-04	6.2E-07	0.001	1.1E-07	0.0002
		Total Chlordane	4.0E-01	ug/kg	3.5E-01	4.4E-08	2.E-08	8.0E-09	3.E-09	5.0E-04	1.0E-07	0.0002	1.9E-08	0.00004
	Exposure Point Total						2.E-05		4.E-06			0.9		0.2
Body Without Shell	Study Area-wide	**Metals**												
		Aluminum	1.1E+02	mg/kg	--	1.2E-02	--	2.1E-03	--	1.0E+00	2.7E-02	0.03	5.0E-03	0.005
		Antimony	1.0E-02	mg/kg	--	1.1E-06	--	2.0E-07	--	4.0E-04	2.6E-06	0.01	4.8E-07	0.001
		Arsenic, inorganic	3.6E-02	mg/kg	1.5E+00	4.0E-06	6.E-06	7.4E-07	1.E-06	3.0E-04	9.4E-06	0.03	1.7E-06	0.01
		Cadmium	2.0E-02	mg/kg	--	2.2E-06	--	4.0E-07	--	1.0E-03	5.1E-06	0.01	9.3E-07	0.001
		Chromium	5.2E-01	mg/kg	--	5.7E-05	--	1.1E-05	--	1.5E+00	1.3E-04	0.0001	2.5E-05	0.00002
		Copper	1.5E+01	mg/kg	--	1.7E-03	--	3.1E-04	--	4.0E-02	4.0E-03	0.1	7.3E-04	0.02
		Manganese	1.4E+02	mg/kg	--	1.6E-02	--	2.9E-03	--	1.4E-01	3.7E-02	0.3	6.8E-03	0.05
		Mercury	3.1E-02	mg/kg	--	3.4E-06	--	6.2E-07	--	1.0E-04	7.8E-06	0.08	1.4E-06	0.01
		Nickel	4.2E-01	mg/kg	--	4.6E-05	--	8.4E-06	--	2.0E-02	1.1E-04	0.01	2.0E-05	0.001
		Selenium	3.9E-01	mg/kg	--	4.3E-05	--	7.9E-06	--	5.0E-03	1.0E-04	0.02	1.8E-05	0.004
		Silver	3.2E-02	mg/kg	--	3.5E-06	--	6.4E-07	--	5.0E-03	8.1E-06	0.002	1.5E-06	0.0003
		Zinc	1.8E+01	mg/kg	--	1.9E-03	--	3.6E-04	--	3.0E-01	4.5E-03	0.02	8.3E-04	0.003
		Butyltins												
		Butyltin ion	4.6E+00	ug/kg	--	5.1E-07	--	9.3E-08	--	3.0E-04	1.2E-06	0.004	2.2E-07	0.001
		Dibutyltin ion	3.3E+02	ug/kg	--	3.6E-05	--	6.7E-06	--	3.0E-04	8.5E-05	0.3	1.6E-05	0.05
		Tributyltin ion	2.3E+00	ug/kg	--	2.5E-07	--	4.6E-08	--	3.0E-04	5.9E-07	0.002	1.1E-07	0.0004
		Polynuclear Aromatic Hydrocarbons												
		2-Methylnaphthalene	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	4.0E-03	2.8E-07	0.0001	5.2E-08	0.00001
		Acenaphthene	4.2E+00	ug/kg	--	4.6E-07	--	8.5E-08	--	6.0E-02	1.1E-06	0.00002	2.0E-07	0.000003
		Acenaphthylene	1.1E+00	ug/kg	--	1.2E-07	--	2.2E-08	--	6.0E-02	2.8E-07	0.000005	5.2E-08	0.000001
		Anthracene	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	3.0E-01	7.5E-07	0.000002	1.4E-07	0.0000005
		Benzo(a)anthracene	8.0E+01	ug/kg	7.3E-01	8.8E-06	6.E-06	1.6E-06	1.E-06	--	2.1E-05	--	3.8E-06	--
		Benzo(a)pyrene	7.5E+00	ug/kg	7.3E+00	8.3E-07	6.E-06	1.5E-07	1.E-06	--	1.9E-06	--	3.5E-07	--
		Benzo(b)fluoranthene	5.3E+00	ug/kg	7.3E-01	5.8E-07	4.E-07	1.1E-07	8.E-08	--	1.4E-06	--	2.5E-07	--
		Benzo(g,h,i)perylene	5.6E+00	ug/kg	--	6.2E-07	--	1.1E-07	--	3.0E-02	1.4E-06	0.00005	2.6E-07	0.00001
		Benzo(k)fluoranthene	5.0E+00	ug/kg	7.3E-02	5.5E-07	4.E-08	1.0E-07	7.E-09	--	1.3E-06	--	2.4E-07	--
		Chrysene	8.7E+01	ug/kg	7.3E-03	9.6E-06	7.E-08	1.8E-06	1.E-08	--	2.2E-05	--	4.1E-06	--
		Dibenzo(a,h)anthracene	7.1E-01	ug/kg	7.3E+00	7.8E-08	6.E-07	1.4E-08	1.E-07	--	1.8E-07	--	3.3E-08	--
		Fluoranthene	1.3E+02	ug/kg	--	1.4E-05	--	2.6E-06	--	4.0E-02	3.3E-05	0.001	6.1E-06	0.0002
		Fluorene	1.3E+00	ug/kg	--	1.5E-07	--	2.7E-08	--	4.0E-02	3.4E-07	0.00001	6.2E-08	0.000002
		Indeno(1,2,3-cd)pyrene	5.3E+00	ug/kg	7.3E-01	5.8E-07	4.E-07	1.1E-07	8.E-08	--	1.4E-06	--	2.5E-07	--
		Naphthalene	2.9E+00	ug/kg	--	3.2E-07	--	5.9E-08	--	2.0E-02	7.5E-07	0.00004	1.4E-07	0.000007
		Phenanthrene	9.7E+01	ug/kg	--	1.1E-05	--	2.0E-06	--	3.0E-02	2.5E-05	0.001	4.6E-06	0.0002

TABLE 5-81.
Calculation of Cancer Risks and Noncancer Hazards - Crayfish Consumption

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Cancer Risk Calculations[b]: Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	Consumption Rate: 18 g/day: LADI (mg/kg-day)	Consumption Rate: 18 g/day: Cancer Risk	Consumption Rate: 3.3 g/day: LADI (mg/kg-day)	Consumption Rate: 3.3 g/day: Cancer Risk	Noncancer Hazard Quotient Calculations[b]: Oral RfD mg/kg-day	Consumption Rate: 18 g/day: CDI mg/kg-day	Consumption Rate: 18 g/day: Noncancer Hazard Quotient	Consumption Rate: 3.3 g/day: CDI mg/kg-day	Consumption Rate: 3.3 g/day: Noncancer Hazard Quotient
		Pyrene	8.3E+01	ug/kg	--	9.1E-06	--	1.7E-06	--	3.0E-02	2.1E-05	0.001	3.9E-06	0.0001
		Phthalates												
		Butylbenzyl phthalate	7.1E+01	ug/kg	1.9E-03	7.8E-06	1.E-08	1.4E-06	3.E-09	2.0E-01	1.8E-05	0.0001	3.3E-06	0.00002
		Semi-Volatile Organic Compounds												
		Dibenzofuran	4.1E-01	ug/kg	--	4.5E-08	--	8.2E-09	--	1.0E-03	1.0E-07	0.0001	1.9E-08	0.00002
		Hexachlorobenzene	6.2E-02	ug/kg	1.6E+00	6.8E-09	1.E-08	1.2E-09	2.E-09	8.0E-04	1.6E-08	0.00002	2.9E-09	0.000004
		Hexachlorobutadiene	1.9E-03	ug/kg	7.8E-02	2.1E-10	2.E-11	3.8E-11	3.E-12	1.0E-03	4.9E-10	0.0000005	8.9E-11	0.0000001
		Phenols												
		4-Methylphenol	1.9E+02	ug/kg	--	2.1E-05	--	3.8E-06	--	5.0E-03	4.9E-05	0.01	9.0E-06	0.002
		Pentachlorophenol	1.3E+02	ug/kg	4.0E-01	1.4E-05	6.E-06	2.6E-06	1.E-06	5.0E-03	3.3E-05	0.01	6.1E-06	0.001
		Phenol	1.1E+02	ug/kg	--	1.2E-05	--	2.1E-06	--	3.0E-01	2.7E-05	0.0001	5.0E-06	0.00002
		Polychlorinated Biphenyls												
		Total PCBs, Adjusted	6.2E+05	pg/g	2.0E+00	6.8E-05	1.E-04	1.2E-05	2.E-05	2.0E-05	1.6E-04	8	2.9E-05	1
		Dioxin/Furans												
		Total Dioxin/Furan TEQ	9.8E+00	pg/g	1.3E+05	1.1E-09	1.E-04	2.0E-10	3.E-05	1.0E-09	2.5E-09	3	4.6E-10	0.5
		Total PCB TEQ	2.9E+00	pg/g	1.3E+05	3.2E-10	4.E-05	5.9E-11	8.E-06	1.0E-09	7.5E-10	0.7	1.4E-10	0.1
		Pesticides												
		Aldrin	3.7E-02	ug/kg	1.7E+01	4.1E-09	7.E-08	7.5E-10	1.E-08	3.0E-05	9.5E-09	0.0003	1.7E-09	0.0001
		alpha-Hexachlorocyclohexane	2.8E-03	ug/kg	6.3E+00	3.1E-10	2.E-09	5.7E-11	4.E-10	8.0E-03	7.3E-10	0.0000001	1.3E-10	0.00000002
		Dieldrin	4.7E-02	ug/kg	1.6E+01	5.2E-09	8.E-08	9.5E-10	2.E-08	5.0E-05	1.2E-08	0.0002	2.2E-09	0.00004
		Endrin	5.0E-01	ug/kg	--	5.5E-08	--	1.0E-08	--	3.0E-04	1.3E-07	0.0004	2.3E-08	0.0001
		Heptachlor epoxide	1.8E-03	ug/kg	9.1E+00	1.9E-10	2.E-09	3.6E-11	3.E-10	1.3E-05	4.5E-10	0.00003	8.3E-11	0.00001
		Total DDD	2.9E+00	ug/kg	2.4E-01	3.2E-07	8.E-08	5.8E-08	1.E-08	5.0E-04	7.4E-07	0.001	1.4E-07	0.0003
		Total DDE	1.3E+01	ug/kg	3.4E-01	1.5E-06	5.E-07	2.7E-07	9.E-08	5.0E-04	3.4E-06	0.01	6.2E-07	0.001
		Total DDT	5.3E+00	ug/kg	3.4E-01	5.9E-07	2.E-07	1.1E-07	4.E-08	5.0E-04	1.4E-06	0.003	2.5E-07	0.0005
		Total Chlordane	1.3E+00	ug/kg	3.5E-01	1.4E-07	5.E-08	2.6E-08	9.E-09	5.0E-04	3.3E-07	0.001	6.0E-08	0.0001
		Total Endosulfan	1.4E+00	ug/kg	--	1.5E-07	--	2.8E-08	--	6.0E-03	3.6E-07	0.0001	6.5E-08	0.00001
	Exposure Point Total						3.E-04		6.E-05			10		2

Notes:

a Chemicals listed are anaytes detected in crayfish tissue at least once within the study area (RM 1.9-11.8).
b Numbers presented are rounded values. Sums calculated before rounding.
c Toxicity values for trivalent chromium used to assess total chromium.
d Total PCBs, Adjusted equal Total PCB Congeners minus Total dioxin-like PCBs.
e Cumulative risk sums calculated using PCB congener data when available. When congener data not available, PCB Aroclor data were used in sums.

Abbreviations: -- = Not applicable.
CDI = Chronic Daily Intake.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = picograms per gram.
RfD = Reference Dose.
RM = River mile.
TEQ = Toxic Equivalents.
ug/kg = micrograms per kilogram.

TABLE 5-82.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices: Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
Body Without Shell	RM: 11, Station: CR11E	**Metals**																
		Aluminum	0.002					0.002										
		Arsenic, inorganic	0.004	0.004	0.004													
		Cadmium	0.001			0.001												
		Copper	0.02				0.02											
		Manganese	0.01					0.01										
		Mercury	0.01					0.01										
		Nickel	0.001						0.001									
		Zinc	0.003	0.003														
		Butyltins																
		Butyltin ion	0.00003								0.00003							
		Dibutyltin ion	0.0001								0.0001							
		Polynuclear Aromatic Hydrocarbons																
		Acenaphthene	0.0000001							0.0000001								
		Fluorene	0.0000003	0.0000003														
		Naphthalene	0.000001						0.000001						0.000001			
		Phthalates																
		Butylbenzyl phthalate	0.00002							0.00002								
		Semi-Volatile Organic Compounds																
		Dibenzofuran	0.00001	0.00001														
		Hexachlorobenzene	0.000003							0.000003								
		Phenols																
		Phenol	0.00001						0.00001									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	3		3						3							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.03											0.03				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Dieldrin	0.00001							0.00001								
		Heptachlor epoxide	0.000002							0.000002								
		Total DDD	0.000003							0.000003								
		Total DDE	0.0002							0.0002								
		Total Chlordane	0.00003							0.00003								
	Exposure Point Total			0.01	3	0.001	0.02	0.03	0.001	0.0002	3			0.3	0.000001			
Body Without Shell	Study Area-wide	**Metals**																
		Aluminum	0.005					0.005										
		Antimony	0.001	0.001														
		Arsenic, inorganic	0.01	0.01	0.01													
		Cadmium	0.001			0.001												
		Copper	0.02				0.02											
		Manganese	0.05					0.05										
		Mercury	0.01					0.01										
		Nickel	0.001						0.001									
		Selenium	0.004						0.004									
		Silver	0.0003		0.0003													
		Zinc	0.003	0.003														

TABLE 5-82.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Butyltins																
		Butyltin ion	0.001								0.001							
		Dibutyltin ion	0.05								0.05							
		Tributyltin ion	0.0004								0.0004							
		Polynuclear Aromatic Hydrocarbons																
		2-Methylnaphthalene	0.00001									0.00001						
		Acenaphthene	0.000003							0.000003								
		Acenaphthylene	0.000001							0.000001								
		Benzo(g,h,i)perylene	0.00001			0.00001												
		Fluoranthene	0.0002	0.0002		0.0002				0.0002								
		Fluorene	0.000002	0.000002														
		Naphthalene	0.00001						0.00001						0.00001			
		Phenanthrene	0.0002			0.0002												
		Pyrene	0.0001			0.0001												
		Phthalates																
		Butylbenzyl phthalate	0.00002							0.00002								
		Semi-Volatile Organic Compounds																
		Dibenzofuran	0.00002	0.00002														
		Hexachlorobenzene	0.000004							0.000004								
		Hexachlorobutadiene	0.0000001			0.0000001												
		Phenols																
		4-Methylphenol	0.002					0.002	0.002									
		Pentachlorophenol	0.001			0.001				0.001								
		Phenol	0.00002						0.00002									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.5											0.5				
		Total PCB TEQ	0.1											0.1				
		Pesticides																
		Aldrin	0.0001							0.0001								
		alpha-Hexachlorocyclohexane	0.00000002							0.00000002								
		Dieldrin	0.00004							0.00004								
		Endrin	0.0001							0.0001								
		Heptachlor epoxide	0.00001							0.00001								
		Total DDD	0.0003							0.0003								
		Total DDE	0.0012							0.0012								

TABLE 5-82.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Central Tendency Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total DDT	0.001							0.001								
		Total Chlordane	0.0001							0.0001								
		Total Endosulfan	0.00001	0.00001				0.00001	0.00001									
	Exposure Point Total			0.01	1	0.003	0.02	0.07	0.01	0.004	2	0.00001		0.6	0.00001			

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.

b Endpoint-specific hazard indices only calculated for those exposure areas where the cumulative hazard index is greater than 1.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
HQ = Hazard Quotient.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RM = River mile.
TEQ = Toxic Equivalents.

TABLE 5-83.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
Body Without Shell	RM 2, Station: 02R001	**Metals**																
		Aluminum	0.03					0.03										
		Antimony	0.005	0.005														
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.01			0.01												
		Copper	0.08				0.08											
		Manganese	0.3					0.3										
		Mercury	0.06					0.06										
		Nickel	0.01						0.01									
		Silver	0.001		0.001													
		Zinc	0.01	0.01														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	0.6		0.6						0.6							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.8											0.8				
		Pesticides																
		Total DDE	0.002							0.002								
		Total DDT	0.004							0.004								
		Total Chlordane	0.002							0.002								
	Exposure Point Total			0.05	0.6	0.01	0.08	0.4	0.01	0.01	0.6			0.9				
Body Without Shell	RM: 3, Station: 03R003	**Metals**																
		Aluminum	0.04					0.04										
		Antimony	0.004	0.004														
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.01			0.01												
		Copper	0.1				0.1											
		Manganese	0.3					0.3										
		Mercury	0.07					0.07										
		Nickel	0.01						0.01									
		Silver	0.002		0.002													
		Zinc	0.02	0.02														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	0.9		0.9						0.9							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.3											0.3				
		Pesticides																
		Endrin	0.001							0.001								
		Total DDE	0.002							0.002								
		Total DDT	0.004							0.004								
		Total Endosulfan	0.00005	0.00005				0.00005	0.00005									
	Exposure Point Total			0.05	0.9	0.01	0.1	0.4	0.01	0.01	0.9			0.5				
Body Without Shell	RM: 3, Station: 03R005	**Metals**																
		Aluminum	0.02					0.02										
		Antimony	0.01	0.01														
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.01			0.01												

TABLE 5-83.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Copper	0.08				0.08											
		Manganese	0.3					0.3										
		Mercury	0.06					0.06										
		Nickel	0.004						0.004									
		Silver	0.001		0.001													
		Zinc	0.01	0.01														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	2		2						2							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.7											0.7				
		Pesticides																
		Endrin	0.002							0.002								
		Total DDE	0.002							0.002								
		Total Chlordane	0.002							0.002								
		Total Endosulfan	0.0001	0.0001				0.0001	0.0001									
	Exposure Point Total			0.05	3	0.01	0.08	0.4	0.004	0.01	2			0.8				
Body Without Shell	RM: 6, Station: CR06W	**Metals**																
		Aluminum	0.04					0.04										
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.002			0.002												
		Copper	0.1				0.1											
		Manganese	0.3					0.3										
		Mercury	0.1					0.1										
		Nickel	0.01						0.01									
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.004								0.004							
		Dibutyltin ion	0.3								0.3							
		Tributyltin ion	0.002								0.002							
		Polynuclear Aromatic Hydrocarbons																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00002							0.00002								
		Acenaphthylene	0.000005							0.000005								
		Benzo(g,h,i)perylene	0.00005			0.00005												
		Fluoranthene	0.0001	0.0001		0.0001				0.0001								
		Fluorene	0.00001	0.00001														
		Naphthalene	0.00004						0.00004						0.00004			
		Phenanthrene	0.0001			0.0001												
		Pyrene	0.0001			0.0001												
		Semi-Volatile Organic Compounds																
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.00002							0.00002								
		Phenols																
		Phenol	0.0001						0.0001									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	0.5		0.5						0.5							

TABLE 5-83.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.1											0.1				
		Total PCB TEQ	0.08											0.08				
		Pesticides																
		Dieldrin	0.0001							0.0001								
		Total DDD	0.0004							0.0004								
		Total DDE	0.001							0.001								
		Total DDT	0.0001							0.0001								
		Total Chlordane	0.0001							0.0001								
	Exposure Point Total			0.04	0.6	0.003	0.1	0.4	0.01	0.002	0.8	0.0001		0.2	0.00004			
Body Without Shell	RM: 7, Station: 07R006	**Metals**																
		Aluminum	0.02					0.02										
		Antimony	0.004	0.004														
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.002			0.002												
		Copper	0.08				0.08											
		Manganese	0.2					0.2										
		Mercury	0.06					0.06										
		Nickel	0.01						0.01									
		Silver	0.002		0.002													
		Zinc	0.01	0.01														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	0.3		0.3						0.3							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	5											5				
		Total PCB TEQ	0.2											0.2				
		Pesticides																
		Total DDD	0.01							0.01								
		Total DDE	0.03							0.03								
		Total DDT	0.01							0.01								
	Exposure Point Total			0.04	0.3	0.002	0.08	0.3	0.01	0.04	0.3			5				
Body Without Shell	RM: 9, Station: 09R002	**Metals**																
		Aluminum	0.02					0.02										
		Antimony	0.01	0.01														
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.003			0.003												
		Copper	0.09				0.09											
		Manganese	0.3					0.3										
		Mercury	0.08					0.08										
		Nickel	0.01						0.01									
		Silver	0.002		0.002													
		Zinc	0.02	0.02														
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	1		1						1							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	0.2											0.2				

TABLE 5-83.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Pesticides																
		Total DDE	0.002							0.002								
	Exposure Point Total			0.05	1	0.003	0.09	0.4	0.01	0.002	1			0.4				
Body Without Shell	RM: 11, Station: CR11E	**Metals**																
		Aluminum	0.01					0.01										
		Arsenic, inorganic	0.02	0.02	0.02													
		Cadmium	0.01			0.01												
		Copper	0.1				0.1											
		Manganese	0.07					0.07										
		Mercury	0.06					0.06										
		Nickel	0.003						0.003									
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.0002								0.0002							
		Dibutyltin ion	0.0003								0.0003							
		Polynuclear Aromatic Hydrocarbons																
		Acenaphthene	0.000001							0.000001								
		Fluorene	0.000001	0.000001														
		Naphthalene	0.00001						0.00001						0.00001			
		Phthalates																
		Butylbenzyl phthalate	0.0001							0.0001								
		Semi-Volatile Organic Compounds																
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.00002							0.00002								
		Phenols																
		Phenol	0.00004						0.00004									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	15		15						15							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	0.2											0.2				
		Total PCB TEQ	1											1				
		Pesticides																
		Dieldrin	0.00005							0.00005								
		Heptachlor epoxide	0.00001							0.00001								
		Total DDD	0.00002							0.00002								
		Total DDE	0.001							0.001								
		Total Chlordane	0.0002							0.0002								
	Exposure Point Total			0.04	15	0.01	0.1	0.1	0.003	0.001	15			1	0.00001			
Body Without Shell	Study Area-wide	**Metals**																
		Aluminum	0.03					0.03										
		Antimony	0.01	0.01														
		Arsenic, inorganic	0.03	0.03	0.03													
		Cadmium	0.01			0.01												
		Copper	0.1				0.1											
		Manganese	0.3					0.3										
		Mercury	0.08					0.08										
		Nickel	0.01						0.01									

TABLE 5-83.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Selenium	0.02						0.02									
		Silver	0.002		0.002													
		Zinc	0.02	0.02														
		Butyltins																
		Butyltin ion	0.004								0.004							
		Dibutyltin ion	0.3								0.3							
		Tributyltin ion	0.002								0.002							
		Polynuclear Aromatic Hydrocarbons																
		2-Methylnaphthalene	0.0001									0.0001						
		Acenaphthene	0.00002							0.00002								
		Acenaphthylene	0.000005							0.000005								
		Benzo(g,h,i)perylene	0.00005			0.00005												
		Fluoranthene	0.001	0.001		0.001				0.001								
		Fluorene	0.00001	0.00001														
		Naphthalene	0.00004						0.00004						0.00004			
		Phenanthrene	0.001			0.001												
		Pyrene	0.001			0.001												
		Phthalates																
		Butylbenzyl phthalate	0.0001							0.0001								
		Semi-Volatile Organic Compounds																
		Dibenzofuran	0.0001	0.0001														
		Hexachlorobenzene	0.00002							0.00002								
		Hexachlorobutadiene	0.0000005			0.0000005												
		Phenols																
		4-Methylphenol	0.01					0.01	0.01									
		Pentachlorophenol	0.01			0.01				0.01								
		Phenol	0.0001						0.0001									
		Polychlorinated Biphenyls																
		Total PCBs, Adjusted	8		8						8							
		Dioxin/Furans																
		Total Dioxin/Furan TEQ	3											3				
		Total PCB TEQ	0.7											0.7				
		Pesticides																
		Aldrin	0.0003							0.0003								
		alpha-Hexachlorocyclohexane	0.0000001							0.0000001								
		Dieldrin	0.0002							0.0002								
		Endrin	0.0004							0.0004								
		Heptachlor epoxide	0.00003							0.00003								
		Total DDD	0.001							0.001								
		Total DDE	0.01							0.01								
		Total DDT	0.003							0.003								

TABLE 5-83.
Calculation of Endpoint-Specific Hazard Indices - Crayfish Consumption, Reasonable Maximum Exposure

Scenario Timeframe: Current/Future
Receptor Population: Fisher
Population Age: Adult

Medium: Tissue
Exposure Medium: Crayfish Tissue (whole body, without shell)
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern	Noncancer Hazard Quotient[a]	Endpoint-Specific Hazard Indices														
				Blood	Skin	Kidney	Gastrointestinal	CNS	Whole Body	Liver	Immunological	Lungs	Decreased Hypersensitivity Response	Reproduction	Weight Change	Fetus	Lethargy	Endocrine
		Total Chlordane Total Endosulfan	0.001 0.0001	0.0001				0.0001	0.0001	0.001								
	Exposure Point Total			0.05	8	0.01	0.1	0.4	0.04	0.02	8	0.0001		3	0.00004			

Notes:

a Numbers presented are rounded values. Sums calculated before rounding.
b Endpoint-specific hazard indices only calculated for those exposure areas where the cumulative hazard index is greater than 1.

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
HQ = Hazard Quotient.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCB = Polychlorinated Biphenyls.
RM = River mile.
TEQ = Toxic Equivalents.

TABLE 5-84.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Clam Consumer

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: Shellfish
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[b] IRAF	Consumption Rate: 18 g/day Adult (Mother) HQ	Consumption Rate: 18 g/day Breastfeeding Infant HQ	Consumption Rate: 3.3 g/day Adult (Mother) HQ	Consumption Rate: 3.3 g/day Breastfeeding Infant HQ
UD	RM 1 East	Total PCBs, Adjusted[c]	1.2E+05	pg/g	25	2	40	0.3	7
		Total Dioxin/Furan TEQ	5.1E-01	pg/g	2	0.1	0.3	0.02	0.05
		Total PCB TEQ	1.4E+00	pg/g	2	0.4	0.7	0.07	0.1
		Total DDX			2	0.01	0.03	0.003	0.01
	Exposure Point Total						40		7
UD	RM 2 East	Total PCBs, Adjusted	3.0E+05	pg/g	25	4	100	0.7	20
		Total Dioxin/Furan TEQ	5.9E-01	pg/g	2	0.2	0.3	0.03	0.1
		Total PCB TEQ	3.3E+00	pg/g	2	0.8	2	0.2	0.3
		Total DDX			2	0.01	0.03	0.003	0.01
	Exposure Point Total						100		20
UD	RM 2 West	Total PCBs, Adjusted	7.8E+04	pg/g	25	1	30	0.2	5
		Total Dioxin/Furan TEQ	5.6E-01	pg/g	2	0.1	0.3	0.03	0.1
		Total PCB TEQ	9.0E-01	pg/g	2	0.2	0.5	0.04	0.1
		Total DDX			2	0.02	0.03	0.003	0.01
	Exposure Point Total						30		5
UD	RM 3 East	Total PCBs, Adjusted	4.7E+05	pg/g	25	6	200	1	30
		Total Dioxin/Furan TEQ	8.4E-01	pg/g	2	0.2	0.4	0.04	0.1
		Total PCB TEQ	5.4E+00	pg/g	2	1.4	3	0.3	0.5
		Total DDX			2	0.01	0.03	0.003	0.01
	Exposure Point Total						200		30
UD	RM 3 West	Total PCBs, Adjusted	9.4E+04	pg/g	25	1	30	0.2	6
		Total Dioxin/Furan TEQ	8.6E-01	pg/g	2	0.2	0.4	0.04	0.1
		Total PCB TEQ	9.8E-01	pg/g	2	0.3	0.5	0.05	0.1
		Total DDX			2	0.02	0.04	0.004	0.01
	Exposure Point Total						30		6
UD	RM 4 East	Total PCBs, Adjusted	1.0E+05	pg/g	25	1	30	0.2	6
		Total Dioxin/Furan TEQ	3.3E+00	pg/g	2	0.9	2	0.2	0.3
		Total PCB TEQ	1.4E+00	pg/g	2	0.4	0.7	0.07	0.1
		Total DDX			2	0.01	0.02	0.002	0.004
	Exposure Point Total						30		6
UD	RM 4 West	Total PCBs, Adjusted	1.2E+05	pg/g	25	2	40	0.3	7
		Total Dioxin/Furan TEQ	9.5E-01	pg/g	2	0.2	0.5	0.04	0.1
		Total PCB TEQ	1.6E+00	pg/g	2	0.4	0.8	0.07	0.1
		Total DDX			2	0.02	0.04	0.003	0.01
	Exposure Point Total						40		7
UD	RM 5 East	Total PCBs, Adjusted	1.5E+05	pg/g	25	2	50	0.3	9
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.2	0.3	0.03	0.1
		Total PCB TEQ	1.5E+00	pg/g	2	0.4	0.8	0.07	0.1
		Total DDX			2	0.01	0.03	0.003	0.01
	Exposure Point Total						50		9
UD	RM 5 West	Total PCBs, Adjusted	7.5E+04	pg/g	25	1	20	0.2	4
		Total Dioxin/Furan TEQ	1.5E+00	pg/g	2	0.4	0.8	0.07	0.1
		Total PCB TEQ	9.6E-01	pg/g	2	0.2	0.5	0.05	0.1
		Total DDX			2	0.02	0.05	0.005	0.01
	Exposure Point Total						20		5
UD	RM 6 East	Total PCBs, Adjusted	2.6E+06	pg/g	25	34	800	6	200
		Total Dioxin/Furan TEQ	7.0E-01	pg/g	2	0.2	0.4	0.03	0.1
		Total PCB TEQ	8.6E+00	pg/g	2	2	4	0.4	0.8
		Total DDX			2	0.009	0.02	0.002	0.003
	Exposure Point Total						800		200
UD	RM 6 West	Total PCBs, Adjusted	1.0E+05	pg/g	25	1	30	0.2	6
		Total Dioxin/Furan TEQ	4.0E+00	pg/g	2	1	2	0.2	0.4
		Total PCB TEQ	1.4E+00	pg/g	2	0.4	0.7	0.07	0.1
		Total DDX			2	0.2	0.3	0.03	0.1
	Exposure Point Total						30		7
UD	RM 7 East	Total PCBs, Adjusted	9.2E+04	pg/g	25	1	30	0.2	5
		Total Dioxin/Furan TEQ	1.0E+00	pg/g	2	0.3	0.5	0.05	0.1
		Total PCB TEQ	8.7E-01	pg/g	2	0.2	0.4	0.04	0.1
		Total DDX			2	0.01	0.01	0.001	0.003
	Exposure Point Total						30		6
UD	RM 7 West	Total PCBs, Adjusted	9.3E+04	pg/g	25	1	30	0.2	5
		Total Dioxin/Furan TEQ	5.6E+00	pg/g	2	1	3	0.3	0.5
		Total PCB TEQ	1.2E+00	pg/g	2	0.3	0.6	0.05	0.1
		Total DDX			2	0.2	0.4	0.03	0.1
	Exposure Point Total						30		6
UD	RM 8 East	Total PCBs, Adjusted	8.2E+04	pg/g	25	1	30	0.2	5
		Total Dioxin/Furan TEQ	4.3E-01	pg/g	2	0.1	0.2	0.02	0.04
		Total PCB TEQ	6.3E-01	pg/g	2	0.2	0.3	0.03	0.1
		Total DDX			2	0.01	0.01	0.001	0.002
	Exposure Point Total						30		5

TABLE 5-84.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Clam Consumer

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: Shellfish
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[b] IRAF	Consumption Rate: 18 g/day Adult (Mother) HQ	Consumption Rate: 18 g/day Breastfeeding Infant HQ	Consumption Rate: 3.3 g/day Adult (Mother) HQ	Consumption Rate: 3.3 g/day Breastfeeding Infant HQ
UD	RM 8 West	Total PCBs, Adjusted	4.0E+05	pg/g	25	5	100	0.9	20
		Total Dioxin/Furan TEQ	1.4E+00	pg/g	2	0.4	0.7	0.07	0.1
		Total PCB TEQ	3.6E+00	pg/g	2	0.9	2	0.2	0.3
		Total DDX			2	0.05	0.1	0.01	0.02
	Exposure Point Total						100		20
UD	RM 8 SIL	Total PCBs, Adjusted	3.7E+05	pg/g	25	4.8	100	0.9	20
		Total Dioxin/Furan TEQ	1.3E+00	pg/g	2	0.3	0.7	0.06	0.1
		Total PCB TEQ	3.4E+00	pg/g	2	0.9	2	0.2	0.3
		Total DDX			2	0.01	0.02	0.002	0.005
	Exposure Point Total						100		20
UD	RM 9 East	Total PCBs, Adjusted	5.7E+04	pg/g	25	0.7	20	0.1	3
		Total Dioxin/Furan TEQ	5.4E-01	pg/g	2	0.1	0.3	0.03	0.1
		Total PCB TEQ	7.8E-01	pg/g	2	0.2	0.4	0.04	0.1
		Total DDX			2	0.01	0.01	0.001	0.002
	Exposure Point Total						20		3
UD	RM 9 West	Total PCBs, Adjusted	4.5E+05	pg/g	25	6	100	1	30
		Total Dioxin/Furan TEQ	2.7E+00	pg/g	2	0.7	1	0.1	0.3
		Total PCB TEQ	3.9E+00	pg/g	2	1	2	0.2	0.4
		Total DDX			2	0.01	0.02	0.002	0.004
	Exposure Point Total						100		30
UD	RM 10 West	Total PCBs, Adjusted	7.8E+04	pg/g	25	1	30	0.2	5
		Total Dioxin/Furan TEQ	3.9E-01	pg/g	2	0.1	0.2	0.02	0.04
		Total PCB TEQ	6.9E-01	pg/g	2	0.2	0.4	0.03	0.1
		Total DDX			2	0.004	0.01	0.001	0.001
	Exposure Point Total						30		5
UD	RM 11 East	Total PCBs, Adjusted	8.4E+05	pg/g	25	11	300	2	50
		Total Dioxin/Furan TEQ	5.3E-01	pg/g	2	0.1	0.3	0.02	0.05
		Total PCB TEQ	1.7E+00	pg/g	2	0.4	0.9	0.08	0.2
		Total DDX			2	0.004	0.01	0.001	0.001
	Exposure Point Total						300		50
UD	RM 11 West	Total PCBs, Adjusted	3.6E+04	pg/g	25	0.5	10	0.08	2
		Total Dioxin/Furan TEQ	5.8E-01	pg/g	2	0.1	0.3	0.03	0.1
		Total PCB TEQ	4.9E-01	pg/g	2	0.1	0.3	0.02	0.05
		Total DDX			2	0.004	0.01	0.001	0.002
	Exposure Point Total						10		2
UD	RM 12 East	Total PCBs, Adjusted	1.4E+05	pg/g	25	2	40	0.3	8
		Total Dioxin/Furan TEQ	6.8E-01	pg/g	2	0.2	0.3	0.03	0.1
		Total PCB TEQ	9.2E-01	pg/g	2	0.2	0.5	0.04	0.1
		Total DDX			2	0.005	0.01	0.001	0.002
	Exposure Point Total						40		8
UD	Study Area-wide	Total PCBs, Adjusted	5.4E+05	pg/g	25	7	200	1	30
		Total Dioxin/Furan TEQ	1.9E+00	pg/g	2	0.5	1	0.09	0.2
		Total PCB TEQ	2.9E+00	pg/g	2	0.7	1	0.1	0.3
		Total DDX			2	0.06	0.1	0.01	0.02
	Exposure Point Total						200		30
D	RM 1 East	Total PCBs, Adjusted	1.0E+05	pg/g	25	1	30	0.2	6
		Total Dioxin/Furan TEQ	2.9E-01	pg/g	2	0.07	0.1	0.01	0.03
		Total PCB TEQ	1.2E+00	pg/g	2	0.3	0.6	0.06	0.1
		Total DDX			2	0.01	0.02	0.002	0.004
	Exposure Point Total						30		6
D	RM 2 West	Total PCBs, Adjusted	7.7E+04	pg/g	25	1	20	0.2	5
		Total Dioxin/Furan TEQ	3.7E-01	pg/g	2	0.1	0.2	0.02	0.04
		Total PCB TEQ	8.6E-01	pg/g	2	0.2	0.4	0.04	0.1
		Total DDX			2	0.01	0.03	0.003	0.01
	Exposure Point Total						20		5
D	RM 10 West	Total PCBs, Adjusted	1.4E+05	pg/g	25	2	50	0.3	8
		Total Dioxin/Furan TEQ	3.1E-01	pg/g	2	0.08	0.2	0.01	0.03
		Total PCB TEQ	7.1E-01	pg/g	2	0.2	0.4	0.03	0.1
		Total DDX			2	0.01	0.01	0.001	0.002
	Exposure Point Total						50		8
D	RM 11 East	Total PCBs, Adjusted	4.7E+05	pg/g	25	6	200	1	30
		Total Dioxin/Furan TEQ	2.0E-01	pg/g	2	0.05	0.1	0.01	0.02
		Total PCB TEQ	6.5E-01	pg/g	2	0.2	0.3	0.03	0.1
		Total DDX			2	0.003	0.01	0.001	0.001
	Exposure Point Total						200		30
D	RM 12 East	Total PCBs, Adjusted	8.3E+04	pg/g	25	1	30	0.2	5
		Total Dioxin/Furan TEQ	2.6E-01	pg/g	2	0.07	0.1	0.01	0.02
		Total PCB TEQ	5.2E-01	pg/g	2	0.1	0.3	0.02	0.05
		Total DDX			2	0.004	0.01	0.001	0.001
	Exposure Point Total						30		5

TABLE 5-84.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Clam Consumer

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant

Medium: Shellfish
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Noncancer Hazard Quotient Calculations[b] IRAF	Consumption Rate: 18 g/day Adult (Mother) HQ	Consumption Rate: 18 g/day Breastfeeding Infant HQ	Consumption Rate: 3.3 g/day Adult (Mother) HQ	Consumption Rate: 3.3 g/day Breastfeeding Infant HQ
D	Study Area-wide	Total PCBs, Adjusted	4.7E+05	pg/g	25	6	200	1	30
		Total Dioxin/Furan TEQ	3.7E-01	pg/g	2	0.1	0.2	0.02	0.04
		Total PCB TEQ	8.6E-01	pg/g	2	0.2	0.4	0.04	0.1
		Total DDX			2	0.01	0.03	0.003	0.01
	Exposure Point Total						200		30

Notes:

a Chemicals listed are anaytes detected in clam tissue at least once within the study area (RM 1.9-11.8).
b Numbers presented are rounded values. Sums calculated before rounding.
c Total PCBs, Adjusted equal Total PCB Congeners minus Total dioxin-like PCBs.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
D = Depurated clam.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = picograms per gram.
RfD = Reference Dose.
RM = River mile.
TEQ = Toxic Equivalents.
UD = Undepurated clam.
ug/kg = micrograms per kilogram.

TABLE 5-85.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Crayfish Consumer

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: Shellfish
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Noncancer Hazard Calculations[b] IRAF	Consumption Rate: 18 g/day Adult (Mother) HQ	Consumption Rate: 18 g/day Breastfeeding Infant HQ	Consumption Rate: 3.3 g/day Adult (Mother) HQ	Consumption Rate: 3.3 g/day Breastfeeding Infant HQ
Body without Shell	RM 1, Station: CR01EA	Total PCBs, Adjusted[c]	6.2E+03	pg/g	25	0.08	2	0.01	0.4
		Total Dioxin/Furan TEQ	2.5E-01	pg/g	2	0.06	0.1	0.01	0.02
		Total PCB TEQ	3.1E-01	pg/g	2	0.08	0.2	0.01	0.03
		Total DDX			2	0.002	0.003	0.0003	0.001
	Exposure Point Total						2		0.4
Body without Shell	RM 1, Station: CR01W	Total PCBs, Adjusted	6.1E+03	pg/g	25	0.08	2	0.01	0.4
		Total Dioxin/Furan TEQ	3.3E-01	pg/g	2	0.08	0.2	0.02	0.03
		Total PCB TEQ	1.8E-01	pg/g	2	0.05	0.09	0.01	0.02
		Total DDX			2	0.001	0.003	0.0002	0.0005
	Exposure Point Total						2		0.4
Body without Shell	RM 2, Station: 02R001	Total PCBs, Adjusted	4.6E+04	pg/g	25	0.6	10	0.1	3
		Total Dioxin/Furan TEQ	4.2E-01	pg/g	2	0.1	0.2	0.02	0.04
		Total PCB TEQ	3.1E+00	pg/g	2	0.8	2	0.1	0.3
		Total DDX			2	0.01	0.01	0.001	0.002
	Exposure Point Total						10		3
Body without Shell	RM 2, Station: 02R015	Total Aroclors	2.8E+01	ug/kg	25	0.4	9	0.07	2
		Total DDX			2	0.01	0.02	0.001	0.003
	Exposure Point Total						9		2
Body without Shell	RM: 3, Station: 03R001	Total DDX			2	0.004	0.008	0.001	0.002
	Exposure Point Total						0.008		0.002
Body without Shell	RM: 3, Station: 03R002	Total DDX			2	0.004	0.01	0.0007	0.001
	Exposure Point Total						0.01		0.001
Body without Shell	RM: 3, Station: 03R003	Total PCBs, Adjusted	7.0E+04	pg/g	25	0.9	20	0.2	4
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.2	0.3	0.03	0.06
		Total PCB TEQ	1.2E+00	pg/g	2	0.3	0.6	0.06	0.1
		Total DDX			2	0.01	0.01	0.001	0.002
	Exposure Point Total						20		4
Body without Shell	RM: 3, Station: 03R004	Total PCBs, Adjusted	2.7E+04	pg/g	25	0.3	9	0.06	2
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.2	0.3	0.03	0.06
		Total PCB TEQ	1.1E+00	pg/g	2	0.3	0.6	0.05	0.1
		Total DDX			2	0.005	0.01	0.001	0.002
	Exposure Point Total						9		2
Body without Shell	RM: 3, Station: 03R005	Total PCBs, Adjusted	1.9E+05	pg/g	25	2	60	0.5	10
		Total Dioxin/Furan TEQ	5.9E-01	pg/g	2	0.2	0.3	0.03	0.06
		Total PCB TEQ	2.7E+00	pg/g	2	0.7	1.4	0.1	0.3
		Total DDX			2	0.002	0.004	0.0004	0.001
	Exposure Point Total						60		10
Body without Shell	RM: 3, Station: 03R032	Total DDX			2	0.004	0.01	0.0007	0.001
	Exposure Point Total						0.01		0.001
Body without Shell	RM: 4, Station: 04R002	Total DDX			2	0.004	0.01	0.0007	0.001
	Exposure Point Total						0.01		0.001
Body without Shell	RM: 4, Station: 04R003	Total DDX			2	0.01	0.02	0.002	0.004
	Exposure Point Total						0.02		0.004
Body without Shell	RM: 4, Station: 04R004	Total DDX			2	0.01	0.01	0.001	0.002
	Exposure Point Total						0.01		0.002
Body without Shell	RM: 5, Station: 05R001	Total DDX			2	0.004	0.01	0.0007	0.001
	Exposure Point Total						0.01		0.001
Body without Shell	RM: 5, Station: 05R003	Total Aroclors	2.7E+01	ug/kg	25	0.3	9	0.06	2
		Total DDX			2	0.004	0.008	0.001	0.002
	Exposure Point Total						9		2
Body without Shell	RM: 5, Station: CR05W	Total PCBs, Adjusted	7.4E+03	pg/g	25	0.1	2	0.02	0.4
		Total Dioxin/Furan TEQ	2.1E-01	pg/g	2	0.05	0.1	0.01	0.02
		Total PCB TEQ	3.3E-01	pg/g	2	0.08	0.2	0.02	0.03
		Total DDX			2	0.001	0.002	0.0002	0.0004
	Exposure Point Total						3		0.5
Body without Shell	RM: 6, Station: 06R001	Total DDX			2	0.004	0.01	0.001	0.001
	Exposure Point Total						0.01		0.001
Body without Shell	RM: 6, Station: 06R004	Total PCBs, Adjusted	1.5E+04	pg/g	25	0.2	5	0.04	0.9
		Total Dioxin/Furan TEQ	1.4E+00	pg/g	2	0.4	0.7	0.07	0.1
		Total PCB TEQ	3.5E-01	pg/g	2	0.09	0.2	0.02	0.03
		Total DDX			2	0.01	0.02	0.002	0.004
	Exposure Point Total						6		1
Body without Shell	RM: 6, Station: CR06W	Total PCBs, Adjusted	4.2E+04	pg/g	25	0.5	10	0.1	3
		Total Dioxin/Furan TEQ	5.5E-01	pg/g	2	0.1	0.3	0.03	0.05
		Total PCB TEQ	3.2E-01	pg/g	2	0.08	0.2	0.01	0.03
		Total DDX			2	0.002	0.003	0.0003	0.001
	Exposure Point Total						10		3
Body without Shell	RM: 7, Station: 07R003	Total Aroclors	3.9E+01	ug/kg	25	0.5	10	0.09	2
		Total DDX			2	0.02	0.04	0.004	0.01
	Exposure Point Total						10		2
Body without Shell	RM: 7, Station: 07R004	Total DDX			2	0.005	0.01	0.001	0.002
	Exposure Point Total						0.01		0.002

TABLE 5-85.
Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Crayfish Consumer

Scenario Timeframe: Current/Future
Receptor Population: Infant
Population Age: Infant
Medium: Shellfish
Exposure Medium: Breastmilk
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern[a]	EPC Value	EPC Units	Noncancer Hazard Calculations[b] IRAF	Consumption Rate: 18 g/day Adult (Mother) HQ	Consumption Rate: 18 g/day Breastfeeding Infant HQ	Consumption Rate: 3.3 g/day Adult (Mother) HQ	Consumption Rate: 3.3 g/day Breastfeeding Infant HQ
Body without Shell	RM: 7, Station: 07R006	Total PCBs, Adjusted	2.5E+04	pg/g	25	0.3	8	0.06	1
		Total Dioxin/Furan TEQ	1.8E+01	pg/g	2	5	9	0.9	2
		Total PCB TEQ	7.5E-01	pg/g	2	0.2	0.4	0.04	0.07
		Total DDX			2	0.04	0.09	0.01	0.02
	Exposure Point Total						20		3
Body without Shell	RM: 8, Station: 08R001	Total Aroclors	5.9E+01	ug/kg	25	0.8	20	0.1	3
		Total DDX			2	0.01	0.02	0.001	0.003
	Exposure Point Total						20		3
Body without Shell	RM: 8, Station: 08R002	Total Aroclors	1.6E+01	ug/kg	25	0.2	5	0.04	1
		Total DDX			2	0.004	0.01	0.001	0.001
	Exposure Point Total						5		1
Body without Shell	RM: 8, Station: 08R003	Total PCBs, Adjusted	3.6E+04	pg/g	25	0.5	10	0.08	2
		Total Dioxin/Furan TEQ	9.6E-01	pg/g	2	0.2	0.5	0.05	0.09
		Total PCB TEQ	6.9E-01	pg/g	2	0.2	0.4	0.03	0.06
		Total DDX			2	0.002	0.004	0.0004	0.0007
	Exposure Point Total						10		2
Body without Shell	RM: 8, Station: CR08W	Total PCBs, Adjusted	2.7E+04	pg/g	25	0.3	9	0.06	2
		Total Dioxin/Furan TEQ	4.9E-01	pg/g	2	0.1	0.3	0.02	0.05
		Total PCB TEQ	4.6E-01	pg/g	2	0.1	0.2	0.02	0.04
		Total DDX			2	0.002	0.005	0.0004	0.001
	Exposure Point Total						9		2
Body without Shell	RM: 9, Station: 09R001	Total Aroclors	4.9E+01	ug/kg	25	0.6	20	0.1	3
		Total DDX			2	0.001	0.002	0.0002	0.0005
	Exposure Point Total						20		3
Body without Shell	RM: 9, Station: 09R002	Total PCBs, Adjusted	7.9E+04	pg/g	25	1	30	0.2	5
		Total Dioxin/Furan TEQ	7.5E-01	pg/g	2	0.2	0.4	0.04	0.07
		Total PCB TEQ	9.1E-01	pg/g	2	0.2	0.5	0.04	0.09
		Total DDX			2	0.002	0.003	0.0003	0.0006
	Exposure Point Total						30		5
Body without Shell	RM: 10, Station: CR10W	Total PCBs, Adjusted	4.2E+04	pg/g	25	0.5	10	0.10	2
		Total Dioxin/Furan TEQ	2.3E-01	pg/g	2	0.06	0.1	0.01	0.02
		Total PCB TEQ	7.1E-01	pg/g	2	0.2	0.4	0.03	0.07
		Total DDX			2	0.001	0.001	0.0001	0.0002
	Exposure Point Total						10		3
Body without Shell	RM: 11, Station: CR11E	Total PCBs, Adjusted	1.1E+06	pg/g	25	15	400	3	70
		Total Dioxin/Furan TEQ	6.1E-01	pg/g	2	0.2	0.3	0.03	0.06
		Total PCB TEQ	5.1E+00	pg/g	2	1	3	0.2	0.5
		Total DDX			2	0.001	0.002	0.0002	0.0004
	Exposure Point Total						400		70
Body without Shell	RM: 12, Station: CR12W	Total PCBs, Adjusted	6.5E+03	pg/g	25	0.08	2	0.02	0.4
		Total Dioxin/Furan TEQ	2.9E-01	pg/g	2	0.07	0.1	0.01	0.03
		Total PCB TEQ	2.0E-01	pg/g	2	0.05	0.1	0.01	0.02
		Total DDX			2	0.001	0.002	0.0002	0.0003
	Exposure Point Total						2		0.4
Body without Shell	RM: 12, Station: CR12E	Total PCBs, Adjusted	1.8E+04	pg/g	25	0.2	6	0.04	1
		Total Dioxin/Furan TEQ	4.9E-01	pg/g	2	0.1	0.2	0.02	0.05
		Total PCB TEQ	5.1E-01	pg/g	2	0.1	0.3	0.02	0.05
		Total DDX			2	0.001	0.003	0.0002	0.0005
	Exposure Point Total						6		1
Body without Shell	Study Area-wide	Total PCBs, Adjusted	6.2E+05	pg/g	25	8	200	1	40
		Total Dioxin/Furan TEQ	9.8E+00	pg/g	2	3	5	0.5	0.9
		Total PCB TEQ	2.9E+00	pg/g	2	0.7	1	0.1	0.3
		Total DDX			2	0.01	0.02	0.002	0.004
	Exposure Point Total						200		40

Notes:

a Chemicals listed are anaytes detected in clam tissue at least once within the study area (RM 1.9-11.8).

b Numbers presented are rounded values. Sums calculated before rounding.

c Total PCBs, Adjusted equal Total PCB Congeners minus Total dioxin-like PCBs. Cumulative hazard sums calculated using PCB congener data when available. When congener data not available, PCB Aroclor data were used in sums.

Abbreviations:

-- = Not applicable.
CDI = Chronic Daily Intake.
D = Depurated clam.
DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
EPC = Exposure Point Concentration.
g/day = grams per day.
LADI = Lifetime Average Daily Intake.
mg/kg = milligrams per kilogram.
PCB = Polychlorinated Biphenyls.
pg/g = picograms per gram.
RfD = Reference Dose.
RM = River mile.
TEQ = Toxic Equivalents.
UD = Undepurated clam.
ug/kg = micrograms per kilogram.

TABLE 5-86. Summary of Risks From Consumption of Shellfish[a]

Species, Tissue Type	Receptor: Consumption Rate/ Exposure Area	Adult Fisher Cancer Risk (Hazard Index)		Breastfeeding Infant of Fisher Hazard Index	
		18 g/day	3.3 g/day	18 g/day	3.3 g/day
Clam, undepurated	RM 1 East	8E-05 (2)	1E-05 (--)	40	7
	RM 2 East	2E-04 (5)	3E-05 (--)	100	20
	RM 2 West	8E-05 (2)	1E-05 (--)	30	5
	RM 3 East	2E-04 (8)	4E-05 (--)	200	30
	RM 3 West	7E-05 (2)	1E-05 (--)	30	6
	RM 4 East	1E-04 (3)	2E-05 (--)	30	6
	RM 4 West	1E-04 (3)	2E-05 (--)	40	7
	RM 5 East	9E-05 (3)	2E-05 (--)	50	9
	RM 5 West	6E-04 (2)	1E-04 (--)	20	5
	RM 6 East	7E-04 (30)	1E-04 (7)	800	200
	RM 6 West	7E-04 (3)	1E-04 (--)	30	7
	RM 7 East	7E-05 (2)	1E-05 (--)	30	6
	RM 7 West	2E-04 (3)	3E-05 (--)	30	6
	RM 8 East	5E-05 (3)	9E-06 (--)	30	5
	RM 8 West	2E-04 (7)	4E-05 (--)	100	20
	RM 8 SIL	2E-04 (6)	3E-05 (--)	100	20
	RM 9 East	5E-05 (--)	1E-05 (--)	20	3
	RM 9 West	2E-04 (8)	4E-05 (--)	100	30
	RM 10 West	4E-05 (2)	8E-06 (--)	30	5
	RM 11 East	2E-04 (10)	4E-05 (2)	300	50
	RM 11 West	4E-05 (--)	6E-06 (--)	10	2
	RM 12 East	7E-05 (2)	1E-05 (--)	40	8
	Study Area-wide	4E-04 (9)	7E-05 (2)	200	30
Clam, depurated	RM 1 East	6E-05 (2)	1E-05 (--)	30	6
	RM 2 West	6E-05 (2)	1E-05 (--)	20	5
	RM 10 West	6E-05 (2)	1E-05 (--)	50	8
	RM 11 East	1E-04 (7)	2E-05 (1)	200	30
	RM 12 East	4E-05 (2)	8E-06 (--)	30	5
	Study Area-wide	1E-04 (7)	3E-05 (1)	200	30
Crayfish, whole body	RM 1, Station: CR01EA	2E-05 (--)	3E-06 (--)	2	--
	RM 1, Station: CR01W	2E-05 (--)	3E-06 (--)	2	--
	RM 2, Station: 02R001	7E-05 (2)	1E-05 (--)	10	3
	RM 2, Station: 02R015	1E-05 (--)	2E-06 (--)	9	2
	RM: 3, Station: 03R001	6E-06 (--)	-- (--)	--	--
	RM: 3, Station: 03R002	7E-06 (--)	-- (--)	--	--
	RM: 3, Station: 03R003	5E-05 (2)	9E-06 (--)	20	4
	RM: 3, Station: 03R004	4E-05 (--)	7E-06 (--)	9	2
	RM: 3, Station: 03R005	9E-05 (4)	2E-05 (--)	60	10
	RM: 3, Station: 03R032	8E-06 (--)	-- (--)	--	--
	RM: 4, Station: 04R002	7E-06 (--)	-- (--)	--	--
	RM: 4, Station: 04R003	7E-06 (--)	-- (--)	--	--
	RM: 4, Station: 04R004	7E-06 (--)	-- (--)	--	--
	RM: 5, Station: 05R001	6E-06 (--)	-- (--)	--	--
	RM: 5, Station: 05R003	1E-05 (--)	2E-06 (--)	9	2
	RM: 5, Station: CR05W	1E-05 (--)	3E-06 (--)	3	--
	RM: 6, Station: 06R001	6E-06 (--)	-- (--)	--	--
	RM: 6, Station: 06R004	4E-05 (--)	8E-06 (--)	6	--
	RM: 6, Station: CR06W	4E-05 (2)	7E-06 (--)	10	3
	RM: 7, Station: 07R003	1E-05 (--)	3E-06 (--)	10	2
	RM: 7, Station: 07R004	9E-06 (--)	2E-06 (--)	--	--
	RM: 7, Station: 07R006	3E-04 (6)	5E-05 (--)	20	3
	RM: 8, Station: 08R001	2E-05 (--)	4E-06 (--)	20	3
	RM: 8, Station: 08R002	8E-06 (--)	2E-06 (--)	5	--
	RM: 8, Station: 08R003	4E-05 (--)	8E-06 (--)	10	2
	RM: 8, Station: CR08W	2E-05 (--)	4E-06 (--)	9	2
	RM: 9, Station: 09R001	2E-05 (--)	3E-06 (--)	20	3
	RM: 9, Station: 09R002	5E-05 (2)	9E-06 (--)	30	5
	RM: 10, Station: CR10W	3E-05 (--)	5E-06 (--)	10	3
	RM: 11, Station: CR11E	3E-04 (10)	6E-05 (3)	400	70
	RM: 12, Station: CR12W	1E-05 (--)	2E-06 (--)	2	--
	RM: 12, Station: CR12E	2E-05 (--)	4E-06 (--)	6	--
	Study Area-wide	3E-04 (10)	6E-05 (2)	200	40

Notes:

a Table presents cumulative risk (and cumulative hazard indices) per exposure area. Results are presented per receptor and consumption rate.

Abbreviations:

-- Exposure area does not result in risk greater than 1 x 10^{-6} or hazard index greater than 1.
g/day grams per day
RM river mile

Table 5-87 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Dockside Worker, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact					
		RM 1.5 East (B002)				**Total Risk =**	7E-07
		RM 2 East (B004)	Arsenic	4E-07	RNA	6E-08	5E-07
			cPAHs	1E-07	RNA	5E-08	2E-07
			Total PCBs	4E-07	RNA	2E-07	6E-07
			Total PCB TEQ	6E-07	RNA	3E-07	9E-07
						Total Risk =	2E-06
		RM 2.5 East (B006)				**Total Risk =**	6E-07
		RM 5 East (05B019)				**Total Risk =**	7E-07
		RM 6 West (06B025)	Arsenic	5E-07	RNA	5E-08	6E-07
			cPAHs	6E-05	RNA	3E-05	9E-05
			Total PCBs	1E-08	RNA	6E-09	2E-08
			Total PCB TEQ	1E-08	RNA	6E-09	2E-08
						Total Risk =	9E-05
		RM 6.5 West (06B029)	Arsenic	4E-07	RNA	4E-08	4E-07
			cPAHs	5E-07	RNA	2E-07	7E-07
			Total PCBs	ND	RNA	ND	ND
			Total PCB TEQ	NA	RNA	NA	NA
						Total Risk =	1E-06
		RM 7.5 West (07B022)				**Total Risk =**	5E-07
		SIL (08B032)				**Total Risk =**	6E-07

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-87 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Dockside Worker, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Dockside Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact						
		RM 1.5 East (B002)					**Receptor Hazard Index =**	< 1
		RM 2 East (B004)					**Receptor Hazard Index =**	< 1
		RM 2.5 East (B006)					**Receptor Hazard Index =**	< 1
		RM 5 East (05B019)					**Receptor Hazard Index =**	< 1
		RM 6 West (06B025)					**Receptor Hazard Index =**	< 1
		RM 6.5 West (06B029)					**Receptor Hazard Index =**	< 1
		RM 7.5 West (07B022)					**Receptor Hazard Index =**	< 1
		SIL (08B032)					**Receptor Hazard Index =**	< 1

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-88 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Transients, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Transient
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	Surface Water	Surface Water On-site Direct Contact RM 2 Transect (W025)				**Total Risk =**	7E-07
Water	Surface Water	Surface Water On-site Direct Contact MC Transect (W027)				**Total Risk =**	6E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)				Sediment Total Risk =	3E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)				Surface Water Total Risk =	6E-07
						Total Risk =	9E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)				Sediment Total Risk =	6E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)				Surface Water Total Risk =	6E-07
						Total Risk =	1E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)				Sediment Total Risk =	4E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 6.5 East (W014)				Surface Water Total Risk =	6E-07
						Total Risk =	1E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)				**Total Risk =**	1E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)				Sediment Total Risk =	3E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 6.3 Transect (W011)				Surface Water Total Risk =	6E-07
Water	Ground Water	Surface Water Seep On-site Direct Contact RM 6.8 West (OF22B)				Ground Water Total Risk =	3E-09
						Total Risk =	9E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)				**Total Risk =**	4E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)				**Total Risk =**	2E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 11 Transect (W023)				**Total Risk =**	6E-07

Key

SIL	Swan Island Lagoon
RM	River Mile
MC	Multnomah Channel

Table 5-88 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Transients, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Transient
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	Surface Water	Surface Water On-site Direct Contact RM 2 Transect (W025)						
							Receptor Hazard Index =	< 1
Water	Surface Water	Surface Water On-site Direct Contact MC Transect (W027)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 6.5 East (W014)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 6.3 Transect (W011)						
							Surface Water Hazard Index Total =	< 1
Water	Ground Water	Surface Water Seep On-site Direct Contact RM 6.8 West (OF22B)						
							Ground Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)						
							Receptor Hazard Index =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 11 Transect (W023)						
							Receptor Hazard Index =	< 1

Key

SIL	Swan Island Lagoon
RM	River Mile
MC	Multnomah Channel

Table 5-89 Risk Characterization Summary, Cancer Risks - Recreational Beach User, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Beach User
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Total Risk =	5E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	4E-05
						Total Risk =	4E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-05
						Total Risk =	2E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	6E-06
						Total Risk =	1E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	5E-06
			cPAHs	NC[1]	RNA	NC[1]	6E-07
						Total Risk =	6E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	4E-05
						Total Risk =	5E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	6E-06
						Total Risk =	1E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	4E-05
						Sediment Total Risk =	4E-05

Table 5-89 Risk Characterization Summary, Cancer Risks - Recreational Beach User, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Beach User
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W010)					
						Surface Water Total Risk =	7E-08
						Total Risk =	4E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-05
			cPAHs	NC[1]	RNA	NC[1]	8E-06
						Sediment Total Risk =	2E-05
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)					
						Surface Water Total Risk =	6E-08
						Total Risk =	2E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-07
						Sediment Total Risk =	3E-06
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)					
						Surface Water Total Risk =	6E-08
						Total Risk =	3E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	5E-06
Water	Surface Water	Surface Water On-site Direct Contact RM 7 East (W014)					
						Surface Water Total Risk =	6E-08
						Total Risk =	5E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Sediment Total Risk =	4E-06
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)					
						Surface Water Total Risk =	6E-08
						Total Risk =	4E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	3E-06
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)					
						Surface Water Total Risk =	6E-08
						Total Risk =	3E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-08
						Total Risk =	3E-06

Table 5-89 Risk Characterization Summary, Cancer Risks - Recreational Beach User, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Beach User
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact					
		RM 9.5 East (09B027)	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-06
				Total Risk =			3E-06

Key

NC	Not Calculated
SIL	Swan Island Lagoon
RM	River Mile
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.
Note 1	Pathway specific integrated risks were not calculated.

Table 5-90 Risk Characterization Summary, Noncancer Hazards - Recreational Beach User, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Beach User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W010)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 7 East (W014)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)						
							Surface Water Hazard Index Total =	< 1
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)						
							Sediment Hazard Index Total =	< 1
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)						
							Surface Water Hazard Index Total =	< 1
							Total Risk =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)						
							Receptor Hazard Index =	< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)						
							Receptor Hazard Index =	< 1

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	5E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
						Sediment Total Risk =	2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
						Sediment Total Risk =	1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
						Sediment Total Risk =	4E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	7E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Sediment Total Risk =	9E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
						Sediment Total Risk =	9E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-05
			cPAHs	NC[1]	RNA	NC[1]	1E-05
						Sediment Total Risk =	2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Sediment Total Risk =	8E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-06
						Sediment Total Risk =	9E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-05
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Sediment Total Risk =	2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
						Sediment Total Risk =	4E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-07
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)					
			Antimony	--	--	--	--
			Arsenic	2E-06	RNA	9E-07	3E-06
			cPAHs	2E-07	RNA	3E-07	5E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	4E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-09
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Key

NC	Not Calclulated
SIL	Swan Island Lagoon
RM	River Mile
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.
Note 1	Pathway specific integrated risks were not calculated.

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	5E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
						Sediment Total Risk =	2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
						Sediment Total Risk =	1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
						Sediment Total Risk =	4E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	7E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Sediment Total Risk =	9E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
						Sediment Total Risk =	9E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-05
			cPAHs	NC[1]	RNA	NC[1]	1E-05
						Sediment Total Risk =	2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Sediment Total Risk =	8E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-06
						Sediment Total Risk =	9E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-05
			cPAHs	NC[1]	RNA	NC[1]	2E-06
						Sediment Total Risk =	2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
						Sediment Total Risk =	4E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-07
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)					
			Antimony	--	--	--	--
			Arsenic	2E-06	RNA	9E-07	3E-06
			cPAHs	2E-07	RNA	3E-07	5E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	2E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
						Sediment Total Risk =	4E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Beach)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	6E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-09
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Key

NC	Not Calclulated
SIL	Swan Island Lagoon
RM	River Mile
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.
Note 1	Pathway specific integrated risks were not calculated.

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	6E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 2 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	5E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 2.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-09
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 3 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 3.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 4 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 4.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	7E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			8E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	9E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	5E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-04
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			2E-04
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
			Total PCBs	NC[1]	RNA	NC[1]	6E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-06
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-06
			Total PCBs	NC[1]	RNA	NC[1]	6E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-04
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-06
				Sediment Total Risk =			3E-04
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	1E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	6E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	6E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-07
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	7E-07
			Total PCBs	NC[1]	RNA	NC[1]	6E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-05
				Sediment Total Risk =			2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-06
				Sediment Total Risk =			5E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			4E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
						Sediment Total Risk =	1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 11 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	7E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
						Sediment Total Risk =	2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 11.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	6E-08
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 12 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
			Total PCBs	NC[1]	RNA	NC[1]	8E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 1 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 1.5 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-09
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 2 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-06
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 2.5 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-05
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 3 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-09
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 3.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-06
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 4 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-06
			Total PCBs	NC[1]	RNA	NC[1]	8E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 4.5 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-05
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			3E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	2E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-07
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	7E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			8E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	9E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	2E-06
			Total PCB TEQ	NC[1]	RNA	NC[1]	6E-07
				Sediment Total Risk =			5E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			7E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-07
			Total PCBs	NC[1]	RNA	NC[1]	8E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
						Sediment Total Risk =	1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	8E-07
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point		Chemical of Concern	Carcinogenic Risk			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact						
			SIL	Antimony	--	--	--	--
				Arsenic	NC[1]	RNA	NC[1]	1E-06
				cPAHs	NC[1]	RNA	NC[1]	1E-06
				Total PCBs	NC[1]	RNA	NC[1]	3E-07
				Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-07
				Total PCB TEQ	NC[1]	RNA	NC[1]	3E-06
					Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)						
				Antimony	--	--	--	--
				Arsenic	2E-04	RNA	RNA	2E-04
				Chromium	--	--	--	--
				Mercury	--	--	--	--
				cPAHs	8E-06	RNA	RNA	8E-06
				Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
				Hexachlorobenzene	2E-05	RNA	RNA	2E-05
				Total PCBs	2E-02	RNA	RNA	2E-02
				Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
				Total PCB TEQ	2E-03	RNA	RNA	2E-03
				Aldrin	1E-06	RNA	RNA	1E-06
				alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
				beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
				Dieldrin	9E-05	RNA	RNA	9E-05
				Heptachlor	1E-05	RNA	RNA	1E-05
				Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
				Total Chlordanes	1E-05	RNA	RNA	1E-05
				Total DDx	1E-04	RNA	RNA	1E-04
					Fish Tissue Total Risk =			2E-02
							Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	6E-08
			Total PCBs	NC[1]	RNA	NC[1]	7E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	5E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	1E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	1E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-07
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
						Sediment Total Risk =	1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 11 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-07
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-06
				Sediment Total Risk =			5E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
				Total Risk =			**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 11.5 East	Antimony	--	--	--	--
			Arsenic	NA	RNA	NA	NA
			cPAHs	NA	RNA	NA	NA
			Total PCBs	NA	RNA	NA	NA
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
						Sediment Total Risk =	NA
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
						Fish Tissue Total Risk =	2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 12 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	7E-07
			cPAHs	NC[1]	RNA	NC[1]	7E-08
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact Study Area-wide					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-05
			Total PCB TEQ	NC[1]	RNA	NC[1]	8E-07
				Sediment Total Risk =			2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
				Fish Tissue Total Risk =			2E-02
						Total Risk =	**2E-02**

Key

NC	Not Calclulated
SIL	Swan Island Lagoon
RM	River Mile
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.
Note 1	Pathway specific integrated risks were not calculated.

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	6E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 2 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	5E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 2.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-09
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 3 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 3.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 4 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 4.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	7E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			8E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	9E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	5E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-04
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			2E-04
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
			Total PCBs	NC[1]	RNA	NC[1]	6E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-06
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-06
			Total PCBs	NC[1]	RNA	NC[1]	6E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-04
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-06
				Sediment Total Risk =			3E-04
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	1E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	6E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	6E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-07
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	7E-07
			Total PCBs	NC[1]	RNA	NC[1]	6E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-05
				Sediment Total Risk =			2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-06
				Sediment Total Risk =			5E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			4E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
						Sediment Total Risk =	1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 11 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	7E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
						Sediment Total Risk =	2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 11.5 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	6E-08
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 12 West					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
			Total PCBs	NC[1]	RNA	NC[1]	8E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 1 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-09
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 2 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-06
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 2.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-05
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-07
				Sediment Total Risk =			2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 3 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-09
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 3.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	5E-06
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 4 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	8E-06
			Total PCBs	NC[1]	RNA	NC[1]	8E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 4.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-05
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
				Sediment Total Risk =			3E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 5 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	2E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
						Sediment Total Risk =	3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	2E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-07
				Sediment Total Risk =			6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	7E-06
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			8E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	9E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	2E-06
			Total PCB TEQ	NC[1]	RNA	NC[1]	6E-07
				Sediment Total Risk =			5E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 7 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	4E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	9E-07
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			7E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-07
			Total PCBs	NC[1]	RNA	NC[1]	8E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
						Sediment Total Risk =	1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 8 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	2E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	8E-07
						Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point		Chemical of Concern	Carcinogenic Risk			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact						
			SIL	Antimony	--	--	--	--
				Arsenic	NC[1]	RNA	NC[1]	1E-06
				cPAHs	NC[1]	RNA	NC[1]	1E-06
				Total PCBs	NC[1]	RNA	NC[1]	3E-07
				Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-07
				Total PCB TEQ	NC[1]	RNA	NC[1]	3E-06
							Sediment Total Risk =	6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)						
				Antimony	--	--	--	--
				Arsenic	2E-04	RNA	RNA	2E-04
				Chromium	--	--	--	--
				Mercury	--	--	--	--
				cPAHs	6E-06	RNA	RNA	6E-06
				Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
				Hexachlorobenzene	4E-05	RNA	RNA	4E-05
				Total PCBs	1E-02	RNA	RNA	1E-02
				Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
				Total PCB TEQ	6E-04	RNA	RNA	6E-04
				Aldrin	6E-07	RNA	RNA	6E-07
				alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
				beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
				Dieldrin	6E-05	RNA	RNA	6E-05
				Heptachlor	8E-09	RNA	RNA	8E-09
				Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
				Total Chlordanes	2E-06	RNA	RNA	2E-06
				Total DDx	5E-05	RNA	RNA	5E-05
							Fish Tissue Total Risk =	1E-02
							Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	3E-06
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	5E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 9 East	Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	6E-08
			Total PCBs	NC[1]	RNA	NC[1]	7E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	5E-09
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	1E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	3E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	9E-07
			cPAHs	NC[1]	RNA	NC[1]	1E-06
			Total PCBs	NC[1]	RNA	NC[1]	3E-08
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	3E-08
				Sediment Total Risk =			2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10.5 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-07
			cPAHs	NC[1]	RNA	NC[1]	3E-07
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-08
						Sediment Total Risk =	1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 11 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	8E-07
			cPAHs	NC[1]	RNA	NC[1]	5E-07
			Total PCBs	NC[1]	RNA	NC[1]	3E-06
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	7E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	1E-06
				Sediment Total Risk =			5E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
		RM 11.5 East	Antimony	--	--	--	--
			Arsenic	NA	RNA	NA	NA
			cPAHs	NA	RNA	NA	NA
			Total PCBs	NA	RNA	NA	NA
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
				Sediment Total Risk =			NA
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 12 East					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	7E-07
			cPAHs	NC[1]	RNA	NC[1]	7E-08
			Total PCBs	NC[1]	RNA	NC[1]	1E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	4E-08
			Total PCB TEQ	NC[1]	RNA	NC[1]	2E-07
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal Fisher (Boat)
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact Study Area-wide					
			Antimony	--	--	--	--
			Arsenic	NC[1]	RNA	NC[1]	1E-06
			cPAHs	NC[1]	RNA	NC[1]	1E-05
			Total PCBs	NC[1]	RNA	NC[1]	3E-07
			Total Dioxin/Furan TEQ	NC[1]	RNA	NC[1]	1E-05
			Total PCB TEQ	NC[1]	RNA	NC[1]	8E-07
				Sediment Total Risk =			2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
				Fish Tissue Total Risk =			1E-02
				Total Risk =			**1E-02**

Key
NC Not Calclulated
SIL Swan Island Lagoon
RM River Mile
-- Toxicity criteria are not available to quantitatively address this route of exposure.
RNA Route of exposure is not applicable to this medium.
Note 1 Pathway specific integrated risks were not calculated.

Table 5-93 Risk Characterization Summary, Noncancer Hazards - Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (73 g/day)						
			Antimony	Blood	4	RNA	RNA	4
			Arsenic	Skin/Blood	0.9	RNA	RNA	0.9
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	4	RNA	RNA	4
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	0.4	RNA	RNA	0.4
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	700	RNA	RNA	700
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			Dieldrin	Liver	0.2	RNA	RNA	0.2
			Heptachlor	Liver	<1	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	0	RNA	RNA	0
			Total DDx	Liver	1	RNA	RNA	1
							Fish Tissue Hazard Index Total =	800
							Receptor Hazard Index =	800
							Blood Hazard Index =	5
							Skin Hazard Index =	700
							CNS Hazard Index =	4
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	2
							Immulogical Hazard Index =	700
							Reproduction Hazard Index =	40
							Kidney Hazard Index =	<1

Key

SIL	Swan Island Lagoon
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-93 Risk Characterization Summary, Noncancer Hazards - Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (73 g/day)						
			Antimony	Blood	2	RNA	RNA	2
			Arsenic	Skin/Blood	1	RNA	RNA	1
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	5	RNA	RNA	5
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	600	RNA	RNA	600
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			Dieldrin	Liver	0.1	RNA	RNA	0.1
			Heptachlor	Liver	<1	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	600
							Receptor Hazard Index =	600
							Blood Hazard Index =	3
							Skin Hazard Index =	600
							CNS Hazard Index =	5
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	600
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	<1

Key

SIL	Swan Island Lagoon
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	1
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	1
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3 West					Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3.5 West					Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 7 West	Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	5
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 7.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8.5 West						
			Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	4	RNA	RNA	4
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	4
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9 West						
			Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 12 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 7 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 7.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion SIL						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11 East						
			Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	2	RNA	RNA	2
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	2
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 12 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion Study Area-wide						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Key

SIL	Swan Island Lagoon
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5 West					Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5.5 West					Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion						
		RM 7 West	Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	5
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion						
		RM 7.5 West					Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8.5 West						
			Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	4	RNA	RNA	4
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	4
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9 West						
			Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11.5 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 12 West						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 1.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 2.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 3.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 4.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 5.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 6.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 7 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 7.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion SIL						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 9.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 10.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11 East						
			Antimony	Blood	NA	RNA	RNA	0
			Arsenic	Skin/Blood	--	--	--	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	2	RNA	RNA	2
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	2
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 11.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Tribal
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 12 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion Study Area-wide						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	8000
							Receptor Hazard Index =	8000
							Blood Hazard Index =	--
							Skin Hazard Index =	8000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immulogical Hazard Index =	8000
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	--

Key

SIL	Swan Island Lagoon
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-95 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - In-Water Worker, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: In-Water Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 1 West				**Total Risk =**	1E-07
		RM 1.5 West				**Total Risk =**	9E-08
		RM 2 West				**Total Risk =**	9E-08
		RM 2.5 West				**Total Risk =**	2E-07
		RM 3 West				**Total Risk =**	2E-07
		RM 3.5 West				**Total Risk =**	6E-07
		RM 4 West				**Total Risk =**	2E-07
		RM 4.5 West				**Total Risk =**	4E-07
		RM 5 West				**Total Risk =**	7E-07
		RM 5.5 West				**Total Risk =**	8E-07
		RM 6 West	Arsenic	7E-08	RNA	7E-09	8E-08
			cPAHs	6E-06	RNA	3E-06	9E-06
			Total PCBs	6E-10	RNA	1E-09	2E-09
			Total Dioxin/Furan TEQ	4E-09	RNA	2E-09	6E-09
			Total PCB TEQ	4E-09	RNA	2E-09	6E-09
						Total Risk =	9E-06
		RM 6.5 West				**Total Risk =**	7E-07
		RM 7 West	Arsenic	9E-08	RNA	9E-09	1E-07
			cPAHs	3E-07	RNA	1E-07	4E-07
			Total PCBs	2E-09	RNA	1E-09	3E-09
			Total Dioxin/Furan TEQ	2E-05	RNA	2E-06	2E-05
			Total PCB TEQ	4E-08	RNA	2E-08	6E-08
						Total Risk =	2E-05
		RM 7.5 West				**Total Risk =**	1E-07
		RM 8 West				**Total Risk =**	3E-07
		RM 8.5 West				**Total Risk =**	1E-06
		RM 9 West				**Total Risk =**	3E-07
		RM 9.5 West				**Total Risk =**	2E-07
		RM 10 West				**Total Risk =**	6E-07
		RM 10.5 West				**Total Risk =**	1E-07
		RM 11 West				**Total Risk =**	1E-07
		RM 11.5 West				**Total Risk =**	7E-08
		RM 12 West				**Total Risk =**	4E-07
		RM 1 East				**Total Risk =**	1E-07
		RM 1.5 East				**Total Risk =**	3E-07
		RM 2 East				**Total Risk =**	3E-07
		RM 2.5 East				**Total Risk =**	8E-07
		RM 3 East				**Total Risk =**	1E-07
		RM 3.5 East				**Total Risk =**	6E-07
		RM 4 East				**Total Risk =**	5E-07
		RM 4.5 East	Arsenic	8E-08	RNA	8E-09	9E-08
			cPAHs	1E-06	RNA	5E-07	2E-06
			Total PCBs	1E-09	RNA	5E-10	2E-09
			Total Dioxin/Furan TEQ	4E-10	RNA	4E-11	4E-10
			Total PCB TEQ	5E-10	RNA	2E-10	7E-10
						Total Risk =	2E-06
		RM 5 East				**Total Risk =**	2E-07
		RM 5.5 East				**Total Risk =**	3E-07
		RM 6 East				**Total Risk =**	4E-07
		RM 6.5 East				**Total Risk =**	3E-07
		RM 7 East				**Total Risk =**	4E-07
		RM 7.5 East				**Total Risk =**	9E-08
		RM 8 East				**Total Risk =**	3E-07
		SIL				**Total Risk =**	4E-07
		RM 8.5 East				**Total Risk =**	2E-07
		RM 9 East				**Total Risk =**	1E-07
		RM 9.5 East				**Total Risk =**	8E-08
		RM 10 East				**Total Risk =**	1E-07
		RM 10.5 East				**Total Risk =**	8E-08
		RM 11 East				**Total Risk =**	3E-07
		RM 11.5 East				**Total Risk =**	NA
		RM 12 East				**Total Risk =**	7E-08
		Study Area-wide	Arsenic	8E-08	RNA	8E-09	9E-08
			cPAHs	4E-07	RNA	2E-07	6E-07
			Total PCBs	8E-09	RNA	4E-09	1E-08
			Total Dioxin/Furan TEQ	1E-06	RNA	9E-08	1E-06
			Total PCB TEQ	2E-08	RNA	1E-08	3E-08
						Total Risk =	2E-06

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-96 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of In-Water Worker, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:	Current/Future								
Receptor Population:	In-Water Worker								
Receptor Age:	Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion							
		RM 1 West					**Receptor Hazard Index =**		< 1
		RM 1.5 West					**Receptor Hazard Index =**		< 1
		RM 2 West					**Receptor Hazard Index =**		< 1
		RM 2.5 West					**Receptor Hazard Index =**		< 1
		RM 3 West					**Receptor Hazard Index =**		< 1
		RM 3.5 West					**Receptor Hazard Index =**		< 1
		RM 4 West					**Receptor Hazard Index =**		< 1
		RM 4.5 West					**Receptor Hazard Index =**		< 1
		RM 5 West					**Receptor Hazard Index =**		< 1
		RM 5.5 West					**Receptor Hazard Index =**		< 1
		RM 6 West					**Receptor Hazard Index =**		< 1
		RM 6.5 West					**Receptor Hazard Index =**		< 1
		RM 7 West	Arsenic	Skin/Blood	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Total PCBs	Skin/Immunological	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA	2	
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0	
							Receptor Hazard Index =	2	
							Skin/Blood =	--	
							Skin/Immunological =	--	
							Reproduction Hazard Index =	2	
		RM 7.5 West					**Receptor Hazard Index =**		< 1
		RM 8 West					**Receptor Hazard Index =**		< 1
		RM 8.5 West					**Receptor Hazard Index =**		< 1
		RM 9 West					**Receptor Hazard Index =**		< 1
		RM 9.5 West					**Receptor Hazard Index =**		< 1
		RM 10 West					**Receptor Hazard Index =**		< 1
		RM 10.5 West					**Receptor Hazard Index =**		< 1
		RM 11 West					**Receptor Hazard Index =**		< 1
		RM 11.5 West					**Receptor Hazard Index =**		< 1
		RM 12 West					**Receptor Hazard Index =**		< 1
		RM 1 East					**Receptor Hazard Index =**		< 1
		RM 1.5 East					**Receptor Hazard Index =**		< 1

Table 5-96 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of In-Water Worker, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:	Current/Future								
Receptor Population:	In-Water Worker								
Receptor Age:	Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	RM 2 East					**Receptor Hazard Index =**		< 1
		RM 2.5 East					**Receptor Hazard Index =**		< 1
		RM 3 East					**Receptor Hazard Index =**		< 1
		RM 3.5 East					**Receptor Hazard Index =**		< 1
		RM 4 East					**Receptor Hazard Index =**		< 1
		RM 4.5 East					**Receptor Hazard Index =**		< 1
		RM 5 East					**Receptor Hazard Index =**		< 1
		RM 5.5 East					**Receptor Hazard Index =**		< 1
		RM 6 East					**Receptor Hazard Index =**		< 1
		RM 6.5 East					**Receptor Hazard Index =**		< 1
		RM 7 East					**Receptor Hazard Index =**		< 1
		RM 7.5 East					**Receptor Hazard Index =**		< 1
		RM 8 East					**Receptor Hazard Index =**		< 1
		SIL					**Receptor Hazard Index =**		< 1
		RM 8.5 East					**Receptor Hazard Index =**		< 1
		RM 9 East					**Receptor Hazard Index =**		< 1
		RM 9.5 East					**Receptor Hazard Index =**		< 1
		RM 10 East					**Receptor Hazard Index =**		< 1
		RM 10.5 East					**Receptor Hazard Index =**		< 1
		RM 11 East					**Receptor Hazard Index =**		< 1
		RM 11.5 East					**Receptor Hazard Index =**		< 1
		RM 12 East					**Receptor Hazard Index =**		< 1
		Study Area-wide					**Receptor Hazard Index =**		< 1

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Commercial Diver (wet suit)
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 1 West				**Total Risk =**	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 1.5 West				**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 2 West				Total Sediment Risk =	1E-06
Water	River Water	River Water On-site Direct Contact					
		RM 2 West				Total Water Risk =	2E-08
						Total Risk =	1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 2.5 West				**Total Risk =**	4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 3 West				Total Sediment Risk =	5E-07
Water	River Water	River Water On-site Direct Contact					
		RM 3 West				Total Water Risk =	2E-07
						Total Risk =	7E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 3.5 West				**Total Risk =**	1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 4 West				Total Sediment Risk =	4E-07
Water	River Water	River Water On-site Direct Contact					
		RM 4 West				Total Water Risk =	3E-08
						Total Risk =	4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 4.5 West				**Total Risk =**	1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 5 West	Arsenic	2E-08	RNA	6E-08	8E-08
			cPAHs	1E-07	RNA	2E-06	2E-06
			Total PCBs	2E-10	RNA	3E-09	3E-09
			Total Dioxin/Furan TEQ	2E-09	RNA	8E-09	1E-08
			Total PCB TEQ	9E-10	RNA	1E-08	1E-08
						Total Risk =	2E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 5.5 West	Arsenic	3E-08	RNA	1E-07	1E-07
			cPAHs	1E-07	RNA	2E-06	2E-06
			Total PCBs	4E-10	RNA	5E-09	5E-09
			Total Dioxin/Furan TEQ	1E-09	RNA	3E-09	4E-09
			Total PCB TEQ	5E-10	RNA	8E-09	9E-09
						Total Sediment Risk =	2E-06
Water	River Water	River Water On-site Direct Contact					
		RM 5.5 West				Total Water Risk =	3E-08
						Total Risk =	2E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 6 West	Arsenic	2E-08	RNA	7E-08	9E-08
			cPAHs	2E-06	RNA	3E-05	3E-05
			Total PCBs	4E-10	RNA	7E-09	7E-09
			Total Dioxin/Furan TEQ	7E-10	RNA	2E-09	3E-09
			Total PCB TEQ	1E-09	RNA	2E-08	2E-08
						Total Sediment Risk =	3E-05
Water	River Water	River Water On-site Direct Contact					
		RM 6 West	cPAHs	1E-05	RNA	2E-08	1E-05
						Total Water Risk =	1E-05
						Total Risk =	4E-05
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 6.5 West				Total Sediment Risk =	1E-06
Water	River Water	River Water On-site Direct Contact					
		RM 6.5 West				Total Water Risk =	6E-07
						Total Risk =	2E-06

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Commercial Diver (wet suit)
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7 West	Arsenic	3E-08	RNA	9E-08	1E-07
			cPAHs	8E-08	RNA	1E-06	1E-06
			Total PCBs	6E-10	RNA	1E-08	1E-08
			Total Dioxin/Furan TEQ	6E-06	RNA	2E-05	3E-05
			Total PCB TEQ	1E-08	RNA	2E-07	2E-07
						Total Sediment Risk =	3E-05
Water	River Water	River Water On-site Direct Contact					
		RM 7 West				Total Water Risk =	3E-07
						Total Risk =	3E-05
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7.5 West				Total Sediment Risk =	3E-07
Water	River Water	River Water On-site Direct Contact					
		RM 7.5 West				Total Water Risk =	2E-08
						Total Risk =	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 8 West				**Total Risk =**	6E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 8.5 West	Arsenic	6E-08	RNA	2E-07	3E-07
			cPAHs	7E-09	RNA	1E-07	1E-07
			Total PCBs	6E-08	RNA	9E-07	1E-06
			Total Dioxin/Furan TEQ	8E-09	RNA	3E-08	4E-08
			Total PCB TEQ	1E-07	RNA	2E-06	2E-06
						Total Sediment Risk =	3E-06
Water	River Water	River Water On-site Direct Contact					
		RM 8.5 West				Total Water Risk =	4E-08
						Total Risk =	4E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 9 West				**Total Risk =**	7E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 9.5 West				Total Sediment Risk =	4E-07
Water	River Water	River Water On-site Direct Contact					
		RM 9.5 West				Total Water Risk =	4E-08
						Total Risk =	4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 10 West				**Total Risk =**	9E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 10.5 West				**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 11 West				Total Sediment Risk =	2E-07
Water	River Water	River Water On-site Direct Contact					
		RM 11 Transect (W023)				Total Water Risk =	1E-07
						Total Risk =	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 11.5 West				**Total Risk =**	9E-08
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 12 West				**Total Risk =**	1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 1 East				**Total Risk =**	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 1.5 East				**Total Risk =**	8E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 2 East				Total Sediment Risk =	1E-06
Water	River Water	River Water On-site Direct Contact					
		RM 2 East				Total Water Risk =	2E-08
						Total Risk =	1E-06

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Commercial Diver (wet suit)
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 2.5 East	Arsenic	3E-08	RNA	8E-08	1E-07
			cPAHs	2E-07	RNA	2E-06	2E-06
			Total PCBs	5E-10	RNA	8E-09	9E-09
			Total Dioxin/Furan TEQ	5E-10	RNA	2E-09	3E-09
			Total PCB TEQ	2E-09	RNA	2E-08	2E-08
						Total Risk =	2E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 3 East				**Total Risk =**	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 3.5 East	Arsenic	3E-08	RNA	8E-08	1E-07
			cPAHs	3E-08	RNA	5E-07	5E-07
			Total PCBs	1E-08	RNA	2E-07	2E-07
			Total Dioxin/Furan TEQ	5E-09	RNA	2E-08	3E-08
			Total PCB TEQ	5E-08	RNA	8E-07	9E-07
						Total Sediment Risk =	2E-06
Water	River Water	River Water On-site Direct Contact					
		RM 3.5 East				Total Water Risk =	1E-07
						Total Risk =	2E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 4 East				Total Sediment Risk =	1E-06
Water	River Water	River Water On-site Direct Contact					
		RM 4 East				Total Water Risk =	3E-07
						Total Risk =	1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 4.5 East	Arsenic	3E-08	RNA	8E-08	1E-07
			cPAHs	3E-07	RNA	5E-06	5E-06
			Total PCBs	3E-10	RNA	5E-09	5E-09
			Total Dioxin/Furan TEQ	1E-10	RNA	4E-10	5E-10
			Total PCB TEQ	2E-10	RNA	2E-09	2E-09
						Total Sediment Risk =	5E-06
Water	River Water	River Water On-site Direct Contact					
		RM 4.5 East				Total Water Risk =	1E-06
						Total Risk =	6E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 5 East				**Total Risk =**	4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 5.5 East				Total Sediment Risk =	7E-07
Water	River Water	River Water On-site Direct Contact					
		RM 5.5 East				Total Water Risk =	2E-08
						Total Risk =	7E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 6 East				Total Sediment Risk =	1E-06
Water	River Water	River Water On-site Direct Contact					
		RM 6.3 Transect (W011)				Total Water Risk =	1E-07
						Total Risk =	1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 6.5 East				Total Sediment Risk =	6E-07
Water	River Water	River Water On-site Direct Contact					
		RM 6.5 East				Total Water Risk =	2E-07
						Total Risk =	8E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7 East				**Total Risk =**	8E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7.5 East				**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 8 East				**Total Risk =**	7E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		SIL				Total Sediment Risk =	1E-06
Water	River Water	River Water On-site Direct Contact					
		SIL				Total Water Risk =	4E-07
						Total Risk =	1E-06

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Commercial Diver (wet suit)
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 8.5 East				**Total Risk =**	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 9 East				**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 9.5 East				Total Sediment Risk =	1E-07
Water	River Water	River Water On-site Direct Contact					
		RM 9.5 East				Total Water Risk =	1E-08
						Total Risk =	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 10 East				**Total Risk =**	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 10.5 East				**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 11 East				Total Sediment Risk =	8E-07
Water	River Water	River Water On-site Direct Contact					
		RM 11 Transect (W023)				Total Water Risk =	1E-07
						Total Risk =	9E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 11.5 East				**Total Risk =**	NA
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 12 East				**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		Study Area-wide	Arsenic	3E-08	RNA	9E-08	1E-07
			cPAHs	1E-07	RNA	2E-06	2E-06
			Total PCBs	3E-09	RNA	4E-08	4E-08
			Total Dioxin/Furan TEQ	3E-07	RNA	1E-06	1E-06
			Total PCB TEQ	3E-09	RNA	1E-07	1E-07
						Total Risk =	4E-06

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-98 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Commercial Diver (wet suit)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion						
		RM 1 West					**Receptor Hazard Index =**	< 1
		RM 1.5 West					**Receptor Hazard Index =**	< 1
		RM 2 West					**Receptor Hazard Index =**	< 1
		RM 2.5 West					**Receptor Hazard Index =**	< 1
		RM 3 West					**Receptor Hazard Index =**	< 1
		RM 3.5 West					**Receptor Hazard Index =**	< 1
		RM 4 West					**Receptor Hazard Index =**	< 1
		RM 4.5 West					**Receptor Hazard Index =**	< 1
		RM 5 West					**Receptor Hazard Index =**	< 1
		RM 5.5 West					**Receptor Hazard Index =**	< 1
		RM 6 West					**Receptor Hazard Index =**	< 1
		RM 6.5 West					**Receptor Hazard Index =**	< 1
		RM 7 West	Arsenic	Skin/Blood	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Receptor Hazard Index =	1
		RM 7.5 West					**Receptor Hazard Index =**	< 1
		RM 8 West					**Receptor Hazard Index =**	< 1
		RM 8.5 West	Arsenic	Skin/Blood	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Total PCBs	Skin/Immunological	2	RNA	RNA	2
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Receptor Hazard Index =	2
		RM 9 West					**Receptor Hazard Index =**	< 1
		RM 9.5 West					**Receptor Hazard Index =**	< 1
		RM 10 West					**Receptor Hazard Index =**	< 1
		RM 10.5 West					**Receptor Hazard Index =**	< 1
		RM 11 West					**Receptor Hazard Index =**	< 1
		RM 11.5 West					**Receptor Hazard Index =**	< 1
		RM 12 West					**Receptor Hazard Index =**	< 1
		RM 1 East					**Receptor Hazard Index =**	< 1

Table 5-98 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Commercial Diver (wet suit)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	RM 1.5 East			**Receptor Hazard Index =**			< 1
		RM 2 East			**Receptor Hazard Index =**			< 1
		RM 2.5 East			**Receptor Hazard Index =**			< 1
		RM 3 East			**Receptor Hazard Index =**			< 1
		RM 3.5 East			**Receptor Hazard Index =**			< 1
		RM 4 East			**Receptor Hazard Index =**			< 1
		RM 4.5 East			**Receptor Hazard Index =**			< 1
		RM 5 East			**Receptor Hazard Index =**			< 1
		RM 5.5 East			**Receptor Hazard Index =**			< 1
		RM 6 East			**Receptor Hazard Index =**			< 1
		RM 6.5 East			**Receptor Hazard Index =**			< 1
		RM 7 East			**Receptor Hazard Index =**			< 1
		RM 7.5 East			**Receptor Hazard Index =**			< 1
		RM 8 East			**Receptor Hazard Index =**			< 1
		SIL			**Receptor Hazard Index =**			< 1
		RM 8.5 East			**Receptor Hazard Index =**			< 1
		RM 9 East			**Receptor Hazard Index =**			< 1
		RM 9.5 East			**Receptor Hazard Index =**			< 1
		RM 10 East			**Receptor Hazard Index =**			< 1
		RM 10.5 East			**Receptor Hazard Index =**			< 1
		RM 11 East			**Receptor Hazard Index =**			< 1
		RM 11.5 East			**Receptor Hazard Index =**			< 1
		RM 12 East			**Receptor Hazard Index =**			< 1
		Study Area-wide			**Receptor Hazard Index =**			< 1

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-99 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens								
Scenario Timeframe:	Current/Future							
Receptor Population:	Commercial Diver dry suit)							
Receptor Age:	Adult							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 1 West				**Total Risk =**	7E-08	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 1.5 West				**Total Risk =**	4E-08	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 2 West				Total Sediment Risk =	4E-08	
Water	River Water	River Water On-site Direct Contact						
		RM 2 West				Total Water Risk =	2E-08	
						Total Risk =	6E-08	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 2.5 West				**Total Risk =**	9E-08	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 3 West				Total Sediment Risk =	1E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 3 West				Total Water Risk =	4E-08	
						Total Risk =	1E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 3.5 West				**Total Risk =**	3E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 4 West				Total Sediment Risk =	1E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 4 West				Total Water Risk =	1E-08	
						Total Risk =	1E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 4.5 West				**Total Risk =**	3E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 5 West				**Total Risk =**	5E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 5.5 West				Total Sediment Risk =	5E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 5.5 West				Total Water Risk =	1E-08	
						Total Risk =	5E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 6 West	Arsenic	1E-08	RNA	5E-10	1E-08	
			cPAHs	2E-08	RNA	4E-06	4E-06	
			Total PCBs	4E-10	RNA	9E-10	1E-09	
			Total Dioxin/Furan TEQ	7E-10	RNA	3E-10	1E-09	
			Total PCB TEQ	1E-09	RNA	3E-09	4E-09	
		RM 6 West				Total Sediment Risk =	4E-06	
Water	River Water	River Water On-site Direct Contact						
		RM 6 West					1E-06	
						Total Water Risk =	1E-06	
						Total Risk =	5E-06	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 6.5 West				Total Sediment Risk =	3E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 6.5 West				Total Water Risk =	9E-08	
						Total Risk =	4E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 7 West	Arsenic	3E-08	RNA	1E-08	4E-08	
			cPAHs	8E-08	RNA	2E-07	3E-07	
			Total PCBs	6E-10	RNA	1E-09	2E-09	
			Total Dioxin/Furan TEQ	6E-06	RNA	3E-06	9E-06	
			Total PCB TEQ	1E-08	RNA	3E-08	4E-08	
						Total Sediment Risk =	9E-06	
Water	River Water	River Water On-site Direct Contact						
		RM 7 West				Total Water Risk =	5E-07	
						Total Risk =	1E-05	

Table 5-99 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens				
Scenario Timeframe:	Current/Future			
Receptor Population:	Commercial Diver dry suit)			
Receptor Age:	Adult			
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 7.5 West	Total Sediment Risk =	7E-08
Water	River Water	River Water On-site Direct Contact		
		RM 7.5 West	Total Water Risk =	1E-07
			Total Risk =	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 8 West	**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 8.5 West	Total Sediment Risk =	7E-07
Water	River Water	River Water On-site Direct Contact		
		RM 8.5 West	Total Water Risk =	2E-08
			Total Risk =	7E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 9 West	**Total Risk =**	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 9.5 West	Total Sediment Risk =	1E-07
Water	River Water	River Water On-site Direct Contact		
		RM 9.5 West	Total Water Risk =	1E-07
			Total Risk =	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 10 West	**Total Risk =**	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 10.5 West	**Total Risk =**	4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 11 West	Total Sediment Risk =	5E-08
Water	River Water	River Water On-site Direct Contact		
		RM 11 Transect (W023)	Total Water Risk =	2E-08
			Total Risk =	7E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 11.5 West	**Total Risk =**	3E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 12 West	**Total Risk =**	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 1 East	**Total Risk =**	6E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 1.5 East	**Total Risk =**	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 2 East	Total Sediment Risk =	2E-07
Water	River Water	River Water On-site Direct Contact		
		RM 2 East	Total Water Risk =	1E-08
			Total Risk =	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 2.5 East	**Total Risk =**	5E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 3 East	**Total Risk =**	6E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 3.5 East	Total Sediment Risk =	3E-07
Water	River Water	River Water On-site Direct Contact		
		RM 3.5 East	Total Water Risk =	2E-08
			Total Risk =	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 4 East	Total Sediment Risk =	3E-07
Water	River Water	River Water On-site Direct Contact		
		RM 4 East	Total Water Risk =	5E-08
			Total Risk =	4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 4.5 East	Total Sediment Risk =	1E-06

Table 5-99 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens				
Scenario Timeframe:	Current/Future			
Receptor Population:	Commercial Diver dry suit)			
Receptor Age:	Adult			
Water	River Water	River Water On-site Direct Contact		
		RM 4.5 East	Total Water Risk =	1E-07
			Total Risk =	1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 5 East	**Total Risk =**	8E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 5.5 East	Total Sediment Risk =	2E-07
Water	River Water	River Water On-site Direct Contact		
		RM 5.5 East	Total Water Risk =	1E-08
			Total Risk =	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 6 East	Total Sediment Risk =	3E-07
Water	River Water	River Water On-site Direct Contact		
		RM 6.3 Transect (W011)	Total Water Risk =	3E-08
			Total Risk =	3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 6.5 East	Total Sediment Risk =	2E-07
Water	River Water	River Water On-site Direct Contact		
		RM 6.5 East	Total Water Risk =	3E-08
			Total Risk =	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 7 East	**Total Risk =**	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 7.5 East	**Total Risk =**	4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 8 East	**Total Risk =**	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		SIL	Total Sediment Risk =	3E-07
Water	River Water	River Water On-site Direct Contact		
		SIL	Total Water Risk =	6E-08
			Total Risk =	4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 8.5 East	**Total Risk =**	8E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 9 East	**Total Risk =**	4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 9.5 East	Total Sediment Risk =	3E-08
Water	River Water	River Water On-site Direct Contact		
		RM 9.5 East	Total Water Risk =	1E-08
			Total Risk =	4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 10 East	**Total Risk =**	4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 10.5 East	**Total Risk =**	1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 11 East	Total Sediment Risk =	2E-07
Water	River Water	River Water On-site Direct Contact		
		RM 11 Transect (W023)	Total Water Risk =	2E-08
			Total Risk =	2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 11.5 East	**Total Risk =**	NA
Sediment	River Sediment	River Sediment On-site Direct Contact		
		RM 12 East	**Total Risk =**	4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact		
		Study Area-wide	**Total Risk =**	9E-07

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-100 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:	Current/Future							
Receptor Population:	Commercial Diver (wet suit)							
Receptor Age:	Infant							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion						
		RM 1 West			**Receptor Hazard Index =**			< 1
		RM 1.5 West			**Receptor Hazard Index =**			< 1
		RM 2 West			**Receptor Hazard Index =**			< 1
		RM 2.5 West			**Receptor Hazard Index =**			< 1
		RM 3 West			**Receptor Hazard Index =**			< 1
		RM 3.5 West			**Receptor Hazard Index =**			< 1
		RM 4 West			**Receptor Hazard Index =**			< 1
		RM 4.5 West			**Receptor Hazard Index =**			< 1
		RM 5 West			**Receptor Hazard Index =**			< 1
		RM 5.5 West			**Receptor Hazard Index =**			< 1
		RM 6 West			**Receptor Hazard Index =**			< 1
		RM 6.5 West			**Receptor Hazard Index =**			< 1
		RM 7 West			**Receptor Hazard Index =**			< 1
		RM 7.5 West			**Receptor Hazard Index =**			< 1
		RM 8 West			**Receptor Hazard Index =**			< 1
		RM 8.5 West			**Receptor Hazard Index =**			< 1
		RM 9 West			**Receptor Hazard Index =**			< 1
		RM 9.5 West			**Receptor Hazard Index =**			< 1
		RM 10 West			**Receptor Hazard Index =**			< 1
		RM 10.5 West			**Receptor Hazard Index =**			< 1
		RM 11 West			**Receptor Hazard Index =**			< 1
		RM 11.5 West			**Receptor Hazard Index =**			< 1
		RM 12 West			**Receptor Hazard Index =**			< 1
		RM 1 East			**Receptor Hazard Index =**			< 1
		RM 1.5 East			**Receptor Hazard Index =**			< 1
		RM 2 East			**Receptor Hazard Index =**			< 1
		RM 2.5 East			**Receptor Hazard Index =**			< 1
		RM 3 East			**Receptor Hazard Index =**			< 1
		RM 3.5 East			**Receptor Hazard Index =**			< 1
		RM 4 East			**Receptor Hazard Index =**			< 1
		RM 4.5 East			**Receptor Hazard Index =**			< 1
		RM 5 East			**Receptor Hazard Index =**			< 1
		RM 5.5 East			**Receptor Hazard Index =**			< 1

Table 5-100 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens				
Scenario Timeframe:	Current/Future			
Receptor Population:	Commercial Diver (wet suit)			
Receptor Age:	Infant			
Sediment	Breast Milk	RM 6 East	**Receptor Hazard Index =**	< 1
		RM 6.5 East	**Receptor Hazard Index =**	< 1
		RM 7 East	**Receptor Hazard Index =**	< 1
		RM 7.5 East	**Receptor Hazard Index =**	< 1
		RM 8 East	**Receptor Hazard Index =**	< 1
		SIL	**Receptor Hazard Index =**	< 1
		RM 8.5 East	**Receptor Hazard Index =**	< 1
		RM 9 East	**Receptor Hazard Index =**	< 1
		RM 9.5 East	**Receptor Hazard Index =**	< 1
		RM 10 East	**Receptor Hazard Index =**	< 1
		RM 10.5 East	**Receptor Hazard Index =**	< 1
		RM 11 East	**Receptor Hazard Index =**	< 1
		RM 11.5 East	**Receptor Hazard Index =**	< 1
		RM 12 East	**Receptor Hazard Index =**	< 1
		Study Area-wide	**Receptor Hazard Index =**	< 1

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Future						
Receptor Population:	Domestic Water User						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	River Water	River Water On-site Direct Contact					
		RM 2 Transect (W025)	Arsenic, total	NC[1]	RNA	NC[1]	2E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	5E-06
			MCPP	---	---	---	---
						Total Risk =	3E-05
		RM 2.1 E (W026)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 2.9 W (W027)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	2E-05
			MCPP	---	---	---	---
						Total Risk =	3E-05
		RM 3.6 E (W028)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 3.9 Transect (W005)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	5E-06
			MCPP	---	---	---	---
						Total Risk =	2E-05
		RM 4.4 W (W029)	Arsenic, total	NC[1]	RNA	NC[1]	9E-06
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	9E-06

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Future						
Receptor Population:	Domestic Water User						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	River Water	RM 5.5 E (W030)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 5.7 E (W010)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 6.1 W (W031)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	4E-04
			MCPP	---	---	---	---
						Total Risk =	4E-04
		RM 6.3 Transect (W011)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	4E-06
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 6.7 E (W032)	Arsenic, total	NC[1]	RNA	NC[1]	9E-06
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	2E-06
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 6.9 E (W014)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 7 W (W033)	Arsenic, total	NC[1]	RNA	NC[1]	9E-06
			Chromium VI	NC[1]	RNA	NC[1]	7E-06
			Total cPAHs	NC[1]	RNA	NC[1]	1E-06
			MCPP	---	---	---	---
						Total Risk =	2E-05
		RM 7.5 W (W034)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Future						
Receptor Population:	Domestic Water User						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	River Water	SIL RM 8.5 (W035)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	2E-05
			MCPP	---	---	---	---
						Total Risk =	3E-05
		SIL RM 9.1 (W020)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 8.6 W (W036)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	7E-06
			MCPP	---	---	---	---
						Total Risk =	2E-05
		RM 9.6 W (W037)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 9.9 E (W038)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCPP	---	---	---	---
						Total Risk =	1E-05
		RM 11 Transect (W023)	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC[1]	RNA	NC[1]	4E-06
			MCPP	---	---	---	---
						Total Risk =	1E-05

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Future						
Receptor Population:	Domestic Water User						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	River Water	Study Area-wide	Arsenic, total	NC[1]	RNA	NC[1]	1E-05
			Chromium VI	NC[1]	RNA	NC[1]	8E-06
			Total cPAHs	NC[1]	RNA	NC[1]	2E-05
			MCPP	---	---	---	---
						Total Risk =	4E-05

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
MCPP	2-(2-Methyl-4-chlorophenoxy)propionic acid
NA	Not Analyzed
NC	Not Calculated
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.
Note 1	Pathway specific integrated risks were not calculated.

Table 5-102 Risk Characterization Summary, Noncancer Hazards - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Future
Receptor Population: Domestic Water User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	River Water	River Water On-site Direct Contact						
		RM 2 Transect (W025)					**Receptor Hazard Index =**	< 1
		RM 2.1 E (W026)					**Receptor Hazard Index =**	< 1
		RM 2.9 W (W027)	MCPP	Kidney	1	RNA	RNA	1
							Receptor Hazard Index =	1
							Kidney Hazard Index =	1
		RM 3.6 E (W028)					**Receptor Hazard Index =**	< 1
		RM 3.9 Transect (W005)	MCPP	Kidney	1	RNA	RNA	1
							Receptor Hazard Index =	1
							Kidney Hazard Index =	1
		RM 4.4 W (W029)					**Receptor Hazard Index =**	< 1
		RM 5.5 E (W030)					**Receptor Hazard Index =**	< 1
		RM 5.7 E (W010)					**Receptor Hazard Index =**	< 1
		RM 6.1 W (W031)					**Receptor Hazard Index =**	< 1
		RM 6.3 Transect (W011)					**Receptor Hazard Index =**	< 1
		RM 6.7 E (W032)					**Receptor Hazard Index =**	< 1
		RM 6.9 E (W014)					**Receptor Hazard Index =**	< 1
		RM 7 W (W033)					**Receptor Hazard Index =**	< 1
		RM 7.5 W (W034)					**Receptor Hazard Index =**	< 1
		SIL RM 8.5 (W035)	MCPP	Kidney	2	RNA	RNA	2
							Receptor Hazard Index =	2
							Kidney Hazard Index =	2
		SIL RM 9.1 (W020)					**Receptor Hazard Index =**	< 1
		RM 8.6 W (W036)					**Receptor Hazard Index =**	< 1
		RM 9.6 W (W037)					**Receptor Hazard Index =**	< 1
		RM 9.9 E (W038)					**Receptor Hazard Index =**	< 1
		RM 11 Transect (W023)					**Receptor Hazard Index =**	< 1
		Study Area-wide					**Receptor Hazard Index =**	< 1

Key

--	Toxicity criteria are not available to quantitatively address this route of exposure.
MCPP	2-(2-Methyl-4-chlorophenoxy)propionic acid
NA	Not Analyzed
ND	Not Detected
SIL	Swan Islan Lagoon
RNA	Route of exposure is not applicable to this medium.

Table 5-103 Risk Characterization Summary, Cancer Risks - Subsistence Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Adult/Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (142-60 g/day)					
		Study Area-wide	Antimony	--	--	--	--
			Arsenic	2E-05	RNA	RNA	2E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	2E-06	RNA	RNA	2E-06
			Bis(2-ethylhexyl)phthalate	8E-07	RNA	RNA	8E-07
			Hexachlorobenzene	3E-05	RNA	RNA	3E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	2E-04	RNA	RNA	2E-04
			Total PCB TEQ	4E-04	RNA	RNA	4E-04
			Aldrin	5E-07	RNA	RNA	5E-07
			alpha-Hexachlorocyclohexane	6E-08	RNA	RNA	6E-08
			beta-Hexachlorocyclohexane	2E-06	RNA	RNA	2E-06
			Dieldrin	2E-05	RNA	RNA	2E-05
			Heptachlor	6E-09	RNA	RNA	6E-09
			Heptachlor Epoxide	3E-07	RNA	RNA	3E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	2E-05	RNA	RNA	2E-05
						Fish Tissue Total Risk =	1E-02
						Total Risk =	**1E-02**

Key

SIL	Swan Island Lagoon
NA	Not Analyzed
ND	Not Detected
RM	River Mile
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-104 Risk Characterization Summary, Noncancer Hazards - Subsistence Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (60 g/day)						
		Study Area-wide	Antimony	Blood	<1	RNA	RNA	0
			Arsenic	Skin/Blood	0.2	RNA	RNA	0.2
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	5	RNA	RNA	5
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	1000	RNA	RNA	1000
			Total Dioxin/Furan TEQ	Reproduction	7	RNA	RNA	7
			Total PCB TEQ	Reproduction	10	RNA	RNA	10
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			Dieldrin	Liver	0.1	RNA	RNA	0.1
			Heptachlor	Liver	<1	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	0.7	RNA	RNA	0.7
							Fish Tissue Hazard Index Total =	1000
							Receptor Hazard Index =	1000
							Blood Hazard Index =	<1
							Skin Hazard Index =	1000
							CNS Hazard Index =	5
							Whole Body Hazard Index =	1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	1000
							Reproduction Hazard Index =	20
							Kidney Hazard Index =	<1

Key

SIL	Swan Island Lagoon
ND	Not Detected
NA	Not Analyzed
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-105 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Subsistence Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		Study Area-wide					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Multi-Species Fish Tissue On-site (142-60 g/day) Ingestion						
		Study Area-wide	Total PCBs	Skin/Immunological	10000	RNA	RNA	10000
			Total Dioxin/Furan TEQ	Reproduction	7	RNA	RNA	7
			Total PCB TEQ	Reproduction	10	RNA	RNA	10
			Total DDx	Liver	0.7	RNA	RNA	0.7
							Fish Tissue Hazard Index Total =	10000
Shellfish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Clam Tissue On-site (18 g/day) Ingestion						
		Study Area-wide	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Clam Tissue Hazard Index Total =	200
	Breast Milk	Breastfeeding from Adult Consumer of Crayfish Tissue On-site (18 g/day) Ingestion						
		Study Area-wide	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	<1	RNA	RNA	0
							Crayfish Tissue Hazard Index Total =	200
							Shellfish Tissue Hazard Index Total =	400
							Receptor Hazard Index =	10000
							Skin Hazard Index =	10000
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	10000
							Reproduction Hazard Index =	30

Key

SIL	Swan Island Lagoon
ND	Not Detected
NA	Not Analyzed
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Subsistence Fisher						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)					
		RM 2	Antimony	--	--	--	--
			Arsenic	2E-05	RNA	RNA	2E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	ND	RNA	RNA	0E+00
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07
			Total PCBs	1E-04	RNA	RNA	1E-04
			Total Dioxin/Furan TEQ	1E-05	RNA	RNA	1E-05
			Total PCB TEQ	8E-05	RNA	RNA	8E-05
			Aldrin	4E-08	RNA	RNA	4E-08
			alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			Dieldrin	2E-06	RNA	RNA	2E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	9E-08	RNA	RNA	9E-08
			Total Chlordanes	2E-07	RNA	RNA	2E-07
			Total DDx	2E-06	RNA	RNA	2E-06
						Fish Tissue Total Risk =	2E-04
						Total Risk =	**2E-04**
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)					
		RM 3	Antimony	--	--	--	--
			Arsenic	2E-05	RNA	RNA	2E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-07	RNA	RNA	6E-07
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07
			Total PCBs	3E-05	RNA	RNA	3E-05
			Total Dioxin/Furan TEQ	1E-05	RNA	RNA	1E-05
			Total PCB TEQ	2E-05	RNA	RNA	2E-05
			Aldrin	3E-08	RNA	RNA	3E-08
			alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	2E-05	RNA	RNA	2E-05
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	8E-08	RNA	RNA	8E-08
			Total Chlordanes	1E-06	RNA	RNA	1E-06
			Total DDx	5E-06	RNA	RNA	5E-06
						Fish Tissue Total Risk =	1E-04
						Total Risk =	**1E-04**

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Subsistence Fisher						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 4	Antimony	--	--	--	--
			Arsenic	1E-05	RNA	RNA	1E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	4E-06	RNA	RNA	4E-06
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	3E-07	RNA	RNA	3E-07
			Total PCBs	2E-04	RNA	RNA	2E-04
			Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05
			Total PCB TEQ	6E-05	RNA	RNA	6E-05
			Aldrin	3E-08	RNA	RNA	3E-08
			alpha-Hexachlorocyclohexane	9E-09	RNA	RNA	9E-09
			beta-Hexachlorocyclohexane	2E-09	RNA	RNA	2E-09
			Dieldrin	2E-06	RNA	RNA	2E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	7E-08	RNA	RNA	7E-08
			Total Chlordanes	3E-07	RNA	RNA	3E-07
			Total DDx	2E-06	RNA	RNA	2E-06
						Fish Tissue Total Risk =	3E-04
						Total Risk =	**3E-04**
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 5	Antimony	--	--	--	--
			Arsenic	1E-05	RNA	RNA	1E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	2E-05	RNA	RNA	2E-05
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07
			Total PCBs	2E-05	RNA	RNA	2E-05
			Total Dioxin/Furan TEQ	1E-05	RNA	RNA	1E-05
			Total PCB TEQ	2E-05	RNA	RNA	2E-05
			Aldrin	ND	RNA	RNA	0E+00
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			Dieldrin	2E-06	RNA	RNA	2E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	6E-08	RNA	RNA	6E-08
			Total Chlordanes	2E-07	RNA	RNA	2E-07
			Total DDx	3E-06	RNA	RNA	3E-06
						Fish Tissue Total Risk =	9E-05
						Total Risk =	**9E-05**

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Subsistence Fisher						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 6	Antimony	--	--	--	--
			Arsenic	1E-05	RNA	RNA	1E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	9E-07	RNA	RNA	9E-07
			Bis(2-ethylhexyl)phthalate	5E-07	RNA	RNA	5E-07
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07
			Total PCBs	6E-05	RNA	RNA	6E-05
			Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05
			Total PCB TEQ	2E-05	RNA	RNA	2E-05
			Aldrin	ND	RNA	RNA	0E+00
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			Dieldrin	2E-06	RNA	RNA	2E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	6E-08	RNA	RNA	6E-08
			Total Chlordanes	6E-07	RNA	RNA	6E-07
			Total DDx	3E-06	RNA	RNA	3E-06
						Fish Tissue Total Risk =	1E-04
						Total Risk =	**1E-04**
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 7	Antimony	--	--	--	--
			Arsenic	1E-05	RNA	RNA	1E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	3E-07	RNA	RNA	3E-07
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	5E-07	RNA	RNA	5E-07
			Total PCBs	1E-04	RNA	RNA	1E-04
			Total Dioxin/Furan TEQ	4E-04	RNA	RNA	4E-04
			Total PCB TEQ	3E-05	RNA	RNA	3E-05
			Aldrin	ND	RNA	RNA	0E+00
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			beta-Hexachlorocyclohexane	3E-09	RNA	RNA	3E-09
			Dieldrin	2E-06	RNA	RNA	2E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	5E-08	RNA	RNA	5E-08
			Total Chlordanes	2E-07	RNA	RNA	2E-07
			Total DDx	2E-05	RNA	RNA	2E-05
						Fish Tissue Total Risk =	6E-04
						Total Risk =	**6E-04**

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Subsistence Fisher						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 8	Antimony	--	--	--	--
			Arsenic	1E-05	RNA	RNA	1E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	2E-05	RNA	RNA	2E-05
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07
			Total PCBs	3E-05	RNA	RNA	3E-05
			Total Dioxin/Furan TEQ	3E-05	RNA	RNA	3E-05
			Total PCB TEQ	2E-05	RNA	RNA	2E-05
			Aldrin	3E-08	RNA	RNA	3E-08
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			Dieldrin	8E-06	RNA	RNA	8E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	5E-08	RNA	RNA	5E-08
			Total Chlordanes	7E-07	RNA	RNA	7E-07
			Total DDx	6E-06	RNA	RNA	6E-06
						Fish Tissue Total Risk =	1E-04
						Total Risk =	**1E-04**
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) SIL RM 8	Antimony	--	--	--	--
			Arsenic	8E-06	RNA	RNA	8E-06
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	ND	RNA	RNA	0E+00
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	ND	RNA	RNA	0E+00
			Total PCBs	5E-04	RNA	RNA	5E-04
			Total Dioxin/Furan TEQ	3E-05	RNA	RNA	3E-05
			Total PCB TEQ	5E-05	RNA	RNA	5E-05
			Aldrin	ND	RNA	RNA	0E+00
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			Dieldrin	ND	RNA	RNA	0E+00
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	ND	RNA	RNA	0E+00
			Total Chlordanes	ND	RNA	RNA	0E+00
			Total DDx	2E-06	RNA	RNA	2E-06
						Fish Tissue Total Risk =	6E-04
						Total Risk =	**6E-04**

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Subsistence Fisher						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 9	Antimony	--	--	--	--
			Arsenic	1E-05	RNA	RNA	1E-05
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	4E-06	RNA	RNA	4E-06
			Bis(2-ethylhexyl)phthalate	6E-07	RNA	RNA	6E-07
			Hexachlorobenzene	3E-07	RNA	RNA	3E-07
			Total PCBs	7E-05	RNA	RNA	7E-05
			Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05
			Total PCB TEQ	5E-05	RNA	RNA	5E-05
			Aldrin	7E-08	RNA	RNA	7E-08
			alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			Dieldrin	6E-06	RNA	RNA	6E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	8E-08	RNA	RNA	8E-08
			Total Chlordanes	3E-07	RNA	RNA	3E-07
			Total DDx	3E-06	RNA	RNA	3E-06
						Fish Tissue Total Risk =	2E-04
						Total Risk =	**2E-04**
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 10	Antimony	--	--	--	--
			Arsenic	8E-06	RNA	RNA	8E-06
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	ND	RNA	RNA	0E+00
			Bis(2-ethylhexyl)phthalate	3E-07	RNA	RNA	3E-07
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07
			Total PCBs	8E-05	RNA	RNA	8E-05
			Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05
			Total PCB TEQ	3E-05	RNA	RNA	3E-05
			Aldrin	ND	RNA	RNA	0E+00
			alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			Dieldrin	2E-06	RNA	RNA	2E-06
			Heptachlor	ND	RNA	RNA	0E+00
			Heptachlor Epoxide	5E-08	RNA	RNA	5E-08
			Total Chlordanes	2E-07	RNA	RNA	2E-07
			Total DDx	2E-06	RNA	RNA	2E-06
						Fish Tissue Total Risk =	1E-04
						Total Risk =	**1E-04**

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Subsistence Fisher						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 11	Antimony	--	--	--	--
			Arsenic	9E-06	RNA	RNA	9E-06
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	ND	RNA	RNA	0E+00
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07
			Total PCBs	1E-03	RNA	RNA	1E-03
			Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05
			Total PCB TEQ	1E-04	RNA	RNA	1E-04
			Aldrin	ND	RNA	RNA	0E+00
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00
			beta-Hexachlorocyclohexane	3E-09	RNA	RNA	3E-09
			Dieldrin	2E-06	RNA	RNA	2E-06
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	6E-08	RNA	RNA	6E-08
			Total Chlordanes	2E-07	RNA	RNA	2E-07
			Total DDx	9E-07	RNA	RNA	9E-07
						Fish Tissue Total Risk =	1E-03
						Total Risk =	**1E-03**

Key

SIL	Swan Island Lagoon
NA	Not Analyzed
ND	Not Detected
RM	River Mile
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 2	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	0.2	RNA	RNA	0.2
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	1	RNA	RNA	1
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	ND	RNA	RNA	0
			Total PCBs	Skin/Immunological	10	RNA	RNA	10
			Total PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	10
							Receptor Hazard Index =	10
							Blood Hazard Index =	<1
							Skin Hazard Index =	10
							CNS Hazard Index =	1
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	10
							Reproduction Hazard Index =	2
							Kidney Hazard Index =	<1
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 3	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	0.1	RNA	RNA	0.1
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	2	RNA	RNA	2
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	3	RNA	RNA	3
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4
			Total PCB TEQ	Reproduction	0.7	RNA	RNA	1
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	6
							Receptor Hazard Index =	6
							Blood Hazard Index =	<1
							Skin Hazard Index =	3
							CNS Hazard Index =	2
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	3
							Reproduction Hazard Index =	1
							Kidney Hazard Index =	<1

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 4	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	0.1	RNA	RNA	0.1
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	3	RNA	RNA	3
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	10	RNA	RNA	10
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	20
							Receptor Hazard Index =	20
							Blood Hazard Index =	<1
							Skin Hazard Index =	10
							CNS Hazard Index =	3
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	10
							Reproduction Hazard Index =	3
							Kidney Hazard Index =	<1
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 5	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	3	RNA	RNA	3
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	2	RNA	RNA	2
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3
			Total PCB TEQ	Reproduction	0.4	RNA	RNA	0.4
			Aldrin	Liver	ND	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	6
							Receptor Hazard Index =	6
							Blood Hazard Index =	<1
							Skin Hazard Index =	2
							CNS Hazard Index =	3
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	2
							Reproduction Hazard Index =	1
							Kidney Hazard Index =	<1

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 6	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	2	RNA	RNA	2
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	5	RNA	RNA	5
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5
			Aldrin	Liver	ND	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	8
							Receptor Hazard Index =	8
							Blood Hazard Index =	<1
							Skin Hazard Index =	5
							CNS Hazard Index =	2
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	5
							Reproduction Hazard Index =	1
							Kidney Hazard Index =	<1
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 7	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	3	RNA	RNA	3
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	10	RNA	RNA	10
			Total PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Aldrin	Liver	ND	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	0.6	RNA	RNA	0.6
							Fish Tissue Hazard Index Total =	20
							Receptor Hazard Index =	20
							Blood Hazard Index =	<1
							Skin Hazard Index =	10
							CNS Hazard Index =	3
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	10
							Reproduction Hazard Index =	10
							Kidney Hazard Index =	<1

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 8	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	2	RNA	RNA	2
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	3	RNA	RNA	3
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.8	RNA	RNA	1
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	7
							Receptor Hazard Index =	7
							Blood Hazard Index =	<1
							Skin Hazard Index =	3
							CNS Hazard Index =	2
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	3
							Reproduction Hazard Index =	1
							Kidney Hazard Index =	<1
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		SIL RM 8	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	2	RNA	RNA	2
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	ND	RNA	RNA	0
			Total PCBs	Skin/Immunological	50	RNA	RNA	50
			Total PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Aldrin	Liver	ND	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0
			Dieldrin	Liver	ND	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	ND	RNA	RNA	0
			Total Chlordanes	Liver	ND	RNA	RNA	0
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	50
							Receptor Hazard Index =	50
							Blood Hazard Index =	<1
							Skin Hazard Index =	50
							CNS Hazard Index =	2
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	50
							Reproduction Hazard Index =	3
							Kidney Hazard Index =	<1

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 9	Antimony	Blood	<1	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0.0
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	5	RNA	RNA	5
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	7	RNA	RNA	7
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	10
							Receptor Hazard Index =	10
							Blood Hazard Index =	<1
							Skin Hazard Index =	7
							CNS Hazard Index =	5
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	7
							Reproduction Hazard Index =	2
							Kidney Hazard Index =	<1
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 10	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0.0
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	3	RNA	RNA	3
			Selenium	Whole Body	ND	RNA	RNA	0
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	8	RNA	RNA	8
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total PCB TEQ	Reproduction	0.8	RNA	RNA	1
			Aldrin	Liver	ND	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	ND	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	10
							Receptor Hazard Index =	10
							Blood Hazard Index =	<1
							Skin Hazard Index =	8
							CNS Hazard Index =	3
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	8
							Reproduction Hazard Index =	1
							Kidney Hazard Index =	<1

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		RM 11	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0.0
			Chromium		ND	RNA	RNA	0
			Mercury	CNS	3	RNA	RNA	3
			Selenium	Whole Body	1	RNA	RNA	1
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	100	RNA	RNA	100
			Total PBDEs	CNS	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	1
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Aldrin	Liver	ND	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	<1	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	100
							Receptor Hazard Index =	100
							Blood Hazard Index =	<1
							Skin Hazard Index =	100
							CNS Hazard Index =	4
							Whole Body Hazard Index =	1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	100
							Reproduction Hazard Index =	4
							Kidney Hazard Index =	<1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 2 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	3
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 2.5 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	3
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 3 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	30
							Receptor Hazard Index =	30
							CNS Hazard Index =	0
							Skin Hazard Index =	30
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	30
							Reproduction Hazard Index =	1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 3.5 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30
			Total PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	30
							Receptor Hazard Index =	30
							CNS Hazard Index =	0
							Skin Hazard Index =	30
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	30
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 4 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total PBDEs	CNS	2	RNA	RNA	2
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	2
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	2
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 4.5 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total PBDEs	CNS	2	RNA	RNA	2
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	2
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	2

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:	Current/Future								
Receptor Population:	Recreational Fisher (Boat)								
Receptor Age:	Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 5 West					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			Total PBDEs	CNS	0.9	RNA	RNA	0.9	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDx	Liver	0.1	RNA	RNA	0.1	
							Fish Tissue Hazard Index Total =		30
							Receptor Hazard Index =		30
							CNS Hazard Index =		1
							Skin Hazard Index =		30
							Liver Hazard Index =		<1
							Immulogical Hazard Index =		30
							Reproduction Hazard Index =		1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 5.5 West					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			Total PBDEs	CNS	0.9	RNA	RNA	0.9	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDx	Liver	0.1	RNA	RNA	0.1	
							Fish Tissue Hazard Index Total =		30
							Receptor Hazard Index =		30
							CNS Hazard Index =		1
							Skin Hazard Index =		30
							Liver Hazard Index =		<1
							Immulogical Hazard Index =		30
							Reproduction Hazard Index =		1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 6 West					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA	70	
			Total PBDEs	CNS	0.8	RNA	RNA	0.8	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDx	Liver	0.1	RNA	RNA	0.1	
							Fish Tissue Hazard Index Total =		70
							Receptor Hazard Index =		70
							CNS Hazard Index =		1
							Skin Hazard Index =		70
							Liver Hazard Index =		<1
							Immulogical Hazard Index =		70
							Reproduction Hazard Index =		1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 6.5 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA	70
			Total PBDEs	CNS	0.8	RNA	RNA	0.8
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	70
							Receptor Hazard Index =	70
							CNS Hazard Index =	1
							Skin Hazard Index =	70
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	70
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 7 West	Total PCBs	Skin/Immunological	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA	2
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	2
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.5	RNA	RNA	0.5
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	10
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 7.5 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			Total PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.5	RNA	RNA	0.5
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	10

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 8 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 8	Total PCBs	Skin/Immunological	40	RNA	RNA	40
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	40
							Receptor Hazard Index =	40
							CNS Hazard Index =	0
							Skin Hazard Index =	40
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	40
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 8.5 West	Total PCBs	Skin/Immunological	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0
							Sediment Hazard Index Total =	1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 8	Total PCBs	Skin/Immunological	40	RNA	RNA	40
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	40
							Receptor Hazard Index =	40
							CNS Hazard Index =	0
							Skin Hazard Index =	40
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	40
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 9 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 9	Total PCBs	Skin/Immunological	80	RNA	RNA	80
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	80
							Receptor Hazard Index =	80
							CNS Hazard Index =	0
							Skin Hazard Index =	80
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	80
							Reproduction Hazard Index =	2

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:	Current/Future								
Receptor Population:	Recreational Fisher (Boat)								
Receptor Age:	Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 9.5 West					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 9	Total PCBs	Skin/Immunological	80	RNA	RNA		80
			PBDEs	CNS	<1	RNA	RNA		0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA		0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA		1
			Total DDx	Liver	0.1	RNA	RNA		0.1
							Fish Tissue Hazard Index Total =		80
							Receptor Hazard Index =		80
							CNS Hazard Index =		0
							Skin Hazard Index =		80
							Liver Hazard Index =		<1
							Immulogical Hazard Index =		80
							Reproduction Hazard Index =		2
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 10 West					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA		100
			PBDEs	CNS	<1	RNA	RNA		0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA		0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA		1
			Total DDx	Liver	<1	RNA	RNA		0
							Fish Tissue Hazard Index Total =		100
							Receptor Hazard Index =		100
							CNS Hazard Index =		0
							Skin Hazard Index =		100
							Liver Hazard Index =		<1
							Immulogical Hazard Index =		100
							Reproduction Hazard Index =		1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 10.5 West					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA		100
			PBDEs	CNS	<1	RNA	RNA		0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA		0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA		1
			Total DDx	Liver	<1	RNA	RNA		0
							Fish Tissue Hazard Index Total =		100
							Receptor Hazard Index =		100
							CNS Hazard Index =		0
							Skin Hazard Index =		100
							Liver Hazard Index =		<1
							Immulogical Hazard Index =		100
							Reproduction Hazard Index =		1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 11 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000
			PBDEs	CNS	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	1000
							Receptor Hazard Index =	1000
							CNS Hazard Index =	1
							Skin Hazard Index =	1000
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	1000
							Reproduction Hazard Index =	4
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 11.5 West					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000
			PBDEs	CNS	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	1000
							Receptor Hazard Index =	1000
							CNS Hazard Index =	1
							Skin Hazard Index =	1000
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	1000
							Reproduction Hazard Index =	4
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 2 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	3

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 2.5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	3
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 3 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.2	RNA	RNA	0.2
							Fish Tissue Hazard Index Total =	30
							Receptor Hazard Index =	30
							CNS Hazard Index =	0
							Skin Hazard Index =	30
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	30
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 3.5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.2	RNA	RNA	0.2
							Fish Tissue Hazard Index Total =	30
							Receptor Hazard Index =	30
							CNS Hazard Index =	0
							Skin Hazard Index =	30
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	30
							Reproduction Hazard Index =	1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 4 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			PBDEs	CNS	2	RNA	RNA	2
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	2
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	2
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 4.5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			PBDEs	CNS	2	RNA	RNA	2
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	2
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	2
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA	30
			PBDEs	CNS	0.9	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	30
							Receptor Hazard Index =	30
							CNS Hazard Index =	1
							Skin Hazard Index =	30
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	30
							Reproduction Hazard Index =	1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:	Current/Future								
Receptor Population:	Recreational Fisher (Boat)								
Receptor Age:	Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 5.5 East					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA		30
			PBDEs	CNS	0.9	RNA	RNA		1
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA		0.3
			Total PCB TEQ	Reproduction	0.5	RNA	RNA		0.5
			Total DDx	Liver	0.1	RNA	RNA		0.1
							Fish Tissue Hazard Index Total =		30
								Receptor Hazard Index =	30
								CNS Hazard Index =	1
								Skin Hazard Index =	30
								Liver Hazard Index =	<1
								Immulogical Hazard Index =	30
								Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 6 East					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA		70
			PBDEs	CNS	0.8	RNA	RNA		1
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA		0.5
			Total PCB TEQ	Reproduction	0.5	RNA	RNA		0.5
			Total DDx	Liver	0.1	RNA	RNA		0.1
							Fish Tissue Hazard Index Total =		70
								Receptor Hazard Index =	70
								CNS Hazard Index =	1
								Skin Hazard Index =	70
								Liver Hazard Index =	<1
								Immulogical Hazard Index =	70
								Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		RM 6.5 East					Sediment Hazard Index Total =		<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
		RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA		70
			PBDEs	CNS	0.8	RNA	RNA		1
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA		0.5
			Total PCB TEQ	Reproduction	0.5	RNA	RNA		0.5
			Total DDx	Liver	0.1	RNA	RNA		0.1
							Fish Tissue Hazard Index Total =		70
								Receptor Hazard Index =	70
								CNS Hazard Index =	1
								Skin Hazard Index =	70
								Liver Hazard Index =	<1
								Immulogical Hazard Index =	70
								Reproduction Hazard Index =	1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 7 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.8	RNA	RNA	0.8
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	10
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 7.5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200
			PBDEs	CNS	ND	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.8	RNA	RNA	0.8
							Fish Tissue Hazard Index Total =	200
							Receptor Hazard Index =	200
							CNS Hazard Index =	0
							Skin Hazard Index =	200
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	200
							Reproduction Hazard Index =	10
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 8 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 8	Total PCBs	Skin/Immunological	40	RNA	RNA	40
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	40
							Receptor Hazard Index =	40
							CNS Hazard Index =	0
							Skin Hazard Index =	40
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	40
							Reproduction Hazard Index =	1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		SIL					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		SIL RM 8	Total PCBs	Skin/Immunological	600	RNA	RNA	600
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	2	RNA	RNA	2
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	600
							Receptor Hazard Index =	1
							CNS Hazard Index =	0
							Skin Hazard Index =	2
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	600
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 8.5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 8	Total PCBs	Skin/Immunological	40	RNA	RNA	40
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	40
							Receptor Hazard Index =	40
							CNS Hazard Index =	0
							Skin Hazard Index =	40
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	40
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 9 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 9	Total PCBs	Skin/Immunological	80	RNA	RNA	80
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	80
							Receptor Hazard Index =	80
							CNS Hazard Index =	0
							Skin Hazard Index =	80
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	80
							Reproduction Hazard Index =	2

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 9.5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 9	Total PCBs	Skin/Immunological	80	RNA	RNA	80
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	0.1	RNA	RNA	0.1
							Fish Tissue Hazard Index Total =	80
							Receptor Hazard Index =	80
							CNS Hazard Index =	0
							Skin Hazard Index =	80
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	80
							Reproduction Hazard Index =	2
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 10 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA	100
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	100
							Receptor Hazard Index =	100
							CNS Hazard Index =	0
							Skin Hazard Index =	100
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	100
							Reproduction Hazard Index =	1
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 10.5 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA	100
			PBDEs	CNS	<1	RNA	RNA	0
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6
			Total PCB TEQ	Reproduction	1	RNA	RNA	1
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	100
							Receptor Hazard Index =	100
							CNS Hazard Index =	0
							Skin Hazard Index =	100
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	100
							Reproduction Hazard Index =	1

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Fisher (Boat)
Receptor Age: Infant

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 11 East					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000
			PBDEs	CNS	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	1000
							Receptor Hazard Index =	1000
							CNS Hazard Index =	1
							Skin Hazard Index =	1000
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	1000
							Reproduction Hazard Index =	4
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		RM 11.5 East					Sediment Hazard Index Total =	NA
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000
			PBDEs	CNS	1	RNA	RNA	1
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
			Total PCB TEQ	Reproduction	3	RNA	RNA	3
			Total DDx	Liver	<1	RNA	RNA	0
							Fish Tissue Hazard Index Total =	1000
							Receptor Hazard Index =	1000
							CNS Hazard Index =	1
							Skin Hazard Index =	1000
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	1000
							Reproduction Hazard Index =	4

Key

SIL	Swan Island Lagoon
ND	Not Detected
NA	Not Analyzed
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-109 Risk Characterization Summary, Cancer Risks - Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Subsistence Fisher						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)					
		Study Area-wide	Antimony	--	--	--	--
			Arsenic	7E-06	RNA	RNA	7E-06
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	2E-06	RNA	RNA	2E-06
			Bis(2-ethylhexyl)phthalate	3E-07	RNA	RNA	3E-07
			Hexachlorobenzene	1E-05	RNA	RNA	1E-05
			Total PCBs	4E-03	RNA	RNA	4E-03
			Total Dioxin/Furan TEQ	8E-05	RNA	RNA	8E-05
			Total PCB TEQ	1E-04	RNA	RNA	1E-04
			Aldrin	2E-07	RNA	RNA	2E-07
			alpha-Hexachlorocyclohexane	2E-08	RNA	RNA	2E-08
			beta-Hexachlorocyclohexane	7E-07	RNA	RNA	7E-07
			Dieldrin	7E-06	RNA	RNA	7E-06
			Heptachlor	2E-09	RNA	RNA	2E-09
			Heptachlor Epoxide	1E-07	RNA	RNA	1E-07
			Total Chlordanes	5E-07	RNA	RNA	5E-07
			Total DDx	1E-05	RNA	RNA	1E-05
						Fish Tissue Total Risk =	4E-03
						Total Risk =	**4E-03**

Key

SIL	Swan Island Lagoon
NA	Not Analyzed
ND	Not Detected
RM	River Mile
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-110 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Subsistence Fisher
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)						
		Study Area-wide	Antimony	Blood	<1	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	2	RNA	RNA	2
			Selenium	Whole Body	0.3	RNA	RNA	0.3
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	300	RNA	RNA	300
			Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA	2
			Total PCB TEQ	Reproduction	4	RNA	RNA	4
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	<1	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
			Total DDx	Liver	0.2	RNA	RNA	0.2
							Fish Tissue Hazard Index Total =	300
							Receptor Hazard Index =	300
							Blood Hazard Index =	<1
							Skin Hazard Index =	300
							CNS Hazard Index =	2
							Whole Body Hazard Index =	<1
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	300
							Reproduction Hazard Index =	6
							Kidney Hazard Index =	<1

Key

SIL	Swan Island Lagoon
ND	Not Detected
NA	Not Analyzed
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-111 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:	Current/Future							
Receptor Population:	Recreational Fisher (Boat)							
Receptor Age:	Infant							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						
		Study Area-wide					Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Mulitple Species Fish Tissue On-site (48.9-20.5 g/day) Ingestion						
		Study Area-wide	Total PCBs	Skin/Immunological	4000	RNA	RNA	4000
			Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA	2
			Total PCB TEQ	Reproduction	4	RNA	RNA	4
			Total DDx	Liver	0.2	RNA	RNA	0.2
							Fish Tissue Hazard Index Total =	4000
							Receptor Hazard Index =	4000
							Skin Hazard Index =	4000
							Liver Hazard Index =	<1
							Immulogical Hazard Index =	4000
							Reproduction Hazard Index =	6

Key	
SIL	Swan Island Lagoon
ND	Not Detected
NA	Not Analyzed
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-112. Chemicals Potentially Posing Unacceptable Risk

	Beach Sediment							Surface Water					In-Water Sediment												Fish Tissue					Shellfish	
Chemical of Concern	Recreational Beach User	Dockside Worker	Low-Frequency Fisher	High-Frequency Fisher	Tribal Fisher	Transients	Ingestion of Human Milk (Dockside Worker)	Recreational Beach User	Transients	Diver in Wet Suit	Diver in Dry Suit	Potential Future Domestic Water Use	In-Water Worker	Low Frequency Fisher	High Frequency Fisher	Tribal Fisher	Diver in Wet Suit	Diver in Dry Suit	Ingestion of Human Milk (In-Water Worker)	Ingestion of Human Milk (Low Frequency Fisher)	Ingestion of Human Milk (High Frequency Fisher)	Ingestion of Human Milk (Tribal Fisher)	Ingestion of Human Milk (Diver in Wet Suit)	Ingestion of Human Milk (Diver in Dry Suit)	Fish Consumption, River Mile Basis	Fish Consumption, Study Area-Wide	Tribal Fish Consumption	Ingestion of Human Milk (Non-tribal Consumption)	Ingestion of Human Milk (Tribal Consumption)	Adult Consumption	Ingestion of Human Milk (Non-tribal Consumption)
Metals																															
Antimony																											+				
Arsenic	X^{b}		X^{b}	X^{b}	O							X			X^{ab}	X^{b}									O	O	#			O	
Chromium, hexavalent												X^{a}																			
Lead[d]																											X				
Mercury																									+	+	+				
PAHs																															
Benzo(a)anthracene	X^{ab}	X^{ab}										O		X^{ab}	X^{ab}	X^{ab}	X^{ab}								X^{ab}					O	
Benzo(a)pyrene	O^{b}	O^{a}		X^{ab}	X^{b}					X^{ab}		#	X^{ab}	O^{b}	O^{b}	O	O^{b}	X^{ab}							O	X^{c}	X			#	
Benzo(b)fluoranthene	X^{ab}	X^{ab}										O		X^{ab}	X^{ab}	X^{ab}	X^{ab}													O	
Benzo(k)fluoranthene																														X^{a}	
Dibenzo(a,h)anthracene	X^{b}	X^{ab}										O		X^{ab}	X^{ab}	X^{ab}	X^{ab}								X^{ab}	X^{c}	X			O	
Indeno(1,2,3-cd)pyrene	X^{ab}	X^{ab}										O		X^{ab}	X^{ab}	X^{ab}	X^{ab}													X	
Total Carcinogenic PAHs	O	O^{a}	X^{ab}	X^{ab}	X^{b}					X^{ab}	X^{ab}	#	X^{ab}	O^{b}	O^{b}	#	O^{b}	X^{ab}							O	X	X			#	
Phthalates																															
Bis(2-ethylhexyl)phthalate																											O				
SVOCs																															
Hexachlorobenzene																										O	O				
Phenols																															
Pentachlorophenol																														X^{a}	
Polychlorinated Biphenyls																															
Total PCBs														X^{ab}	X^{ab}	O^{b}	X^{ab}				$+^{ab}$	$+^{ab}$	$+^{ab}$		#	#	#	+	+	#	+
Total PCB TEQ														X^{ab}	X^{ab}	X^{b}	X^{ab}								O	#	#	$+^{b}$	+	O	$+^{b}$
Dioxin/Furan																															
Total Dioxin TEQ													O^{ab}	O^{ab}	O^{ab}	#	O^{ab}	X^{ab}	$+^{ab}$	$+^{ab}$	$+^{ab}$	$+^{ab}$			#	#	#	+	+	#	$+^{b}$
Pesticides																															
Aldrin																														X^{a}	
Dieldrin																									O	O	O			X	
Heptachlor																											X^{e}				
Heptachlor Epoxide																														X^{abc}	
Alpha-Hexachlorocyclohexane																											X^{e}				
Beta-Hexachlorocyclohexane																									X^{abe}	X^{ce}	X^{e}				
Total Chlordane																										X^{c}	X				

Table 5-112. Chemicals Potentially Posing Unacceptable Risk

	Beach Sediment							Surface Water					In-Water Sediment											Fish Tissue					Shellfish	
Chemical of Concern	Recreational Beach User	Dockside Worker	Low-Frequency Fisher	High-Frequency Fisher	Tribal Fisher	Transients	Ingestion of Human Milk (Dockside Worker)	Recreational Beach User	Transients	Diver in Wet Suit	Diver in Dry Suit	Potential Future Domestic Water Use	In-Water Worker	Low Frequency Fisher	High Frequency Fisher	Tribal Fisher	Diver in Wet Suit	Diver in Dry Suit	Ingestion of Human Milk (In-Water Worker)	Ingestion of Human Milk (Low Frequency Fisher)	Ingestion of Human Milk (High Frequency Fisher)	Ingestion of Human Milk (Tribal Fisher)	Ingestion of Human Milk (Diver in Wet Suit)	Ingestion of Human Milk (Diver in Dry Suit)	Fish Consumption, River Mile Basis	Fish Consumption, Study Area-Wide	Tribal Fish Consumption	Ingestion of Human Milk (Non-tribal Consumption)	Ingestion of Human Milk (Tribal Consumption)	Adult Consumption	Ingestion of Human Milk (Non-tribal Consumption)
Total DDD																									X[a]	X	O			X	
Total DDE																									X	X	O			X	
Total DDT																									X	X	O			X[a]	
Total DDX																															
Herbicides																															
MCPP												+[ab]																			
Polybrominated Diphenyl Ethers																												+[ab]			

Notes:

Groundwater seep exposure resulted in no cancer or noncancer exceedances of target risk levels.

Abbreviations:

X Chemical exceeds cancer risk of 10^{-6} or a hazard quotient of 1 for at least one BHHRA scenario.
O Chemical exceeds cancer risk of 10^{-5} or a hazard quotient of 1 for at least one BHHRA scenario.
Chemical exceeds cancer risk of 10^{-4} or a hazard quotient of 1 for at least one BHHRA scenario.
+ Chemical exceeds a hazard quotient of 1 for at least one BHHRA scenario, but does not exceed a cancer risk of 10^{-6}.
a Status is result of target risk or hazard exceedance for two or fewer exposure points.
b Status is result of target risk or hazard exceedance for RME scenario only.
c Status is result of target risk or hazard exceedance only for subsistence fish consumption.
d Status for lead is based on results of predicted blood lead levels.
e Chemical status is result of target risk or hazard exceedance based on N-qualified data.

Shading indicates an exceedance of a hazard quotient of 1 for at least one BHHRA scenario.

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

SECTION 6 TABLES

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table 6-1. Uncertainties Evaluated in the Baseline Human Health Risk Assessment

Uncertainty	Magnitude/ Severity of Uncertainty	Significance to Risk Management Decisions	More Likely to Result in Over- or Under-Estimation of Risk?
Data Evaluation			
Use of target species to represent all types of biota consumed	Medium	Low	Over
Source of chemicals for anadromous and wide-ranging fish species	Medium	Low	Over
Use of only whole body or only fillet samples to represent all fish consumption	Medium	Low	Over
Use of undepurated tissue to represent clam consumption	Medium	Medium	Over
Use of different tissue types to assess the same chemical	Low	Low	Either
Detection limits that are above analytical concentration goals (ACGs)	Medium	Low	Under
Removal of Non-Detected Results Greater Than the Maximum Detected Concentration for a Given Exposure Area	Medium	Low	Either
Using N-qualified data	Medium	Low	Over
Using one-half the detection limit for non-detect results in summed analytes	Low	Low	Either
Chemicals that were not analyzed in certain samples	Medium	Low	Either
Chemicals that were not included as analytes	Low	Low	Under
Chemicals that were analyzed but not included in the BHHRA	Low	Low	Under
Data Not Included in BHHRA due to Collection Date	Medium	Low	Either
Compositing methods for biota and beach sediment sampling	Low	Low	Either
Mislabeling of smallmouth bass fish sample	Low	Low	Neither
Use of DEQ RBCs for petroleum hydrocarbon screening values	Low	Low	Under
Selection of Tissue COPCs based on detection of an analyte	Medium	Medium	Over
Exposure Assessment			
Model applicability	Medium	Low	Over
Subsurface sediment exposure	Medium	Low	Under
Exposure Scenarios			
Human Milk Consumption	Medium	High	Neither
Shellfish consumption	High	High	Over
Wet suit divers	High	High	Over
Domestic Water Use	High	High	Over
Potentially Complete and Insiginificant Exposure Pathways	Low	Low	Under
Exposure Factors			
Exposure parameters for sediment exposure scenarios	High	Medium/Low	Over
Exposure parameters for surface water and groundwater seep exposure scenarios	High	Low	Over
Exposure parameters for tissue ingestion scenarios	High	High	Over
Assumptions about a multiple-species diet	Medium	Low	Neither
Exposure Point Concentrations			
Using 5-10 samples to calculate the 95% UCL on the mean	Medium	Low	Under
Nondetects greater than the maximum detected concentrations	High	Low	Over
Using the maximum concentration to represent exposure	High	High	Over
Possible effects of preparation and cooking methods	Medium	Medium	Over
Assumptions about arsenic speciation	Low	Low	Under
Polychlorinated biphenyls (Aroclor vs. Congener analysis)	Low	Medium	Neither
Bioavailability of Chemicals	Medium	Low	Over
Smallmouth bass exposure areas	Low	Low	Neither
Surface water EPCs	Low	Low	Neither
Toxicity Assessment			
Early life exposure to carcinogens	Low	Low	Under
Lack of toxicity values for delta-hexachlorocyclohexane and titanium	High	Low	Under
Use of toxicity values from surrogate chemicals for some chemicals that lack toxicity values	Medium	Low	Either
Toxicity values for chromium	Medium	Low	Neither
Toxicity values for polychlorinated biphenyls and applicability to environmental data	Medium	Low	Over
Risk Characterization			
Risks from cumulative or overlapping scenarios	Medium	Low	Over
Risks from background	Medium	High	Over
Risks from lead exposure	Medium	Medium	Over
Future risks	Medium/High	Low	Either

Note:

a The determination of the range of magnitude of uncertainty is provided in BHHRA Attachment F6: Supporting Documentation for the Uncertainty Analysis. Magnitude of uncertainties that are not quanitified are based on best professional judgement.

Table 6-2.
Comparison of Concentrations in Chinook Salmon Tissue Samples.

Parameter	Units	Tissue Sample Results by River Collected			
		Chehalis	Queets	Quinault	Lower Willamette
Total PCB Aroclors	ug/kg	5.00	5.60	6.30	2.0E+01
Total PCB congeners	pg/g	5.1E+03	4.7E+03	4.4E+03	1.5E+04
Total DDT	ug/kg	2.63	2.56	3.53	2.0E+00
2, 3, 7, 8-TCDD TEQ	pg/g	0.09	0.23	0.22	1.9E-01
Mercury	mg/kg	0.049	0.041	0.030	1.0E-01

Notes:
Tissue concentrations are for Chinook samples, fillet with skin.
Tissue concentrations for the Lower Willamette are the maximum detected concentrations.

Table F6-3. Mercury Concentrations in Fillet Tissue With and Without Skin For Samples Collected Within the Study Area

Location	Species	Tissue Type	Concentration	Units
CP0004	Common Carp	fillet with skin	6.2E-02	mg/kg
CP0004	Common Carp	fillet with skin	7.5E-02	mg/kg
CP0004	Common Carp	fillet with skin	6.2E-02	mg/kg
CP0408	Common Carp	fillet with skin	7.3E-02	mg/kg
CP0408	Common Carp	fillet with skin	5.4E-02	mg/kg
CP0408	Common Carp	fillet with skin	7.2E-02	mg/kg
CP0812	Common Carp	fillet with skin	4.9E-02	mg/kg
CP0812	Common Carp	fillet with skin	4.1E-02	mg/kg
CP0812	Common Carp	fillet with skin	5.9E-02	mg/kg
FZ0306	Common Carp	fillet without skin	1.9E-01	mg/kg
FZ0306	Common Carp	fillet without skin	1.3E-01	mg/kg
FZ0609	Common Carp	fillet without skin	9.8E-02	mg/kg
FZ0609	Common Carp	fillet without skin	8.4E-02	mg/kg
FZ0609	Common Carp	fillet without skin	7.4E-02	mg/kg
Average fillet with skin concentration			**6.1E-02**	**mg/kg**
Average fillet without skin concentration			**1.2E-01**	**mg/kg**
LW3-SB010W-C00	Smallmouth Bass	fillet with skin	1.1E-01	mg/kg
LW3-SB011E-C00	Smallmouth Bass	fillet with skin	1.8E-01	mg/kg
LW3-SB010E-C00	Smallmouth Bass	fillet with skin	2.4E-01	mg/kg
LW3-SB011W-C00	Smallmouth Bass	fillet with skin	1.9E-01	mg/kg
LW3-SB02E-C00	Smallmouth Bass	fillet with skin	6.3E-02	mg/kg
LW3-SB03E-C00	Smallmouth Bass	fillet with skin	1.6E-01	mg/kg
LW3-SB03W-C00	Smallmouth Bass	fillet with skin	1.8E-01	mg/kg
LW3-SB04E-C00	Smallmouth Bass	fillet with skin	2.4E-01	mg/kg
LW3-SB04W-C00	Smallmouth Bass	fillet with skin	1.7E-01	mg/kg
LW3-SB05W-C00	Smallmouth Bass	fillet with skin	2.1E-01	mg/kg
LW3-SB06E-C00	Smallmouth Bass	fillet with skin	1.5E-01	mg/kg
LW3-SB06W-C00	Smallmouth Bass	fillet with skin	9.6E-02	mg/kg
LW3-SB07E-C00	Smallmouth Bass	fillet with skin	2.5E-01	mg/kg
LW3-SB07W-C00	Smallmouth Bass	fillet with skin	1.9E-01	mg/kg
LW3-SB08E-C00	Smallmouth Bass	fillet with skin	9.8E-02	mg/kg
LW3-SB08W-C00	Smallmouth Bass	fillet with skin	5.9E-02	mg/kg
LW3-SB09E-C00	Smallmouth Bass	fillet with skin	1.5E-01	mg/kg
LW3-SB09W-C00	Smallmouth Bass	fillet with skin	3.5E-01	mg/kg
LWG0103R014Zone	Smallmouth Bass	fillet without skin	1.3E-01	mg/kg
LWG0105R006Zone	Smallmouth Bass	fillet without skin	8.7E-02	mg/kg
LWG0106R024Zone	Smallmouth Bass	fillet without skin	7.3E-02	mg/kg
LWG0108R032Zone	Smallmouth Bass	fillet without skin	1.1E-01	mg/kg
LWG0109R006Zone	Smallmouth Bass	fillet without skin	7.1E-02	mg/kg
Average fillet with skin concentration			**1.7E-01**	**mg/kg**
Average fillet without skin concentration			**9.5E-02**	**mg/kg**

Table 6-4. Comparison of Detection Limits of Undetected Analytes in Sediment to LWG Analytical Concentration Goals.

Analyte	Maximum Detection Limit (ug/kg)	Minimum Detection Limit (ug/kg)	ACG (ug/kg)	MRL (ug/kg)	Max DL>ACG?	Max DL>MRL?
Semi-Volatile Organic Compounds						
N-Nitrosodimethylamine	10,800	6.1	0.0073	100	Y	Y
N-Nitrosodipropylamine	2,150	2.4	0.053	20	Y	Y
Phenols						
2,3,4,6-Tetrachlorophenol	2,150	9.63	157	100	Y	Y
Pesticides						
Toxaphene	9,900	3.4	0.0059	20	Y	Y

Notes:
sediment samples for the human health data set (RM 1.9-

Abbreviations:
ACG = Analytical Concentration Goal.
DL = Detection Limit.
LWG = Lower Willamette Group.
Max = Maximum.
MRL = Method Reporting Limit.
ug/kg = microgram per kilogram.
Y = Yes.

Table 6-5. Comparison of Detection Limits of Undetected Analytes in Fish and Shellfish Tissue to LWG Analytical Concentration Goals.

Analytea	Maximum Detection Limit (ug/kg)	Minimum Detection Limit (ug/kg)	ACG (ug/kg)	MRL (ug/kg)	Max DL>ACG?	Max DL>MRL?
Semi-Volatile Organic Compounds						
1,2-Dichlorobenzene	96	11	1,620	12.5	N	--
1,4-Dichlorobenzene	66	11	17	12.5	Y	Y
Carbazole	37	17	21	12.5	Y	Y
Hexachloroethane	37	1	18	12.5	Y	Y
Phenols						
2,4,5-Trichlorophenol	1,600	14	1,800	40[b]	N	--
2,4,6-Trichlorophenol	37	9.1	117	40[b]	N	--
2,4-Dichlorophenol	37	9.5	54	40[b]	N	--
2-Chlorophenol	67	7.5	90	40[b]	N	--
Polychlorinated Biphenyls						
Aroclor 1016	470	0.95	0.21	2	Y	Y
Aroclor 1221	390	0.95	0.21	4	Y	Y
Aroclor 1242	630	0.95	0.21	2	Y	Y
Aroclor 1262	190	0.95	0.21	2	Y	Y
Aroclor 1268	190	0.95	0.21	2	Y	Y

Notes:

a Chemicals listed are those analyzed for but never detected in human health tissue samples (includes all tissue types and species used in BHHRA: smallmouth bass, clam, crayfish, carp, brown bullhead, black crappie, sturgeon, lamprey, chinook salmon), and for which an ACG was established in the Round 1 QAPP (LWG 2002, Table A7-5).

b MRLs presented for phenols are from Round 2 QAPP Addendum 9 (LWG 2007, Table A6-5).

Abbreviations:

-- = Not applicable. DL compared to MRL only if maximum DL exceeds ACG.
ACG = Analytical Concentration Goal.
DL = Detection Limit.
LWG = Lower Willamette Group.
Max = Maximum.
MRL = Method Reporting Limit.
N = No.
NE = Not established.
QAPP = Quality Assurance Project Plan.
ug/kg = microgram per kilogram.
Y = Yes.

Table 6-6. Comparison of Detection Limits of Undetected Analytes in the Groundwater Seep to LWG Analytical Concentration Goals.

Analyte	Maximum Detection Limit (ug/l)	Minimum Detection Limit (ug/l)	ACG (ug/l)	MRL (ug/l)	Max DL>ACG?	Max DL > MRL?
Metals						
Chromium hexavalent	4.55	4.55	2	0.5	Y	Y
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.05	0.0149	0.09	0.02	N	--
Benzo(a)anthracene	0.05	0.0436	0.65	0.02	N	--
Benzo(a)pyrene	0.05	0.0465	0.3	0.02	N	--
Pesticides						
4,4'-DDD	0.05	0.00479	1.69	0.01	N	--
4,4'-DDT	0.05	0.00508	0.001	0.01	Y	Y
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.5	0.0859	3493	0.5	N	--
79-34-5						
1,1,2-Trichloroethane	0.5	0.301	9400	0.5	N	--
1,1-Dichloroethane	0.5	0.157	14680	0.5	N	--
1,1-Dichloroethene	0.5	0.197	>2800	0.5	N	--
1,2-Dichloroethane	0.5	0.142	15200	0.5	N	--
Carbon disulfide	0.5	0.233	244	0.5	N	--
Carbon tetrachloride	0.5	0.14	1970	0.5	N	--
cis-1,3-Dichloropropene	0.5	0.128	244	0.5	N	--
Chloroform	0.5	0.143	1240	0.5	N	--
Ethylbenzene	0.5	0.11	>440	0.5	N	--
m,p-Xylene	1	0.295	62308	0.5	N	--
o-Xylene	0.5	0.187	62308	0.5	N	--
Toluene	0.5	0.155	1269	0.5	N	--
trans-1,2-Dichloroethene	0.5	0.175	9538	0.5	N	--
trans-1,3-Dichloropropene	0.5	0.152	244	0.5	N	--

Notes:

Chemicals listed are those analyzed for but never detected in human health groundwater seep samples from Outfall 22B, and for which an ACG was established in the Round 2 Quality Assurance Project Plan Addendum 3, Table A6-2.

Abbreviations:

-- = Not applicable. DL compared to MRL only if maximum DL exceeds ACG.
ACG = Analytical Concentration Goal.
DL = Detection Limit.
LWG = Lower Willamette Group.
Max = Maximum.
MRL = Method Reporting Limit.
N = No.
NE = Not established.
ug/l = microgram per liter.
Y = Yes.

Table 6-7. Comparison of Detection Limits of Undetected Analytes in Human Health Surface Water Samples to LWG Analytical Concentration Goals.

Analytea	Maximum Detection Limitb (ug/l)	Minimum Detection Limitb (ug/l)	ACGc (ug/l)	MRL-peristaltic pump (ug/l)	MRL-XAD (ug/l)	Max DL>ACG?	Max DL > MRL-perist?	Max DL > MRL-XAD?
Semi-Volatile Organic Compounds								
1,2,4-Trichlorobenzene	0.018	0.016	50	0.2	NA	N	--	--
1,2-Dichlorobenzene	0.017	0.015	14	0.2	NA	N	--	--
1,3-Dichlorobenzene	0.013	0.011	5.5	0.2	NA	N	--	--
2,4-Dinitrotoluene	0.023	0.02	3.4	0.2	NA	N	--	--
2,6-Dinitrotoluene	0.011	0.0088	36	0.2	NA	N	--	--
2-Chloronaphthalene	0.018	0.016	490	0.2	NA	N	--	--
2-Nitroaniline	0.018	0.015	1	0.2	NA	N	--	--
3,3'-Dichlorobenzidine	0.51	0.43	0.028	2	NA	Y	N	N
4-Bromophenyl phenyl ether	0.021	0.018	1.5	0.2	NA	N	--	--
Benzyl alcohol	1.2	0.98	8.6	5	NA	N	--	--
111-91-1								
Bis(2-chloroethyl) ether	0.017	0.015	0.0098	0.2	NA	Y	N	N
Hexachlorocyclopentadiene	0.048	0.041	5.2	1	NA	N	--	--
Hexachloroethane	0.022	0.000472	303	0.2	NA	N	--	--
Nitrobenzene	0.0088	0.0074	3.4	0.2	NA	N	--	--
N-Nitrosodimethylamine	0.5	0.42	0.0013	0.002	NA	Y	Y	N
N-Nitrosodiphenylamine	0.033	0.028	6	0.2	NA	N	--	--
N-Nitrosodipropylamine	0.038	0.033	0.0096	0.2	NA	Y	N	N
Phenols								
2,3,4,6-Tetrachlorophenol	1.2	1	1100	NA	NA	N	--	--
2,4,5-Trichlorophenol	0.03	0.026	63	0.5	NA	N	--	--
2,4,6-Trichlorophenol	0.044	0.037	2.4	0.5	NA	N	--	--
2,4-Dichlorophenol	0.028	0.024	110	0.5	NA	N	--	--
2,4-Dimethylphenol	0.38	0.32	730	2	NA	N	--	--
2,4-Dinitrophenol	0.63	0.53	73	4	NA	N	--	--
2-Chlorophenol	0.018	0.015	30	0.5	NA	N	--	--
2-Methylphenol	0.07	0.06	13	0.5	NA	N	--	--
4,6-Dinitro-2-methylphenol	0.016	0.013	280	2	NA	N	--	--
4-Methylphenol	0.06	0.051	180	0.5	NA	N	--	--
4-Nitrophenol	0.63	0.54	150	2	NA	N	--	--
Pentachlorophenol	0.061	0.029	0.56	1	NA	N	--	--
Pesticides								
Toxaphene	0.134	0.0085	0.0002	0.025	NA	Y	Y	N
Herbicides								
2,4,5-T	0.21	0.042	360	0.2	NA	N	--	--
Dicamba	0.43	0.059	1100	0.4	NA	N	--	--
Dinoseb	0.23	0.045	36	0.2	NA	N	--	--
Silvex	0.21	0.042	290	0.2	NA	N	--	--

Notes:

a Chemicals listed are those analyzed for but never detected in human health surface water samples, and for which an ACG was established in the Round 2 Quality Assurance Project Plan Addendum 1, Table A6-2.

b Maximum and Minimum Detection Limits are for the combined data set of both peristaltic and XAD surface water samples.

c Level 2 ACG used for screening: the lowest of the EPA Region 9 PRGs for Tap Water (EPA 2004b), NRWQC freshwater aquatic life criteria and human health criteria (EPA 2006a), ORNL values (Suter and Tsao 1996), and the fish consumption criteria from the Revised Human Health Water Quality Criteria (EPA 2003a).

Abbreviations:

-- = Not applicable. DL compared to MRL only if maximum DL exceeds ACG.
ACG = Analytical Concentration Goal.
DL = Detection Limit.
LWG = Lower Willamette Group.
Max = Maximum.
MRL = Method Reporting Limit.
N = No.
NA = Not available.
ug/l = microgram per liter.
Y = Yes.

Table 6-8. Clam Samples Missing Analytes.

Sample ID	Butyltins	Metals	PAHs	Pesticides	Phenols	Phthalates	SVOCs	Total Aroclors	Chlordanes	DDD	DDE	DDT	Dioxin/Furan TEQ	Endosulfans	PCB Congeners
LW2-BTFC001								NA							
LW2-BTFC002								NA							
LW2-BTFC003								NA							
LW2-BTFC004								NA							
LW2-BTFC005								NA							
LW2-BTFC006 Rep 1								NA							
LW2-BTFC007								NA							
LW2-BTFC008								NA							
LW2-BTFC009				NA				NA	NA	NA	NA	NA		NA	NA
LW2-BTFC010								NA							
LW2-BTFC011	NA	NA	NA				NA (dibenzofuran)[a]	NA							
LW2-BTFC012								NA							
LW2-BTFC013								NA							
LW2-BTFC014								NA							
LW2-BTFC015	NA	NA (mercury)						NA							
LW2-BTFC016	NA							NA							
LW2-BTFC017								NA							
LW2-BTFC018	NA	NA			NA	NA	NA (benzyl alcohol)	NA							
LW2-BTFC019								NA							
LW2-BTFC020								NA							
LW2-BTFC021								NA					NA		
LW2-BTFC022								NA					NA		
LW2-BTFC023		NA (mercury)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LW2-BTFC024								NA							
LW2-BTFC025								NA							
LW2-BTFC026	NA							NA							
LW2-BTFC027 Rep 1								NA							
LW2-BTFC028								NA							
LW2-BTFC029	NA	NA	NA		NA	NA	NA	NA							
LW2-BTFC030								NA							
LW2-BTFC031								NA							
LW2-BTFC032	NA	NA	NA		NA	NA	NA	NA							
LW2-BTFC033	NA	NA			NA	NA	NA	NA							

Abbreviations:

DDD = Dichlorodiphenyldichloroethane.
DDE = Dichlorodiphenyldichloroethylene.
DDT = Dichlorodiphenyltrichloroethane.
PAHs = Polynuclear Aromatic Hydrocarbons.
PCBs = Polychlorinated Biphenyls.
SVOCs = Semivolatile Organic Compounds.
TEQ = Toxic equivalents.
NA = Not Applicable. Chemical group was not analyzed for a particular clam sample.

PORTLAND HARBOR RI/FS

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APPENDIX F

BASELINE HUMAN HEALTH RISK ASSESSMENT

SECTION 7 TABLE

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants

Table 7-1. Chemicals Potentially Posing Unacceptable Risks for Human Health

	Beach Sediment							Surface Water					In-Water Sediment												Fish Tissue					Shellfish	
Chemical of Concern	Recreational Beach User	Dockside Worker	Low-Frequency Fisher	High-Frequency Fisher	Tribal Fisher	Transients	Ingestion of Human Milk (Dockside Worker)	Recreational Beach User	Transients	Diver in Wet Suit	Diver in Dry Suit	Potential Future Domestic Water Use	In-Water Worker	Low Frequency Fisher	High Frequency Fisher	Tribal Fisher	Diver in Wet Suit	Diver in Dry Suit	Ingestion of Human Milk (In-Water Worker)	Ingestion of Human Milk (Low Frequency Fisher)	Ingestion of Human Milk (High Frequency Fisher)	Ingestion of Human Milk (Tribal Fisher)	Ingestion of Human Milk (Diver in Wet Suit)	Ingestion of Human Milk (Diver in Dry Suit)	Fish Consumption, River Mile Basis	Fish Consumption, Study Area-Wide	Tribal Fish Consumption	Ingestion of Human Milk (Non-tribal Consumption)	Ingestion of Human Milk (Tribal Consumption)	Adult Consumption	Ingestion of Human Milk (Non-tribal Consumption)
Metals																															
Antimony																											+				
Arsenic	X[b]		X[b]	X[b]	O							X			X[ab]	X[b]									O	O	#			O	
Chromium, hexavalent												X[a]																			
Lead[d]																											X				
Mercury																									+	+	+				
PAHs																															
Benzo(a)anthracene	X[ab]	X[ab]										O		X[ab]	X[ab]	X[ab]	X[ab]								X[ab]					O	
Benzo(a)pyrene	O[b]	O[a]		X[ab]	X[b]					X[ab]		#	X[ab]	O[b]	O[b]	O	O[b]	X[ab]							O	X[c]	X			#	
Benzo(b)fluoranthene	X[ab]	X[ab]										O		X[ab]	X[ab]	X[ab]	X[ab]													O	
Benzo(k)fluoranthene																														X[a]	
Dibenzo(a,h)anthracene	X[b]	X[ab]										O		X[ab]	X[ab]	X[ab]	X[ab]								X[ab]	X[c]	X			O	
Indeno(1,2,3-cd)pyrene	X[ab]	X[ab]										O		X[ab]	X[ab]	X[ab]	X[ab]													X	
Total Carcinogenic PAHs	O	O[a]	X[ab]	X[ab]	X[b]					X[ab]	X[ab]	#	X[ab]	O[b]	O[b]	#	O[b]	X[ab]							O	X	X			#	
Phthalates																															
Bis(2-ethylhexyl)phthalate																											O				
SVOCs																															
Hexachlorobenzene																										O	O				
Phenols																															
Pentachlorophenol																														X[a]	
Polychlorinated Biphenyls																															
Total PCBs														X[ab]	X[ab]	O[b]	X[ab]				+[ab]	+[ab]	+[ab]		#	#	#	+	+	#	+
Total PCB TEQ														X[ab]	X[ab]	X[b]	X[ab]								O	#	#	+[b]	+	O	+[b]
Dioxin/Furan																															
Total Dioxin TEQ													O[ab]	O[ab]	O[ab]	#	O[ab]	X[ab]	+[ab]	+[ab]	+[ab]	+[ab]			#	#	#	+	+	#	+[b]
Pesticides																															
Aldrin																														X[a]	
Dieldrin																									O	O	O			X	
Total Chlordane																										X[c]	X				

Table 7-1. Chemicals Potentially Posing Unacceptable Risks for Human Health

	Beach Sediment							Surface Water					In-Water Sediment												Fish Tissue					Shellfish	
Chemical of Concern	Recreational Beach User	Dockside Worker	Low-Frequency Fisher	High-Frequency Fisher	Tribal Fisher	Transients	Ingestion of Human Milk (Dockside Worker)	Recreational Beach User	Transients	Diver in Wet Suit	Diver in Dry Suit	Potential Future Domestic Water Use	In-Water Worker	Low Frequency Fisher	High Frequency Fisher	Tribal Fisher	Diver in Wet Suit	Diver in Dry Suit	Ingestion of Human Milk (In-Water Worker)	Ingestion of Human Milk (Low Frequency Fisher)	Ingestion of Human Milk (High Frequency Fisher)	Ingestion of Human Milk (Tribal Fisher)	Ingestion of Human Milk (Diver in Wet Suit)	Ingestion of Human Milk (Diver in Dry Suit)	Fish Consumption, River Mile Basis	Fish Consumption, Study Area-Wide	Tribal Fish Consumption	Ingestion of Human Milk (Non-tribal Consumption)	Ingestion of Human Milk (Tribal Consumption)	Adult Consumption	Ingestion of Human Milk (Non-tribal Consumption)
Total DDD																									X[a]	X	O			X	
Total DDE																									X	X	O			X	
Total DDT																									X	X	O			X[a]	
Total DDX																															
Herbicides																															
MCPP												+[ab]																			
Polybrominated Diphenyl Ethers																												+[ab]			

Notes:

Groundwater seep exposure resulted in no cancer or noncancer exceedances of target risk levels.

Abbreviations:

X Chemical exceeds cancer risk of 10^{-5} or a hazard quotient of 1 for at least one BHHRA scenario.
O Chemical exceeds cancer risk of 10^{-5} or a hazard quotient of 1 for at least one BHHRA scenario.
\# Chemical exceeds cancer risk of 10^{-4} or a hazard quotient of 1 for at least one BHHRA scenario.
\+ Chemical exceeds a hazard quotient of 1 for at least one BHHRA scenario, but does not exceed a cancer risk of 10^{-6}.
a Status is result of target risk or hazard exceedance for two or fewer exposure points.
b Status is result of target risk or hazard exceedance for RME scenario only.
c Status is result of target risk or hazard exceedance only for subsistence fish consumption.
d Status for lead is based on results of predicted blood lead levels.

Shading indicates an exceedance of a hazard quotient of 1 for at least one BHHRA scenario.

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APPENDIX F

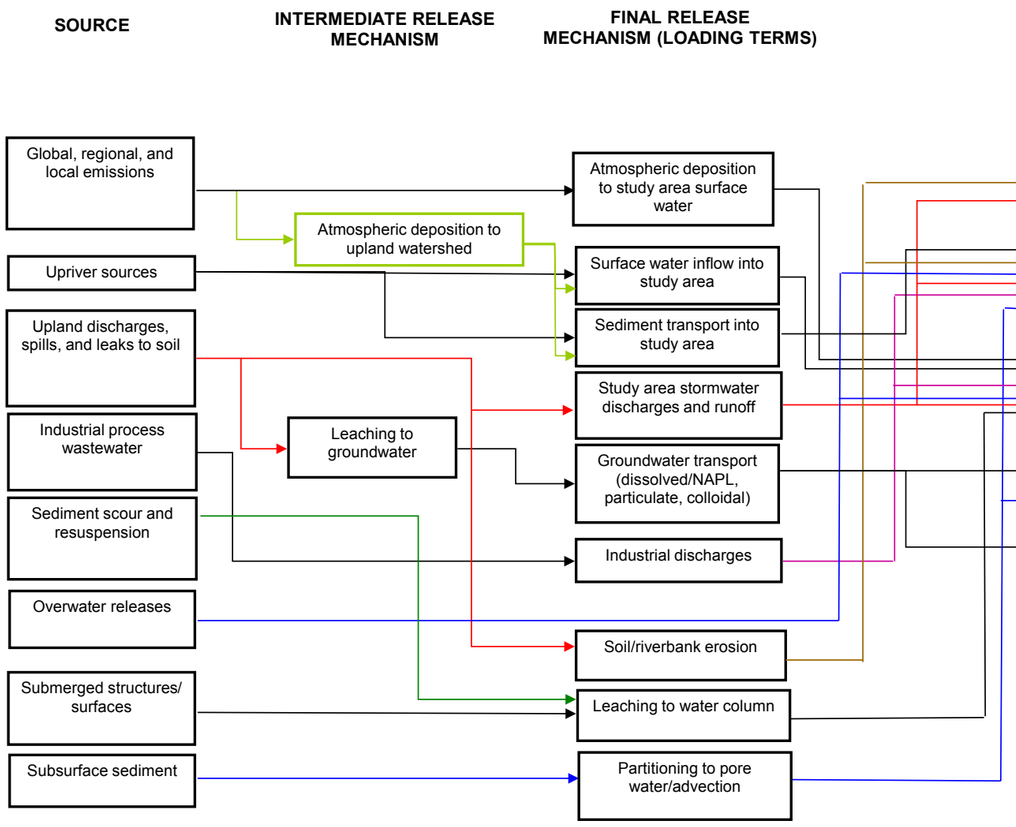
BASELINE HUMAN HEALTH RISK ASSESSMENT

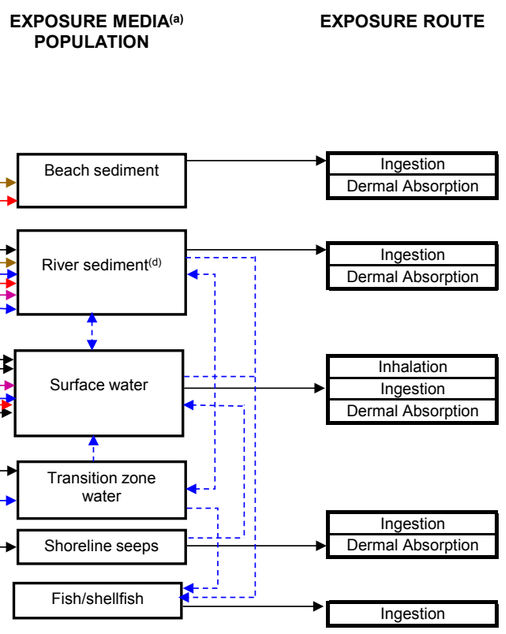
FIGURES

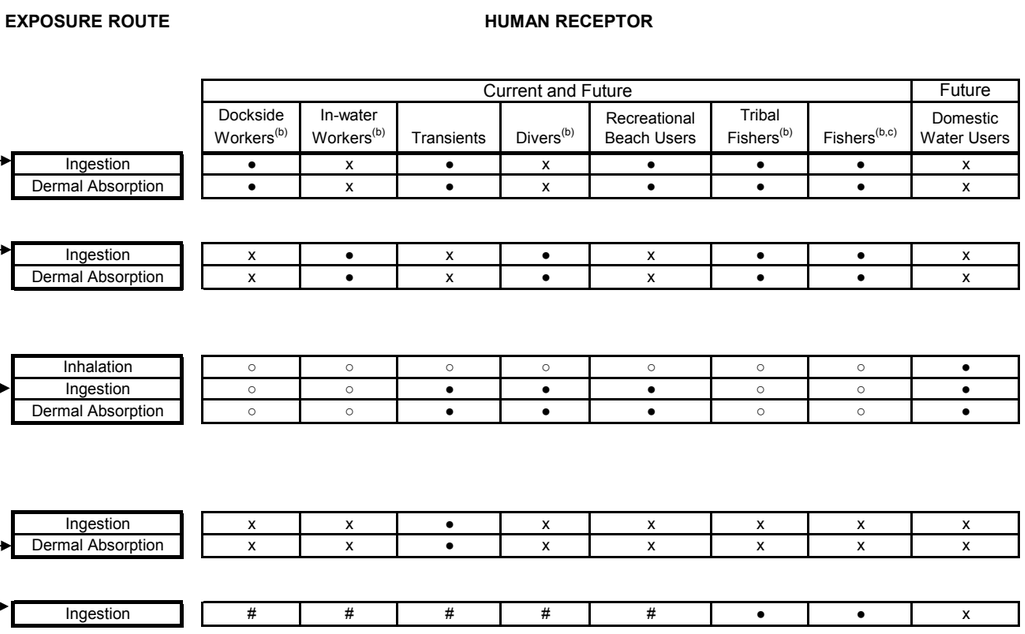
March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants







HUMAN RECEPTOR

	Current and Future							Future
	Dockside Workers[b]	In-water Workers[b]	Transients	Divers[b]	Recreational Beach Users	Tribal Fishers[b]	Fishers[b,c]	Domestic Water Users
Ingestion	●	x	●	x	●	●	●	x
Dermal Absorption	●	x	●	x	●	●	●	x
Ingestion	x	●	x	●	x	●	●	x
Dermal Absorption	x	●	x	●	x	●	●	x
Inhalation	○	○	○	○	○	○	○	●
Ingestion	○	○	●	●	●	○	○	●
Dermal Absorption	○	○	●	●	●	○	○	●
Ingestion	x	x	●	x	x	x	x	x
Dermal Absorption	x	x	●	x	x	x	x	x
Ingestion	#	#	#	#	#	●	●	x

Notes:
(a) This CSM includes exposure to media considered a part of the Portland Harbor RI/FS. It does not include media that will be evaluated as a part of the specific upland site evaluations and risk assessments.
(b) Infant consumption of human milk evaluated as a potentially complete pathway for all adult receptors where PCBs, dioxins, or DDX are COPCs.
(c) Fishers include three different fish ingestion rates, two different shellfish ingestion rates, and two different fishing frequencies.
(d) River sediments evaluated in the BHHRA as an exposure media for ingestion and dermal absorption exposure routes include sediments collected at depths less than 30.5 centimeters.

Legend

● = Potentially complete pathway.

x = Incomplete pathway

= Potentially complete pathway but evaluated under a different receptor category in the BHHRA.

○ = Potentially complete pathway but not evaluated in the BHHRA because exposure is expected to be insignificant.

——— Solid lines indicate potential pathways for COPCs to the study area.

- - - - - - Dashed lines indicated potential transport pathways for COPCs between exposure media within the study area

Acronyms
BHHRA (Baseline Human Health Risk Assessment)
COPCs (Chemicals of Potential Concern)
CSM (Conceptual Site Model)
NAPL (Non-Aqueous Phase Liquid)
RI/FS = Remedial Investigation/Feasibility Study

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Figure 3-1
Human Health Risk Assessment Conceptual Site Model

Figure 6-1
Concentration Ratios For Smallmouth Bass Collected at East and West Sides of River

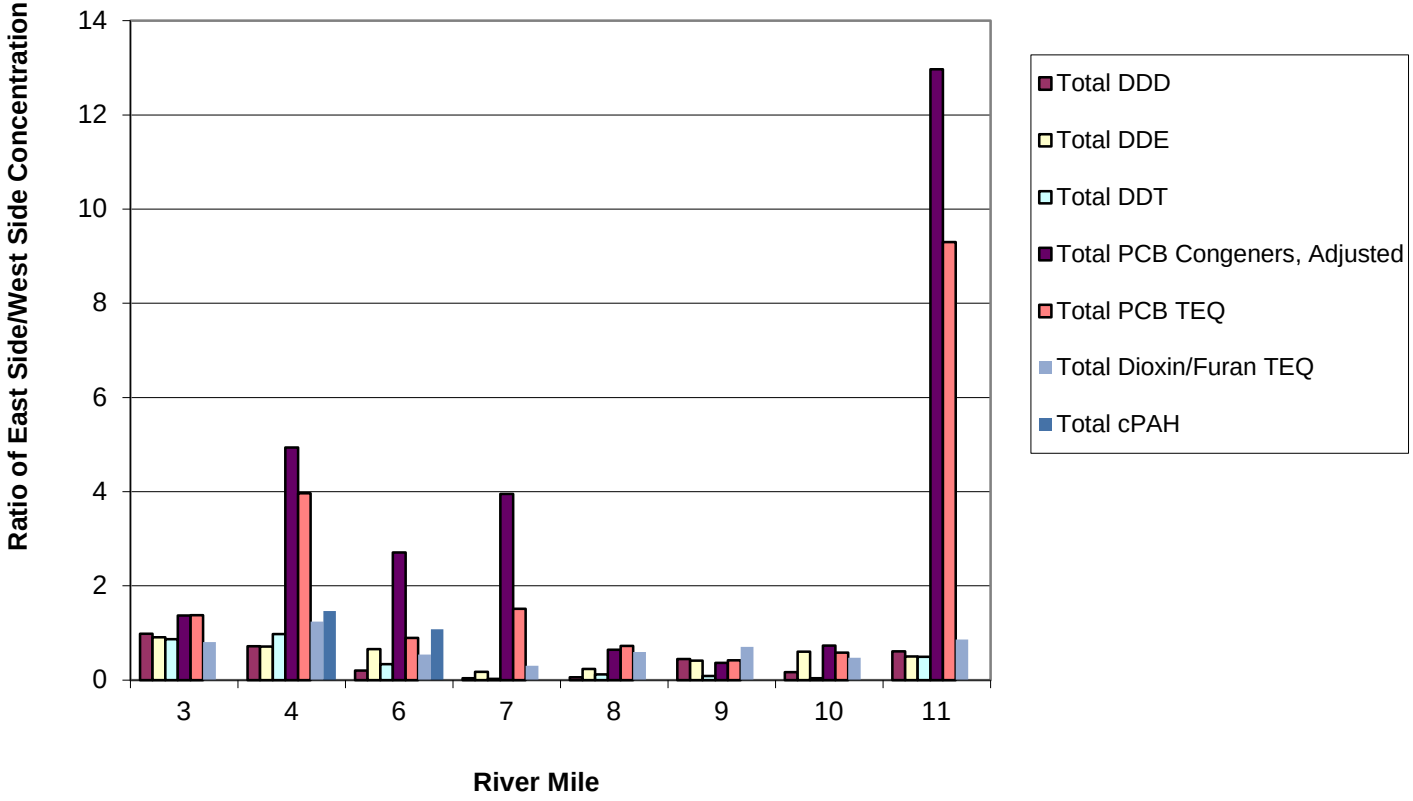
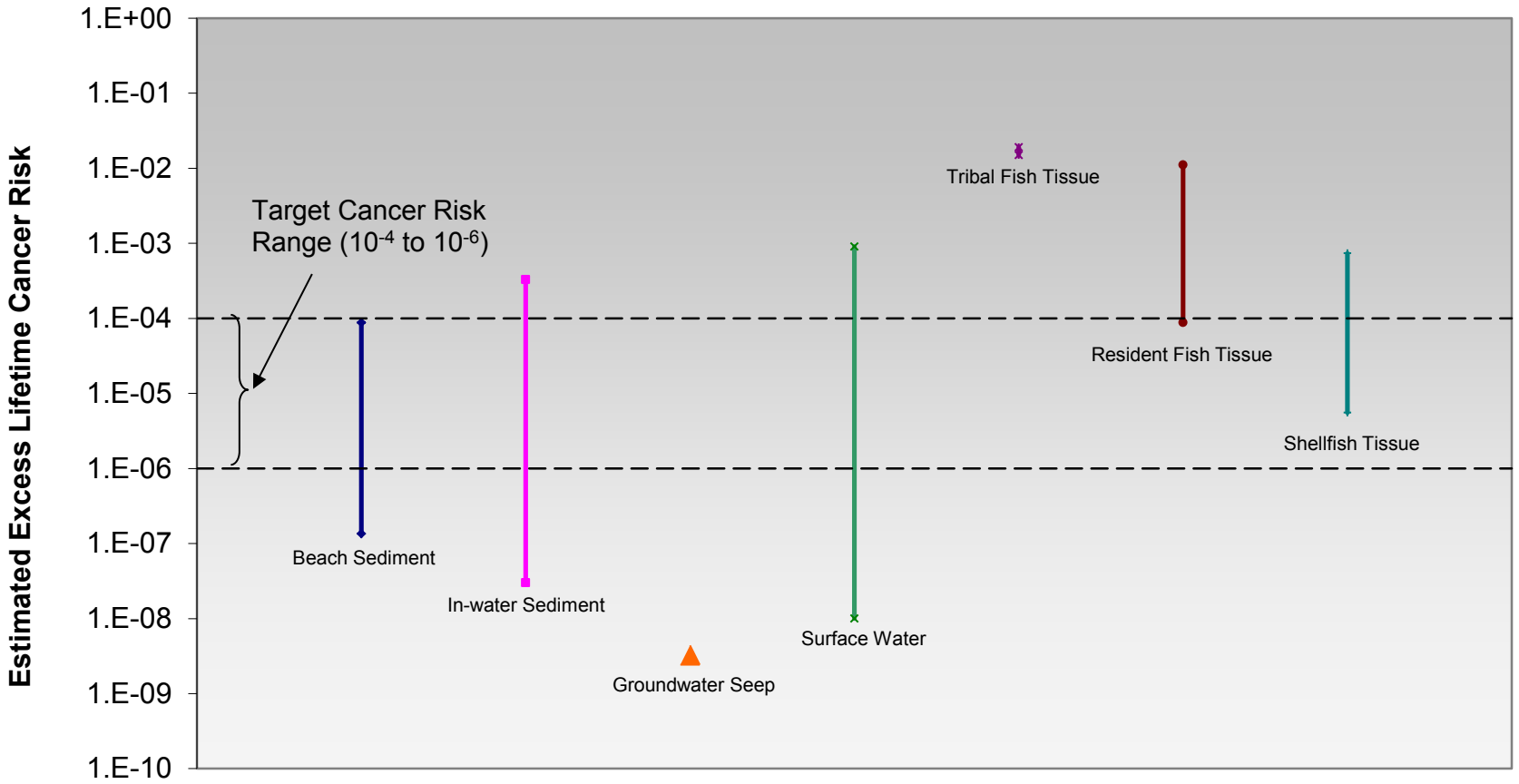
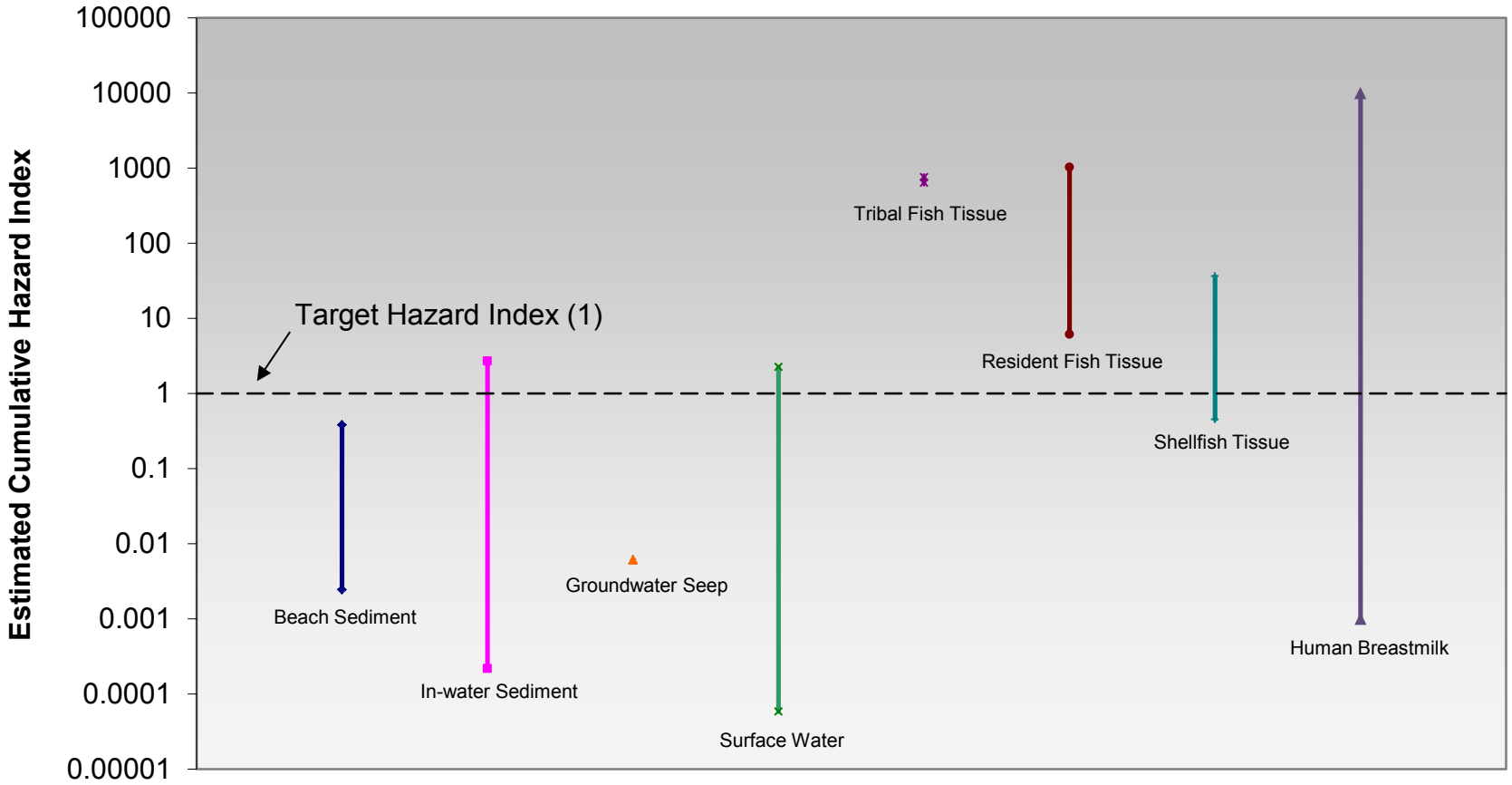


Figure 7-1
Ranges of Cancer Risk, by Medium, RME



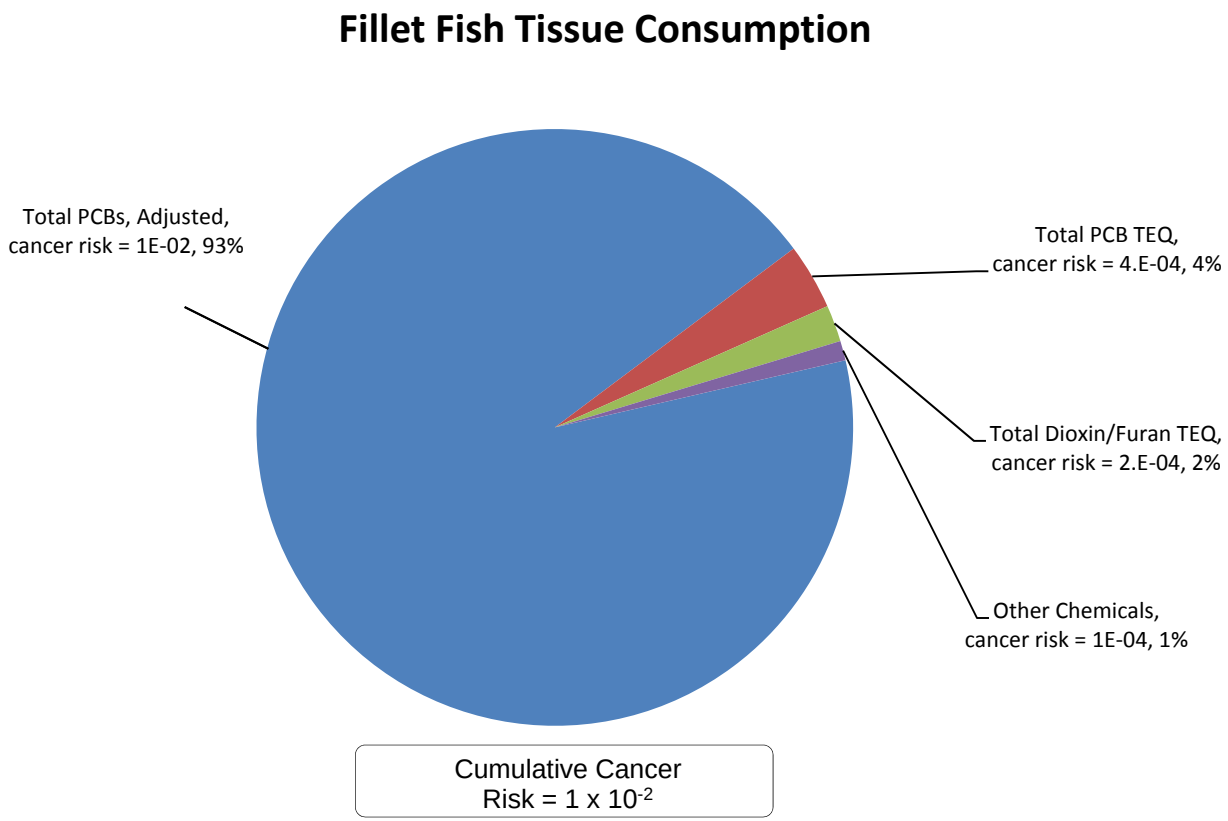
Note: Ranges presented include all human receptors and scenarios evaluated for exposure to the given medium.

Figure 7-2
Ranges of Hazard Indexes, by Medium, RME



Note: Ranges presented include all human receptors and scenarios evaluated for exposure to the given medium.

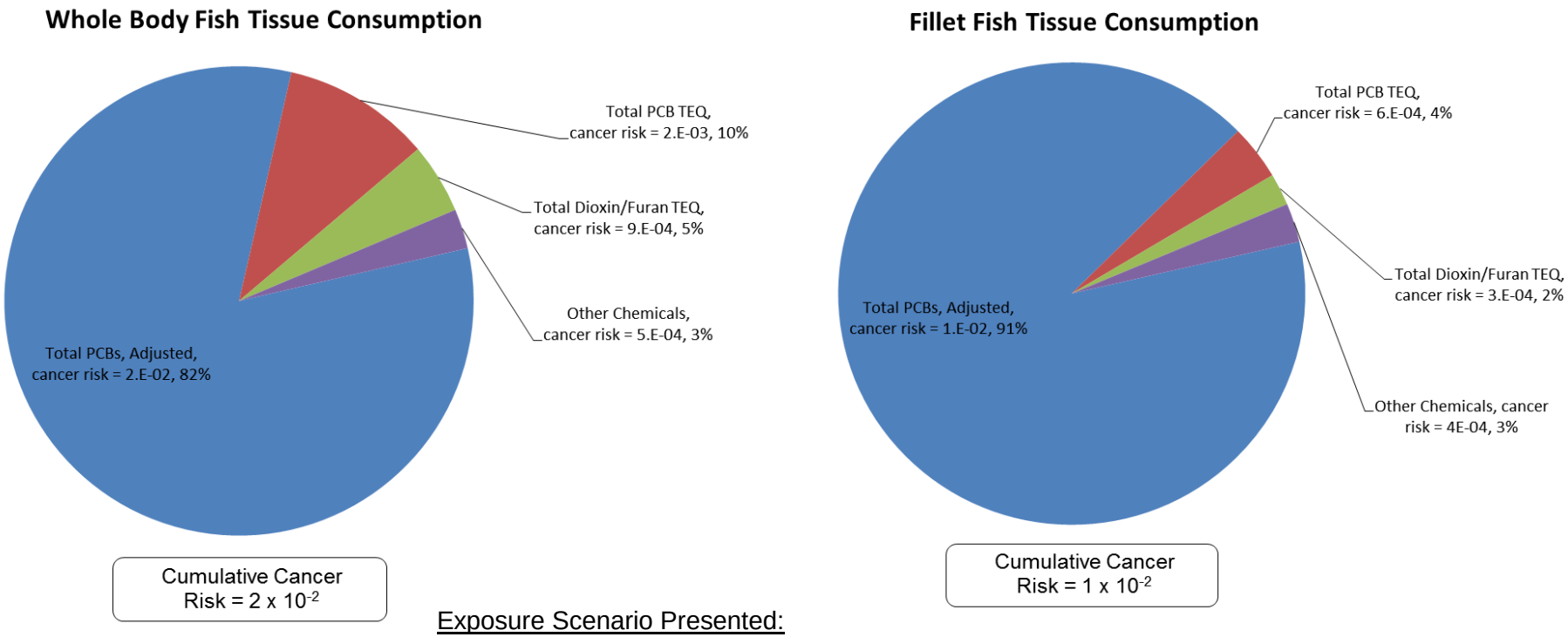
Figure 7-3. Relative Contribution of Individual Analytes to Cumulative Study Area-Wide Risk, Subsistence Fish Consumption



Exposure Scenario Presented:
Subsistence Fisher
Multi-species Diet
142 g/day Consumption Rate, Adult
60 g/day Consumption Rate, Child
Study Area-Wide Exposure

Note: Total PCBs, adjusted includes total PCB congeners minus dioxin-like PCB congeners. Total PCB TEQ includes dioxin-like PCB congeners. Percentages calculated before rounding.

Figure 7-4. Relative Contribution of Individual Analytes to Cumulative Study Area-Wide Risk, Tribal Fish Consumption



Exposure Scenario Presented:
Tribal Fisher
Multi-species Diet
175 g/day Consumption Rate, Adult
73 g/day Consumption Rate, Child
Study Area-Wide Exposure

Note: Total PCBs, adjusted includes total PCB congeners minus dioxin-like PCB congeners. Total PCB TEQ includes dioxin-like PCB congeners. Percentages calculated before rounding.

PORTLAND HARBOR RI/FS

FINAL REMEDIAL INVESTIGATION REPORT

APPENDIX F

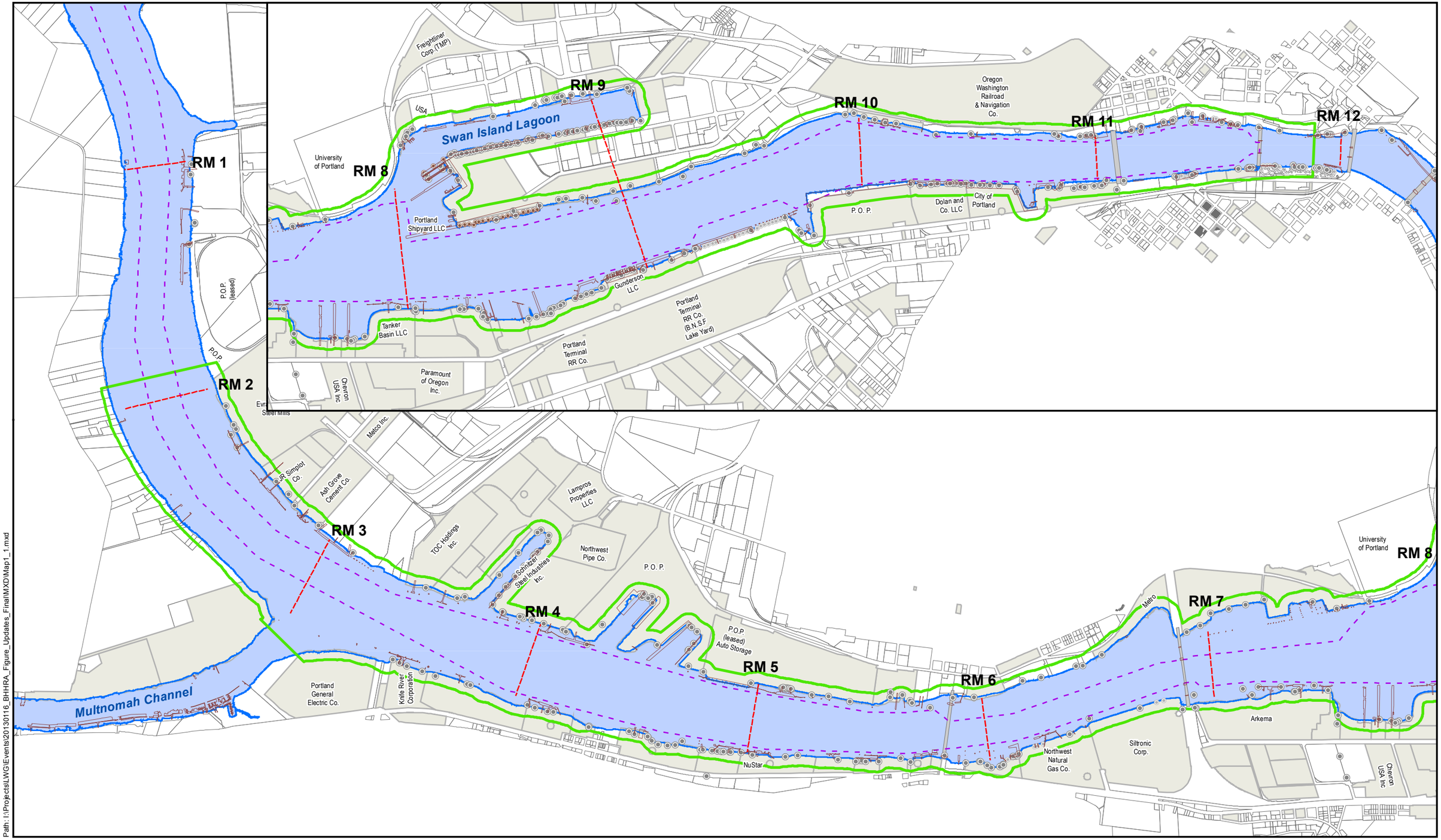
BASELINE HUMAN HEALTH RISK ASSESSMENT

MAPS

March 28, 2013

Produced for
The Lower Willamette Group and
United States Environmental Protection Agency

Produced by
Kennedy/Jenks Consultants



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

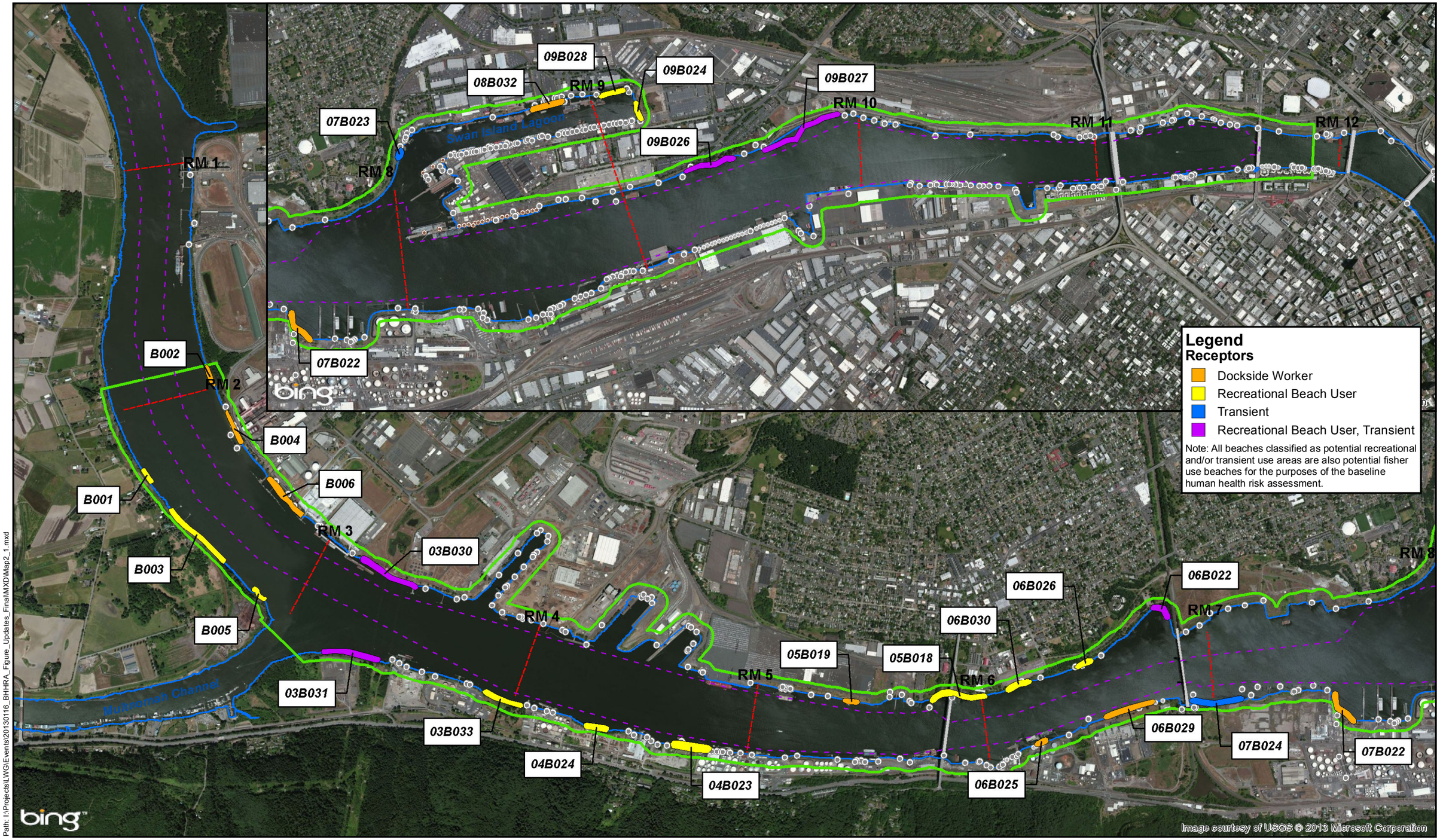
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 1-1
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Study Area Boundary for Baseline Human Health Risk Assessment



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

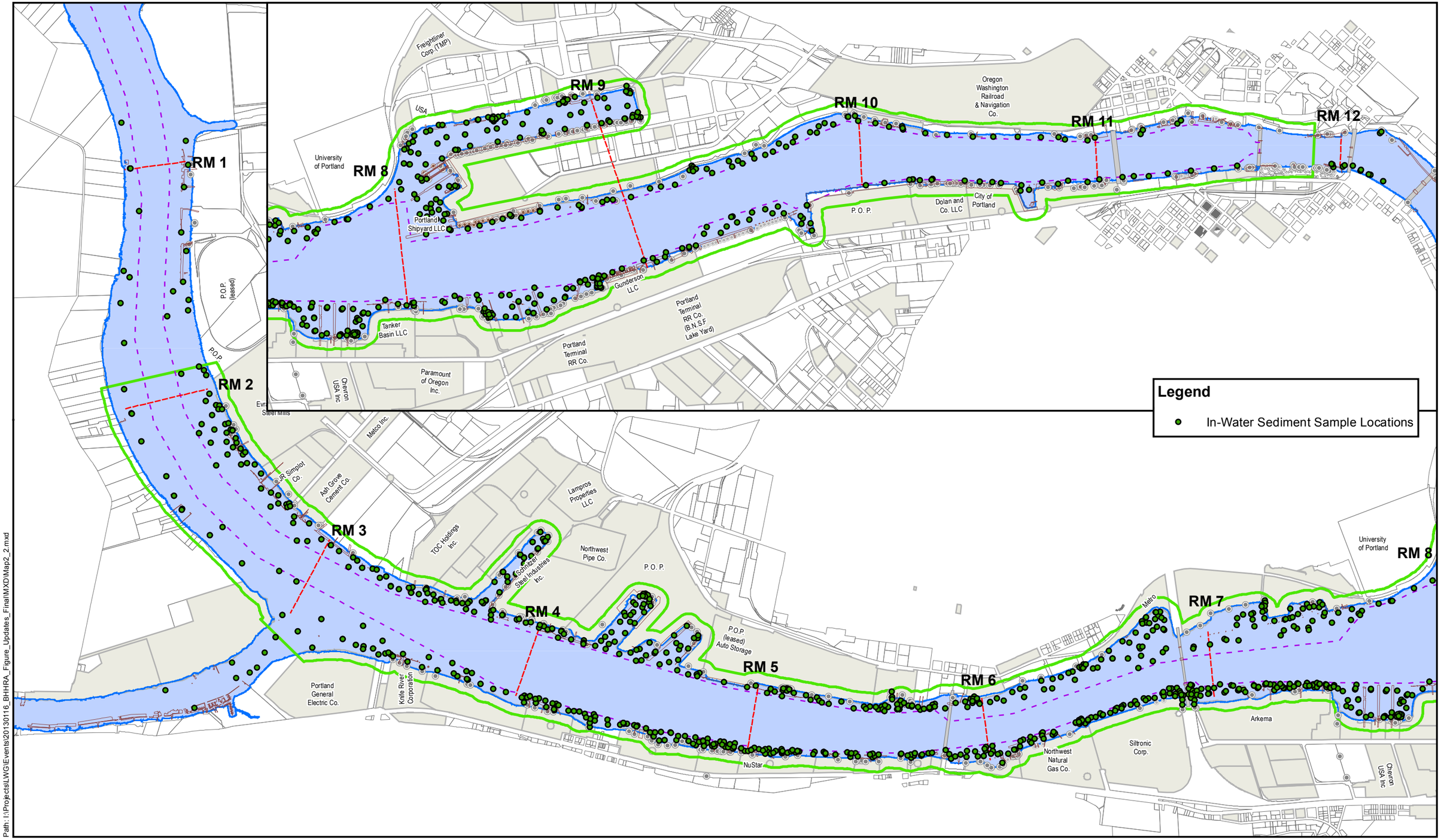
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-1
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Designated Potential Human Use Areas and Associated Beach Sediment Sample Locations



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

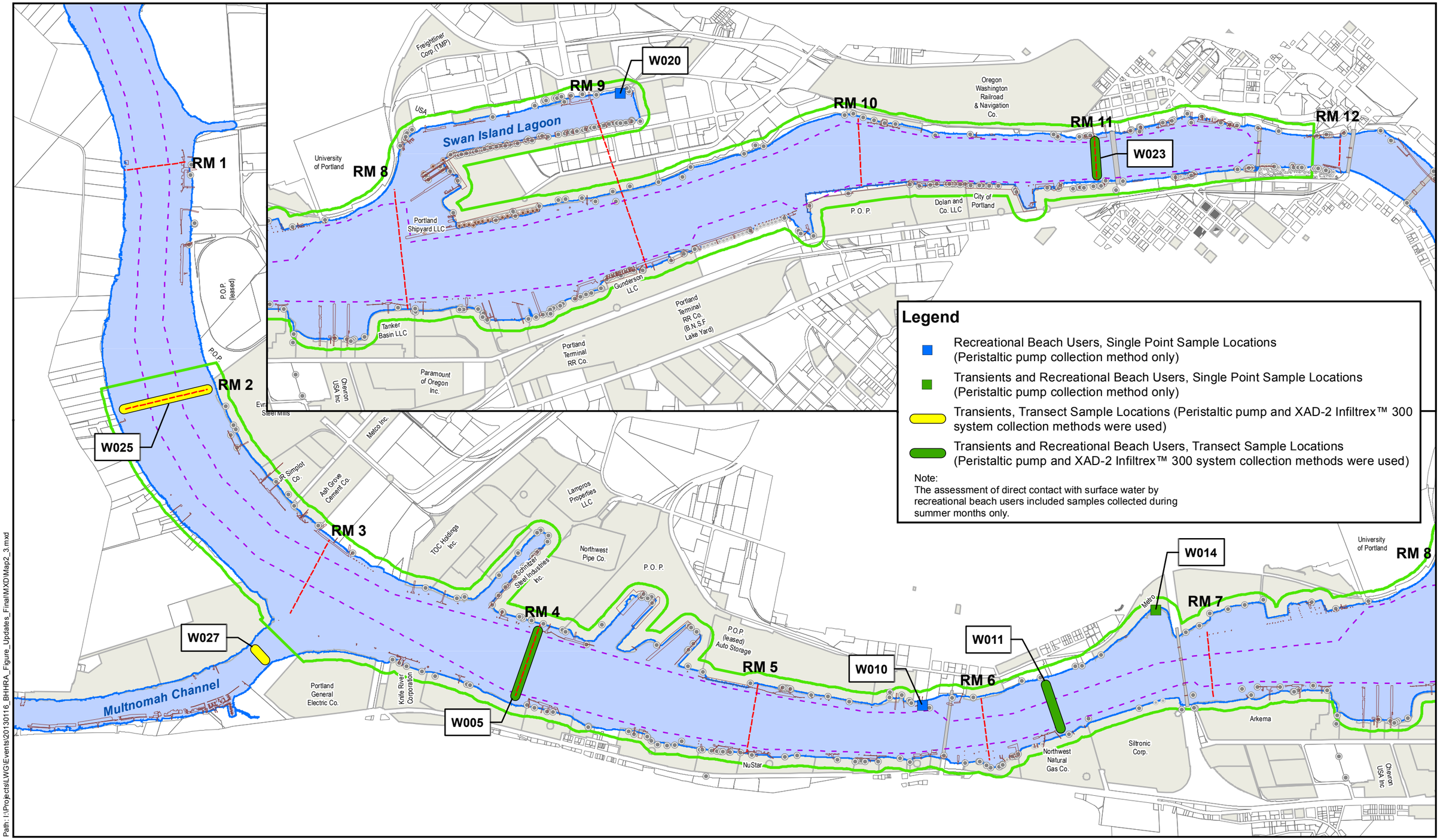
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-2
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Sample Locations - In-Water Sediment



Legend

- Recreational Beach Users, Single Point Sample Locations (Peristaltic pump collection method only)
- Transients and Recreational Beach Users, Single Point Sample Locations (Peristaltic pump collection method only)
- Transients, Transect Sample Locations (Peristaltic pump and XAD-2 Infiltrex™ 300 system collection methods were used)
- Transients and Recreational Beach Users, Transect Sample Locations (Peristaltic pump and XAD-2 Infiltrex™ 300 system collection methods were used)

Note:
The assessment of direct contact with surface water by recreational beach users included samples collected during summer months only.

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

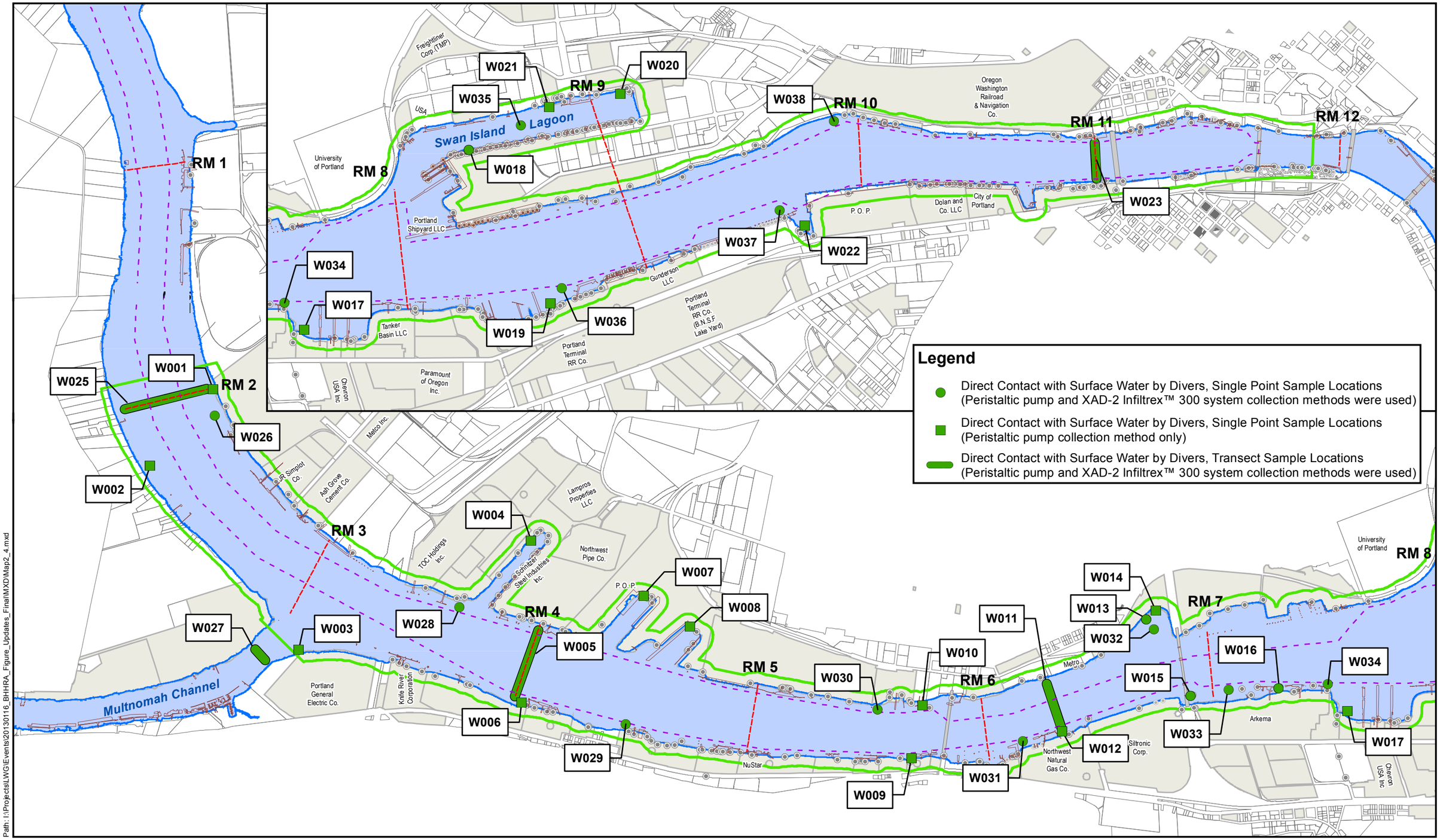
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-3
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Sample Locations - Surface Water, Transients and Recreational Beach Users



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

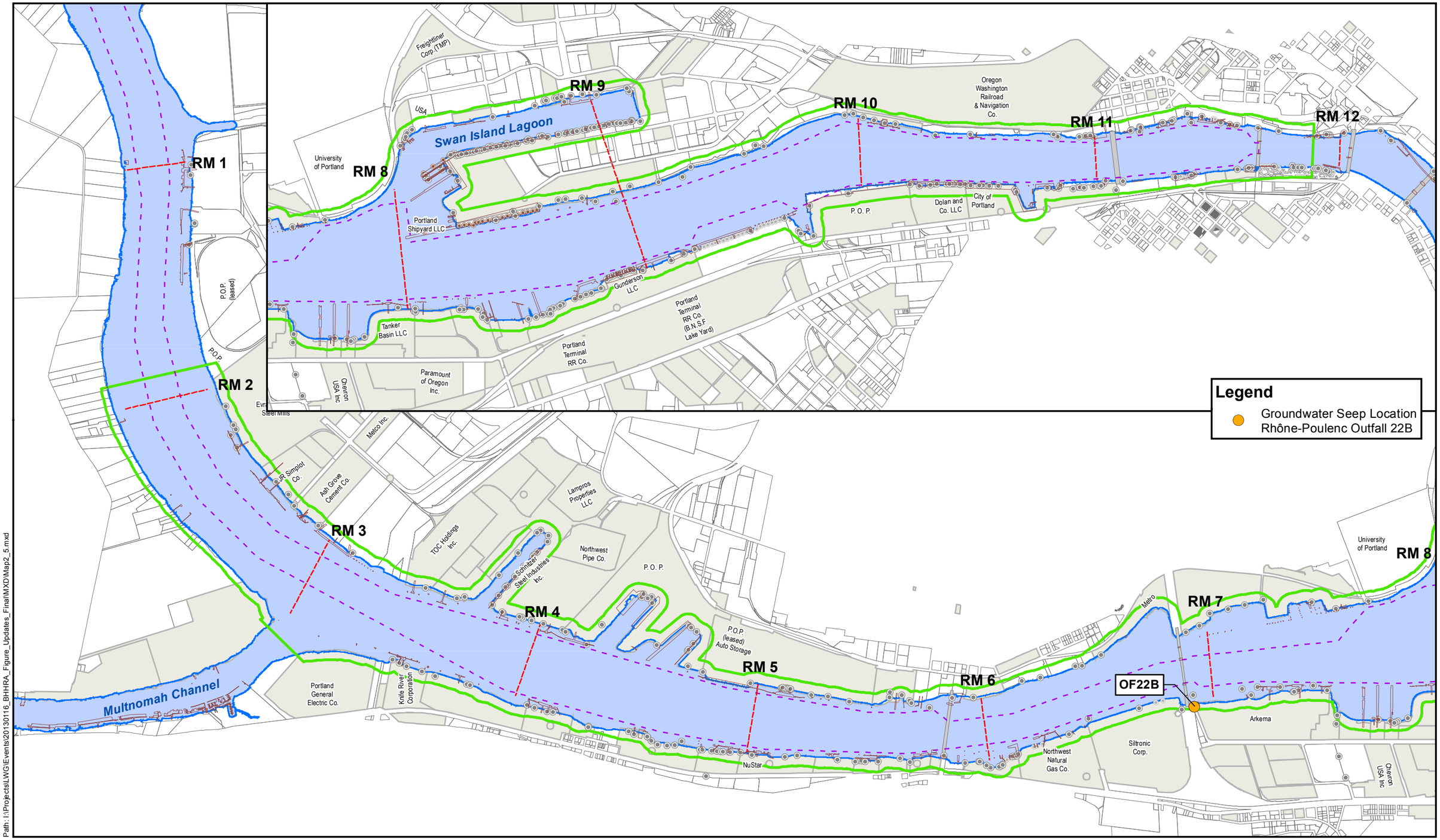
Map Features
- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls
- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-4
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Sample Locations - Surface Water, Divers



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

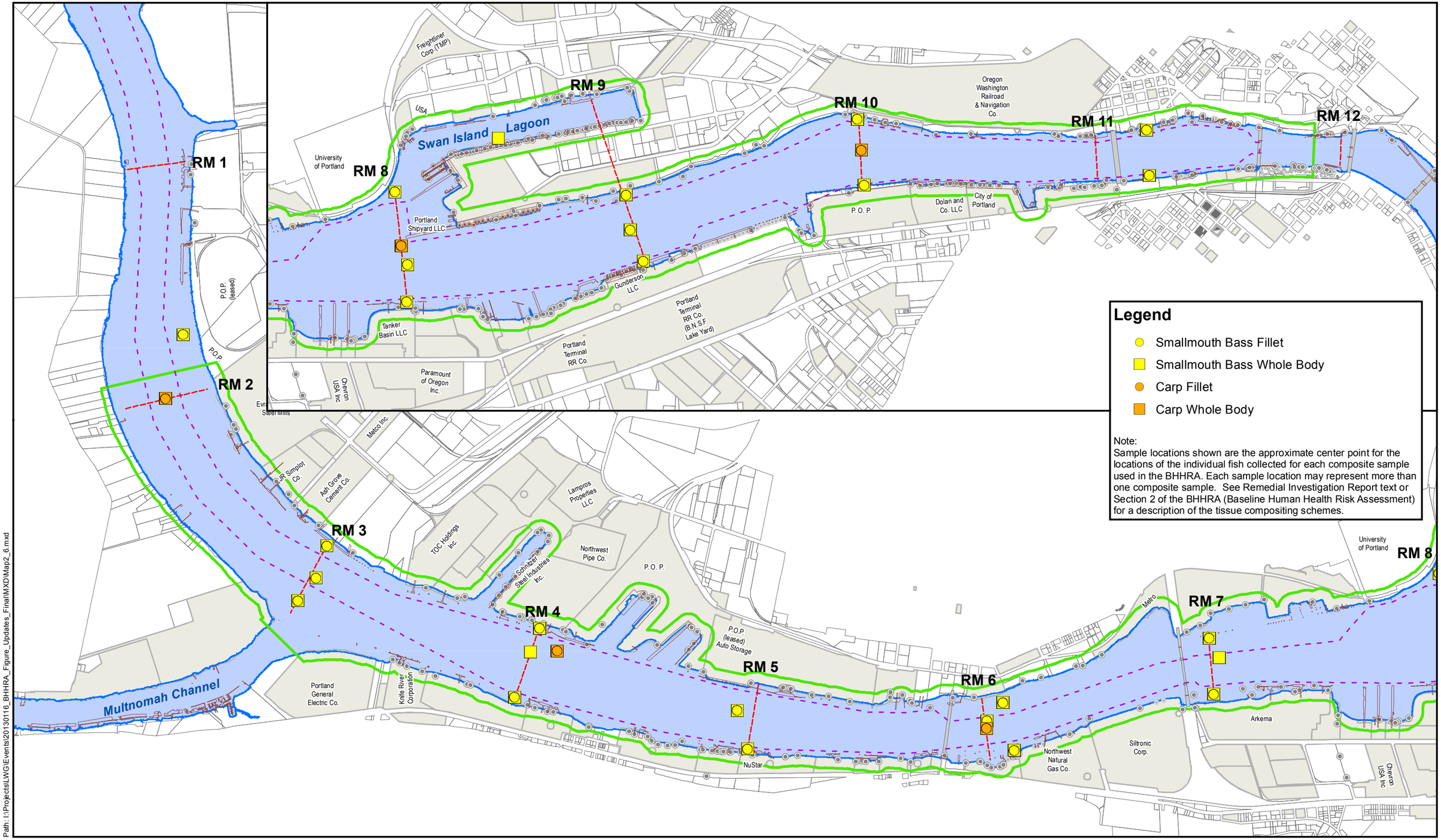
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-5
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Sample Locations - Groundwater Seep



Legend

- Smallmouth Bass Fillet
- Smallmouth Bass Whole Body
- Carp Fillet
- Carp Whole Body

Note:
Sample locations shown are the approximate center point for the locations of the individual fish collected for each composite sample used in the BHHRA. Each sample location may represent more than one composite sample. See Remedial Investigation Report text or Section 2 of the BHHRA (Baseline Human Health Risk Assessment) for a description of the tissue compositing schemes.

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

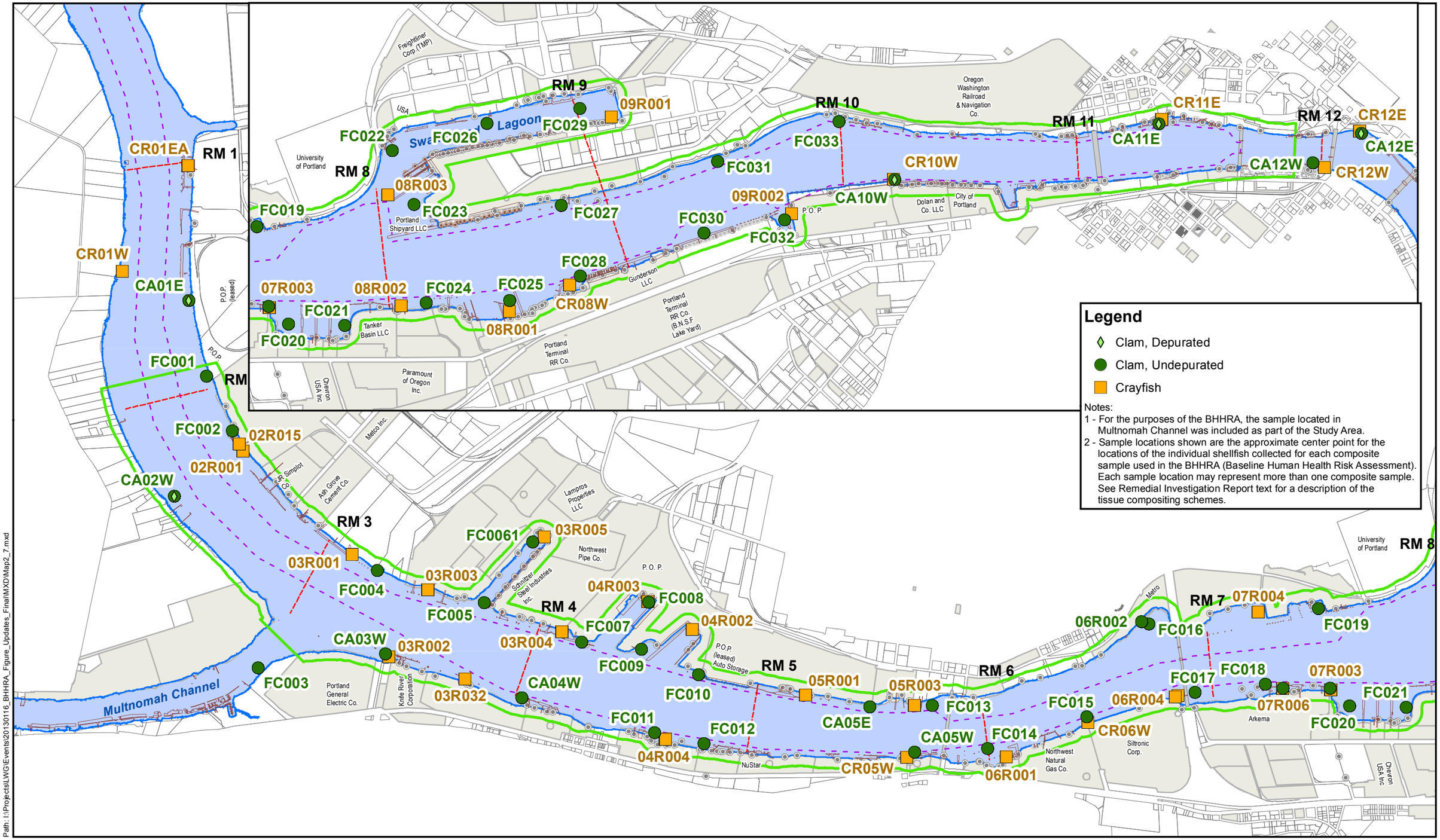
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-6
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Sample Locations - Smallmouth Bass and Carp



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

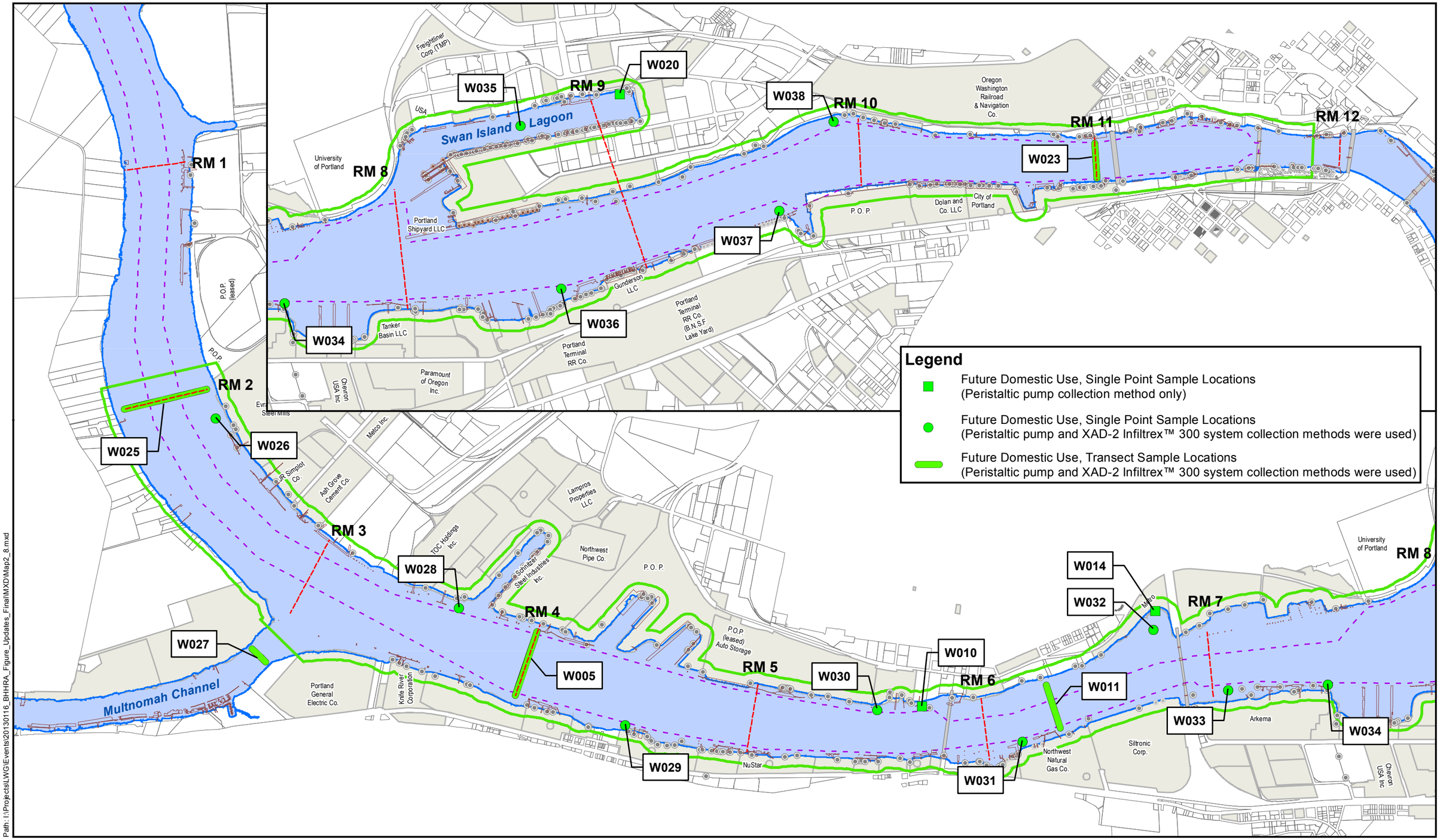
Map Features
- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls
- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-7
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Sample Locations - Shellfish



Legend

- Future Domestic Use, Single Point Sample Locations (Peristaltic pump collection method only)
- Future Domestic Use, Single Point Sample Locations (Peristaltic pump and XAD-2 Infiltrex™ 300 system collection methods were used)
- Future Domestic Use, Transect Sample Locations (Peristaltic pump and XAD-2 Infiltrex™ 300 system collection methods were used)

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

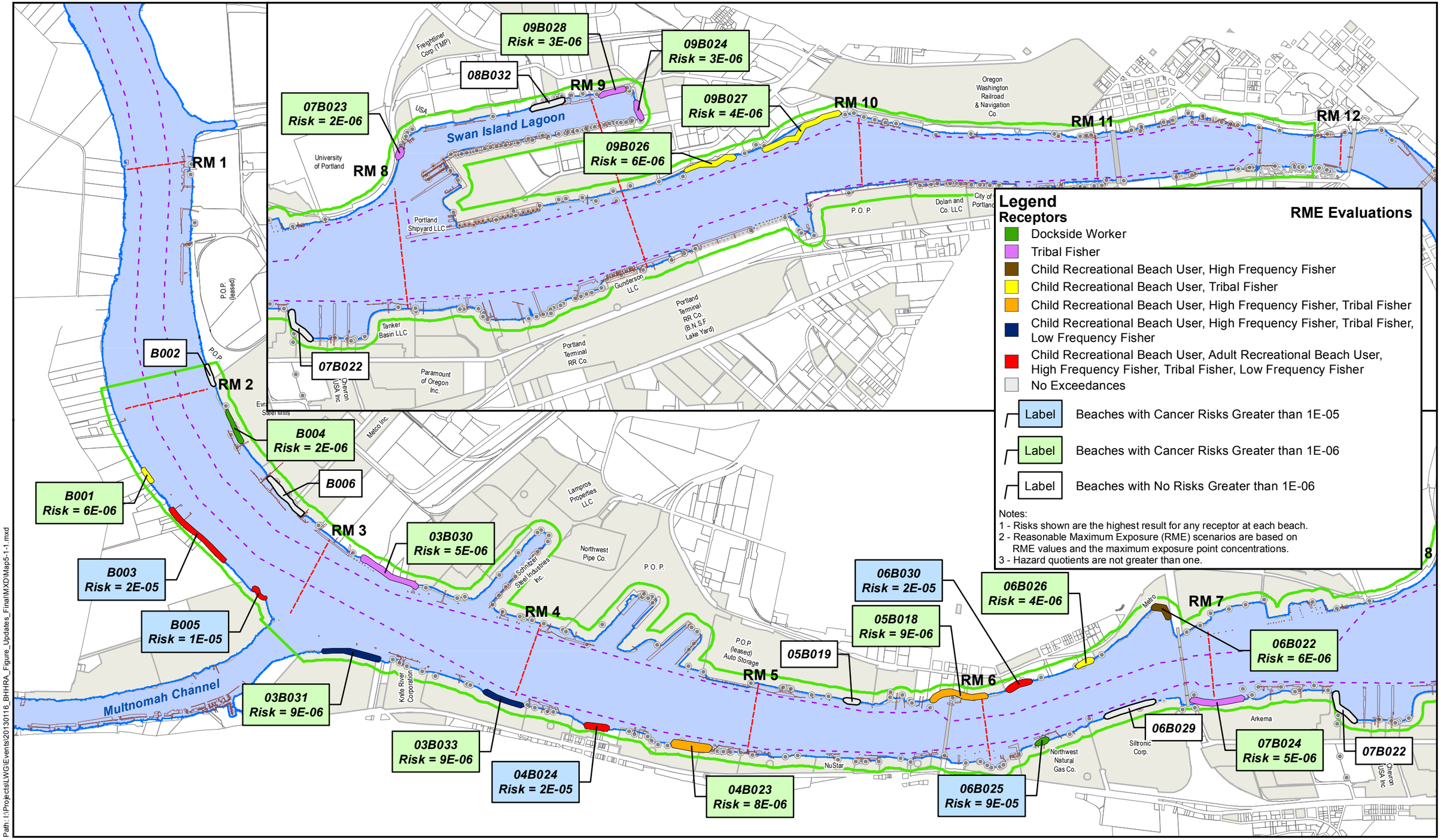
Map Features
- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls
- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 2-8
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Sample Locations – Surface Water, Potential Future Domestic Use



Legend

Receptors

- Dockside Worker
- Tribal Fisher
- Child Recreational Beach User, High Frequency Fisher
- Child Recreational Beach User, Tribal Fisher
- Child Recreational Beach User, High Frequency Fisher, Tribal Fisher
- Child Recreational Beach User, High Frequency Fisher, Tribal Fisher, Low Frequency Fisher
- Child Recreational Beach User, Adult Recreational Beach User, High Frequency Fisher, Tribal Fisher, Low Frequency Fisher
- No Exceedances

RME Evaluations

- Label — Beaches with Cancer Risks Greater than 1E-05
- Label — Beaches with Cancer Risks Greater than 1E-06
- Label — Beaches with No Risks Greater than 1E-06

Notes:
1 - Risks shown are the highest result for any receptor at each beach.
2 - Reasonable Maximum Exposure (RME) scenarios are based on RME values and the maximum exposure point concentrations.
3 - Hazard quotients are not greater than one.

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

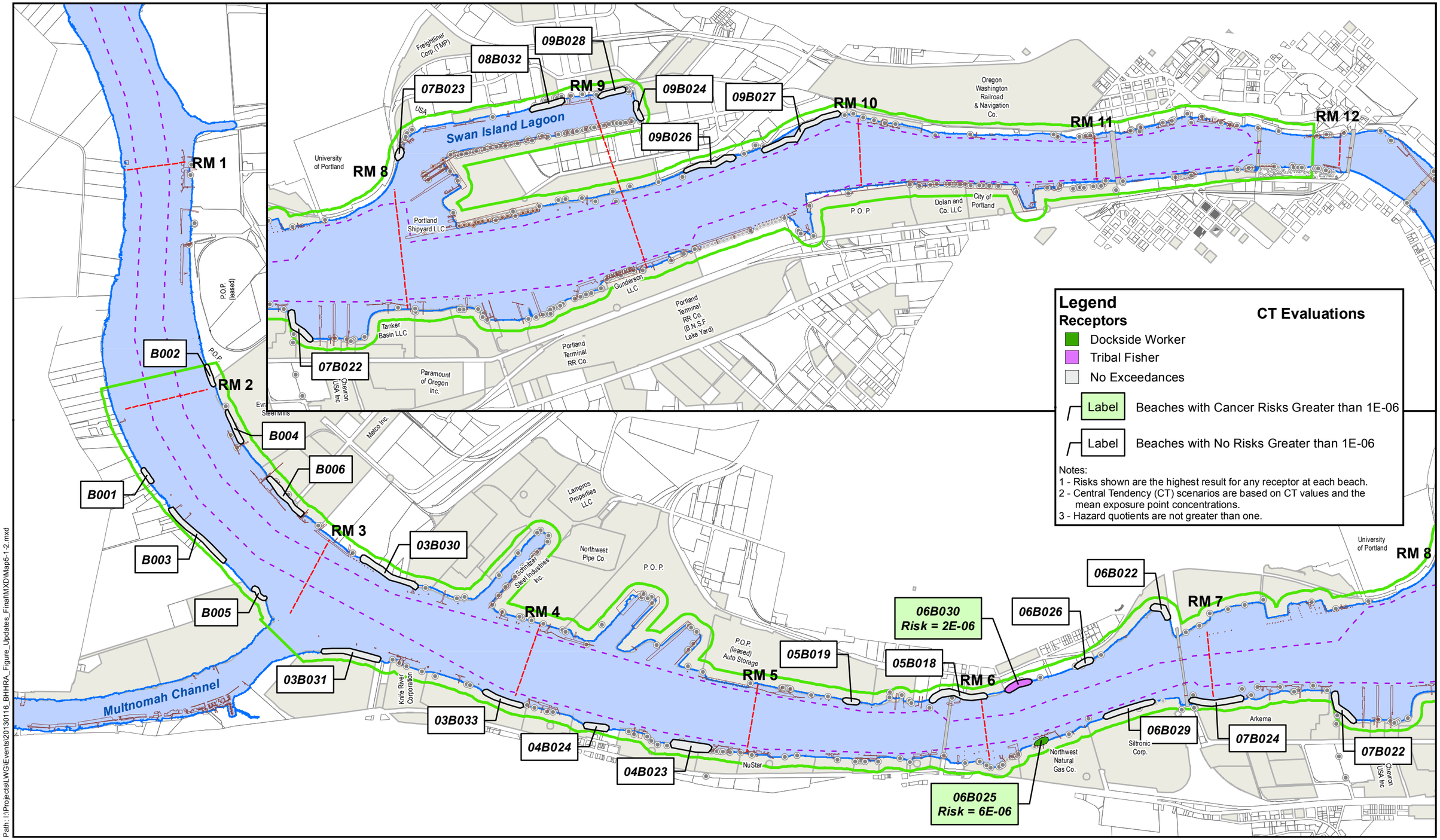
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-1-1
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Risks from Direct Contact with Beach Sediment, RME Evaluations



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

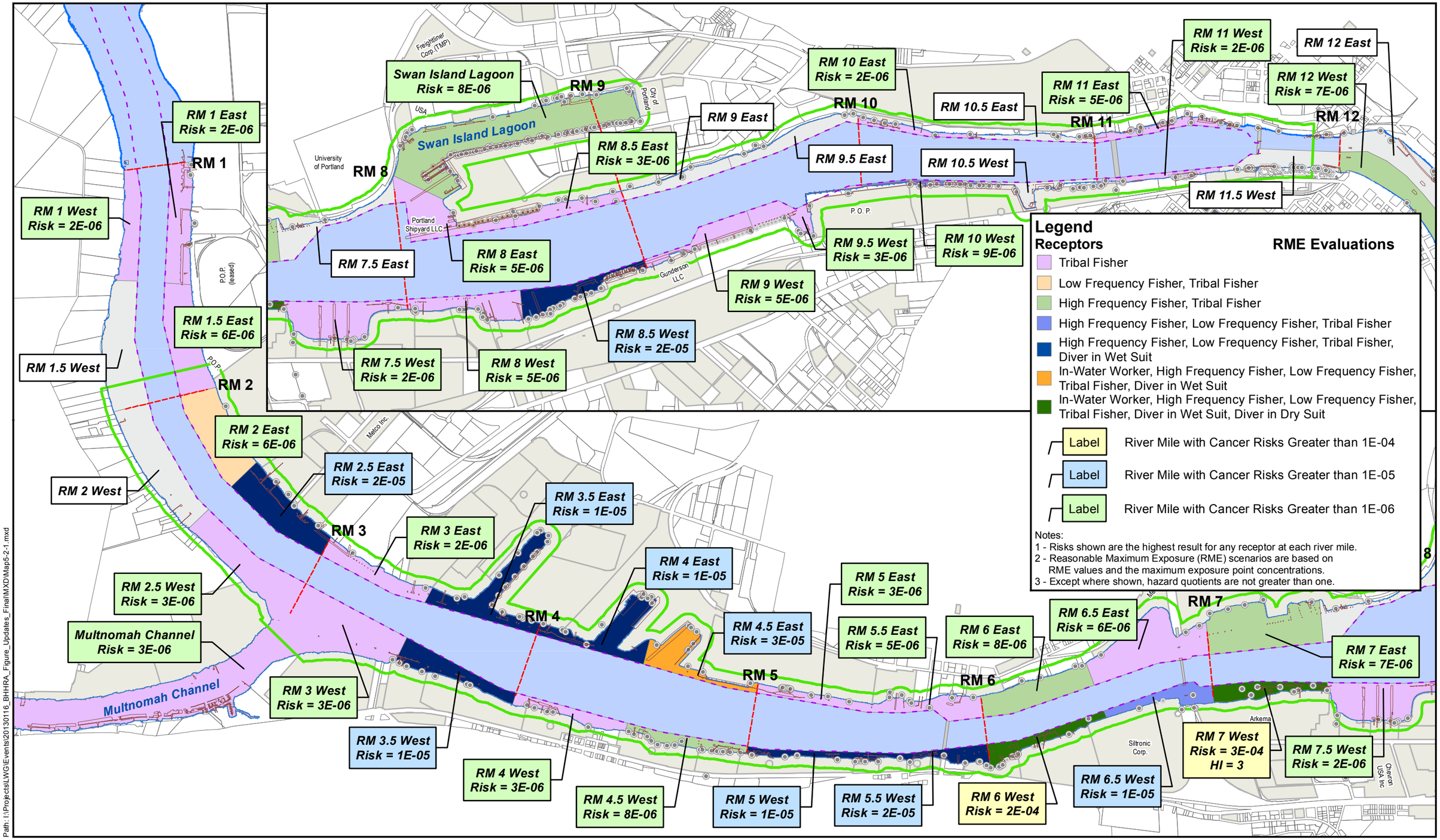
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-1-2
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Risks from Direct Contact with Beach Sediment, CT Evaluations



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

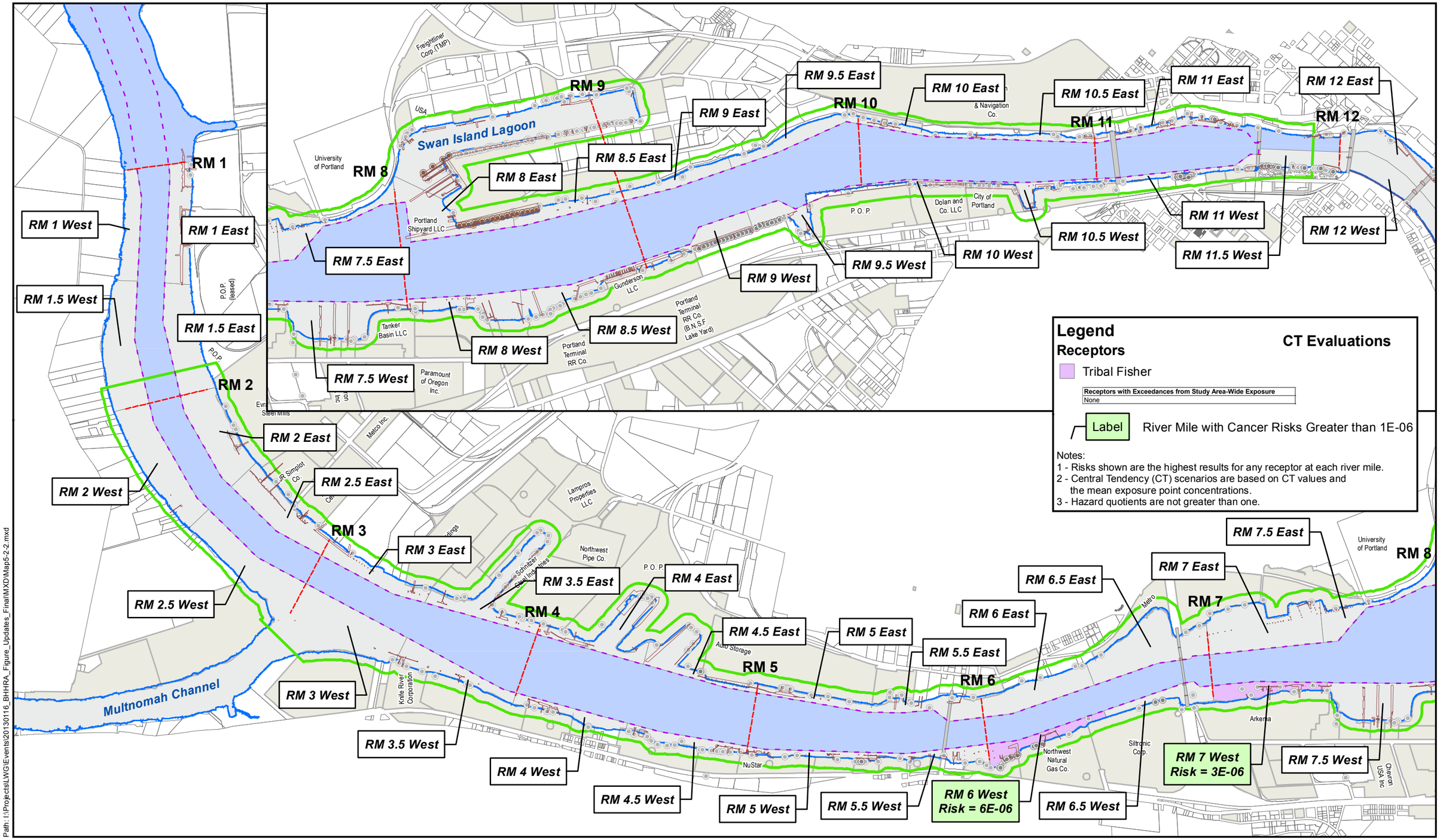
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-2-1
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Risks from Direct Contact With In-Water Sediment, RME Evaluations



Legend

Receptors

Tribal Fisher

Receptors with Exceedances from Study Area-Wide Exposure
None

Label — River Mile with Cancer Risks Greater than 1E-06

CT Evaluations

Notes:
1 - Risks shown are the highest results for any receptor at each river mile.
2 - Central Tendency (CT) scenarios are based on CT values and the mean exposure point concentrations.
3 - Hazard quotients are not greater than one.

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

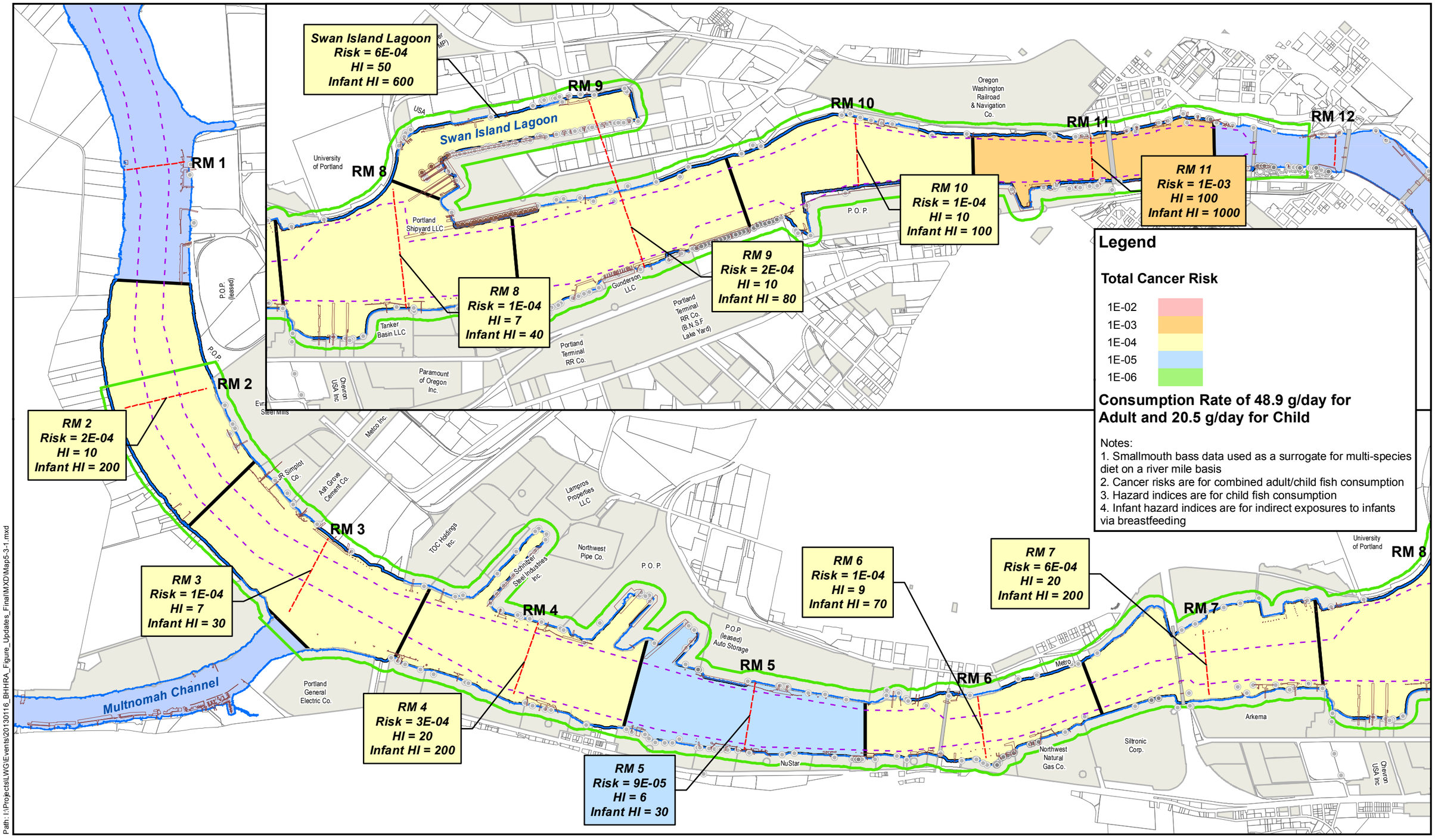
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-2-2
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Risks from Direct Contact With In-Water Sediment, CT Evaluations



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features
- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls
- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-3-1
Portland Harbor RI/FS
Final Remedial Investigation Report
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Risks from Recreational Fish Consumption, River Mile Basis, RME

Swan Island Lagoon
Risk = 2E-04
HI = 20
Infant HI = 200

RM 11
Risk = 4E-04
HI = 30
Infant HI = 500

RM 2
Risk = 9E-05
HI = 5
Infant HI = 50

RM 3
Risk = 4E-05
HI = 2
Infant HI = 10

RM 4
Risk = 9E-05
HI = 7
Infant HI = 70

RM 5
Risk = 3E-05
HI = 2
Infant HI = 10

RM 6
Risk = 4E-05
HI = 3
Infant HI = 20

RM 7
Risk = 2E-04
HI = 10
Infant HI = 60

RM 8
Risk = 5E-05
HI = 2
Infant HI = 10

RM 9
Risk = 6E-05
HI = 5
Infant HI = 30

RM 10
Risk = 5E-05
HI = 4
Infant HI = 40

Legend

Total Cancer Risk

- 1E-02
- 1E-03
- 1E-04
- 1E-05
- 1E-06

Consumption Rate of 17.5 g/day for Adult and 7 g/day for Child

Notes:
1. Smallmouth bass data used as a surrogate for multi-species diet on a river mile basis
2. Cancer risks are for combined adult/child fish consumption
3. Hazard indices are for child fish consumption
4. Infant hazard indices are for indirect exposures to infants via breastfeeding

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Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

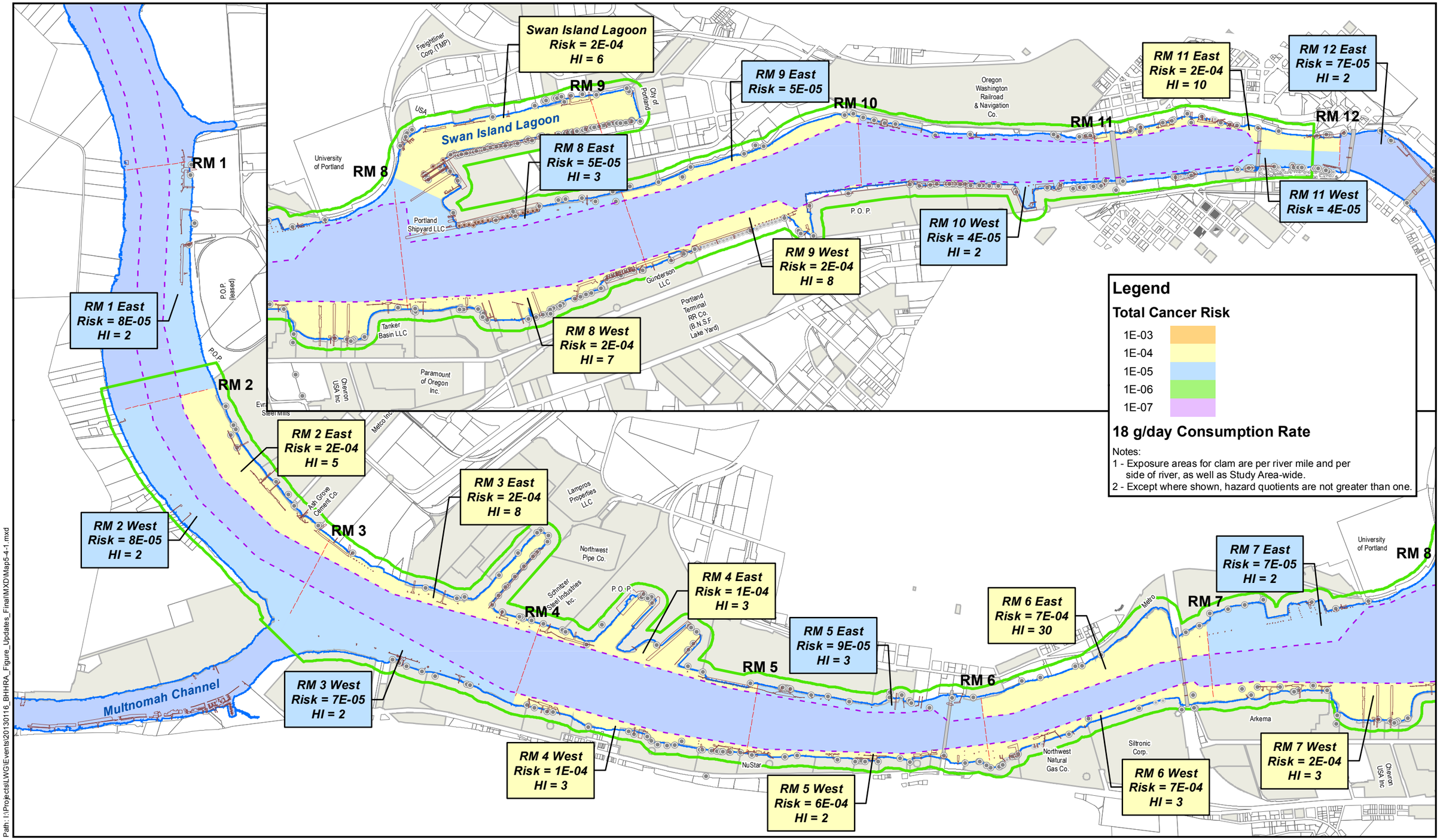
Map Features
- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls
- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-3-2
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Risks from Recreational Fish Consumption, River Mile Basis, CT



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

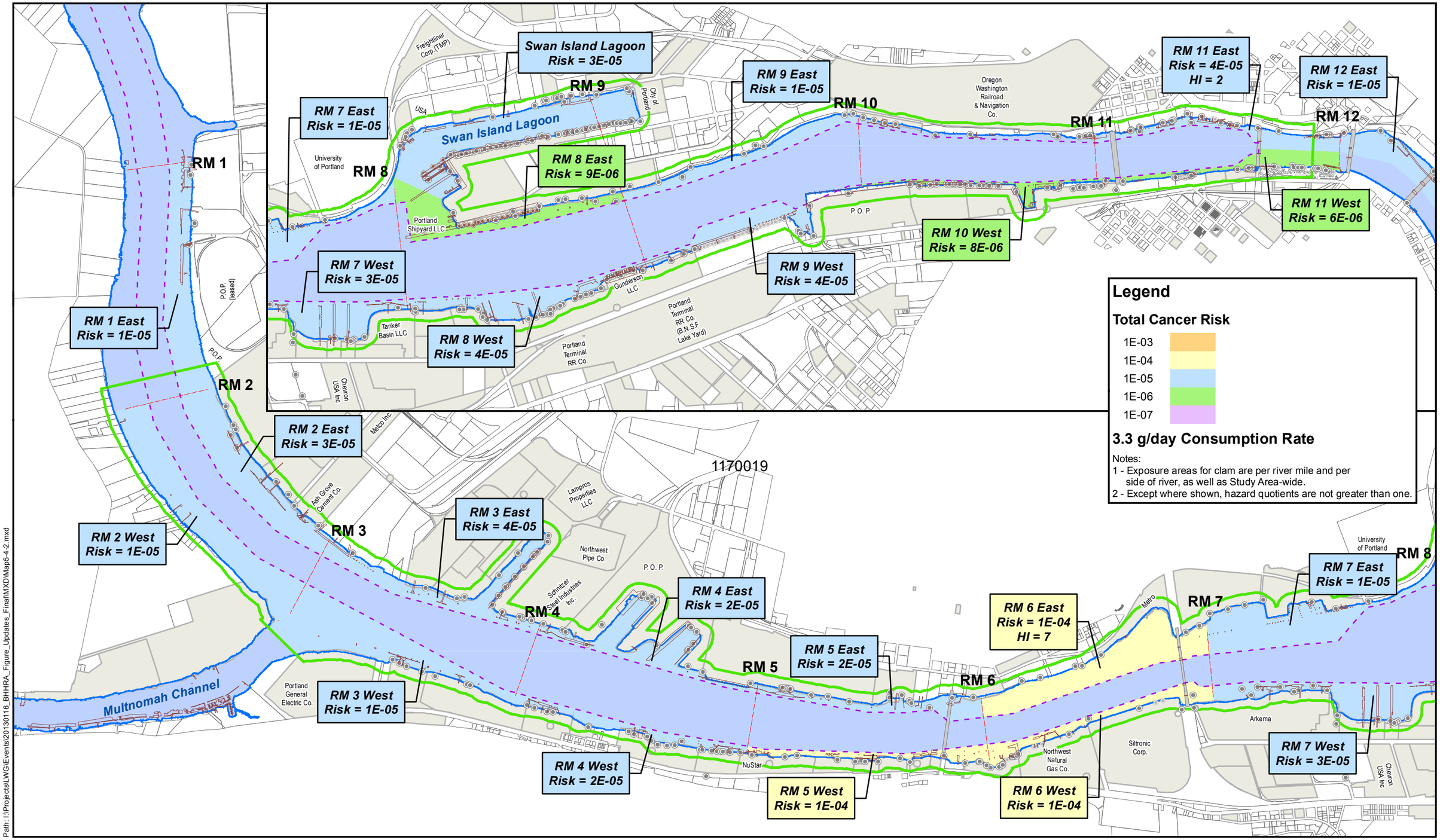
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-4-1
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Risks from Clam Consumption, RME



Legend

Total Cancer Risk

- 1E-03
- 1E-04
- 1E-05
- 1E-06
- 1E-07

3.3 g/day Consumption Rate

Notes:
1 - Exposure areas for clam are per river mile and per side of river, as well as Study Area-wide.
2 - Except where shown, hazard quotients are not greater than one.

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

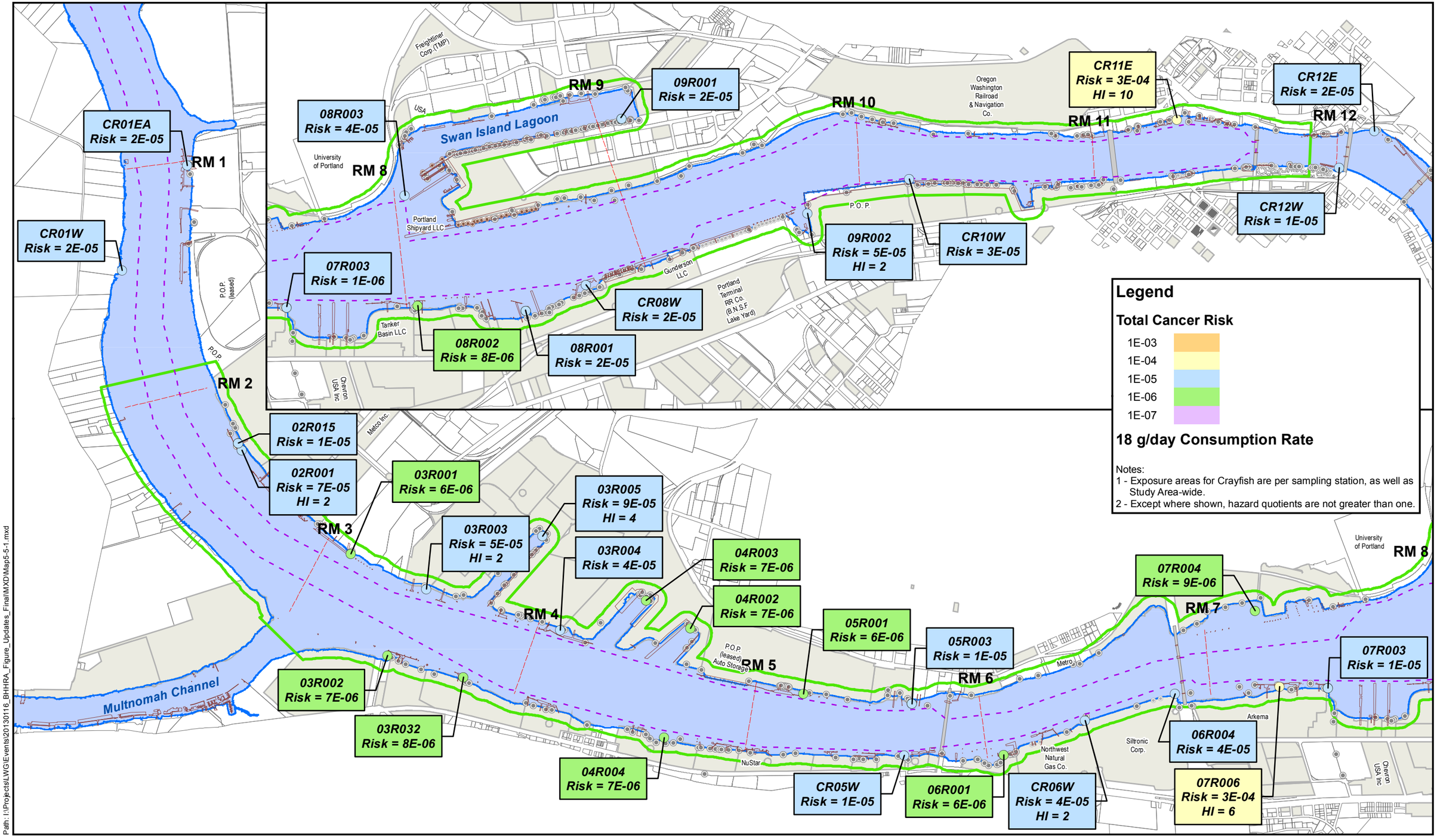
Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-4-2
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
March 28, 2013

Risks from Clam Consumption, CT



Legend

Total Cancer Risk

- 1E-03
- 1E-04
- 1E-05
- 1E-06
- 1E-07

18 g/day Consumption Rate

Notes:
1 - Exposure areas for Crayfish are per sampling station, as well as Study Area-wide.
2 - Except where shown, hazard quotients are not greater than one.

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Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-5-1
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
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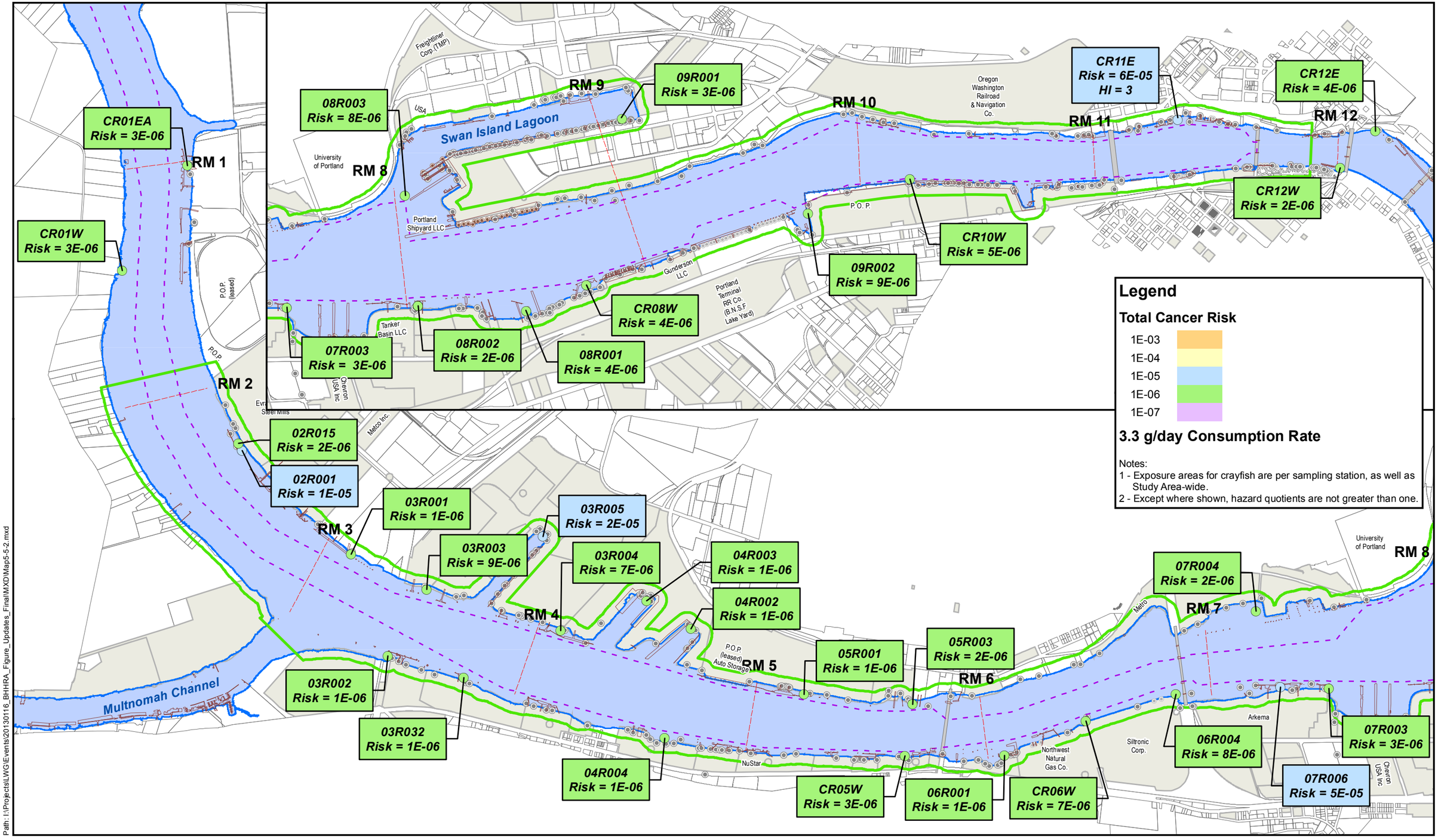
Risks from Crayfish Consumption, RME



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Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-5-2
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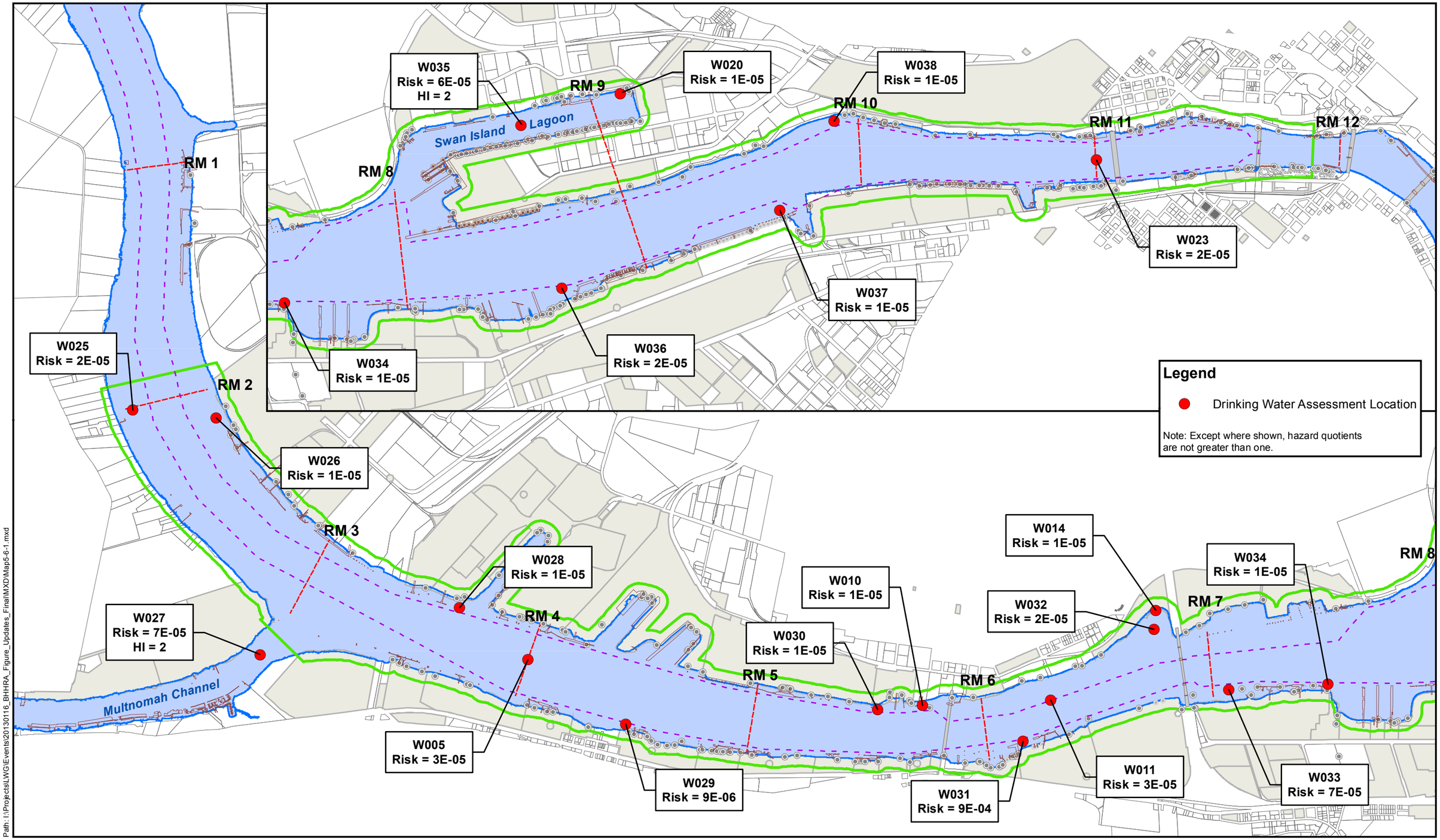
Risks from Crayfish Consumption, CT



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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features
- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls
- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-6-1
Portland Harbor RI/FS
Final Remedial Investigation Report
Appendix F: BHHRA
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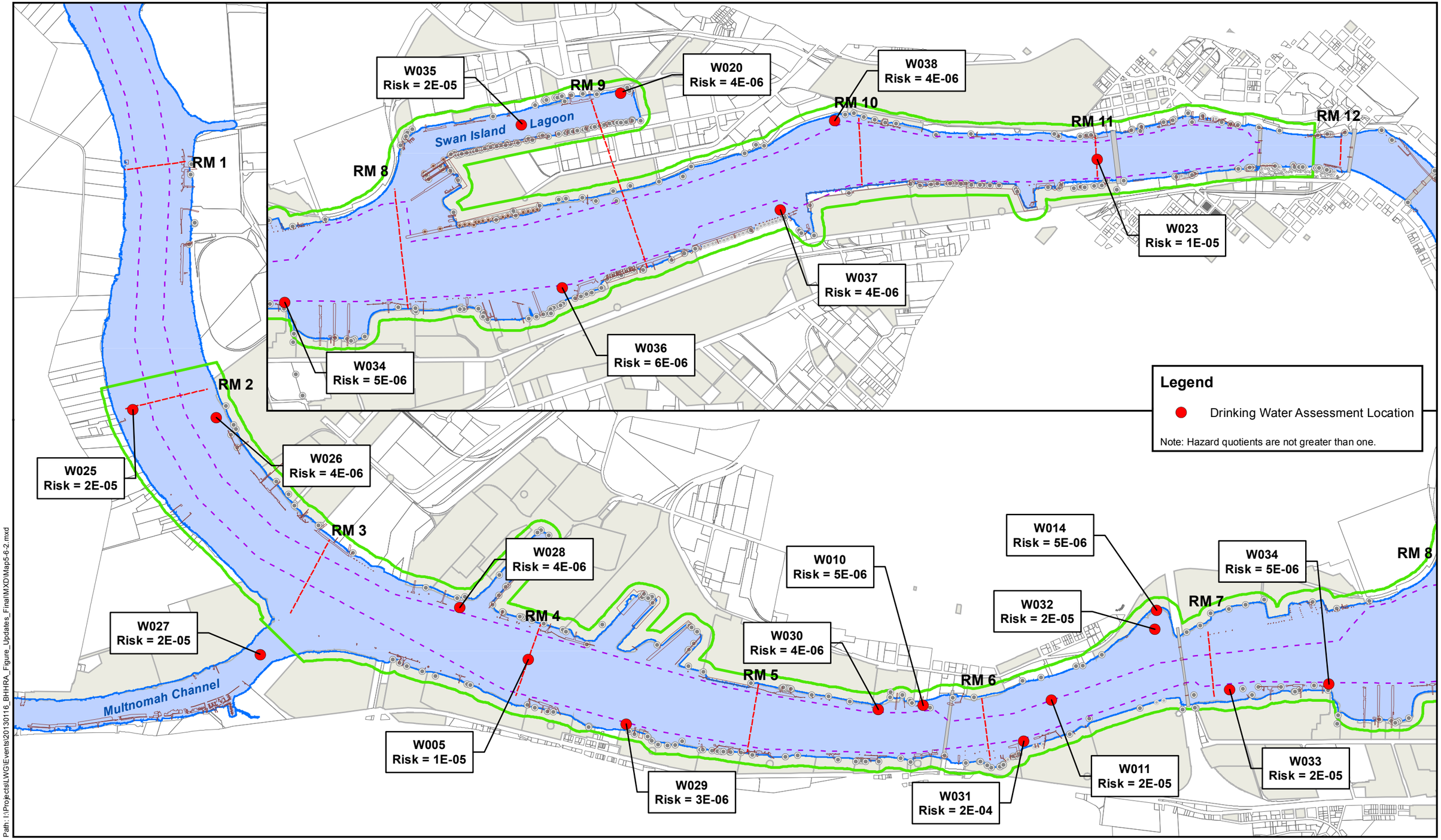
Risks from Potential Future Domestic Water Use, RME



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FEATURE SOURCES:
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Channel & River Miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 1,000 2,000 Feet

Map Features

- River Miles
- Navigation Channel
- River Edge +13 ft NAVD
- Study Area

Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Waterfront Taxlots
- Upland ECSI Sites (2008)

Map 5-6-2
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Appendix F: BHHRA
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Risks from Potential Future Domestic Water Use, CT